

Academical lectures on fevers, in which these disorders are fully treated of, and a method of cure subjoined to each. Read in the Royal College at Paris ... / [Jean Astruc].

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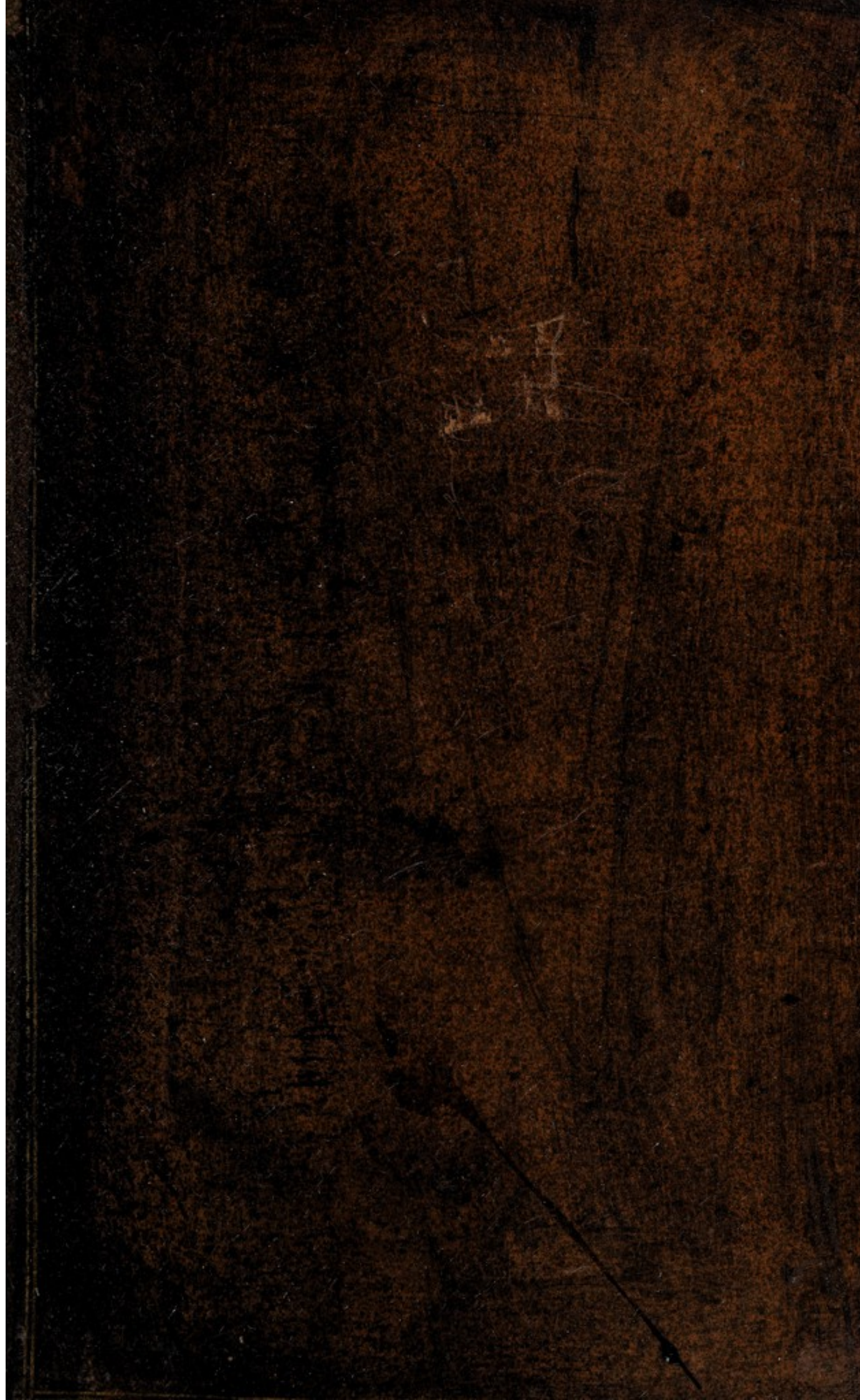
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ACADEMICAL

LECTURES

ON

FEVERS,

IN WHICH

These DISORDERS are fully treated of,

AND

A Method of CURE subjoined to each.

Read in the Royal College at *PARIS*,

By *JOHN ASTRUC, M. D.*

REGIUS PROFESSOR of MEDICINE,

AND

Chief PHYSICIAN to the present KING of *France*.

L O N D O N:

Printed for *J. NOURSE*, at the *Lamb*, against
Katherine-Street, in the *Strand*.

M.DCC.XLVII.

THE FUTURE

REFLECTIONS

THE established character of the author of the following treatise is not less recommended by the position, than the importance of the subject.

EVERY one in a large part of the world, which the human mind has reached, and but too often prove that all wrong management.

perhaps less known than the progress of the human mind. These have done an infinite deal of good in this respect; and it is more than ordinary to find that for J. H. O. R. S. E. at the Academy, in the year 1800.

J. O. W. D. O. M.

P R E F A C E.

THE established character of the author of the following treatise will not less recommend it to the profession, than the importance of the subject.

FEVERS take in a large part of the diseases which the human body is subject to, and but too often prove fatal, from wrong management. A successful method of treating these disorders is, perhaps, less known, than is generally imagined. Hypothetical principles have done an infinite deal of mischief in this respect; and it requires a more than ordinary degree of sagacity and medical knowledge, to right-

ly distinguish the various kinds of fevers, to point out their immediate cause, and the proper methods of cure.

PHYSICIANS well know, that among the multitude of books published on this subject, there are very few of real utility. Nor is this to be wondered at; since, to write well on diseases, it is absolutely necessary, among other qualifications, to be well acquainted with, and to have a large share of practice.

DR. Astruc is universally allowed to have, in an eminent degree, both these qualifications; and it will be found in this work, that the order is just and accurate, the physiology judicious and masterly, and the method of cure simple and congruous with nature; that I may venture to say, whoever faithfully and diligently

ly

ly pursues the Doctor's rules, will undoubtedly become a successful practitioner.

THO' my extraordinary veneration for, and gratitude to my old master, prompt me to expatiate on his abilities as a physician, yet as his character is universally held in high esteem, I shall not enlarge further on his merit, but leave his conspicuous excellencies to be his encomium.



by putting the Doctor's table, will un-
doubtedly become a successful prac-
titioner.

The new extraordinary ventilation
for, and is made to my old differ-
ence.

THE NATURE OF FEVERS
The Division of Fevers, into simple and
complex.

The various kinds of Fevers
The manner of their origin, and
the symptoms which attend them.

The general indication in the Cure of
Fevers.

The Focus, or Primary Seat of intermit-
tent Fevers in particular.

The cold and hot kind of an Ague.
Of a Quotidian Ague.
Of a Tertian Ague.
Of a Quartan Ague.

Of irregular and erratic Agues.
The ordinary Cure, or Method of treating
the foregoing Agues.

The vulgar Cure of Agues, with some un-
common Remedies called Specifics.
Of continual Fevers, and particularly the
Ephemerals.

Of complicated Fevers.
Of a Remittent Ague, or Remittentus.
The

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A
T R E A T I S E
O F
F E V E R S.

THIS subject is so extensive, that it comprehends the greater part of the diseases incident to the human body; for we see no disorder but what is either an essential fever, or in its progress gives room to a symptomatic one. Hence it appears, that a treatise on the present subject is as difficult as necessary; moreover, the variety of fevers, the obscurity of their causes, the physical disquisitions of their *phenomena*, and frequent repetitions, as well of their cure, as theory, must unavoidably render these lectures a laborious undertaking.

Of the Nature of FEVERS.

IN order to discover this, three things must be remarked. 1. A frequent pulse, whether strong, weak, full, or otherwise modified; for the frequency of the pulse is inseparable from the nature of a fever. 2. A præternatural heat, more or less intense, universal or particular. 3. A læsion of the vital, animal or natural functions, whether of one, two, or all together. As these three are essential to every fever, we may define it in general, *a præternatural frequency of the pulse, with heat and læsion of the functions.*

SOME object, that *beat* is not essential to a fever, since there are malignant fevers, as that called *febris algida*, and the cold fits of an intermittent, which are attended with no such symptom. Wherefore they say the word *beat* ought to be retrenched from the definition.

To this I answer, that, though the extremities, surface of the body, or other particular parts, are more or less cold in some of the preceding cases, yet there is a præternatural *beat* in the *viscera*, or elsewhere.

As to the cold fit of an ague, I take it to be rather the fore-runner of a fever, than a real one. Moreover, the definition of those authors, by retrenching the word *beat*, would run counter to the general idea and acceptation of a fever in all countries and languages whatever; for instance, the *Greeks* call it *πυρέζις* from *πῦρ* fire; the *latins*, *febris*, from *ferveo*, and so in all other Nations.

To this we may add, that if cold was introduced into the idea of a fever, the class of causes would be multiplied after a superfluous and contradictory manner.

Now to discover the presence of a fever, we are to consider its three essential characteristics already mentioned, and which must necessarily occur before we can ascertain it's existence.

As to the first, namely, the *pulse*, it may be examined in most of the superficial arteries of the body, but especially in that of the wrist, which in every fever is frequently attended either with weakness, fullness, hardness, or softness, according to different circumstances.

THE number of pulses in a given time is the most material enquiry to be made. Some attempt this by the help of pendulums, watches, &c. but the surest rule is experience, and comparing the patient's pulse with what it was before the disorder began, which must be very accurately examined; because some whilst in health, seem to have a very quick and feverish pulse, whereas others, though no way indisposed, have a very languid one. The frequency therefore of the pulse alone, though a necessary sign to discover a fever, is not sufficient to prove its existence, since this symptom without læsion of the functions, indicates little or no fever.

THOUGH the state of the pulse seems to be greatly augmented as in a fever, yet by considering the matter more closely, we find, that a feverish pulse bears the same proportion to that of one in health, as 22 to 20; and in the most violent fever, as 3 to 2; from this we may infer, that 23 pulses must at least be felt, before we can justly pronounce the presence of a fever: nor will even this method be sufficient without experience to discover this variety.

LET none here object that in consequence of the foregoing principles, children labour under a fever because their pulse to that of an adult is as 24 to 20; and that of a woman, with regard to a man's, as also that of a pregnant woman, to that of a woman not with child, as 22 to 20; for the different sexes, ages, temperaments, &c. give occasion to these variations, as will be hereafter remarked.

THE next thing we are to examine is *heat*, which some have endeavoured to discover by the help of a thermometer, put into the patient's hand or urine: but these methods are fallacious; for mathematical observations square not always so well with medicine. But in general, this symptom is mild in slow and violent in ardent fevers: besides, the extremities of some are immoderately cold, whilst the *viscera* are proportionally hot, with other inequalities of heat and cold. The physician must likewise examine the degree of heat in his own hand; for if he feels that of a patient, whilst his own is cold, the patient will seem to be much hotter than he really is.

As to the *lesion of the functions*, 1st. Their species. 2d. Their number. And 3d. Their degree of *lesion* ought to be examined. It must be also observed, whether any part is threaten'd, and which it is, *viz.* the brain, lungs, &c.

THOUGH a fever with all the preceding characteristics may happen in consequence of a drunken fit, violent exercise, &c. yet as being very transitory, it should not be confounded with such as are the subject of this treatise: for we may easily discover it by examining the patient's manner of living, &c.

Of the Division of FEVERS.

HAVING explained what a fever is, we now come to examine its species. The first general division then will be into intermitting and continual, each of which are intelligible without

without farther explanation. The intermit-
tents are divided into simple and compound.
The simple agues comprehend *quotidian*, *ter-
tian*, and *quartan* fevers. The first return e-
very day, the second every other day, or with
one days interval, and the third every fourth
day, or with two days intermission. In short,
the hours of intermission in the first, are
twenty-four, or a natural day; in the second
forty-eight; and in the third seventy-two, cal-
culating from the beginning of the immediately
preceding fit to the beginning of the next. There
are also some observations which evince, that
there have been fevers, which recur every fifth
day, having three days intermission; others
every seventh, or every tenth day. But we shall
treat only of the three first, *viz.* the *diary*, *tertian*
and *quartan*; for the *quintan* should be reduced
to the *tertian*, as also those which seem to re-
turn only on the ninth and tenth day; because
these have their paroxysms as the foregoing,
though not so sensibly as on the fore-mentioned
days. The *septan* is also reduced to the *quartan*
for the same reason; so that strictly speaking,
there are but the three first mentioned simple
fevers.

THE complicated agues are two-fold, either
indiscernably or sensibly compounded; so that
the latter being explained, will render the for-
mer intelligible. Thus, two *quotidians* may be
joined; the one in the morning, the other in the
evening, every day regularly returning; but so
that the morning fit may be more or less intense
than that of the evening, the same may be said

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of a complicated *tertian* or *quartan* ague; tho' I have never seen this combination of a *quartan*, nor do I imagine that observations have established this doctrine. The next combination of a *tertian* ague, is, what we call a double *tertian*, whose accessions return every day; but the intensities of every other day's fit only agree; otherwise it would be a *quotidian*, for instance, this day's fit is weak, that of the morrow strong, and the third day's fit agrees with the first, whilst that of the fourth corresponds with the second, and so on. In like manner a *quartan* ague may be compounded, so that the paroxysms of two days differ successively in intensity, with an intermission on the third day only. A triple *quartan* is that which returns every day, so that every fourth paroxysm answers each others force and weakness. The same thing may be said of a triple *tertian*. All the preceding fevers may also be divided into regular or periodical, and irregular or erratic, which distinction needs no explanation. Now as to the division of continual fevers, which is very imperfect in the works of the antient physicians, though they have well distinguished the intermittent kind; the principle by which they explained the former, has given room to this error, *viz.* putrefaction to which they attributed most of these fevers; hence they say, *synochus putris*, &c. for which reason we shall not in this respect follow the above authors; but propose a more modern distribution, *viz.* of continual fevers into *acute* and *chronical*. Of the first class are, all those ending before or on the fourth day; of the second, such as con-

tinue

tinue longer. These are divided into simple and compound. The first comprehend all fevers which retain the same tenor in their duration; the second though continual, include the remittent kind, or such as seem to be compounded of a certain number of fits succeeding each other. Of the former are, 1st. The *febris diaria*, or *ephemera*, which continues for 12, 24, or 30 hours, and is like one continued paroxysm of an intermittent, 2d. The *febris ephemera extensa*, which terminates on the fourth, sometimes on the seventh day. 3d. The *febris continua simplex* may be ranged under the same head, it keeping much the same equality to the fourteenth day, on which it ends; and is also called *synochus simplex*. This division is sufficient in practice; yet modern accuracy leads us farther by introducing the observation of the different degrees or stages of each fever, *viz.* its beginning, augmentation, state and declension. Thus some have their increase very short, their state long and the reverse. The same thing may be said of their declension. When the state of a fever is long, or when it continues a long time in the same tenor, it is call'd in *Greek* *ωμοιονος* or *παρακμασμος*. If it augments continually, this state is called *επακμασμος*; but if it be continually declining, it is call'd *σπαρακμασμος*.

The continual compounded fevers seem to be a complication of a continued one, with the fits or types of an ague. Thus if a *quotidian* ague continues its paroxysms for twenty-five hours, and another immediately succeeds, it may be called a continual compounded one; to this

class may be also added, the *febres subintrantes* which are continued, and to which *tertian* or *quartan* agues, but more frequently double *tertian* or *quartan* ones supervene.

THE *febris hæmitritis*, called in *latin*, *semi-tertiana*, is a continual fever with a *quotidian* and *tertian* ague, whose fits are evidently discoverable, as will be shewn more hereafter.

As to the continual chronic or slow fevers, we have said that they are such as exceed the fourth day; they are also called *marasmi*. They proceed from stagnating serosities, consumption and colliquation of the solids and fluids, scurvy, *lues venerea*, king's-evil, &c. all which are much the same with regard to the effect, differing only in the cause, of which I shall not treat, as being foreign to my purpose.

THE accidental differences deserve the next place. These comprehend the different qualities, symptoms, and causes of fevers; thus some are malignant, some not. Of the first kind are all those strictly called malignant, which make such a latent and insensible progress with hopeful signs, that they seem to threaten no danger; yet often unexpectedly and speedily cut off the patient. 2. Pestilential fevers. 3. The plague, which differs from the former, as shall be hereafter remarked.

As to their symptoms, some are called ardent, or otherwises *causos*; some *horrific*, and others *afodes*, wherein the patient complains of heat in several places with great anxiety and uneasiness, consequently changing his situation; whence it is called in *greek* by the last name. Others are termed

elodes,

clodes, in latin, *febres sudatoriae*, as being attended with great sweats. Some are denominated *febres syncopales*, from a syncope, and other symptoms of the superiour orifice of the stomach which they induce. Others are named *febres epiales*, wherein the patient one while complains of cold, and immediately after of heat; one time in one part, and another while in a different place, with such like odd sensations. To this class may be added, the *febris lypiria*, in which the patient complains of violent cold in the surface of the body, whilst the *viscera* burn.

SOME fevers have also their denominations from their causes. Thus those which happen in consequence of the inflammation of different parts, as of the liver, uterus, lungs, &c. are named inflammatory, as a *hepatitis*, &c. for the same reason, some fevers are called *petechiales*, from the livid, violet, or black coloured cutaneous eruptions with which they are attended. Others are characterized also from the different *exanthemata*, or efflorescences, which accompany them, as the small-pox, chicken-pox, measles, &c. In like manner the verminose fevers, are so called from their cause, *viz.* worms; as also the *febres cacochyliae*, from the crudities of the first ways which produce and foment them.

Of the Action of the HEART.

AS the pulse is the most essential thing to be considered in fevers, it's cause should be carefully investigated. For this purpose we are to observe, that the pulse, is that action of an artery

artery, which consists in its successive and reciprocal contraction and dilatation, of which the heart is the primary cause: so that the dilatation of the former, is both *synchronous* and proportional to the contraction of the latter, and the reverse; moreover the contraction and dilatation of all the arteries of the body, except the coronary ones, are *isochronous*, or happen each in the same instant of time; for they may be compared to a tree with its branches, whose trunk being struck, the motion is communicated at the same time to all the branches in proportion to their diameters, &c. In like manner it happens in the large vessels of the heart, *viz.* the *aorta* and *arteria pulmonalis*, into which the blood is discharged at the same time, and by the same cause. Besides the arteries being always full, the column of blood in the *aorta*, &c. is continued with all the columns in its several branches. Hence, the motion being communicated to that, is of course also conveyed to all the other arteries with more or less intensity. When this action begins to decline, the elasticity of each artery restores itself with a force proportionable to the above intensity, and the diameter of the vessel.

WE are to observe here, that the dilatation of the heart, is much slower than its contraction; because the veins which discharge their contents into the heart, and the auricles likewise of this organ, do not so vigorously propel the blood, nor fill the cavities of the said organ, as its contractile force expels the same.

Now

Now as a quick pulse depends on these contractions, let us examine what produces their preter-natural frequency in a fever.

To understand this, we need only consider, what makes the natural causes of the action of the heart exert themselves more vigorously than usual. This is owing to the difficult circulation of the blood in the capillary arteries, whereby the heart is obliged more frequently to repeat its contractions in order to overcome this resistance; and the blood at the same time returning with more celerity to the ventricles excites their contractions, both for the above reasons, and on account of the weight, heat, acrimony, or other qualities of the blood. By this means some obscure and imperceptible impression is made on the sides of the said cavities, whereby the animal spirits are more plentifully derived into the fibres of the heart, by several nervous ramifications, of which one terminates each of the vesicles which constitute these fibres. Thus from flat or compressed, which they were before, they now become spheric and turgid; whence the contraction of the whole fibre, and consequently of the intire organ, just as happens in all other muscular parts.

THE above motion of the heart and arteries is called spontaneous and machanical; because it is performed independently of the will. Nor is it to be confounded with voluntary motion, which we see in the ordinary functions of the extremities, or with the mixt motion of some muscular parts, as in respiration and the motion of the eye-lids, which are sometimes performed

performed without the concurrence of the will, and at others, modified, as retarded, hastened, nay suspended for some small time, through its means. Nor should we reduce the motion of the heart to this last rule, because its action is sometimes modified by passions; nor reduce that of the intestines to the same standard, because it is promoted by purgatives. For in these cases, we may as well conclude, that the will of a drunken man doth also influence the motion of his heart, which is now become more frequent, whilst this effect should be rather attributed to wine which he drank. So to make an action mixt or voluntary, the will should immediately have an influence on the organ, without the intervention of wine, or the like.

As it would be too tedious to solve all the difficulties usually proposed on this subject, so I shall take notice of a few only, as that of *Mr. Chirac*, in which he pretended, that the animal spirits were not the cause of the motion of the heart; because, says he, this action subsisted after having cut the cardiac nerves of a dog: but he owns, that the motion of this organ became thereby the more languid; whence I conclude, that if all these nerves were intirely cut, this motion would be totally extinguished; because we find, that by cutting the spinal marrow, betwixt the first and second *vertebræ* of the neck, the course of the animal spirits being then intercepted from entering into the lower nerves of the heart, the animal immediately dies.

WE may next observe, that in a natural state, no blood remains in the ventricles of the heart after its contraction, for the *congeries* of fleshy fibres, &c. with which these cavities are furnished, serve by their application to each other, to efface the said cavities in the time of contraction. This contraction is chiefly performed by the help of the spiral fibres of the heart, and its dilatation is promoted by the longitudinal ones.

As the fluids of the lungs and intestines impregnated with acrimonious serosities and purgatives, hasten or put in action the organs of respiration, and induce a more than ordinary peristaltic motion, so the blood, by its different qualities, doth serve as a *stimulus* to promote the action of the heart, especially when it is tainted with any peccant quality, as in fevers; the blood in like manner, though well conditioned in the natural state, becomes a *stimulus* to excite the ordinary contractions. Whence we may conclude, that if the blood, &c. were wanting in the said organs, they would be thrown into a state of langour, or inaction. This *stimulus* of the heart is considerably augmented by the blood of the coronary vessels, as being inserted in its very substance.

As to the animal spirits employed in the contractions of the heart, they are extravasated in its substance, after each contraction.

THE heart does not become as short in proportion, at each contraction, as its circumference is lessened; though some say, that it is considerably less in all its dimensions; others say, that

that it grows longer, but narrower; both which sentiments are equally false.

IT may be demanded, what excites the longitudinal fibres to contract immediately after the contraction of the spiral ones, since we have said, that the former contribute to dilate the heart, whereas there is no blood nor *stimulus* to excite their contraction, because we suppose the ventricles evacuated at this time by the contraction of the spiral fibres.

To this I answer, that the animal spirits, like all other fluids of the body, are in a perpetual circulation, constantly moving in their proper canals, being propelled by the contractions of the *meninges*: but the longitudinal fibres being very few and weak with regard to the spiral ones, though they still receive these spirits, yet their action is suffocated and over-powered by that of the spiral fibres whilst contracted; but as soon as the action of the latter is over, as the animal spirits are still present in the longitudinal fibres, which being no longer balanced or overcome by the spiral ones, they then act.

THIS I imagine to be the most plausible conjecture with respect to the action of these fibres, which nevertheless I deliver as purely systematic.

Of the immediate Cause of FEVERS.

WHILST the preceding *stimulus*, or blood is tainted with no preternatural quality, its quantity alone excites the ordinary action of the heart in a healthy state; but if it
once

once degenerates from this, and acquires a peccancy, particularly an acrimony or spiffitude, it will create a fever; the first will produce continual ardent ones, the second will give rise to such as are attended with cold fits, or horripulations, whilst no cold generally precedes or accompanies the former. Hence fevers of the continual ardent kind commonly proceed from bilious indigestions, retention of the bile, yellow jaundice, wherein the bile regurgitates into the blood, high-seasoned meats, hot aromatics, pepper, and the like, immoderate doses of cordials, acrimonious poisons, as that of the viper, and all other things of the same class, are the most ordinary procathartic causes of this kind of fever; for these are so many heterogeneous bodies conveyed by the circulation into the cavities of the heart, which they stimulate, and excite it to repeat its contractions.

THE procathartic causes of the second kind of fevers, or those attended with horripulations, are cold or acid indigestions, suppressed transpiration, &c. whence a spiffitude and lentor of the humours, with obstructions of the capillary arteries. Thus, the motion of the heart becomes more frequent, 1. By the resistance which it meets from the said obstructions, 2. By the spiffitude and quantity of blood, which it can hardly discharge from its ventricles.

To these we may add a third cause, *viz.* the combination of the two former, or spiffitude and acrimony of the juices together. In which case the fever is also compounded of the symptoms of the two former; with this difference, that

that the cold fit here is short and slight; but the hot one is very violent.

THE next question we are to solve, is, why the fever being once excited should at length terminate?

To understand this, we are to consider, that the blood should be first restored to its pristine and natural state, by removing the causes of the disorder, *viz.* the acrimony and spissitude abovementioned, before the fever can be extinguished.

THE acrimony of the humours is removed, 1. By the different secretions, and emunctories of the body, as by urine, sweat, *diarrhæas*, &c. which evacuations are called *Crisis*. 2. The acrimonious particles of the blood may be sheathed by a viscid or oleagenous substance. 3. This morbidic humour may be corrected by attenuation, or the attrition of its rough and acute particles; so that they may at length through their frequent circulations, become homogeneous and natural.

THE spissitude of the humours is corrected by much the same mechanism, since this by obstructing the capillaries makes a considerable resistance to the action of the heart; whence the heart redoubles its contractions. This fault therefore, 1. is corrected by attenuation, attrition, and motion of the blood; whereby its resinous and gummy parts are rendered more fluid. 2. By the use of diluents. 3. If there be any rough acrimonious particles mixed with the blood, they contribute to dissolve this spissitude, and the more powerful these are, the sooner the disorder

disorder is removed, till the morbidic humour is at length corrected by attenuation.

FROM what we have said, it appears, that the physician should carefully imitate nature, and endeavour to administer remedies that may have the same effects, as those above-mentioned, which give me occasion to say, that a fever is very often its own remedy, or at least intended by nature to be such; hence it may be called *motus salutaris, conamen naturæ morbum amolientis*, &c. as some authors describe it, because of the different ways whereby it attempts to disburthen nature of her load: for the human body is so mechanically formed, that it expels morbidic causes by some natural efforts, which are, perhaps, unjustly called disorders. Thus spontaneous vomiting is often designed by nature to rid the stomach of various humours that irritate the same. Diarrhœa's, and such like fluxes, are intended to purge off the noxious humours of the intestins, lest they should, by remaining there, induce inflammations, &c. the same thing may be understood of sneezing, coughing, and the like: and though nature may be oppressed, and fail in her endeavours, yet she wisely intends these struggles to eliminate and expel her enemy.

THERE are two objections of small weight, which some make against this our system upon fevers. 1. that the weak impression made by the blood, as above constituted, on the ventricles of the heart, bears no proportion with

the effect thence resulting, *viz.* a violent fever.

THE authors of this objection seem to borrow it from inanimate substances, wherein it may have a juster foundation; but is not so applicable to animal bodies, on which, causes of small force may have great effects: thus, for instance, what proportion is there betwixt a drop of water, and the violent coughing it produces by falling into the *trachia arteria*; or betwixt the smallest dose of the *regulus*, or *glass* of *antimony*, and the excessive vomiting it creates: wherefore, without making researches, or expecting to discover any equality between causes and their effects on the human body, we must refer these consequences to its mechanical structure; an instance of which may be seen in the sympathetic motions, often excited by the most gentle irritation. So that we may compare the human body to a piece of clock-work, whose parts are put in motion by the action of a small spring.

THE next objection is, that from our principles relating to the cause of fevers, it would follow, that every *polypus* should be accompanied with a fever; for, according to our theory, we suppose an obstacle in the arteries, which resists the evacuation of the heart at every contraction, whence it is obliged to redouble its motion; but the same thing may be said of a *polypus*, seeing it puts a stop to the progressive motion of the blood.

THOUGH this objection is plausible, yet the comparison is not just; for the resistance of a
polypus

polypus is insuperable; whence the motion of the blood, propelled by the heart, is lost against this resistance, and is not conveyed with sufficient vigour to the column of blood in the collateral obstructed artery, and consequently cannot give birth to a rapid circulation, nor fever; on the contrary, the resistance in the capillary arteries is at length surmounted by the heart, the circulation accelerated, and a fever kindled: but if this spissitude and obstruction of the capillary arteries be considerable, they will remain insurmountable for a while, as we see in the cold fits of an ague, which are at length removed by the repeated contractions of the heart, so that they give room to the real fever or hot fits, wherein the impacted matter is dissolved, and hurried from the obstructed capillaries into the larger trunks: but if the heart cannot conquer this resistance, its motion at length fails; whence we see, that all those who die of an ague, are cut off in the cold fit.

The Explanation of the essential Symptoms of a
F E V E R.

THE first, and most remarkable symptom of a fever, is a frequent pulse, as well in the continual as intermittent kind. The frequency of the pulse in the former was attributed to the irritation made by the acrid humours on the heart, whereby it repeats its contractions, just as a copious excretion of urine is promoted by its own acrimony: the arteries in

consequence of these repeated contractions are more frequently dilated, and the pulse rendered more frequent. Moreover, the pulse besides its frequency, may be otherwise modified, as great, strong, full, hard, weak, depressed, with other combinations; so that these proportions may vary infinitely, whilst the frequency never does; but is on the contrary always present.

IN the hot fit the pulse is great, because the quantity of blood, discharged into the artery, is so likewise. 'Tis strong through the great dilatation of the artery from the same cause. This distension, if considerable, will also produce a full pulse: a combination of these three circumstances will render the pulse hard.

LET us now consider the pulse in agues, whose hot fit alone I take to be a real fever. As to the cold fit, the heart at that time finds such resistance in the capillary arteries, that it cannot intirely evacuate the blood, wherefore a small portion will remain in its cavities till the next contraction, which will be the more hastened, by being the sooner filled, because of the remainder of the blood: hence the motion of the heart is accelerated, and the pulse rendered more frequent, as we see in all horrific fevers: this is also farther illustrated by comparing this state of the heart with that of the bladder in a retention of urine; for the bladder, in this case, is not entirely evacuated at each time the patient strives to make water, wherefore it is the sooner filled and sollicitated to new contractions, to free itself from this troublesome

blesome load. For this reason we see a retention of urine always accompanied with a constant micturition, though the urine be sometimes well conditioned, as may also the blood be in the former case, unless it be viscid. Besides, abstracting from this cause of the frequent contractions of the heart, we may attribute them to the great quantity of blood, derived to this organ in the cold fit, in which as the skin is shrivelled up and contracted, it receives but little blood; consequently the redundant part is diverted inward, and thrown upon the *viscera*, especially the heart.

FROM this description of the pulse in the cold fit of a fever, we may deduce 1st, the frequent contractions of the heart. 2d, the frequency, but smallness and weakness of the pulse, which is at this time likewise very hard: these are the effects of the contraction of the cutaneous fibres of the surface of the body; whence the fibres enter also into contraction whereby they resist the impelled blood, and cannot be sufficiently dilated. To this cause may also contribute the viscidness of the blood. When the cold fit begins to yield to the hot one, the pulse approaches in the same proportion to the characters of the pulse in a continued ardent fever.

THE second symptom essential to fevers, is, *beat*, this is owing to the expansive and intestine motion of the fluids, whereby their particles not only rub against each other, but also act on the sides of their vessels, which in like manner re-act on the contained fluids, whence

heat is generated. Thus we see, that not only heat, but sensible fire is kindled by the mutual attrition of two pieces of wood.

Now, as these two conditions are very intense in fevers, it is not surprizing that they should be attended with proportional heat and rarefaction of the humours, thro' the attenuation of their sulphureous parts, and the more viscid they are and tenacious, the more violent their heat will be, when once divided and attenuated. For this reason, the more intense the cold fit of an ague is thro' the spiffitude of the blood, the more violent the hot fit will be thro' the rarefaction, &c. of the same. The thinner on the contrary the humours are, the milder both fits will be. Thus we see that the heat of burning brandy, or other simular liquors, is much milder than the heat of a coal-fire, &c.

THE third essential symptom is the lesion of the functions, which must be considered in all the changes of fevers, in their cold, as well as hot fits, &c. The most obvious lesions in the cold fit, are difficult and painful respiration, anxieties, cardialgias, and heat in the region of the stomach, &c. Since the blood, for the reasons already mentioned, is more copiously diverted to these *viscera* where it easily remains, particularly in the spongius and pulpous substance of the lungs, as also in the stomach and intestins, whose blood-vessels are soon forced and distended, for want of due support to resist the same. The plentiful regurgitation of the blood on the heart, causes all the lesions of that organ.

THE lesions which attend continual fevers, or the fits of agues, are owing to the rarefaction and expansive motion of the blood, which, tho' in other respects it's passages are free, yet it distends so much the vessels, that it easily settles in all pulpous and soft parts of the body, particularly the brain, stomach, intestins and lungs; hence great agitation in the animal and vital functions, drowsiness, with other affections of the head, difficulty of respiration, gripings, and universal pains. Moreover, if any part of the body be naturally or accidentally weak, as the *uterus*, lungs, brain, &c. the blood is apt to stagnate therein, and create real inflammations, or inflammatory infarctions.

Of the general Indications in the Cure of
FEVERS.

THO' I intended to enter immediately on the explanation of fevers in particular; yet I find it necessary, to premise something of their treatment in general.

THE cure of these fevers must be directed to check them when too violent, and promote them when too languid: hence the rapid circulation of the humours with it's consequences, when they go beyond measure, are to be quelled; since this rapid motion of the humours, produces heat and rarefaction of the blood, dilates the vessels, and gives rise to a full and great pulse, thro' the action of the fluids. For the *momentum* of any body put in motion, is deduced from it's mass and celerity; both which are great in this circum-

stance, and the greater they are, the more their effects are to be apprehended.

THE next symptom that deserves our attention, is the violent distention of the vessels in every point of their circumference. For all rarified fluids equally press the sides of their vessels when equally resisting. By this means, the dilated arteries become thinner, and are menaced with rupture, which is the more to be apprehended, the pressure and efforts of the humours being continual. If the vessels are not thus ruptured, their resistance will at length become weaker in some of the *viscera*, or elsewhere; whence inflammations or suchlike infarctions will ensue, with, perhaps, a gangrene or *sphacelus* of the part affected, which is most commonly some lax or spongy *viscus*, soft or pulposus part; because all elastic muscular parts do not so easily yield; moreover, their arteries are not divided into so many capillary branches, as the vessels of other organs, viz. the brain, lungs, &c. which by their pulposus structure, but particularly the last, thro' the immense quantity of blood which it receives, are very subject to these inflammatory obstructions: and these are the more to be feared, the more noble or numerous the parts threatned or affected are; with several other combinations.

THE most deservedly celebrated remedy in correcting the violence of the foregoing symptoms, is bleeding. For this diminishes the quantity of all the humours of the body; consequently it will lessen the quantity of blood in each artery, in proportion to its diameter, and the

the quantity of blood evacuated. Hence the action of the blood on the arteries will be also lessened. For let us suppose that the 30th part of this fluid is drawn away, its action will loose the 30th part of its force. Moreover the velocity of the humours is checked in its source by this means. For the quantity of the blood being diminished, the secretions of the animal spirits, is so likewise; consequently the contractions of the heart are weaken'd by the 30th part, by the supposition already made. Add to this, the diminished motion of all the other muscular parts of the body, for the same reasons; whence the circulation is rendered still more languid, since the muscular motion does not so vigorously accelerate the circulation, as before.

THIS truth so evidently demonstrated, gives me occasion to reflect on the practice of some countries, where the physicians seem to have a particular aversion for so powerful a remedy as phlebotomy, whose seasonable use may prevent most of the ill consequences of fevers. For it is demonstrated that the strength of all animals, is in a triple ratio of the quantity and consistence of their blood; consequently by extracting its half, the animal's strength is reduced to the one eighth; wherefore this seasonable bleeding will prevent the excessive dilatation of the vessels, inflammation and gangrene. On the contrary these once formed, unseasonable bleeding will never remove them.

The only inconvenience which some object against this practice, is, that it often accelerates
the

the circulation and pulse, even after the second, and sometimes the third bleeding.

THIS consequence of bleeding happens only in a *plethora*, or excessive quantity and vicidity of the humours, whereby the vessels are over-distended and the patient's force extinguished: but by extracting part of these redundancies the arteries are proportionally eased; wherefore they act more vigorously on their fluids; and if this oscillation becomes excessive, another bleeding generally checks it. Thus far of the first indication which regards the correction of the quantity and quality of the humours. Now of the

SECOND indication, this consists in correcting the preternatural heat, which is more or less intense, according to the violence of the fever. We explained before, the mechanism of this symptom, whose chief remedy is plentiful drinking of some diluting liquor; for this renders the blood more fluid, corrects its asperities, and makes it circulate more smoothly; whence its attrition against the sides of the vessels, is lessened; just as it happens to a coach wheel, when well greased.

MOREOVER, these diluents relax not only the arteries, but also the particles of the blood; hence their elasticity, attrition and heat are lessened. For experience proves, that the more compact and elastic bodies are, the speedier and more intense their heat will be; thus iron by filing, will contract more speedy and violent heat than lead. This may be applied to the arteries of the human body, whose elasticity thus weaken'd, will the

the more feebly re-act on the impelled fluids; which in this case have much the same effect on the tunics of the arteries, as a cannon-ball has upon a wool-pack.

THO' diluents are good in fevers, yet they must not be indifferently exhibited on all occasions; for they augment and hasten the cold fit of agues, when taken immediately before, or in that circumstance, as shall be explained hereafter: besides, this kind of drink must be very light, and somewhat diuretic; because the contrary qualities would render it loathsome to the stomach, and of difficult passage.

THE third *indication* which is of great moment here, is to observe a strict regimen, never permitting the use of solid meats; but always recommending the use of light ptisans, especially in the beginning of a fever; and of thin broths towards its declension. This diet must be the more strictly enjoined, if the fever has been created, or is attended with great crudities, thro' any kind of indigestion; for nourishing food in this case, will accumulate new crudities, and consequently foment the evil by furnishing fresh fuel. This rule in like manner, may be observed in fevers, from a suppression of transpiration, &c.

THE fourth and last *indication*, is to purge the first ways of the above crudities. By the name of first ways, I mean the stomach, intestins, primary and secondary lacteals to the *receptaculum pequeti*. For I am persuaded that the *fomes* of many fevers, particularly of the intermittent kind is lodged therein.

SOME may discommend the use of purgatives in fevers, thinking that they would augment the *erythismus* or tention of the solids, which is inseperable from fevers: this I own is true in general; but the relaxation procured by the antecedent bleedings, removes this difficulty. Besides, purgatives may be employed without this bleeding, provided the fever and tension are moderate: nay, purging alone may remove this fever, if the quantity of crudities is not great; but it must be very gentle, or not at all exhibited in bilious hot temperaments, as we shall observe hereafter.

IF the first ways are very much glutted with the said peccant humours, an emetic must precede the purgative remedy; always remembering to employ venesection in the cases where it is requisite. Thus far of the *indications* which direct the preservative cure of fevers. Now of the *indications* which are to be followed in the curative method.

IF the danger of the fever is prevented, and that the disorder is well managed by the preceding method, it will follow the course and period mentioned in the beginning of this treatise, independent of any other remedies. On the contrary, if it be too violent, and will not yield to that method, and if it proceeds in the meanwhile from the acrimony of the humours, we must employ *decoct. rad. alth. borag. cichor.* or broths of veal or pullet with emulsions, and the like. If these won't do, let the patient be purged with some minorative, to evacuate the bile, or bilious matter, which generally gluts the first
ways

ways in this kind of fever, whereby the solids are irritated and the circulation accelerated. The following therefore may be repeated occasionally viz. *man. cass. rhubarb. sal. veget.* to which may be added, *sal. glaub.* or *arcan. duplicat.* to xx, or xxv grains. *ser. lact.* is also an excellent remedy in the same circumstance.

THIS method may be employed particularly in all hot and continual fevers, nay, in all others, with this difference, that the purgatives should be stronger, and the decoctions more vulnerary and active in agues and the like: in all which upon the first discovery of a paroxysm, the bark, may be given after due preparation, adding *tart. mart. solub.* to the patient's broth, or ptisan; but these must be industriously avoided in fevers which arise from acrimony. As to the different terminations of fevers, we shall take notice of them in treating of each in particular,

*Of the Focus, or primary seat of intermittent
FEVERS in particular.*

HAVING premised the foregoing generalities, we now proceed to fevers in particular; and as we divided these disorders in general into intermittent and continual, method requires that we should begin with the former, notwithstanding the custom of some authors who begin with the latter: but I imagine that it is more natural to give the first place to intermittents, because they are often complicated with continual fevers; wherefore their
explanation

explanation should precede that of the latter; otherwise we should form but a confused idea of both.

WE have already remarked that agues are simple and compound, regular or periodical, and irregular or erratic.

THE first class comprehends *quotidian*, *tertian* and *quartan* agues: of the *focus*, of these we shall treat at present, in order to abridge their explication, and avoid repetitions, which we should be otherwise obliged to make in speaking of each in particular. But before we handle this subject, it will not be foreign to our purpose to explain some terms, which we shall make use of hereafter.

THE first is the word *term* or *period*, this is understood of the space of time from the beginning of one fit of an ague, to the beginning of the next. Thus the *intervalles* or *periods* of a *quotidian*, are each of 24 hours; in a *tertian* 48, and in a *quartan* 72; hence these fevers are called regular, when their periods are so.

II. *Type* signifies the manner, or appearance of a fever with all its symptoms: thus one ague redoubles with short and violent cold fits, another with a violent hot one; some with long and mild fits, and so on; each having in the mean while its particular *type*: hence a fever is said to preserve the same *type*, whilst its fits return with the same symptoms, intensity, and duration, with those of the former.

FROM this we may conclude, that a fever may be called regular with regard to its *type*,
period

period or both; or irregular in one or both; this distinction I have made betwixt these two words, because they are used indiscriminately by several writers.

Now we come to treat of the word *focus*, as also of its seat and nature with regard to agues. This term is very equivocal, for it is sometimes taken for a fire-place, or for that point where the rays collected by a burning-glass concenter; it signifies likewise a *fomes*, or that which kindles any thing, as a fire, disorder &c. in which sense we shall take it here; wherefore it must be understood of that matter, whatever it be, which foment an ague, and which transmitted into the blood, inspissates the same, produces the cold fits, and other symptoms observable in these fevers, with more or less speed, according to its intensity; whose effect nevertheless must not exceed a certain degree; otherwise it would render the resistance invincible to the heart, which is inconsistent with the nature of agues; seeing their cold fit is naturally succeeded by a hot one, which wou'd not happen if the said obstacle was invincible.

MOST writers speaks of this *focus* after various manners; some affirm that it is lodged in one place, some in another. As for my part without making a tedious digression upon this subject; I am inclined to think that the *focus* of agues is lodged in the first ways: this I advance, as thinking it a necessary consequence of several observations, made by me and other physicians.

I. THEREFORE, we find that a patient affected with an ague, is considerably indisposed by the use of gross indigestible, or depraved meat; whilst on the contrary, the fits of this fever are very much retarded and weaken'd thro' the use of proper digestable diet. With an infinite number of other changes, according to different circumstances of the same aliments. Consequently, these variations depend in some measure on the effects of the patient's food in the first ways.

II. THE effect of emetics seasonably exhibited, furnish us with another reflection: for these either prevent or weaken the ensuing fit, whilst cathartics often have the contrary effect. This I can attribute to nothing else, than to the evacuation of the stomach, whereby 'tis disburden'd of the morbidic humour, or *fomes* before it reaches to the intestins, where it is soon absorbed by the lacteals. For which reason, purgatives are not so efficacious in this disorder, as emetics; because the former attenuate these viscid humours in the stomach, hurry them into the small intestins, where they are soon imbibed by the lacteals, conveyed into the blood, and disposed to renew the direful scene by this speedy transmission.

III. BY observing the effects of any ordinary liquor, taken by the patient before the attack, the matter will be farther illustrated. For let us suppose a regular *tertian* ague, before whose fit the patient drinks plentifully, the accession of this fever will thereby return the sooner; and the more he drinks, the sooner and more violent it will appear: for the morbidic humours lodged in the first ways are, probably, diluted
and

and rendered more fluid by this means; whence they enter the blood the speedier and more abundantly.

To these reflexions we may add, that the patient before the cold fits of an ague, is generally subject to anxieties, cardialgias, heaviness about the stomach and diaphragm, nausea, vomiting, &c. consequently there must be some cause of these symptoms about the stomach, which from all the reasons hitherto given, can be nothing else but crudities, whose seat is always the *primæ viæ*.

HAVING determined the seat of this disorder, the quality of the morbid humour is easily discovered. For in the stomach and intestines, this can be only acid thick crudities, which soon adhere to the vessels in it's passage; and is the product of indigestions, &c.

THAT the morbid humour of agues is the off-spring of the first ways, is proved, in as much as a severe regimen, aliments of easy digestion, and the like, either diminish or intirely remove it.

ON the contrary, a debauched life, improper diet, as unripe fruit, &c. as we see in autumn, wherein agues are very rife and obstinate, render agues difficult of cure.

THE morbid humour thus disposed, enters the blood which it inspissates in proportion to the intensity of its own spissitude and acidity.

THAT the seat and qualites of this matter are such as we have described, is also evidently proved, by the species of the remedies employed in the cure of this disorder; for these are prin-

cipally stomatics, such as the bark, bitters and vulneraries. The effect of the former two removes the disorder, and at the same time proves its seat; but the action of the latter corrects the peccancy of the morbid humour and demonstrates its qualities.

As to the *kinkina*, it not only strengthens the first ways, but also attenuates this viscid matter, and corrects its acidity. For we find that the bark boiled in milk, renders it more fluid and sweet; whence we may conclude that it has the same effects on the febrile matter.

FROM the viscosity of the said humour we may also conclude, that it should rather kindle an ague than a continual fever; because it adheres so closely to the passages, that it cannot enter into the blood in a sufficient quantity at a time to foment the fever continually; but requires rather a determined time to be diluted and have this effect; as is demonstrated by the periodical return of the fits. On the contrary we discover that laudable chyle, by its fluidity and other good qualities, soon pervades the lacteals in proportion to its elaboration; whilst the viscid ill conditioned chyle, as in agues sticks like cream to the vessels, and will not pass so plentifully into the blood, 'till it is diluted by some vehicle to convey it, and creates the cold fit of these fevers.

FROM this we may conclude, that the more viscid this matter is, the more it will resist its dilution, the slower will be its transmission into the blood, and the ensuing cold fit will be so too; for this reason, the *paroxysms* of a *tertiana*

tian are more slow than those of a *quotidian*; and those of *quartan*, slower than either.

MOREOVER, the regularity or irregularity, and other symptoms of these fits, depend on the different qualities and dispositions of this morbid humour, to which the patient's different temperament, passions, and manner of living will give rise, and so change the type of the fits even of the same ague.

Now we may compare the different agues produced by the various qualities and consistence of this febrile matter to a soil wherein are planted different trees, of which some flourish and bear fruit earlier, whilst others in the same soil, pass through these degrees much slower; for this, like the febrile matter, depends on the nature of the sap, which is more fluid and better elaborated in the former case, but viscid and of difficult transmission in the latter.

FROM what we have said of this matter, we may infer, 1st. That the morbid humour of a *quotidian*, is very thin, and easily diluted; because the fits of this ague are very frequent; besides, we find that women and children are very subject to this kind of fever; which I can attribute to nothing else but their serous and watry constitutions, whereby this peccant humour is speedily diluted. 2d. We may also conclude, that the said matter is more viscid and acid in a *tertian*; because we find adults, and persons of strong constitutions more disposed to it than any other. 3d. And lastly, when the spissitude and acidity, &c. of this hu-

mour, are much more intense than in the two former cases, a *quartan* is kindled.

HENCE all persons subject to humours of this character, are also to this kind of ague; such are all old melancholic and hypochondriac persons, &c. It may be objected, that in the scurvy, &c. the humours are very viscid, and acrimonious; consequently that an ague should ensue. This I own, but they are not so powerfully acrid or thick as to have this effect. Moreover, all the muscular parts are so reduced in the above disorders, that, though irritated, they do not accelerate the circulation, as in agues, wherein the contrary is observable.

IT may be remarked, that in continual fevers, and all proceeding from an acrid matter, and attended consequently with great tension, neutral salts are not proper, for fear of a greater tension; but they are good in a small dose in all fevers which owe their rise to the spiffitude of the humours; if they be not accompanied with a cough, diarrhæa, &c.

Of the cold and hot fits of an AGUE.

BEFORE we speak of each ague in particular, it will be necessary to treat of their hot and cold fits, in as much as they are common to all.

To begin with the cold fit, let us suppose part of the above-mentioned crudities to pass into the blood, and when sufficiently diluted, to be transmitted in such abundance,

as to create a spiffitude and lentor of the juices, and at length obstructions of the capillary arteries, slow motion in their trunks, and an obstacle to the evacuation of the heart; the cold fit of an ague will gradually augment in the same proportion, till it comes to its height; at this time the heart, which at every contraction is evacuated in the natural state, cannot discharge itself now of all the blood; wherefore it will be the sooner filled by a new influx of blood, and consequently sollicited to more frequent contractions; so as to give rise to a hot fit.

THE cold fit as above induced is attended with a difficulty of respiration; for the pulmonary artery participates of the general lentor and spiffitude of the humours, though not so intensely as the rest, because of the great motion and warmth of this part.

To this difficulty of respiration doth also contribute the reflux of the blood from the surface of the body through its constriction; whence, together with the other *viscera*, the arteries of the lungs are so overcharged with blood, that they compress the aerial vesicles, and consequently streighten the passages of the air, and render respiration weak and frequent, which latter serves to recompense the former: the painfulness of this function is owing to the distension of the said parts, through the plentitude of the vessels.

THE yawning which happens at this time, consists in a great and strong inspiration, immediately succeeded by a proportional expiration.

tion. This is a sympathetic motion, excited thro' a dull and inexpressible impressiion made by the stagnating blood on the vessels of the lungs; whereby all the organs of respiration, are put into motion *per consensum* as they say; that by this means, the blood may be discharged with more vigour out of the said vessels; and the greater the lentor and stagnation of the blood in the lungs is, and the sooner they are loaded therewith, the oftner this action is repeated.

THE pandiculation or extension of the hands and feet is also a sympathetic motion attending this fit. This proceeds from the sudden contraction of the *musculi extensores* of the said extremities, &c. and is likewise intended to express the sluggish humours out of the substance of the said muscles. Thus nature is to be admired for instituting these motions, as so many remedies to preserve the human body from impending ruin; for hereby the languid circulation is invigorated, and the stagnation of the humours prevented.

THE preceding with some other symptoms of the cold fit, are succeeded by a general lassitude: because all the muscular parts of the body are at length overcharged with stagnating blood, and their fibres considerably distended; hence they are almost in a state of inactivity, in which consists lassitude and weakness.

THE surface of the body is pale and cold in this fit; because of the sympathetic contraction of the skin, whereby the blood cannot circulate freely therein; hence for want of due motion
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and presence of the red globules, coldness and paleness necessarily follow.

THE extremities are colder than any other part of the body. 1st. Because they are exposed by a great surface, &c. to the injuries of the air. 2d. Their arteries are very small. 3d. They are more remote from the heart, or center of motion.

THOUGH the extremities are cold, the *viscera* at the same time burn with heat, particularly those of the *thorax*; whence the air emitted by expiration is also hot; and though the circulation be languid in the body, yet it's lentor is recompens'd in the lungs by the extraordinary quantity of blood which they now receive.

THESE are the ordinary symptoms of a moderate cold fit: but a more intense one is attended with *horror* and *rigor*. The first is a contraction or crisping of the skin.

IT may be general or particular, regular or irregular. This is owing to a convulsive motion of the muscular fibres of the skin, whose contraction on all sides, produces small elevations or eminences, which are nothing else but the cutaneous glands or bulbous extremities of some nerves, which then appear. This contraction is likewise intended by nature as a sympathetic motion, to forward the languid circulation of the skin.

THE *rigor* is only a more violent degree of the former, and is likewise a sympathetic convulsive motion of several parts, as the lower jaw, tongue, &c. so that the convulsion of the latter renders it incapable of its usual volubility

in speaking. This symptom commonly denotes the violence and danger of an ague, particularly of a *quartan*.

THE small and hard pulse which attends this fit, proceeds from the spasmodic constriction of the muscular coats of the arteries, as we have remarked to happen sympathetically in other parts: moreover the diameters of the arteries are so contracted, that the blood presses their sides the more, and contributes to this hardness.

THE cardialgy, nausea, vomiting, anxiety, &c. happen in the beginning of the cold fit, through the sensibility of the fibres now considerably distended by the reflux of the blood from the surface of the body: But these symptoms are at length the more promoted by the dilution and activity of the morbid humours now put in motion.

THE thirst which attends this fit is attributed by some to the spissitude of the juices, whereby the secretions are diminished for want of fluidity in the humours: But I would rather attribute this symptom to the dryness of the tongue, *fauces*, &c. through the heat of the air excluded in expiration.

THE patient's urine is clear and limpid, because the spasmodic contraction of the urinary ducts suffers nothing to pass but by expression.

WE now come to the second part of this febrile paroxysm, *viz.* the hot fit; that this symptom should succeed the cold fit, may be sometimes owing, or at least promoted, by the
several

several means which the patient takes to procure heat: But independant of any such, the heat may be induced by the repeated contractions of the heart, through the resistance of the vitiated humours, till it gets the better at length by rarefying the viscid blood, relaxing the skin and arteries, and correcting the *horrors, rigors, &c.* so that the heat appears in proportion to the intensity of the preceding cold; hence we find, that as the cold fit is violent in a *tertian*, the hot fit is excessive likewise.

As the heat comes on, all the preceding symptoms gradually disappear, the urine becomes red, through the dissolution of the sulphureous parts of the blood, which now freely pass through the relaxed emunctories of the kidneys.

THE great sweats which happen towards the end of the hot fit, are owing; 1, to the rarefaction and relaxation of the skin from the heat; 2, to the great quantity of drink which the patient took during the paroxysm: hence the humours are so diluted and fluid, that they pass this way.

Of a Quotidian AGUE.

I Shall first treat of this ague, then of the *tertian*, and lastly of the *quartan*; and to avoid repetitions, I shall give the cure of them all under one head, as being much the same in each.

THE present ague, is described a fever whose fits regularly return every day about the same hour, attended with the same symptoms and intensity. By this description is understood a regular *quotidian*, whose period is of twenty-four hours, beginning at twelve of the clock to day, and returning at twelve to-morrow, not irregular agues, whose *paroxysms* are uncertain, or happen later every day as they advance.

THE characters of this disorder are borrowed from three things; 1, from its *type*; 2, from its period; 3, from its intermission or intervals of its fits.

THE *type* of this fever is grounded on the nature of its *paroxysms*; in which the cold fit is mild, gradually augments, and is never so violent as to induce a *horror* or *rigor*. This cold is subject to several variations; for it may be intense or weak, of a long or short duration, general or particular, &c. but it is commonly more sensible betwixt the kidneys and shoulders, than elsewhere. It holds one, two, and sometimes three hours. Thus far of the characters of a *quotidian*, with respect to the cold fit.

THE hot fit of this ague is so mild, that the patient often confounds it with some transitory flushes of heat, which he feels in the very cold fit: For these reasons, the patient's thirst is very moderate; his pulse is soft and weak, though still frequent; his visage is somewhat swoln. This state holds twelve, thirteen, or fourteen, and sometimes fifteen hours.

As to the characteristics borrowed from the period of this ague, consult what we have before said of this matter.

THE third head, whence are deduced some of the characters of a *tertian*, is its intermission or intervals of the *paroxysms*; these are different, and follow the different spaces of time which the fits hold; for if they both continue eighteen hours, the intermission is of six.

DIFFERENCES. A *tertian* may be first divided into simple and compound; simple, when it returns but once in twenty-four hours; compound or double, when twice; but in this last case the attacks should be very short, otherwise it would be rather a continual fever: Nevertheless, the reality of this last kind is much disputed, nor do observations well confirm it.

THIS ague may be also legitimate or spurious; the former, when it preserves the same period, time, and intermission; the latter, when only one, two, or none of them.

IT is likewise distinguished into *febris communicans*, *terminata*, and *subintrans*; the first is an ague whose fits immediately receive each other without any intermission; the second, when the fits terminate at the hours before-mentioned, with due intervals; and the last, when the intermissions are very short.

THIS theory of a *quotidian* suggests three things, 1. That its attacks gradually augment and decline. 2. That they may be regular

lar or irregular. 3. That they may terminate several ways, particularly by urine or stool.

CAUSES. These are such as we mentioned in the generalities, *viz.* an acid thick chyle; but in a weaker degree than in the *tertian* or *quartan* agues: Nay the different intensity and vicissitudes of this fever, depend also on the intensity, different degrees, and combination of these two qualities.

THO' the antients did not well explain themselves, and were ignorant of the genuine cause of this disorder, yet they exactly observed its effects: for the mildness of a *quotidian*, gave them room to think, that it proceeded from an inflamed *pituita*; the *tertian* from an invigorated bile; and the *quartan*, from an active melancholic humour, as being the most obstinate and lingering of all agues.

THIS depraved chyle, &c. which inspissates the blood and creates an ague, may have several procathartic causes, as all indigestible aliments, such as crude unripe fruit, cherries, gooseberries, and the like; as also cucumbers, melons; cooling meat or drink, as barley-water, whey, milk, &c. to which add a sedentary life; and in a word, all causes of indigestions, except those of the nidorous and bilious ones. The patient's cacochimic cold temperament may also concur to its production; for which reason, women, children, and old men are more subject to a *quotidian*, than other persons. On the contrary, bilious and strong constitutions, hot season or climate, and the like, are it's greatest enemies; whilst the contrary

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dispositions, cold season, marshy places, &c. often give it birth.

SYMPTOMS. I. This disorder, as we said, returns every 24 hours; because the oscillations of the vessels, serosities of the body, with the patient's drink, sufficiently dilute and attenuate the morbid humour at this time, so as to pass freely by the lacteals.

II. The spissitude and acidity of the said humour being very mild, it cannot so speedily produce it's effect; wherefore the cold fit (of whose symptoms first) comes on insensibly: but it is never intense enough to cause the *horror* and *rigor* before-mentioned; because the vicious humour is not active enough to irritate the nervous fibres, and cause *spasms*.

III. The different vicissitudes of heat and cold which are perceived in a very cold fit, depend on the unequal spissitude of the crudities; for when a viscid quantity of it is transmitted into the blood, the cold is sensible; but if the next portion that enters be well diluted and fluid, the violence of the cold fit will remit for a time, as not being equally fomented by the same matter; but upon the admission of a more viscid portion, the cold fit will be renewed.

IV. The intense cold which happens about the patient's kidneys, or betwixt his shoulders in this fit, is owing to the passage of the chyle, through the *receptaculum pequeti*, and thoracic duct; so that it gives early proofs of it's future effects, in these places.

THE thirst and other symptoms are very mild; because the obstructions, &c. are not considerable.

Now of the symptoms of the hot fit; these are, I. Moderate heat, because the resistance and *stimulus* do not powerfully excite the contractions of the heart; consequently the motion of the blood and the heat will not be considerable. Besides, the blood is so diluted in this fever, and it's action on the solids so weak, that the circulation and heat cannot be violent; for we may compare the blood thus diluted, to an axle-tree well greased, which rolls so smoothly, that it will cause no great heat.

II. The patient's thirst and redness of the face are mild: because the blood abounds with serosity, which it continually and plentifully furnishes to the organ of thirst; and the rarefaction of the blood is so inconsiderable, that it will not communicate its colour in so florid a manner to the skin.

III. The sleepiness observable in this fit, is owing to the distention of the vessels of the brain, whereby the origin of the nerves is compressed, and the influx of the animal spirits suspended; but if this distention becomes greater, the vessels will be irritated and excited to stronger contractions; whence watchings may happen.

IV. A soft pulse, because the irritation and tension, or constriction of the vessels, are very moderate.

V. An abundant limpid urine; it is abundant, because the blood is over-charged with serosity;

ferosity; limpid, because the circulation is too gentle to attenuate and divide the sulphureous parts of the blood, on whose mixture with the urine, depends its red colour.

VI. Critical sweats are not common in this fit; because the rarefaction and motion of the blood, are not vigorous enough to discharge the ferosity by the pores of the skin; on the contrary, the consistence of these ferosities and gentle motion dispose these humours to pass rather by the urinary ducts.

VII. This attack is longer or shorter, according to the obstinacy of the peccant humour; but in general, it is longer than the hot fit of any other agues; for we can rarely observe any free interval or absolute intermission betwixt the fits of a *quotidian*, the pulse being always frequent from the end of one fit to the beginning of the next; but the contrary is observed in the intermissions of a *tertian* or *quartan*.

DIAGNOSTICS. These regard the true and spurious *quotidian*: the first is discovered, when the disorder regularly observes it's period, *type* and intermission, of which before; nor can it be confounded with a double *tertian*, or triple *quartan*, from which it may be easily distinguished; for in a regular *quotidian*, the *paroxysms* return with the same symptoms, and intensity on the same hour: on the contrary in the double *tertian*; for the attacks are of unequal intensity, every other days fits only agreeing; the same thing may be said of a triple *quartan*, every fourth attack agreeing in *type* and period with its corresponding one.

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Notwithstanding what we have said of this kind of ague, some dispute its reality, and assert, that what we mean by a *quotidian*, is nothing else, but a double *tertian*, or triple *quartan*, which have imposed on several for the above ague. Yet notwithstanding all arguments to the contrary, I can affirm the existence of this fever from experience.

As to the spurious *quotidian*, whether it be as they say *terminata*, *subintrans*, or *communicans*, it is easily learned; as are also the other species, such as a simple or double *quotidian*, &c.

PROGNOSTICS. This disorder, as *Hippocrates* affirms, is not dangerous; and though its intermissions are very short, and tho' it often terminates in a continual fever, yet of all agues it is the most easily removed: Nevertheless if it degenerates into a *subintrant* fever, it is not void of danger, because it may be then deemed a continual redoubling one: Nor is it exempt of danger, if the patient be of a cacochymic pituitous constitution; yet if he be seasonably and methodically treated, he may recover; otherwise it often degenerates into an *anasarca* or *ascites*, and more particularly into the latter, if the patient has obstructions of the *abdomen*.

THIS fever, especially in the aforesaid constitutions, is also very subject to terminate by a serous *diarrhœa*.

Of a Tertian AGUE.

THIS, as we said before, is an ague, which recurs every third day, counting the day on which the first fit happens, and that on which the second returns, with the day of intermission; so that in a regular *tertian*, there will be forty-eight hours of intermission betwixt each *paroxysm*; tho' it may be sometimes of forty-two or forty-three hours only.

THE cold fit of this ague is very intense, nay so violent as to create a *horror* and *rigor*. The thirst and dryness of the tongue and *fauces* are also excessive during this fit: The patient at the same time often vomits a bilious matter. This state holds generally for two hours.

THE hot fit of this fever is as insupportable as the cold one, and is attended with redness of the countenance, continual head-ach, often succeeded by a *delirium*: It is likewise accompanied with a high and full pulse, red and orange-coloured urine, depositing a great sediment, with difficulty of respiration. This fit is most commonly terminated by abundant sweats.

DIFFERENCES. This is divided, 1. Into true and spurious; the first is that *tertian* which preserves a regular *type*, period, and intermission; the spurious, so called, because it observes few or none of the said characters; for it generally approaches to the nature of a *quotidian*, or that of a *quartan*.

THE antients derived the legitimate *tertian* from an inflamed bile alone; but the spurious, from the bile mixed with *pituita*.

THIS ague is divided, 2. Into simple and compound; the former we have described; the latter is that whose fits return twice upon every other day, or once on every day, so that every other day's *paroxysms* agree. It is also called *tertiana terminata*, when it holds but fourteen days; *extensa*, when it exceeds that time, or continues to the thirty-fifth day.

CAUSES. The antients, not without reason, attributed this ague to the bile; because they saw that all the procathartic causes of this disorder are apt to create bile, or something analogous to it; of such are salt, peppered, high-seasoned meats or ragouts, excess of spirituous wines, or the like; frequent use of coffee and chocolate, violent exercise, excessive watching, whereby the humours are impoverished through the dissipation of their subtile parts, and the remainder inspissated and rendered acrid; to which add violent passions, wrath especially, bilious indigestions, &c.

ALL these are more apt to produce a *tertian*, than any other fever: on the contrary, acid indigestions give rise to *quotidians*, whilst nidorous ones create *quartans*.

FOR the preceding reasons, this ague most commonly attacks strong robust constitutions, from the age of twenty to forty years; because such subjects in that time are inclined to an excessive ebullition and acrimony of their hu-

humours: for the same reasons lively, bilious, and swarthy constitutions, are disposed to this fever. It is likewise more rife in summer than in any other season, through the exaltation and spiffitude of the humours at that time. Those who are affected with obstructions of the liver, are likewise subject to this disorder, because of the regurgitation of the bile and indigestions.

SYMPTOMS. The *paroxysms* of this fever return after every forty-eight hours; consequently its cause, or peccant humour, is more viscid, difficultly diluted and disengaged from the stomach and first ways, and less active than that of a *quotidian*; hence the *paroxysms* are also more violent; from all which we may conclude, that its cause is more obstinate and efficacious than that of a *quotidian*: which case is still farther proved by the *horrors* and *rigors* in a *tertian*, seeing they rarely attend a *quotidian*.

THE heat of this ague is always proportional to its cold, whence it often becomes intolerable. This is an argument of the powerful saltishness and acrimony of the morbid humour, whereby it strongly irritates the arteries, and excites their frequent oscillations. Besides the above qualities, this humour is also very thick and destitute of serosity, since it inspissates the blood so powerfully, and gives room to an excessive cold fit, so as to come to the *horrors* and *rigors* before-mentioned: besides which, several other violent symptoms attend this cold fit: such are,

1. A precipitate, difficult, and painful respiration from the stagnation of the viscid humours in the lungs. 2. Dryness of the tongue and *fauces*, from the great heat of the expired air. 3. Frequent vomiting of a bilious humour through the sensibility of the stomach from the repletion of its vessels, and destination of its fibres, caused by the reflux of the blood from the surface of the body, whence it is more abundantly diverted to this organ or this symptom may be owing to the impressions made, by the morbid humour now separated and diluted, on the coats of the stomach, tho' well conditioned: these symptoms hold during the cold fit, or for two hours at which time they give place to the hot fit, which is sensibly distinguishable from the cold one; for the blood is at this time, 1. in such a violent agitation, that the pulse is very frequent, strong, and full, for the reasons before given. 2. The patient is very thirsty, because the force of respiration, and heat of the lungs almost inflame the air; whence the organs of thirst are dried. Nevertheless, this symptom is milder in the hot, than in the cold fit. 3. The visage is very red, because the rarified blood is now vigorously propelled into the relaxed cutaneous vessels. 4. Head-achs proceed from the distention of the capillary vessel of the brain and *meninges*. 5. All sorts of meat disgust the patient, through the vitiated tone of the nervous *papillæ* of the tongue, &c. 6. The *delirium* which succeeds the head-ach, as consisting in an erroneous union of
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ideas, is owing to the unequal tension of the fibres of the brain, of which some very probably are dry and tense, whilst others are in a state of relaxation; just as we see in the dissonant chords or unequal tension of musical instruments. 7. The patient's urine is red, or of an orange colour, through the mixture of the dissolved sulphureous particles of the blood. 8. This fit of a *tertian* is commonly terminated by abundant sweats, whilst the hot fit of a *quotidian* is closed by plentiful urine.

THE reason of this difference is, because the humours in the hot fit of a *tertian* are well attenuated, rarified, and the skin relaxed; whence their rarefaction disposes them to pass that way; whilst their thick consistence in the hot fit of a *quotidian*, adapts them rather to the urinary passages. 9. The patient's yellow colour, which appears at length, is the product of a bilious kind of matter, generated in the blood through the fault of the chyle and digestion, as also by the excessive agitation of the humours; or it may proceed from the abundant generation of the bile in the blood, especially when it cannot be secreted in the same proportion: or, finally, it may depend on some obstructions of the liver, whereby the bile regurgitates into the blood, and creates a kind of yellow-jaundice. 10. To the foregoing symptoms, we may add a sort of red cutaneous eruptions, which sooner or later appear on several parts of the patient's body. These resemble very much the pustules of the small-pox or measles; whence they have

often imposed on some physicians for such; wherefore they treated the patient as if really affected with these disorders.

THE ancients spoke not of this symptom, whence we have no other name in *latin* for it but *morbis porcinus*, from the like disorder which affects hogs. It is called in *French* *porcelaine*, and is very common in this kind of ague at *Paris*. It is likewise very frequent in the summer-time, and is owing to the obstruction of the sudorific glands, through the viscid remains of the morbid humour.

DIAGNOSTICS. From the characters already given of a simple and legitimate ague, it is easily discoverable; but it may be perhaps confounded with a *quotidian*, if it be double: To distinguish, therefore, a double *tertian* from a *quotidian*, we must observe, that the fits of the latter always retain their *type*, or much the same degree of intensity, &c. but the fits of the former are of unequal violence, every other day's attack only agreeing with each other in *type* and period. Moreover, the *paroxysms*, or hot and cold fit together of a double *tertian*, are much more violent, and are sooner over than the *paroxysms* of a *quotidian*, the former continuing at most for twelve hours, whilst the latter hold during eighteen.

THE spurious *tertian* is likewise soon discovered, whether it approaches to the nature of a *quotidian* or *quartan*: for in the former case, the accessions are mild and long, but short, seemingly gentle, and very fatiguing

figuing, with other characters to be hereafter mentioned, in the latter.

PROGNOSTICS. The long intermissions of this fever, which are sometimes of thirty-six hours each, seem to allow more time for the patient's restoration, and to be less dangerous for the same reason, than a *quotidian*, whose intermissions are only of six hours each; the latter, besides, is very apt to degenerate into a continual fever. Nevertheless, a *tertian* has its inconveniences; for this fever being naturally obstinate, is difficultly removed, especially in cacochymic persons: besides it is subject to degenerate into a *quartan* or double *tertian*: nor will it cease, if left to itself, as the *quotidian* may; though some authors hold the contrary, building their sentiment on a passage of *Hippocrates*, ill understood and explained.

Of a *Quartan* AGUE.

WE shall follow the same method in treating of this fever, as we have observed in the preceding ones.

A *quartan* is described a fever that returns every fourth day, comprehending the days, on which the first and second *paroxysms* happen, with the two intermediate days, when none happen, whence the intermission of this fever consists of these two days, with one part of the Day of the first fit, and another part of the day of the second fit, making up one entire day; the whole being three

days, or seventy-two hours. The same thing may be said of all the other days in the whole course of the fever.

BESIDES these characters, 'tis distinguished from all other agues by the *type* of its *paroxysms*; for the cold fit, tho' seemingly mild and more tolerable than that of a *tertian*; yet it is very oppressing and fatigues extremely, though it never comes to a *horror* or *rigor*. It is moreover attended with a general lassitude, and heavy dull pain in the bones called in *Greek* οστέων κοπος. This symptom is accompanied with pandiculations, yawning, &c. that hold for a long time; as also great thirst, tho' not so considerable as in a *tertian*. These symptoms are the frequent companions of the cold fit, which generally continue six hours; and therefore longer than in a *tertian*. But the length of this fit does not influence so much on the hot one, which is generally very short in comparison to the former.

IN the hot fit, the symptoms are not very violent; for the heat is moderate, the pulse is pretty easy, but harder than in the *tertian*. During the cold fit, and towards the beginning of the hot one, the urine is crude and limpid. This symptom is rarely carried off by sweat. In a word, the hot fit of a *quartan* is the shortest of all fits of any other ague; so that the *type* of these *paroxysms* would be sufficient to distinguish it from any other fever.

DIFFERENCES. This ague is called simple, when it's *paroxysms* return but twice in four days

days ; double, if thrice ; triple, if four times.

IT is also divided into legitimate and spurious ; the first we have already described. The spurious is that whose attacks are so violent as to approach to the intensity of the fit of a *tertian*. This I remark, because it will have some influence on the causes and prognostics of this disorder.

CAUSES. From what has been hitherto said, the nature and causes of this ague are pretty evident ; for we have observed, that the morbid humour of a *quotidian* is mild and fluid ; that of a *tertian* active and viscid ; but that of a *quartan* very viscid, yet moderately saline and acrimonious ; as may be concluded from the lentor and inactivity of its *paroxysms*.

HENCE, thro' its great spissitude, it requires a long time to be attenuated, diluted and conveyed into the blood, which it inspissates so slowly that the cold fit is very long ; moreover, for want of a saline *stimulus* to irritate the nervous or membranous parts, it will not create *horrors* or *rigors*, nor such like convulsive motions.

THIS viscid matter is the product of a thick, ill-elaborated chyle, furnished from dry salt food, as beef, bacon, cheese, salt-fish, or such as are taken in muddy slimy fish-ponds, as we frequently see in the summer-time. Wherefore in all places where these meats are commonly used, *quartans* are very rife.

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To these causes we may likewise add the frequent and continual use of legumns, as pease, beans, &c. or bread made of corrupted corn; as also intense study, or application of the mind, sadness, grief, nidorous indegestions and the like; for these reasons atriliary and melancholic persons, thro' the spiffitude and tenacity of their humours, are as subject to this ague, as they are hard to be cured of it. It is likewise thro' the spiffitude of the humours, their fluid parts being evaporated, that *quartans* are more common in autumn, than in any other season; not only because of the exhalation of the fluid parts through the preceding heat of summer, but also to diminution of the ordinary secretions at this time; because of the constriction of the rarified skin by the approaching cold.

SYMPTOMS. As the intermissions of this ague are long, consisting each of seventy-two hours, the cause or morbid humour must be very slowly collected, very viscid and cannot speedily act on the blood; hence follows the slow progress of the cold fit, 'till the circulation is become at length very languid; whence proceed the stagnation of the humours, painful distraction of the fibres and lassitude. Thus the *οστέωκοπος* or heavy pain of the bones, proceeds from a languid circulation and distension of the vessels of the *periostæum*; whence this sensation is unjustly attributed to the substance of the bones.

THE circulation is also very slow in the muscular parts; whence sympathetic pandiculations

lations arise, in order to propell the languishing humours. The slowness of circulation in the lungs, doth likewise induce yawning, in order to expell the blood from the lungs; all which symptoms continue longer here than in other agues.

IF the morbid humour of this fever is more than ordinarily acrimonious, the *horror* and *rigor* that would not otherwise happen, may be thereby produced.

As these peccant humours are slow and thick, the cold fit will last the longer; for it continues generally four, five, and sometimes six hours; and the more violent it is, the milder the hot fit will be, whilst the contrary happens in the other agues, particularly the *tertian*, whose cause is so very acrimonious and irritating, that when it is once put in motion, it excites the action of the solids, and disposes them to great oscillations in the hot fit. But in the *quartan* the febrile matter is much like glue, insipid, unactive, and more viscid than acrimonious; whence it will not irritate the vessels, nor accelerate the circulation: For these reasons neither the heat nor thirst of *quartans* are considerable. The urine, especially in the beginning of the cold fit, is clear and limpid; because the humours are so thick, that nothing passes through the kidneys but by pure expression; besides, for want of due motion, the sulphureous parts of the blood are not dissolved nor attenuated; wherefore the urine will not be red: but towards the end of this attack, the urine becomes muddy and

and turbid thro' the relaxation of the urinary tubes which afford it free passage; but it is not yet red, the motion being too languid for that purpose.

THE pulse is slow, but hard: slow because the matter is not acrimonious enough to irritate the arteries and provoke their oscillations: hard, because the viscid humours cannot roul in the capillaries, so they distend the trunks. It is this very spiffitude that renders sweats so uncommon in the *paroxysms* of this ague; whilst the great motion of the humours in a *tertian*, attenuate and dissolve them so as to procure plentiful sweating: for this reason the depuration of the blood is more abundant and perfect in *tertian* agues than in the present; whence the intermissions of the former are also more free from a fever: but the *paroxysms* of a *quartan* seem to reign still in it's intervals; wherefore the patient is in a languishing state, as well in the intermissions, as *paroxysms*; for these reasons *quartans* are not only obstinate, but hard of cure.

DIAGNOSTICS. The period of this disorder well observed, denotes it to be a *quartan*; but its *type*, after the second attack, shews whether it is simple or compound. The simple is known by what we have said; but if it be double, every second accession, or every fourth day's *paroxysm*, will agree in the number and intensity of their symptoms. For let us suppose two fits, the one on *sunday*, the other on *monday*, and two more on the following *thursday* and *friday*, that of *thursday* to agree

agree exactly with *sunday's* fit, and *friday's* fit with that of *monday*, and so on; this will be a double *quartan*.

BUT a triple *quartan* may be distinguished from a *quotidian* and double *tertian*, inasmuch as the attacks of a regular *quotidian* are the same in all respects every day, and return on the same hour; but if each day's fit differs from the preceding, so that every other attack agrees, and that their hot and cold fits are violent, it is a double *tertian*; on the contrary, if every third attack agrees with its correspondent, it is a triple *quartan*. Thus let us suppose three accessions in four days, one on *sunday*, another on *monday*, and the last on *tuesday*, with an intermission on *wednesday*, *thursday's* fit will correspond to that of *sunday* in all respects, and so on of the other days.

THE spurious *quartan*, as approaching to the nature of a *tertian*, is discovered by the violence of its *paroxysms*; hence we may say, that the cause is more saline and irritating than in a regular *quartan*.

PROGNOSTICS. This of all agues is the most obstinate and hard of cure; for the spissitude of its humour is very difficultly corrected: but in the other agues, the febrile matter is well attenuated, and almost evaporated after every *paroxysm*. On the contrary, the blood grows daily more viscid in this; whence it resists so much the action of all remedies, especially in autumn, which I count from the 15th of *August* to the 15th of *February*, from this last term, to the 15th
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of *August*, being spring; the year being, as it were, divided into two medicinal parts. Thus I esteem vernal agues to admit of an easier and speedier cure, for the nature of that season, by the growing heat, contributes to attenuate and rarify the blood: on the contrary, the excess of the preceding heat, impoverishes the humours, and renders autumnal agues so incorrigible; whence, I imagine, they were called mortal; for we are obliged to wait till spring for their treatment, though they often, even then, elude our efforts; for several observations attest, that they continued not only to this season, but also for several years. They generally prove mortal to old persons, being much fomented by the spiffitude of their humours, and languid circulation; besides, they are apt to produce scirrhus, or internal inflammations in those persons; whence proceed several kinds of dropsy, as *ascites*, *anasarca*, &c.

THE double and triple *quartans* are the most dangerous, particularly the latter, because their intervals are so short.

IT is a vulgar and ridiculous error to think that those who have once had a *quartan*, never have it afterwards; on the contrary, they become the more subject to it, through the spiffitude and other dispositions of their humours thereby induced, so that upon the concurrence of any of the fore-mentioned procathartic causes, they soon contract it.

Of irregular and erratic AGUES.

IN this chapter we have three things to examine; 1. whether there is any longer period of an ague than that of a *quartan*; 2. what the cause of erratic agues may be; 3. what they are, or in what they consist.

As to the first, some say with *Galen*, that there is not a longer period than that of a *quartan*; others on the contrary establishing their sentiment on a doubtful passage of *Hippocrates*, affirm, that there are agues of a longer period.

To reconcile these two opinions, we may say, that there are some agues which appear to be longer than a *quartan*, though there are none such in reality; for what is called a *quintan*, is in fact a *tertian*, whose third accession is either suppressed or imperceptible through the whole course of the ague. The same thing may be said of a *septan*, being really a *quartan*, of whose *paroxysms* none are perceptible, but those of every 7th day. A *tertian* may also seem to be a *nonary*, its *paroxysms* being suppressed, except those which fall on every 9th day. In like manner, the suppression of all the fits of a *quartan*, except every 4th fit, will give rise to a seeming *deciman*; for it happens here, just as in women, whose *menses* if suppressed at their ordinary period, generally tend to return on the same day the following month rather than upon any other, and so on, tho' they remained thus suppressed, not only for several months, but also years.

THE reasons of this irregularity for agues recurring on every 6th or 8th day, are not so manifest; because we know not to which of the three principal or simple agues, they may be reducible. But in general, the one, as well as the other kind ought be attributed to a viscid tenacious chyle, which is neither sufficiently copious, nor powerful enough to create a feverish *paroxysm*, but on the fore-mention'd days.

WE may observe in general, that all erratic agues approach more to the nature and character of a *quartan*, than of any other intermittent.

THERE is another sort of fever which observes the period of neither *quotidian*, *tertian*, nor *quartan*. This may recur once a week, month, &c. observing no determined or fixed time; for these reasons it may be more strictly called erratic.

THIS is a frequent consequence of a preceding ill-cured ague, especially of a *quartan*, when stubborn, and treated with the bark before the patient is well prepared for it; because this medicine only serves in this case to retard the disorder for some time, but it will as irregularly return, as the bark is taken. The same thing may happen in consequence of intemperance, grief and the like; because they augment the fault of digestion, especially if they supervene an ague: this class, as well as any of the former may be, as appears, likewise reduced to intermittents.

ANOTHER sort of fever has also been observed much of the same nature with the present, which comes by irregular fits, tho' not the product of any preceding ague.

THIS proceeds from any violent motion, debauching, regurgitation of the urine into the blood, through its suppression, &c. as also from violent pain and irritation, as when a patient is probed with the *catheter*, and the like, which is often succeeded with convulsions; violent exercise, as hard riding, &c. painful or suppressed *menses* in women, and the suppression of periodical hæmorrhoids in men, give room likewise to one or more irregular *paroxysms* much like these of an ague, though no such disorder has preceded. Of these fits, with their causes, we shall treat more at large in the diary fever to which they properly belong.

As often as a *quotidian*, *tertian*, or *quartan*, preserve an uniform *type* and period, they are called regular or legitimate; and these seldom or never degenerate into any other fever; but if they decline from this uniformity, they are called irregular; for a *tertian* which preserves the *type* of a *quotidian* or *quartan*, may degenerate into either; this is called irregular, the same thing may be said of a *quotidian* and *quartan* with their complications.

THE reason of this variety must be deduced from the different qualities and changes of the cause; for a *quotidian* may become a *tertian*, its cause or morbid humour, instead of being fluid and abundant enough to pass into the blood, and excite a *quotidian* in 24 hours,

requires on the contrary by its thickness and smaller quantity, 48 hours to be diluted, and become capable to produce the *paroxysm* of a *tertian*.

THIS variety of the morbid matter may be owing to a greater peccancy of digestion; viscid and glutinous aliments, retention of the bile, sorrow, grief, &c. for by this means, the matter which was before, or in the *quotidian*, fluid and mild, is now become acrimonious and viscid: strong purgatives, by draining off the serosities of the blood, and consequently rendring the remainder more viscid, may have the same effect.

FOR the contrary reasons, a *tertian* may become a *quotidian*: for whatever renders the peccant humour of a *tertian*, fluid and abundant will certainly give rise to a *quotidian*, instead of the former; the causes of this change may be plentiful drinking of any diluting liquor, attenuating remedies, &c.

IN like manner, if the *fomes* of a *tertian* becomes very thick and insipid, it will produce a *quartan*; as may likewise a *quartan* be converted into a *tertian*, by acquiring the qualities necessary for such, after the manner above described. But whilst the cause of any of these, preserves the same tenor and uniform consistence, &c. the fever will also remain the same.

NOW it may be asked, how these fevers of simple become compound; for instance, how a simple *tertian* becomes double, so that every other day's *paroxysm* is mild and weak whilst the other intermediate fits are more violent

lent, and by giving a *febrifuge*, that the weak *paroxysms* alone are removed, the more intense ones still subsisting.

THIS difference of the *paroxysms*, I imagine, is owing to a part of the febrile matter of the preceding fit, which remains till the next, whose cause and effect it augments; or perhaps the *febrifuges* which are often exhibited on this occasion before the patient is well purged, so rarifie, attenuate and augment the quantity of the crudities of the first ways, that they will be sufficiently active and abundant, to produce two *paroxysms* successively, whereas they could but one before 'till a new collection was made, and all this independantly of the remainder above mentioned.

THESE humours may also be rarified by various means, but especially by the bark, which if given before the patient is duely purged, may of a simple *quartan*, produce a double one. Much the same thing happened to *Galen*, for being in a consultation with other physicians, complaisance obliged him to exhibit the *theriaca* to a woman affected with a *quartan*, before she was purged; whence of a simple ague, it became a double one. The same thing may be said of all other remedies of this class, whose use before due preparation, will render the patient worse. We may observe, that the milder *paroxysms* are removed as abovesaid, for their cause does not so much resist the action of the remedies, as that of the more violent fit does.

WE may likewise observe, that the conversion of a *quotidian* into a *tertian* is not a bad sign. 1. Because the *tertian* is easier cured. 2. Because it's intervals are longer. The same thing might be understood of a double *tertian* or *quartan*, which become simple; wherefore, it is evident, that these changes very much influence the prognostics of these fevers.

FINALLY, it may be observed, that a simple *quotidian*, *tertian*, or *quartan*, may be discovered by the *type* of their first attack; but the erratic fevers are so subject to change their *type* in every *paroxysm*, that they are difficultly known; nevertheless, they generally preserve the *type* of the ague, which gave them birth. For, I do not here mean the transitory fits which proceed from pain, exercise, &c. for of these I shall speak in the *febris ephemera*.

*The ordinary Cure or Method of treating
the foregoing AGUES.*

IN this chapter I intend to give only the regular treatment of these fevers, which is much the same in all their different kinds, a few circumstances, particular to each, excepted; reserving for the next article, the irregular cure, which consists in some specific and uncommon remedies.

To proceed methodically in the cure of an ague, it must be considered as well in its *paroxysms* as intermissions; as also when it is incorrigible by the ordinary method.

CONSIDERING an ague in its attack, it requires no greater attention, than to render it supportable to the patient, as well in the hot as cold fit. Thus, if the latter be not very violent, the patient should walk or sit, but never lye while it holds, for by this means its violence is much abated. But if the cold fit be so intolerable, he may keep his bed, be well covered, and rubbed with warm napkins; nor must he drink, if possible, while this fit continues, otherwise the morbid humour, being thus diluted and rendered more fluid, will the sooner enter the blood and augment the disorder.

IF the patient's pulse be very weak, we may order him a cordial, as the *theriaca*, in a small quantity of generous wine: nor are the *horrors* and *rigors*, though great, to be much apprehended.

THE vomiting, *cardialgias*, &c. whose causes we have already given, ought not to be promoted by warm water, or stronger vomitives; but let the patient's finger alone perform this office, to ease him of some part of his burden, and lessen the disorder.

WE must be very exact in observing the beginning of the hot fit; which formally appearing, possesses the nose and extremities before affected with cold. This hot fit is attended with a high, full, and soft pulse, redness of the visage, &c. but these signs are too imperceptible in the hot fit of a *quotidian*, to be distinguished from the cold one: wherefore

we should avoid giving the patient drink in the cold fit, as mistaking it for the hot one, or at least he must drink very sparingly, till towards the middle of the hot fit; nor must he even then take any thing else but simple water or ptisan. Nevertheless, the continuation of the hot fit of a *quotidian*, which is about twelve or fourteen hours, may direct us farther in discerning it from the cold one.

IN the intermissions of these fits, the patient may be fed with broths, or the like: nor should he, as some would have it, be lightly covered during the hot fit of this fever, on the contrary, let him be kept warm, in order to promote sweating, that the morbid matter may thereby be more plentifully evacuated.

IF the heat be intolerable, the patient young and plethoric, he may be let blood in the arm during the hot fit: but let the bleeding be performed in the foot if he be troubled with violent head-achs, or other affections of the head.

THUS far of the method of cure in the *paroxysms*, now of what is to be done in the intermissions. The method of cure resulting at this time from the indications, are 1. To prevent *metastases*, or inflammatory obstructions. 2. To evacuate the morbid humour. 3. To correct the remainder. 4. To impede its regeneration.

THE first indication is principally answered by bleeding; but it is disputed, when it should be done; for the antients recommend it in the
inter-

intermissions; saying, that in the *paroxysms*, nature struggles with her enemy, consequently that then she should not be weakened by withdrawing the blood, which, as they say, is the only source of life.

THE moderns, on the contrary, recommend this practice in the very *paroxysms*, with whom I likewise join. But the necessity and quantity of this evacuation should be directed by the symptoms. Thus, if the patient has a head-ach, *delirium*, high pulse, difficulty of respiration, *nausea*, or vomiting, if he be young and plethoric, &c. let him be bled speedily and plentifully, to prevent inflammatory depositions in the stomach, or other *viscera*, according to the threatened part. Bleeding in general in all kinds and circumstances of agues, should be once at least performed: but when the acrimony of the humours is great, it should be repeated as often, as in a *tertian* and *quartan*, but more seldom in a *quotidian*, as being the mildest of all.

IF the blood tends to the superior parts, as the affections of the head will denote, order the bleeding in the foot; if to the inferior parts, as vomiting, &c. will evince, let it be performed in the arm. If none of these symptoms appears, it may be indifferently performed in either.

THE second indication is to evacuate the morbid humour by vomatives or purgatives, or a cathartico-emetic. We must insist more on vomitives, than any other remedy; for they remove the peccant humours, without

conveying them into the lacteals, as the purgatives do: but they must be ordered only for robust patients, who have a strong large breast; because those who are subject to coughing, spitting of blood, or the like disorders; as also pregnant women, or such as have copious *menstrua*, cannot bear them. These remedies should be always exhibited at the very beginning of the intermission, that it may have time enough to operate, before the next fit begins. The most usual emetics for this purpose are some preparations of antimony, as *vin. emet.* which I prefer here to the *tart. emet. ipecac.* &c. I own the *ipecacuana* is very efficacious, not only in exciting vomiting, but principally as an incisive remedy; which quality I have discovered in this root, by several experiments. Nevertheless its action is too doubtful where a powerful emetic is necessary, both because of its variety, not being always of the same efficacy, as also being frequently adulterated, and containing sometimes more, sometimes less resinous particles.

THESE emetics, as we remarked, should be given at the beginning of the intermission, or rather at the very end of the hot fit, as near as can be conjectured, especially in the *quotidian*, whose intervals are very short, that thereby it may have sufficient time to work before the next fit begins. Thus it may be dissolved in some of the patient's ptisan, and taken about the sixteenth or eighteenth hour of the *paroxysm*. But the intermissions of a
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tertian and *quartan* are too perceptible for us to be deceived in the time.

AFTER the use of the vomitive, a purgative may be given at a proper interval ; but we must be always sure to purge the patient effectually, especially if he be strong, young, and if intemperance has preceded. The purgatives therefore calculated for this purpose, are hydragogues, as *jalap. scammon. pulv. cornachin.* but these do wonders in the *quotidian*, which, as we observed, is attended with great ferocities. Cholagogues, on the other hand, should be rather prescribed in the *tertian* ; because it is produced by humours analagous to the bile. Of this class are *senn. rhabarb. mann. &c.* But stronger purgatives than the last named, should be employed in the *quartan*, as *jalap. diagryd.* and the rest which are accommodated to the *quotidian*.

THESE remedies must, like the emetics, be ordered in the intermissions, or at least towards the end of the hot fit, for instance, an hour or two before it is over. These must be repeated more or less according to the circumstances, but principally according to the effect of the first or second exhibition of them, or the patient's tendency to a cachetic constitution, preceding debauches, &c. The same circumstances will also require the use of the said cathartico-emetic, which is often useful on this occasion.

AFTER these, the bark may be used ; but I would rather begin with alteratives, particularly in the *tertian* and *quartan*. Of this class

class are *sylsymbrium aquat.* *cherefol.* *cichor.* *borrag.* *bugloss.* *rad. jencian.* &c. These may be ordered in broths or apozems.

THE third indication consists in correcting the febrile matter; the most efficacious remedy we know for this purpose is, the bark given after the use of the above alteratives.

To know what this medicament is, we may observe, that it is the bark of a small *peruvian* shrub called *Gannaperis*, by the natives. The best is that which is eminently bitter, neither too thick, nor too thin, and of a ferruginous colour.

ABOUT sixty or eighty years ago, it was brought into *Portugal* by Cardinal *Lugo*, whose name it retained for a time, 'till it was communicated farther by the *Jesuits*; from whom it was afterwards called the *Jesuits bark*. Some have erroneously called it *Kinakina*, or *Kinkina*, thinking it was first brought from *China*; wherefore this name was invented only to conceal the country, whence it was brought. It is not as good at present as formerly; because the peasants of that country, are said to have destroyed the best trees of it, to be revenged of the *Spaniards*; so none remain now but such as are in marshy or uncultivated places.

THIS drogue may be prescribed every fourth hour during the intermission, if the *paroxysms* be violent. Some give it only three times in the whole intermission: But its use should be regulated by the circumstances. For if the intervals are short, the violence of the
ague

ague increasing, with little or no remission, it should be frequently and largely prescribed, and *è contra*.

FORMERLY it was not given so frequently, but ordered in a larger dose; for physicians were then content to give it only twice, but in the quantity of ʒss . in each dose. Now it is used more frequently, and in a smaller dose, at most to ʒj . through the delicacy of our modern patients; though I have seen it formerly given to ʒij . which I would still recommend in all pressing circumstances; but in ordinary cases, the dose may be ʒj . only.

THE bark may be ordered in substance, decoction, tincture, or extract.

To give it in substance, it should be reduced to impalpable powder, and taken in some fluid vehicle, as ptisan, or bitter decoction. If this form, through the bitterness of the bark, is nauseous to the patient, it may be ordered, as formerly it was, in a bolus, made up with honey, the whole being covered over with a wafer. The bark ordered in substance, acts more efficaciously than in any other form; for, as its different parts analysed by chemistry, &c. are not bitter, so neither do they separately cure the ague. Hence its virtue seems to consist in the *aggregatum* of all its parts. Nevertheless, if a sudden check is necessary, through the violence and frequency of the fits, it will do better in a fluid form; or it may be ordered in a decoction; to make which, let the bark be boiled in common water,

water, wherein you dissolve some fixed salt to divide its resinous parts, that it may the sooner communicate its virtue to the water: or, instead of simple water, we may employ a decoction of *camædr. cichor.* or *borrag.* When all is sufficiently boiled, we may strain the whole upon the cold seeds, that by this means we may render the decoction emulsified.

THE next form is its tincture, or infusion, which is commonly made by infusing the bark in wine, especially such as begins to ferment; for this will sooner extract its virtue than any other. But its infusion in any wine is very active; wherefore it should be given only in a *quartan*, but never in the subintrant ones. This preparation of the bark is called *vin. kinkinat*, or *kinkinites*.

A tincture of the bark may be also made by the help of brandy. But as its infusion in wine is very active, this will be still more; hence I would not recommend its use but in cold climates, or strong and cold temperaments.

THE extract of this simple is likewise very efficacious. It is made by boiling the bark in water, till all the humidity is evaporated. The dose is xx grains.

THIS extract is also made by the help of a machine, lately invented by an ingenious country gentleman. This piece resembles a chocolate-mill; it is half filled with water, wherein is put a sufficient quantity of bark reduced to a powder, then the engine is put
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in motion for two hours, till by trituration, the best part of the bark is extracted. The whole then should stand and clarify, by depositing a sediment. Then it is poured off *per inclinationem*. This is one of the most efficacious preparations of the bark. Its dose is from xviii. to xxv. grains.

THE bark is not only given alone after any of the preceding methods, but very often with purgatives and fixed salts. The purgatives must be adapted to the nature of the ague, as we remarked before, such as *sen. diagryd. rhabarb. jalap*, &c. these and the bark may be made up into bolus's, opiates, or decoctions. But the bark, combined with purgatives, should be given only once a day in the morning, and simple *kinkina* at the other medicinal hours.

THE fixed salts are combined with the bark, the better to divide and extract its resinous parts, and to remove the obstructions that sometimes attend the ague. These salts are principally *sal. absynth. tart. arcan. duplicat.* but especially *sal. ammon.* to xv. or xx. grains.

THE following febrifuge plants may be also boiled with the bark. *camædr. centaur. min. absynth. camomel.* They may be in like manner reduced to powder, and given along with the bark in substance, with which may be likewise given absorbent remedies.

To explain how this medicine operates, three things must be observed, 1. That the cause or morbid humour of agues, is the off-
spring

spring of indigestions. 2. That this chylous matter is both viscid and acid in general. 3. That the patient's blood is thereby proportionally inspissated. Now as the bark cures an ague, it must correct these three. Hence it strengthens the stomach by a gentle vellication, and this in a more eminent degree than all other bitters, particularly when given in substance. For these reasons, it is an excellent stomachic, corrects indigestions, and restores a good appetite by promoting a more copious secretion of the gastric lymph, &c. It is likewise better accommodated to those patients, whose stomach is lined with a sort of mucilage, both because it divides, attenuates, and separates it, and is thereby hindered to act immediately on the fibres of the stomach. On the contrary, bilious sensible constitutions cannot so well bear the irritations of the bark in substance; wherefore its tincture, or such like preparation, should be employed.

THE second effect of the bark, is to divide and attenuate the above chyle, and very probably the blood: for we find, that the bark boiled in milk renders it more fluid.

LASTLY, this remedy seems likewise to correct the acidity of the febrile matter. For we find that being infused in vinegar, it renders it sweeter.

FROM these effects, we may conclude, that it is the most sovereign febrifuge still known; and that its substance or powder has some particular quality undiscovered, which renders it

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it more efficacious than all its other preparations.

THE fourth indication, I mean of benign agues, not of the malignant sort, of which hereafter; this, consists in hindering the regeneration of the morbid humour, and diminishing what still remains.

THIS is principally obtained by a severe diet; for the cause is weakened thereby, and the patient is disposed to a speedier recovery. On the contrary, debauching will not only foment the disorder, but also render it obstinate and incorrigible. Thus I have seen some patients, who by fasting, and a strict regimen alone, were soon rid of their agues; whilst such as neglected a regular diet, prolonged their sickness for several years. For these reasons the patient should eat but very little, especially of solid food; for he should be rather fed with broths, fresh eggs, and the like; nay, even these should be avoided, till after the third or fourth attack in the *tertian* and *quartan*. The patient above all things should abstain from wine, and spirituous liquors, for they render the febrile matter too active.

IF the disorder is so obstinate, as to resist this general treatment, or that it is thereby only stopped for some few days; then returning, and so on for some months or years. We may then justly suspect, that the disease is principally owing to the patient's intemperance, or some obstructions in the abdomen, particularly in the liver; whereby all the humours
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of the body, especially the digestive humours are vitiated, thro' the regurgitation of the bile: whence the chyle, for want of it's necessary preparation by this liquor, becomes viscid and apt to communicate the same fault to the blood; for this reason, we rarely see any considerable obstruction of the liver without some *paroxysms*, much like those of an ague.

FROM what has been said of these obstinate inveterate agues, we may establish three indications for their cure. 1. To prescribe a new and regular method of living to the patient. 2. To remove the obstructions. 3. To attenuate the humours.

To fulfil the first, the patient's intemperance should be checked, he should be frequently purged, then repeat the use of the bark.

As to the second indication, if the liver is obstructed; as may be discovered by a heavy pain in that region, by the patient's colour, and that of the urine, or it's sediment; we must then have recourse to aperitives, particularly opiates of some preparation of *mars*. The following I always found to be very efficacious.

R. Ferr. rubigin. gr. xvij. rhabarb. digryd. aa gr. x kinkin. gr. xx sal. ammon. gr. xij. mel. q. s. m. f. opiat.

THIS remedy may be continued for a considerable time, using in the interim some aperitive broths or apozems, 'till the bile freely runs through its former ducts.

AFTER

AFTER the preceding remedies, the patient may use the mineral waters best accommodated to his temperament in a proper season. Thus if he be bilious and hot, let him take ferruginous waters; if he be of a fat, cold and bloated habit of body, bath-waters will do better; for they powerfully cleanse the first ways, and remove obstructions. The waters of *Bourbon* or *Balleruque* are of this kind.

THE third indication consists in attenuating the viscid humours, for which intent all aperitives are useful, but chiefly mercurial preparations, particularly the *æthiop. miner.* are excellent, viper or snake-broth is also powerfully deobstruent, sudorific, and febrifuge at the same time.

Of the vulgar cure of AGUES, with some uncommon remedies called specifics.

THO' most of the following remedies are of little efficacy, and seldom used; yet this treatise would seem defective without them.

1. The first of these is *monsieur Bouquet's nostrum*. This is nothing else but the bark combined with the *bier. picr. galen.* though the *biera picra* heats and gripes violently, yet I take this remedy to be the best of the *arcana*.

2. The febrifuge plants of the antients. These are *camomel. galen. absynth. roman. camædr. centaur. min. aristoloch. omn. specier. calutrap.* or *card. stellat.* all which after sufficient bleeding, purging, &c. may be used in decoctions

coctions or otherwise, instead of the bark. To the above may be likewise added *rad. gentian. pulverisat.*

3. A sort of oval or heart-like, and extremely hard fruit, brought from the *philippine Islands*, called by the *Spaniards*, *pepitas de bisايا*, but more generally *fabæ sancti Ignatii*. These are very rare, and much esteemed; yet are inferior to the bark, and several other remedies of the same class. They are extremely bitter, and are generally rasped. The dose of their powder is xij grains.

4. *Nuces gall. or cort. fraxin. vel quercin.* These are corroborative, and are preferable to the syrup made of *milium* or *frument. sarazen.* along with figs boiled in whey. This is called the syrup of *St. Ignatius*, probably because of its virtue, which at most, is reducible to its sudorific quality. It was formerly much in vogue, as well for the venereal disease, as the ague; but now justly neglected.

5. *Theriaca* dissolved in brandy, is much recommended; and tho' it considerably augments the following *paroxysm*, yet it diminishes or removes the rest. Gun-powder is put into the above composition for the same intent; but it is more powerful than the former remedy.

6. Some get themselves drunk before the *paroxysm*, that they may bear it the better, or to render themselves insensible of it. The advantage procured by this means, is to promote vomiting, that thereby some of the morbidic humour may be evacuated. But unfortunately

fortunately instead of an ague, it gives rise very frequently to a continual fever, or renders a simple ague double.

7. Some drink their own urine; which though in appearance a ridiculous medicine, yet is very often of great service.

8. Some cut off the head of a pullet, whose blood they immediately let fall into the patient's broth in a sufficient quantity. This they immediately drink, which I own may be done without danger; but it is useful only in as much as it is a gentle sudorific.

9. The *Arabians* were accustomed to open the *salvatella* of the left hand, thinking that the spleen which they imagined to be the seat and secretory organ of some agues, particularly of the *quartan*, may be evacuated thereby. But the happy discovery of the circulation has banished this error.

10. The most dangerous and violent specific of all, is *arsenic*, which some use, to the destruction of their patients. It may be somewhat tolerable in *quartans*, as also in cold pituitous subjects, whose stomach is lined with a sort of *pituita*, whereby the *spiculæ* of this poison are blunted; to these it may be given in their broths, or boil'd in river-water, to which it will communicate some of its particles, just as mercury does in the mercurial water. Though this may remove an obstinate *tertian* or *quartan*, yet I never would recommend its use.

11. The following are more frivolous specifics, and of less note than the preceding,

viz. *epithemes* or *epicarpes*, which are applied to the patient's wrist, and there left till they blister it.

THEIR effects are owing to the pain they cause, and to the impressions they make on the patient's imagination. Some are composed of cobb-webs, vinegar and salt; others of the pulp of the plant called *crow's-foot*, or *ranunculus*. Some have recourse to the simple compression of the radial artery for an hour or so. But (as it appears) all the good effects which depend on this, are owing to the patient's imagination.

FINALLY, some surround the patient's little finger with a ring made of an egg-shell: others recommend amulets, which they hang about the patient's neck, with a thousand other such like odd amusements, which only serve to insinuate and recommend the *quack*, rather than to be of any real service to the patient; for 'tis in fallacy and imposition alone that consists the great secret and skill of empiricks.

Of continual Fevers, and particularly of the
EPHEMERA.

CONTINUAL fevers, strictly speaking, are such as have neither remission nor intermission, preserving much the same tenor in all their progress. The ancients divided them into diary, putrid, and hectic fevers.

THE first they derived from the inflammation and agitation of the spirits; the second from the corruption of the humours; the third
called

called hectic or habitual, ἕξος, *habitus*; because they are generally of a long continuance; these they deduced from the fault of the solids.

THE moderns, with more reason, divide these fevers into acute and chronic. The first have different degrees, according to their intensity and danger: hence they are divided into acute, very acute, most acute, and acute *per desidentiam*, as they say.

THE longest term of acute fevers never exceeds forty days: for such as exceed this time, are called slow, or chronic fevers.

CONTINUAL acute fevers are also divided into simple and complicate: the first are so uniform, that they seem to consist of one attack only; but the second have regular or irregular redoublements.

THE continual simple fevers above-mentioned, never protract longer than seven days. Three several fevers may be comprehended within this time; as, 1. The *ephemera*, whose duration is ordinarily of twenty-four, or at most of thirty hours. If it holds three, four, or five days, it is called *ephemera extensa*; but if it continues to the seventh without redoubling, it is called *synochus simplex*, or *non putris*, to distinguish it from a putrid fever of the same continuance.

OF the second class, or compound continued fevers, are all such as are complicated with regular *quotidian*, *tertian*, or *quartan* agues, whether simple, double, or triple; hence is said a continual double *tertian* fever, and so of the rest, according as the *type* of the

attacks approaches to that of a *quotidian*, *tertian*, or *quartan*.

As all other fevers have their beginning, augmentation, state, and declension, so have these. As to their beginning, they generally invade with a more or less intense cold or hot fit, according to the cause: their augmentation may be also slow or speedy. The state is very short in the *febris ephemera*, but longer in the other fevers. Their declension is much the same, except some little variety owing to the causes, &c. The termination of these fevers is various, some end by plentiful sweats, others by urine, and some very often terminate in a yellow jaundice, especially in bilious constitutions.

DIFFERENCES. The most essential to be made here, I mean of the *ephemera*, is into legitimate and illegitimate. The legitimate diary fevers, are all such as preserve their proper *type*, as before, without any redoublings during the afore-mentioned time. The illegitimate *ephemera*, or *febris extensa*, and *synochus*, are those which preserve not the same tenor, but recur by fits. Moreover the simple *ephemera* may become compound, or may degenerate into an acute extended fever.

CAUSES. All things that inspissate the blood, or accelerate its motion, without any other preexistent fault, may produce these fevers: hence there are two classes of causes, 1. Such as produce cold fits in the beginning of these fevers by inspissating the blood; 2. Such as produce these incipient fevers by heat alone,

so that both are transitory, and not the effect of any inveterate peccancy.

THE procathartic causes of these two classes, are bad diet, causing simple indigestions only, which by the paucity and mildness of the morbid humour, are incapable of creating agues; but intemperance is the most frequent cause of the first class.

THE causes of the second class are all such as suddenly agitate the humours, particularly the animal spirits, as passions of the mind, *viz.* anger, sudden grief, as also immoderate watching and exercise, especially if the patient be not accustomed to them. These causes open their scene with a hot fit.

To these causes may be added likewise all sudden irritation of the nerves, as that caused by drastic purgatives or poisons, if the crudities of the first ways do not obtund them; the introduction of the *catheter* into the *urethra*, or any other painful operation; suppression of customary evacuations, cold air or baths, infarction of the glands of the breast and armpits, as we often see in children; *caries* of the teeth, whereby the gums are inflamed; and many other such like causes which irritate the nerves, or trouble the circulation. The reason why this irritation should cause an *ephemera*, is, I imagine, because the skin is thereby thrown into an universal constriction, whence the circulation is disturbed.

WE shall make the following reflections on this diary fever.

I. When it arises from crudities of the first ways, painful operations, with some few of the above-mentioned causes, it always begins with a cold fit ; but with a hot one, if it proceeds from the rest.

II. If it holds longer than twenty-four hours, we are not only to attribute this effect to external and transitory causes, as simple indigestions, or depravation of the first ways, &c. but also to some other fault more ingrafted in the humours.

III. When the blood is charged with an acid chyle, or acrid particles, through the retention of any excrementitious humours, as the matter of transpiration, &c. If any occasional cause occurs, as drunkenness, or other intemperance, not only a fever of one, three, or seven days continuance will happen, but more commonly a longer continued fever, with redoublings perhaps.

SYMPTOMS. The symptoms of a simple continual fever, or *ephemera*, are very evident, as a frequent, high, strong, and full pulse ; red and ardent, or sometimes crude urine : red, if the fever has begun with heat ; crude, if with coldness and spiffitude of the humours. The heat is not burning, but only preternatural. The vital functions are not very much impaired ; but the imagination is somewhat more lively than usually, though not so intense as to denote a *delirium* : respiration, and the other functions, are not sensibly injured. In its declension, it is terminated by muddy urine, slimy excrements, or yellow-jaundice

jaundice; in which last case, the fever was kindled by the bile, which being now attenuated, runs through its accustomed emunctories.

DIAGNOSTICS. If the fever is somewhat advanced, these are manifest; for its augmentation, state, &c. are very short. But as the shortest *ephemera* holds longer than the longest fit of an ague, which is at most of fifteen hours, or thereabouts; wherefore we can distinguish it after the first *paroxysm*.

THAT the *ephemera* becomes a *febris extensa*, is known by its augmentation, which in this case will be of two days, whilst it should be naturally only of some hours. The length of the augmentation, state, &c. distinguish also a *synochus simplex*, or a fever of seven days from any of the former. If the *ephemera* redoubles, it is a continual complicated one, and *é contra*. The *diagnostics* of the causes are learned of the patient, theory, &c.

PROGNOSTICS. These are in general very favourable in the simple *ephemera*; because the cause is slight and transitory, whether it be seated in the first ways, blood or glands. The *febris extensa*, as it presupposes a more obstinate cause is more dangerous; but the illegitimate *ephemera* is to be apprehended more than either. Yet all are more or less dangerous, according to the different circumstances.

Of complicated FEVERS.

THE different fevers comprehended under this head, are rather one and the same in reality; which has, notwithstanding, several denominations. These fevers may be divided in general into regular or periodical, and irregular complicate ones. The periodical fevers are continual, but subject to redoublings, which correspond to the *type* of some ague. For instance, a continual fever whose *paroxysms* resemble those of a *tertian* ague, is called a continual compound *tertian* fever; because its attacks return every other day; but if they recur every day, or only every fourth day, it is called a continual compound *quotidian* or *quartan*; but we are to observe, that the continual fever still subsists even in the intervals of the *paroxysms*. These fevers may be also complicated with a double *tertian*, double and triple *quartan*; whence they are called continual double or triple *quartans*.

BESIDES these regular complicate fevers, there are also irregular ones, whose *paroxysms* approach to the nature of those of erratic agues of which before.

To assign the causes, and account for the variations of these fevers, two general systems have been invented, each of which has many abettors. The first sustains, that these fevers, which seem to be essentially continual, though they partake of the symptoms of an ague, are rather subintrant agues, or such whose *paroxysms* are

are so long, that before one is quite ended, another begins; as we see in some double *tertians*, and triple *quartans*, whose intermissions are so short, that they either seem to be actually continual fevers, or give room to such, and they say, that these fevers put on the appearance of agues by returning with more violence at certain hours; so that in this respect, they pretend to explain, as well the complicated regular, as irregular continual fevers, by this theory of agues.

IN the second system is supposed, that all these fevers are essentially continual ones, on which supervene a simple, double or triple ague, whether regular or erratic, and so give them the appellations hitherto mentioned.

WHICH of these two sentiments we should follow, is not easy to decide: yet I am inclined to believe, that these disorders in some respects may be explained in either; whereas I am persuaded that some of them were essentially agues, whilst others were originally continual fevers, on which afterwards supervened the fits of an ague. Thus let us begin with the intermittents, which in process of time appear to be continual. That there are such is indisputable; for we see some agues whose fits are so long, and their intervals so short, that they seem immediately to succeed each other whence they assume the form of a continual fever. This happens through the fault or abuse of the non-naturals, as violent passions, depraved aliments, &c.

ON the contrary, we find that some fevers which appear in the beginning to be continual, by a methodical treatment, as bleeding, regular diet, &c. become at length legitimate agues, which is a sufficient proof that they were such from their origin, otherwise they would not have degenerated. Thus we find that some fevers, which in the beginning appear to be agues, become at last by the length of their fits, continual; and that on the contrary such as appear in the beginning continual fevers, become agues at length. Why the fits of an ague become so long, is owing to the abundance and activity of the morbid humours, which are capable of producing such effects. Wherefore all things that augment the foregoing qualities, will also protract the fits; hence patients who live intemperately during their agues, by eating and drinking too much, especially in the *paroxysms*, are very subject to passions, as wrath, or grief, &c. but chiefly if there is a certain peccancy in the blood, of which hereafter. All patients of this kind, are subject to render the fits of an ague so long, as to pass for a continual fever, especially if it be a double *tertian*, or triple *quartan*.

BUT we cannot explain the continual simple *tertian* or *quartan* in this system; so that we must have recourse to the other, whose treatment and probability we shall first establish; for which purpose let us observe the fits of some continual complicate fevers. These are often so mild, that they bear no proportion to the continual fever which seems to be their basis:

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consequently the cause of these fits, is not that of the original fever; wherefore they are only additional to it: this is farther confirmed by the effects of the bark, which as being the only specific in agues, is ineffectual in all continued fevers; but in this case the bark removes the *paroxysms* of the ague, whilst the continual fever still subsists; consequently the original fever was continual, and the said fits were only accidental to it.

THE causes of the preceding disorders, are, as we have said of fevers in general. 1. Obstructions whereby a free circulation is interrupted; and, 2. the acrimony of the humours which irritate the solids, and accelerate their motions.

THE first is produced by the unequal spiffitude of the humours, whence they are either subject to create, or have actually produced inflammation of the *viscera*, as the liver, lungs, &c. as we have observed in a *hepatitis*, *pe-rypneumony*, &c.

THE general cause of the second, which is the acrimony of the humours, may be some adventitious *fomes*, as we see in the small-pox, measles, *eresypelas*, king's-evil, and gout; all which, as long as their *miasmata* continue in the blood, keep up the fever very often for twenty days or more.

BUT the particular causes of the spiffitude which produces these fevers, are, intemperance, peccant chyle, passions of the mind, infected air, as when impregnated with arsenical particles through earth-quakes, or when considerable

derable subterraneous caverns are laid open, I omit here the explanation of the causes of inflammation, because their theory is intelligible from what we have already said. I likewise omit the explanation of the causes of the small-pox, measles, &c. as being too foreign to my purpose.

THE abovesaid acrimony is frequently owing to the retention of the bile, transpiration, and other excrementitious humours; for these, mixed with the juices of the body, soon communicate their acrid quality to them, whence they stimulate the solids, and increase their motions.

THOUGH what we have said may be capable of producing continual fevers, yet without the crudities of the *primæ viæ*, they will not give rise to the additional fits of an ague: so we must suppose these to enter into the mass of blood at certain intervals, in order to produce this effect: nay, though such crudities were not previous to the continual fever, yet they are soon collected through the weakness of the organs of digestion; for this function is impaired in all disorders of this kind, as the loss of appetite, and other symptoms prove; so that in the progress of the disorder, simple broth alone may cause these crudities.

THAT these peccant humours, whether prior to the disorder, or collected in its course, always attend a continued complicate fever, is evident, 1. Because the more the patient is nourished, though with simple broth, the more the disorder is augmented. 2. By purging the patient

patient only once, the disorder will for the same reasons increase, but by repeating this remedy, the disease is diminished.

THE more acid the above crudities are, the more violent the cold fit will be, and *é contra*; so that if these are bilious, little or no cold fit will appear.

THOUGH some observations evince, that double and triple *quartans* supervene these continual fevers, yet I have never seen them. Simple, *tertian*, and *quartan* agues are also rare in this case; because their intermissions are too long to become subintrant, or because their fits should so immediately succeed each other, as to cause a fever of this kind. But when there is an accumulation, or settled peccancy of the humours, the fever thence resulting has the period of some malignant fevers, which is commonly of twenty or twenty-two days.

WE are to observe, that all these fevers, which are essentially intermittent, though apparently continual, have their *paroxysms* in *type* and period much like that of the ague, whence they arise; for instance, if a *quotidian* or double *tertian* (the usual causes of this disorder) have created these fevers, their fits will still retain the characters of those of a *quotidian* or double *tertian*; observing, that every third fit of a *tertian* is always more intense than the rest, which are milder, and correspond to each other. As the fits of a triple *quartan* have also but short intermissions, they may give rise to a subintrant fever, and consequently to the present.

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As we have proved the cause of intermit-
tents in general to be chiefly the crudities of
the first ways, so we must admit the same as
the cause of agues of this kind.

THESE crudities, according to their quan-
tity and quality, generally give rise to one or
other of the different agues before men-
tioned, for when they are very copious and
fluid, the fits of a *quotidian* happen; if more
viscid, those of a *tertian*, &c. But they are
seldom so uniform in this case, as to give rise
to a genuine *quotidian* or *tertian*; on the
contrary, they produce rather double irregular
agues of this kind; for if the half of these
crudities be fluid, and the other more tena-
cious and viscid, the former will be speedily
transmitted into the blood, and produce, ac-
cording to its qualities, the morning fit of a
quotidian, whilst the remaining portion being
more viscid, will not enter the course of cir-
culation till night, at which time it will re-
compence its stay by a more violent fit. The
same thing may be said of the different kinds
of *tertians* and *quartans*, whose theory may
be referred to this place.

THIS theory, as well as that of agues in
general, will sufficiently explain those of the
erratic kind, which likewise frequently super-
vene continual fevers.

THE procathartic causes which give rise to
all the foregoing variations, are the great a-
gitations and passions of the patient, irregular
diet, nay even simple broths unseasonably
taken; and though they do not create a
febrile

febrile *paroxysm* immediately after they are taken, yet the patient and nurse will not fail to reckon three, when perhaps there were but one or two, and that because the pulse is considerably raised by the use of these broths. The same thing may be said of the other pro-cathartic causes.

It may be also observed, that these reloublings are more frequent and violent in the beginning of these fevers, than in their progress; yet their intensity may be augmented for some days by a greater collection of cru-rities in the first ways, from the use of nourishing rich broths, which cannot be well digested in this case. The too early exhibition of purgatives, especially when they are not strong enough, nor duly repeated, will have the same effect; for in the above case, they evacuate but small quantity of the peccant humours whilst they hurry the remainder into the lacteals and render it more active.

HOT, spirituous, and cordial remedies exhibited in the beginning of these fevers, make them more intense, by causing more frequent and violent fits, which they may also render regular.

THESE *paroxysms* on the contrary, are much alleviated by a strict diet, and by the continuation of the disorder; for by this means the morbid humour is either corrected, attenuated, evacuated by the common emunctories, or all its qualities are altered. The fits of these fevers become milder likewise, through the use of strong or repeated purgatives, by the

use of alterative remedies, the bark, and plentiful drinking of some proper liquour; for though abundant drinking may hasten the next fit, yet by diluting the morbidic humour, it hastens its termination.

BESIDES these genuine *paroxysms* of an ague there are others which resemble them, such as the fits which happen in suppuration, or upon the reception of *pus* into the blood. Wherefore the crudities of the first ways are not the only cause of such *paroxysms*, though in conjunction with the *pus*, they may contribute to their production and augmentation; nay in these concomitants of suppuration we may say that the crudities of the first ways are rarely absent, since the use of purgatives and febrifuge remedies so considerably diminish the violence of these suppurative fits.

1. WE are to observe, that the cold fit of these complicate fevers, is hardly sensible but in the first days.

2. That the cold fit is not so violent in these fevers, as in simple agues, because the humours in these are languid before the *paroxysm*; whence they are the more susceptible of any change induced by crudities, or any other cause; besides, the blood is not in a sufficient motion at their approach, to attenuate and evacuate them before they can produce their effect.

THUS some persons, who are not accustomed to be purged, will by the mildest purgatives have a solubility of body; whilst such

as are used to these remedies will not be moved by a considerable dose of a strong purgative.

HENCE, as the humours are in a great commotion in these fevers, being constantly agitated by the continual and permanent disorder, so these crudities, when conveyed into the blood, are immediately attenuated and expelled; wherefore they cannot have time to inspissate the other humours, nor can they consequently produce any great cold, as experience evinces.

3. The *paroxysms* of these continued complicated fevers, generally happen by night.

SOME chimerically attribute this to the absence of the *materia subtilis*, which, as they say, prevented this cold fit by its subtile action on the body in the day time; but it's languid motion by night, gives likewise room to a lentor of the humours, &c.

BUT I would rather deduce the reason of this from the patient's manner of living by day, when he eats or drinks more, and consequently gives room to crudities which are formed, and are put in action at night; for had he changed his manner of living, by eating and drinking, *viz.* at night, and fasting or living very regular by day, the *paroxysms* would happen in the day-time.

DIAGNOSTICS. I have purposely omitted the symptoms of these fevers, in as much as they are continual, intending to enumerate them at large in the article of the ardent fever, otherwise called *Causos*. As to the symptoms with which agues are complicated, we may

consult the several chapters where we have treated of them. We therefore come to their *diagnostics*, examining first, whether they are simple or complicated. This, as also their regularity or irregularity, will appear, by observing their changes and comparing them with each other during the three first days. But it is more difficult to discover whether they be essentially continual or intermittent. Though this disquisition is of no great moment in the beginning, seeing the nature of the fever manifests itself afterwards; yet we may be sure, if it intermits in the beginning, and if it has some free intervals, that it is a legitimate ague, whether *tertian*, *quartan*, &c. that has thus degenerated: but if its beginning affords us no light, treat it first in the general method for all fevers, as bleeding, purging, &c. and its kind will afterwards appear; if it does not, and if the accessions are sensible, order the bark, whereby if the fits are removed, whilst the continual fever still subsists; we may conclude that the original fever is a continued one. Nay, independantly of this method, if we find no proportion betwixt the *paroxysms* and the continued fever, as when one is mild, and the other violent, we may conclude the same thing.

PROGNOSTICS. All fevers in general which redouble, are more dangerous than simple ones; for they rarely terminate before the fourteenth day, nay they sometimes hold till the twentieth or twenty-second day. Moreover, they frequently create *metastases*. Yet the danger varies according to the intensity of the

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the fever, lesion of the function, especially of the vital ones, such as the degree of difficult respiration, *delirium*, &c. for we may then justly apprehend a deposition of the humours in the brain or lungs. The danger varies likewise according to the violence and length of the fever and *paroxysms*, as also according to the patient's constitution, whether healthy or cachectic, &c. In a word, this disorder is so changeable and subject to varieties of more or less danger, that a prudent physician, should give a dubious prognostic of it.

Of the semitertian AGUE, or hemitritæus.

THIS fever is called *semitertian*, as being compounded of a *semitertian* a *quotidian*. It's reality is very much disputed, as well by the antients as moderns.

Galen has treated of it with more exactness than any other author. Many strain some passages of *Hippocrates*, to insinuate that he understood and described this fever, under the title of a continual cold one, with other symptoms: but it is probable, that he never met with or knew such a fever.

THIS disorder is described by those who treat of it, a continual fever, with periodical or regular redoublings, which so recur, that the fits of a *quotidian* appear every day with *paroxysm* of a *tertian* every third day;

HENCE may be concluded, that every third day the patient has two fits, the one of a *quotidian*, the other of a *tertian*, whence the

cold fit continues most part of the day; wherefore this fever was called by some *febris horrida*.

THIS as a continued compound fever, deserves the next to be considered. The ancients supposed it to be a continual *quotidian*, with the supervening fits of a *tertian*, whether simple or subintrant. When the former is complicated with a simple *tertian*, *Galen* calls it a genuine *femitertian*; but if with a subintrant *tertian*, he calls it spurious.

THE foregoing fevers, are compounded, as we have proved, of a simple continual fever, and the additional fits of an ague, or of these and the continued fever. This on the contrary, is only the result of two agues; for which reason, I refer you for the theory of its causes to the article of agues. Besides its existence is so uncertain, that I am not fond to say any thing of it.

SYMPTOMS. This ague has a *paroxysm* every day, but two on the third, of which the cold fit is very long, being compounded of two cold ones. The pulse in this fit is small and changeable, the urine crude and limpid, but the hot fit is mild, and bears no proportion to the cold one; the pulse is at the same time stronger and softer; the urine more turbid and red, &c. to which we may add, what shall be hereafter mentioned in the burning fever.

DIAGNOSTICS. These signs are very obvious; for as often as we observe a seeming continual fever, redoubling with two fits of unequal violence on every third day, with one
fit

fit only on the intermediate days, we may conclude it is a *Hemitritæus*.

To discover whether it be legitimate or spurious, is more difficult; yet this is learned in the progress of the disorder, particularly by the use of the bark, which if it removes the fits of a *tertian*, the *paroxysms* of a *quotidian* still subsisting, we may esteem the *quotidian* to be the basis, and the fever to be genuine, and *è contra*.

PROGNOSTICS. The multiplicity of *paroxysms*, and variety of symptoms render this fever more dangerous than a simple one: for it is very subject to produce *metastases* in several parts, and to degenerate, as *Galen* affirms, into a *febris lypiria*, and inflammation of the *viscera*; nay, some affirm, that it often becomes malignant.

MOST authors agree, that it is an acute disorder. *Avicenna* is the only one of the ancients quoted to prove, that it belongs rather to the class of chronic fevers, saying, that it continues sometimes for seven months. But I imagine this passage is corrupted, or should be understood rather of some *quartans*.

BEFORE we put an end to these different kinds of fevers, it will not be amiss to take notice of a symptom which commonly attends them, and is the reversion of the lips, particularly of the lower one.

THIS symptom proceeds from the eruption of some small, red, painful, and itching pustules or vesicles, which appear on that part, and which are analogous to the *papillæ* of the

small-pox, scurvy, or *herpes miliaris*. The consequences of this symptom give rise to two questions, 1. What it is, and in what it consists. 2. Why the fever ceases at its approach.

To answer the first, we should take a view of the structure of the lips. These are chiefly composed of a cellular or glandular part, covered with a red thin pellicle. These glands being compressed, emit a pinguious substance, called the sebaceous humour, intended by nature to moisten and lubricate the lips, and thither conveyed by a great number of excretory ducts, which open on the surface of the lips. Some will have it, that the above pustules are owing to the obstruction of the said ducts from a viscid and acrid lymph: But why this sebaceous humour should be augmented in this case, and have the qualities already mentioned, I will not undertake to answer at present.

THO' I do not deny but these eruptions may proceed from that source, yet, I think, that the usual and predominant cause, is an acrid *saliva*, which irritates the excretory ducts, causes their constriction, and consequently their obstruction. This I am inclin'd to believe, 1. Because it is the lower lip, as being more constantly bathed with the *saliva*, that mostly suffers. 2. Such patients as frequently wet their lips with the *saliva* during an ague, infallibly contract this evil: for the acrimony of the *saliva* has the same effect here, as the eating of acrimonious aliments have by blistering the lips, mouth, &c. From
this

this may be manifestly concluded, that as these tumours are very tense, and contain an acrid humour, they soon burst and disappear, nay, in some few hours, leaving many small ulcers on the lips.

As to the second question, or why the fever should cease when tumours appear, some answer, because this is a *crisis*, or critical depuration of the humours, whereby the peccant matter is thrown off and lodged there: just as we see in the small-pox, measles, &c. but some in opposition to this sentiment, admire how the quantity of matter necessary to create this disorder, could be contained in so small a space as in the labial glands which are few in number. Yet this is not surprising, if we only consider what a small quantity of matter is capable of producing a fever; besides, not only this sebaceous humour, but also the *saliva* is impregnated with a general peccancy. As to the derivation of this peccant matter to the lips, we may say, that the morbid humour bears some affinity with the *saliva* and sebaceous humour, whereby it unites with both, just as the venereal or scrophulous matter mixes with other humours, their effects being always proportionable to the nature of the cause.

An examination of the authority of Hippocrates, with some general methods for the cure of the preceding fevers.

HIPPOCRATES has delivered an *apborism* which so nearly borders upon the cure of the foregoing fevers, and clashes not only with the present practice, but also with reason, that I cannot pass it by, without making some reflection; thus, *Concocta medicari oportet, non vero cruda nisi turgeant.*

SOME have been infatuated enough to deem the authority of this man so unquestionable, that they would by no means purge in fevers, before this concoction happened, as they imagined; but for my part, though I have been bred up in a faculty, where there has been great deference paid to his works, yet I dare question the truth, not only of this *apborism*, but of many more in his writings; wherefore,

1. As *Hippocrates* was not inspired, consequently fallible, we ought, notwithstanding all the veneration that has been shewn him, rather bring his reasons, experiments, &c. to the test, than blindly subject ourselves to his authority.

2. He was ill-versed in anatomy, botany and chemistry, the chief foundations of medicine, as we find by his works. For what little of anatomy he knew was confined to osteology, and a rude notion of the structure of brute-animals, which alone he dissected.

3. He was too much employed in the practice of medicine to make the necessary experiments;

periments; moreover, he lived in a barbarous age, when men hardly begun to get the better of ignorance; nor were there experienced physicians in or before his time, to furnish him with any great light. For we find no regular schools of medicine established in those days, but that of *Coos*, where *Hippocrates* was bred, and an obscure one at *Cnidos*, which he puts in competition with the former; wherefore, as some great physicians say, when medicine is not supported with due instructions and experiments, it is defective; consequently we who have the happiness of all these advantages, may question the truth of the principles of a writer, destitute of such advantages as *Hippocrates* was.

4. This author lived in an isle of the *archipelagus*, a climate very different from ours, by its heat and other qualities; where were also used aliments very dissimilar to ours, as we learn from the same writer, who speaks of the flesh of dogs, wolves, &c. being eat in that country.

5. His remedies were also different from ours; for we find, that he knew, or made use of no other purgative, but *Hellebore*; and perhaps this alone was what gave occasion to his *aphorism*; because it was too violent to be exhibited in the beginning of a fever; on the contrary, we who have such variety of cathartics calculated for the different stages and changes of a disorder, may more boldly order them in such cases, in which they may be followed with better success: so that from the
vulgar

vulgar axiom, *idem agens in idem, agit eodem modo*, we may deduce, that the observations of *Hippocrates*, as being built upon a different method of cure, remedies, constitutions, &c. should be no rule for our present practice; since the chief foundation of all good and correct observations, are the same remedies, exhibited in the same circumstances; because these have commonly the same effects, and *è contra*.

FROM what we have said, it evidently appears, that the works in general of *Hippocrates* are not warrantable: to which add, that they are very uncertain; nor is it yet determined, whether the book of *aphorisms* in question, with several other parts of his writings are his own.

Galen and *Erasistratus*, for several reasons, have divided these works which pass in the name of *Hippocrates*, into three parts; the first they attributed to himself, and called them *genuine*; the second *spurious*; and the third *dubious*. This is another reason of being diffident of their infallibility, though what is spurious be very antient.

Now we come to examine this *aphorism* more closely. For the very name seems to favour our proceedings; because the word *ἀφόρισμος* signifies unabridged sentence or extract; but it is incredible that *Hippocrates* during his own life should give an abridgement of his works.

THO' this author was a man of great wit and good sense, yet, we partly demonstrated, he

he was no physician, finding no one physical system in all his works, but some few ill-digested dispersed tracts, which do him no honour; moreover, he was extremely addicted to vulgar opinions; for in the cited *aphorism*, *Concocta medicari oportet, non verò cruda nisi turgeant*. What are the words *concocta*, *cruda*, and *turgeant*, but poor and vulgar metaphors; nevertheless they have given room to very voluminous commentaries. But what means he by *cruda*, if not a thin, fluid, raw humour, I know not: thus a load of phlegm, whilst thin, may perhaps be called by this name; but if it becomes thicker, it may be called likewise *concoctum*. But the word *turgeant*, I imagine, signifies the rarefaction, or *orgasmus* of the said matter. Besides these uncertainties, the whole purport of the *aphorism* is very doubtful.

BUT abstracting from this *aphorism*, or its intent, let us come to purgatives, and consider their effects. These are chiefly to purge the first ways of their crudities, the off-spring of ill digestions, debauching, &c. as also to evacuate the bile, *succus pancreaticus*, and other humours of the different organs in the *abdomen*; besides thus cleansing the first ways, these remedies likewise purge and deplete the blood.

Now let us see whether the actions of a purgative are adequate to the nature of a fever in its different stages. As to the cleansing of the first ways, it is unquestionably useful; for the *fomes* of the disorder, when we are
well

well persuaded of such, and of its abundance, is, and may be thereby removed, as well in the beginning, as in the height and decline of a fever; nor should we wait for the concoction of the humours, or their greater spissitude, since they are then more difficultly evacuated; and is it not more useful to remove a growing disorder in its infancy, than to let it gather new force according to the *Hippocratical* system? Nor will clysters, as some of the followers of this sentiment assert, be sufficient to supply the place of purgatives, for they do no more than evacuate the lower intestines, by the expulsion of the gross excrements alone.

As to the second question, or depuration of the blood, I own that purgatives can do but little towards it in the beginning of the fever, and are of greater efficacy towards the end, and this for three several reasons, 1. As the intent of these remedies is to promote the discharge of the humours contained in the blood-vessels, &c. but whilst these are too viscid, as they are in the beginning of the disorder, this effect cannot be expected; hence their attenuation in the progress of the fever should be waited for. 2. The glands and vessels swell so much at this time with those humours, that they mutually compress each other, and hinder the excretion of the fluids. 3. The accelerated circulation has so blended these morbid humours with the blood, that they are not easily separated, nor present themselves to the orifices of their secretory ducts with that equable

equable and gentle circulation, so necessary for a laudable secretion.

THESE reasons may seem sufficient to justify the antients, who never prescribed those remedies, but in the declension of a fever; nevertheless, as they always evacuate something of the morbid humour, though they do not much affect the blood, I would still recommend their use even in that respect: for it is of great consequence not only to purge the first ways, but to carry off some of the morbid humours of the blood, though never so little. For these reasons the moderns hasten to bleed in the small-pox, rather than to evacuate either by cathartics or emetics, for the disorder is hereby considerably weakened; yet this practice must not be understood indiscriminately of all fevers, for instance, the malignant, with some others, of which hereafter, for it would be dangerous.

SOME of the followers of *Hippocrates* observing these advantages, did not stick at giving minoratives in the beginning of fevers, but strong purgatives towards their declension.

THO' there are no remedies more efficacious in these disorders than the foregoing, when we have good indications for them, yet it is very difficult to determine precisely the time wherein they should be exhibited; nay, this is almost impossible without seeing the patient, and knowing the state of his disorder; nevertheless, after sufficient bleeding, perhaps four or five times, and treating the patient with clysters, proper drink, &c. they may be ordered

dered on the fourth or fifth day in the greatest remission of the fever, always avoiding them in the exasperation or violence of the disorder; though sometimes these remedies may be ordered on the first or second day, as when the fever arises from intemperance, or any other excess which may give room to a sudden collection of crudities.

THERE are some cases to be remarked here, in which only mild purgatives should be administered, as in the inflammation of some *viscus* of the *thorax*, but more especially of any in the *abdomen*, particularly of the stomach or small intestines, in which last cases nothing but minorative apozems should be ordered, and that with great caution; but a *dilut. cass. ptisan. reg.* and such like, may be successfully given in the inflammations of the large intestines.

As to the affections of the head, which are principally owing to those of the first ways, as *delirium*, *lethargy*, &c. emetics are highly beneficial.

THEY may be also given, but with great caution, in case of abundant crudities, but seldom in the pleurisy, peripneumony, inflammation of the stomach and intestines, though they may be repeated oftener, and with better success, in the inflammation of the large intestines.

As to the continuation of the above purgatives, they may be repeated every other day, while we suspect any remainder of the crudities; but the dose should be very gentle.

SOME of the most expert followers of *Hippocrates* say, that the reason why he rejected the use of purgatives in the beginning of fevers, was, because of the tension or *erythysmus* of the solids at that time; for they say, that all acute disorders are attended in the beginning with this symptom, and that they are necessarily augmented by the use of these remedies. Thus they endeavour to justify their opinion.

To answer this, we should know what an *erythysmus* signifies; wherefore we are to observe, that it may be understood in two senses, 1. of a convulsive contraction or tension of the muscular fibres. 2. Of their distention through the quantity and rarefaction of the contained humours, the former we sometimes see in the lower belly, and is commonly attended with an inflammatory disposition of the parts affected, and consequently will not admit of purgatives without augmenting the disorder. Moreover the constriction of the fibres being augmented, all the excretory ducts are so contracted that they emit nothing: nay, some fibres or vessels may be ruptured in consequence of their great irritation by the purgatives.

In the latter case, or simple plenitude and distention of the vessels, it is different; for as it is no genuine *erythysmus*, it will admit of purgatives, which will be notwithstanding the more efficacious by a previous and copious venesection, whereby the distention may be removed; and this is the case in

most fevers: we may therefore conclude, that the danger of augmenting the *erythysmus* is merely a *chimæra*.

The particular cure of the foregoing AGUES.

HAVING refuted the above-mentioned *Aphorism*, which has been so long pernicious to the medicinal practice of *Europe*, we now come to speak of the general indications in the foregoing fevers.

THE first indication is to hinder the effects of these fevers, particularly *metastases* and inflammations, which are to be apprehended in all of them; for fevers are all inflammatory dispositions, through the rapid circulation, rarefaction of the humours, their violent action on the vessels, and, finally, the plenitude and infarction of the capillary arteries; so that this is the most pressing indication of all.

THE second indication consists in diluting and cleansing the first ways.

THE third consists in the depuration of the blood, by carrying off all its noxious humours, whether adventitious or innate.

THE fourth is to correct the particular fault of the blood, and the morbid humours, which could not be removed by the other methods. The most predominant fault in this case is the spissitude or acrimony of the juices.

THE remedies required by the first indication are principally bleeding, which is the first, and most efficacious of all; then diluents to remove the dryness and tension of the vessels,

vessels, by relaxing them, and at the same time to correct the spiffitude of the humours.

THE second indication is fulfilled by emollient, and sometimes purgative clysters: for, though their action is confined to the lower intestines, yet they are useful. Diluents are next of great efficacy to render the crudities of the *primæ viæ* more fluid, and fit for excretion; though their fluidity hasten the febrile *paroxysms*, yet they gradually diminish the violence of the disorder; purgatives notwithstanding do this more effectually, particularly emetics, when they are indicated by the different affections of the head before remarked; to which add the other signs of crudities in the first ways, especially in the stomach; for if they are lodged in the intestines, cathartics will do better, and should be thrice repeated.

THE third indication demands a speedy and plentiful evacuation of all the intestinal excretions, as the bile, pancreatic juice, &c. This is fulfilled by repeated purgatives, or according the phylician's prudence, by diuretics or sudorifics, as the morbid humours tend more one way than the other. As the disorder advances, it presents a new indication. Hence if the preceding indications are fulfilled, the following comes of course.

THE fourth indication is chiefly intended to correct the peccancy of the humours, *viz.* to attenuate their viscidty; and though this effect is partly produced by the accelerated circulation,

lation, yet it should be assisted by attenuants, as the bark, diluting broths, &c. If this fever degenerates into a slow one, milk, and the other remedies to be proposed in that article, must be employed. As to the remedies intended to correct the acrimony of the juices, we shall treat of them hereafter; observing in the mean while, that this last indication must be principally understood of as many only of the preceding fevers as partake of the nature of an ague. Nay, there are even hardly two of the preceding indications that present themselves at the same time, but occur rather at different times of the disorder. The indication, for example, of preventing *metastases*, happens in the beginning; that of purging, or depurating the humours, towards the state; and to correct the peccancy of the blood, and remainder of the morbid humour, presents itself in the decline of the fever.

IN the beginning of the fever, the patient must eat nothing, and should be bled five or six times; then order a glyster; afterwards a very simple light ptisan for his ordinary drink, as that made of *Gram. Canin.* always avoiding strong ptisans in a fever: for if simple water was not too crude, it would be the best drink, because of its simplicity.

IF the disease yields not to this method, the patient may be purged about the fourth day, preferring emetics, if his head be affected, as, *tart. stibiat.* iv. gr. If this be not sufficient, dissolve some grains of the same in a proper vehicle, which the patient may afterwards
take

take to promote vomiting; and to purge the more efficaciously, we may order a cathartic, when the vomit has done working, or a *cathartico-emetic potion* may be ordered in the very beginning.

IF there is no indication for vomiting, prescribe a simple cathartic, as *ptisan. reg. man. sal. veget.* &c. If the intermission of the fever be very short, order more active purgatives, that their operation may be over before the next *paroxysm* begins, which if it be violent, the patient may be bled, though the disorder be far advanced; but we must always endeavour to purge in the longest intermissions.

MOREOVER, it must be remarked, that in all acute disorders, it is a general rule, to preserve a constant solubility of body, one day by purgatives, another by clysters, and so on.

NOR do the words of *Moliere* stain the honour of medicine by reducing its practice to the simple principles of bleeding, purging and clystering; to which had he added the use of diluents, and understood this method of acute disorders, he would have comprehended their complete cure.

HAVING thus far treated the fever, we shall examine what particular and predominant cause still foment it; for if it be a spissitude of the humours, as may be known by the patient's coldness, small pulse, slight thirst, &c. treat it with attenuants, as *decoct. cichor. chærifol. cum syr. cichor.* and what is more efficacious, with an apozem made of the bark, &c.

IF the fault of the humours be a predominant acrimony, as the patient's heat, thirst, cough, &c. will inform us, order cooling baths, barley-water, and at last well clarified whey. Nor must we prescribe the bark in this case, for it heats too much, and may consequently augment the disorder. To all these we may add apozems of several kinds, as the circumstances require. Thus if a purgative apozem be necessary, let it be made of *manna*, with *fuccory*, or the like. If a laxative one only, or somewhat diuretic is necessary, it may be made of *bugloss*. *borrag*. *cichor*. &c. If the urine does not pass freely, it may be rendered sufficiently diuretic with *scolopendr*. *borrag*. *chicor*. *cum cristal*. *miner*.

IF the morbid humour inclines to pass by sweat, let the apozem be sudorific, and made of *fol. card. bened*. *scorzoner*. &c.

THESE remedies are often useful, but as often superfluous, and only serve to gratify the patient's imagination.

WE shall now examine another celebrated principle of the antients, much in vogue till about thirty years ago, which was, that they never bled in the *paroxysms* of a fever, nor on the critical days.

Now it may be demanded, whether bleeding may be performed as well in the fits, as in the intermissions, and on the medicinal days.

As to this practice of the antients, none of the moderns follow it, but bleed rather in the very *paroxysm*.

THE antients, in vindication of their doctrine, alledge, that the *paroxysm* of a fever is the conflict of nature with the disorder, and consequently that she should not be disturbed nor weakened by drawing blood, which they called the treasure and support of life, least by this means the disorder should get the better.

BUT this reason is groundless, seeing bleeding in this case debilitates the disorder, not nature, as the effect evidently proves. Moreover, the morbid humours being now put in motion and rarified, the vessels are too much distended, and their action hindered, so that the extraction of the blood brings them to an *equilibrium*, and enables them to react on the solids; whence nature is invigorated.

IN the intermissions, on the contrary, if we open a vein, little or no blood will appear, or at least after a languid manner, whilst in the former case it vigorously rushes from the orifice: besides, the patient rarely faints if he be blooded in the *paroxysm*; but in the intermission he is very subject to it, the circulation being so slow and languid; whence we may conclude, that bleeding is more proper in the hot fit than in the intermission: but the last bleeding especially should be performed during the *paroxysm*, and the quantity of the blood taken away, should be proportioned to the violence of the disorder, &c.

THO' I have preferred bleeding in general in *paroxysms*, rather than in the intermissions, yet I would not absolutely discommend the latter, especially if the preceding symptoms are

not apprehended ; for this very often weakens the following *paroxysm*.

As to the place of bleeding, its choice depends on the symptoms ; for instance, if any of the parts to which the superior *aorta* distributes arteries, as the head, &c. be affected, let it be performed in the foot ; if the lower parts be affected, bleed in the arm ; if neither, we may bleed indifferently any where.

Now we come to another enquiry, *viz.* whether bleeding may be instituted on the critical days.

To answer this, we should know what the critical days are.

THE antients divided the days of an acute fever into critical, indicatory, intercalary, and medicinal. Of the first were the 7th, 14th, and 20th, or 21st days of the disorder, which were called critical, because the symptoms of the fever on these days, afforded the physician some light to judge of the disorder. The indicatory days were so called, because they indicated a future *crisis*. Thus the 4th day was the indicatory of a *crisis* on the 7th ; the 11th of the 14th ; and the 17th of the 20th, or 21st. The intercalary days were those of an imperfect *crisis*, as the third, &c. The medicinal days, or those on which the medicaments were exhibited, are all the other vacant days. As to the two first days of the fever they had no particular names.

THO' this notion has been exploded from modern practice, yet it was better established than any of the former. For I must own that
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the antient practice in fevers gave room to real *crises* and critical days, whether good or bad, though they did not fall precisely on the time mentioned by the antients: but the regularity of these *crises* was principally owing to the method of cure which then prevailed; for if a *crisis* impended, nothing was then ordered for the patient but some simple drink, or gentle refrigerants.

BUT the irregularity of these critical days in our time, is owing to seasonable bleeding, purging, &c. whereby the morbid humour is almost removed, or at least diminished, and so cannot be collected in a sufficient quantity to produce an apparent or regular *crisis* on the forementioned days.

THIS sentiment is farther confirmed by the scarcity of *parotides*, *bubo's*, purple fevers, and such like critical depositions or eruptions, which are so uncommon in our days, as being prevented by bleeding, purging, &c. the antients, on the contrary, neglecting these means, frequently brought on the aforesaid symptoms. From all which I conclude, that bleeding and purging may be performed without any regard to critical days, provided they are indicated.

Of slow Fevers, and first of the PHTHISIS.

HAVING hitherto treated of acute fevers, we now come to the chronic ones, beginning with that which proceeds from an abscess or exulceration of the *viscera*, as the lungs, liver, kidneys, &c.

As those internal abscesses, or ulcers, constantly furnish more or less *pus*, which is absorbed and conveyed into the common course of circulation, being saline and acrid, it necessarily stimulates the vessels, promotes their oscillations, and corrupts the juices; whence a slow, not an acute fever, is kindled; because the *pus* is not active enough to create the oscillations of the vessels, and other violent symptoms necessary for the production of an acute fever.

As to the qualities of the *pus*, they are manifest, being formed of the lymphatic gelatinous parts of the blood, the other particles being dissipated through the motion of the solids. That the *pus* is formed of the lymph, its qualities prove. 1. Because it is white, or of a lymphatic colour. 2. It sinks in water, as the fibrous lymph does. The other qualities whereby it differs from the lymph as its acrimony and dissolubility in water, are owing to the salts which remain in it, as being too fixt to be evaporated, and to the action of the solids, whereby the fibrous lymph is so attenuated, that it becomes much more dissoluble, than when pure.

CAUSES.

CAUSES. *Pus* is the genuine cause of this slow fever, being continually absorbed into the blood; this matter derives its origin from some internal suppuration, abscess or ulcer. The abscess particularly, is a collection of *pus*, without issue, contained in a *cystis*. Wherefore, as having no vent, it is absorbed by degrees. The ulcer being only an opened abscess, still furnishes *pus* in like manner; and has consequently the same effect. The abscess in general is speedily or gradually formed; speedily as in the inflammation of the lungs, &c. which if not resolved from the seventh to the tenth day, will again so augment the fever, and other symptoms, that it will sufficiently denote an approaching suppuration, abscess and slow fever.

THIS fever happens in consequence of an abscess of any *viscera*, as of the lungs, liver, *uterus*, mesentery, diaphragm, stomach, &c.

THIS abscess may likewise owe its rise to the suppuration of tubercles in any of the said *viscera*, without any preceding inflammation, or at least an insensible one.

THESE tubercles are lymphatic glands of a lymphatic vessel, which in the natural state are soft and invisible, but now apparent thro' their obstruction by a viscid lymph.

WHILST they are simply obstructed, they are called crude; but if they begin to suppurate, they are called suppurated; in which case they acquire a considerable bulk, through the rarefaction of their contents, and by this means, compress the ambient parts; whence
their

their suppuration, though slowly, is forwarded. The suppuration is slow, because the circulation is so in all lymphatic vessels, to which add the spiffitude of their contents in this case, which are not easily put in a suppurative motion; hence the middle of the included lymph, as being most susceptible of this motion, first begins to suppurate, and to give rise gradually to *pus*, and a slow fever. When the tubercles are once ruptured, the patient vomits *pus*; in which state he is said to have a *vomica pulmonum*; but as these lymphatic receptacles are dispersed in the substance of all the *viscera*, there is none of them but may be capable of producing this *vomica*.

HAVING explained the nature of the first cause of a slow fever, or of an abscess, we now come to the explanation of the second, or of an ulcer.

THIS ulcer is two-fold, the one is the result of an opened abscess, the other is originally the effect of a simple ulcer. The first kind of ulcer proceeds from any of the aforesaid abscesses, whether purely phlegmonous, or tuberculous. But the slow fevers arising from any ulcer, is milder than that of an abscess; for the *pus* is not entirely absorbed in an ulcer having other free issues, as the *bronchia*, if in the lungs; the urinary ducts, if in the kidneys; the intestinal canal, if in the intestines, &c. on the contrary, the *pus* of an abscess finds no other passage but the absorbent vessels.

THE second kind of ulcer, or that which is primorally an ulcer, is produced by the erosion of the affected *viscus*, by a corrosive humour, which from a superficial exulceration becomes at length a deep ulcer.

THIS is commonly the product of some ruptured blood-vessel, whether by coughing or other efforts, whereby a kind of suppuration and ulcer ensue. The ulcer by erosion happens in the several cases wherein the lymph is very acrid, as in inveterate catarrhs; as also from an acrid gravelly urine in the kidneys; *succus gastricus*, and caustic remedies in the stomach and intestines, a suppuration of necessary or customary evacuations; and so of many other causes of the same kind, in the other parts of the body.

FROM this we may conclude, that the phthific, or slow fever, is as various as the different parts which may be affected: thus a phthisis may be called pulmonary, hepatic, stomachic, or intestinal; so that there is hardly a part of the body but may give occasion to it.

SYMPTOMS. . Before we speak of the symptoms, it is necessary to distinguish a slow fever into an essential and symptomatic one. The first comprehends all slow fevers proceeding from suppurated tubercles, simple ulcers from erosion or rupture of the blood-vessels. In which cases, after some spit streaked with filaments of blood, a *phthisis*, or slow fever, gradually comes on.

THE symptomatic slow fevers presuppose some other disorder, particularly inflammation and abscesses, as peripnumony, *hepatitis*, &c.

To give more light into the theory of the symptoms, we must remark the different stages of the *phthisis*, as its beginning, augmentation, and state; for in each of these, not only the symptoms, but also the danger is different.

IN the beginning, or first degree, I mean of an essential slow fever, a general languor, or insensible weakness, slight heat and thirst only appear. These augment insensibly, the patient's pulse becomes agitated, irregular, and feverish, especially after meals and towards night, the acrid ill-elaborated chyle then entering the mass of blood. The mildness of these incipient growing symptoms, is owing to the small quantity of *pus*, which is not as yet sufficiently formed, or copious enough to create more violent symptoms.

THE symptoms of a slow symptomatic fever, are more sensible in the incipient *phthisis*, because they are the immediate offspring of an acute disorder, which created in the very beginning as much *pus*, as was sufficient to characterize this disorder very early.

IN the second degree or augmentation of the phthisic, which was originally essential, as the cause has acquired sufficient force, the symptoms of the first degree will be very manifest, particularly the redoublings after meals,

as heat and flushings in the face, an hectic fever, nocturnal sweats, &c.

IN the second degree of a symptomatic fever, as the patient is very much extenuated, none of the mentioned symptoms, except the redoublings, are well characterized; nevertheless his very aspect declares the disorder.

THE third degree or confirmed *phthisis*, whether symptomatic or essential, is so remarkable, that it requires no characteristics; for the consumption of the patient's body is so excessive, that the very substance of the parts, nay the flesh, membranes, tendons, &c. are gradually wasted; for what is lost in a healthy state by transpiration, and other evacuations, is proportionally repaired. On the contrary, in the phthisic, wherein transpiration is twice greater, nay more, thro' the violent heat, dissolution, and acrimony of the humours, &c. whereby all the parts are so worn and consumed, that the very skin cleaves to the bones; nor are these losses retrieved, the digestions and chyle being so much vitiated.

THE eyes are also sunk in their orbits, through the consumption of the fat, which surrounds them, and keeps them in a proper situation in a healthy state. An incurvation of the nails over the extremities of the fingers, through the loss of their pulpous support; whence the wrinkled skin contracts them.

THE patient becomes at length extremely pale, because of the small quantity of blood, dryness of the skin, and languid circulation, whereby

whereby little or none of the red globular part of the blood is conveyed into the cutaneous blood-vessels, whence paleness necessarily follows.

IN a word, the patient has still the *facies Hippocratica*, which is so called, because it was well described by *Hippocrates*. Moreover the *omentum*, and other adipose parts of the *abdomen*, are so consumed, that the *musculi recti* seem to touch the back, and by their alternate action, raise the intestines towards the diaphragm.

As to the fever in this state, it is so considerable, and its returns so violent, that it seems to be rather an acute, than a slow one.

DIAGNOSTICS. It is of great consequence in this fever to know its period or degree, especially the first and second, or beginning and augmentation, being absolutely incurable in the third degree.

THE first and second degree are manifested by a slight decay, heat, uneasiness, interrupted sleep, feverish pulse, especially after meals and at night; all which symptoms are the same, but more intense in the second degree.

THE above symptoms, with the following, will help to distinguish a symptomatic fever from an essential one. An incipient symptomatic fever may be justly apprehended, if the internal inflammation before mentioned, be not resolved in the ordinary time, but is terminated in suppuration.

THE discovery of an essential fever is more difficult, especially when we could wish to know

know its cause; nevertheless, that it has sprung from tubercles, may be known by the touch, if they were seated in the *viscera* of the *abdomen*; if in the lungs, a difficulty of respiration, dry cough, asthma, &c. attend them. if it depends on corrosion, we discover it by the patient's hot and bilious constitution, acrid lymph, inveterate catarrhs, suppression of the *fluor albus*, &c. The gravel and acrid urine have also their particular signs, which are easily discovered; so by strictly and minutely examining the circumstances, we come to the knowledge of the different causes; though in most, except the gravel, this disquisition is useless, the method of cure being the same in all.

PROGNOSTICS. All slow suppurative fevers in general are dangerous, because internal ulcers cannot be well deterged, and without detersion, they can never be cicatrized, yet their danger varies according to the nature of the cause; for that which proceeds from erosion is incurable, being continually fomented by an obstinate internal cause, but that which happens in consequence of a peripneumony, or tubercles, is very often cured; for the first is only accidental, without any vitiated disposition of the humours, and the second is so mild, that it hardly excites a febrile motion: nevertheless, though the last or tuberculous ulcers may seem to be healed, yet they frequently return, and the former cavity of the tubercle is filled anew with *pus*, whereby a fistulous ulcer is produced at length.

Notwithstanding the patient lives generally a long time with it.

THIS fever is much more dangerous in young persons, or in those from the age of eighteen to thirty-five, or forty years, than in old people; for the vivacity of the former, tension of their solids, and exaltation and acrimony of their humours, contribute to inflame the lips of the internal ulcer, and to foment it constantly; whilst the contrary reasons render its progress slower in old persons, in whom this kind of phthific more commonly terminates in a cachexy or dropsy, of which more hereafter.

Of a tabid FEVER and CONSUMPTION.

THIS slow fever is attended with an universal consumption of the whole body without suppuration or exulceration; whence it differs from the preceding fever, which proceeds from such causes. It is called *tabes* or *marasmus*, by the *Latin* writers, not *phthisis*, whereby they rather understand a slow fever, produced by suppuration, or exulceration of some of the *viscera*, &c.

Its causes may be reduced to five principal heads, of which the chief and most frequent is.

I. THE obstruction of the excretory ducts of both the excrementitious and recrementitious humours, which being retained in the blood, dissolve its principles, and render it acrimonious, whence a slow fever of this kind is soon kindled. This daily experience proves

for we see that all such considerable obstructions of the *viscera*, especially those of the *abdomen*, which are the most ordinary seats of this disease, soon give rise to it. The great quantity of excrementitious and recrementitious humours secreted in the abdominal *viscera*, gives also occasion to this; for instance, the bile when acrid, the *menstrua*, *fluor albus*, &c. once suppressed, as they are abundantly secreted, they seldom fail of producing this fever.

BUT we must beware not to confound the sudden obstructions of these parts, which are the parents of acute disorders, with the slow obstructions, or those formed gradually by a small portion of these morbid humours at a time, which when collected in a sufficient quantity, rather produce slow fevers. Nor do these obstructions seize the whole *viscus*, otherwise it would soon become mortified.

II. The schirrous disposition of the glands of these *viscera*, but most commonly of the mesenteric glands; for these organs, like so many vesicles which communicate with each other, are easily obstructed by a viscid lymph.

THIS vitiation of the lymph is induced through the abuse of the non-naturals, as hard, or otherwise indigestible aliments, but more commonly by a scrophulous, scorbutic, or venereal taint, whereby the lymph is inspissated, its course retarded, and at length rendered acrid. If the lymph is naturally susceptible of these qualities, it will the sooner acquire them by stagnating in the said organs; whence results at length this slow fever.

Nor is the obstruction of a few glands capable of producing this effect, but that of a great number of considerable ones is, and especially of such as are the common receptacles or trajectory glands of several lymphatic vessels, as the glands of the mesentery.

III. Indigestions of all kinds, which are as real a cause of this fever as the preceding. Any thing therefore which impairs digestion, or its organs, may be referred to this place, as the callosity of the stomach, through the abuse of spirituous liquors, or such like debauches, the different peccancy of the digestive humours, as their spissitude, watry consistence, &c. for the chyle being thus ill-elaborated, becomes thick, acid, &c. whence the blood is soon tainted with the same qualities. For these reasons we seldom see hypochondriac, or vapourish persons, without a febrile *paroxysm*, as soon as the chyle enters the blood; yet a transitory fault of this kind is not sufficient to produce this *marasmus*, but it must be habitual, or of some years continuance.

IV. All immoderate evacuations may be referred to this article, as habitual *diarrhæas*, too great excretion of the bile, excessive discharges of the *fluor albus*, or of the *menses*, *lechia*, *hæmorrhoids*, profuse sweats, urine, as in the *diabetes*, or salivation, &c.

NOR is it to be admired that we assign excessive evacuations as causes of this fever, because we spoke elsewhere of the suppression of evacuations to have likewise produced it: for

daily experience and reason equally prove the reality of both. As to that of the suppression of evacuations, we have given it before: but profuse evacuations give room to this fever, by draining away the serosities of the blood, as in the *diarrhœa*, whereby part of the chyle or nutriment of the body is also exhausted; for by this means the remaining humours grow thicker, more acrid, and disposed to obstruct. The same thing may be said of excessive urine and sweat; but sanguine evacuations, by abstracting, as they say, the source of life, and rendering the solids more lax and unfit to act on their contents, give rise to the same fever. We may also observe, that all the causes of this class bring on a slow fever much more speedily than those of any other kind.

V. A total or partial palsy; for we rarely see an universal palsy without a general extenuation of the body, nor a paralytic member without the same symptom.

THO' the reason of this phenomenon is difficult to account for, yet I imagine it is owing to the weak or intercepted course of the animal spirits into the paralytic parts, whereby they become relaxed, and incapable of acting on their contents with the usual vigour; the humours therefore circulate after a very languid manner, whence stagnation and acrimony of the blood, and finally a tabid fever. An instance of which we see in a *hemiplegia*, or palsy of half the body, or in a *paraplegia*, which is an universal palsy.

To these causes, may be added immoderate venery, which gives occasion to the disorder, called by some of the antients *tabes dorsalis*, and which should be more justly understood of the excessive evacuation of the *semen*.

THE great number of nerves arising from the spinal marrow, and diversity of the parts in which they are distributed, give also rise to this disorder, by any considerable indisposition at their origin, as the relaxation of the membranes or spinal marrow, by defluxions or phlegmatic *metastases*, living or lying in moist marshy places, *exostosis* of the *vertebræ* of the back, as in the venereal disease, luxations of the same *vertebræ*, &c. all which causes are real and proved by observations.

SYMPTOMS. If we except but the fourth of the preceding causes, all the rest act very slowly, so that they hardly produce any sensible effect for several years; nay, suppuration, of which before, is more active in the production of this disorder, than the fourth cause, or excessive evacuations.

THO' these causes, in general, proceed slowly, yet we may, by an attentive examination, soon learn something of this fever, as from a frequent pulse, with nocturnal returns; for in all morbid, or convalescent states, particularly in a slow fever, digestion is ill performed; wherefore, by the ingress of a vitiated chyle into the blood of such persons, which happens towards night, it is not surprising

prizing they should have these returns. That the ill-elaborated chyle is the parent of a quick pulse with these returns is proved; 1. Because all healthy persons, and such as digest their aliments well, are not subject to the like. 2. As soon as those who have weak stomachs, and cannot digest well, eat of hard indigestible food, they find themselves troubled with anxiety and restlessness. Hence, let the cause be what it will, as being always attended with bad digestions, these returnings, anxieties, &c. are inseparable from a slow fever, particularly at the time above-mentioned.

AT length the continual frequency of the pulse, with the other mentioned symptoms, daily augmenting, terminate in a sensible *marasmus*, *cachexy*, or some kind of dropfy, according to the different disposition of the patient's body and juices.

DIAGNOSTICS. This disorder, in the second degree, is universally looked upon as dangerous, but we are persuaded of its existence in the third; wherefore it is more important to detail the diagnostics which discover it in the first stage. In order to this, we must closely examine the patient, and if we find he has a feverish pulse, &c. not preceded by violent exercise, or the like, and is more frequent towards the evening, we may conclude he is consumptive.

THE diagnostics of the causes are more difficult, except those of immoderate evacuations, which is learned of the patient. As to the

the rest, they are discoverable only by a strict enquiry; for it should be examined, whether the patient was scrophulous for any time; if so, the mesenteric glands are probably obstructed, and the source of his disorder is from thence. If his urine be charged with bile, and if he renders little or none of that humour by stool, after purgation, &c. we may conclude that the bile is the origin of the fever, through the obstruction of the liver. The same method may be taken in examining the suppression of the *menses*, relaxation of the parts by palsy, or compression of the spinal nerves, &c. All which, when discovered, will afford great light with respect to the fever.

PROGNOSTICS. A simple tabid fever is not so dangerous as a suppurative one; for the former is very often removed or checked, especially in the first or second degree, but the latter rarely. Moreover the tabid fever proves not mortal so speedily as the suppurative one; for some have lived in a tabid consumption for twelve or more years, whilst the longest term of a suppurative fever rarely amounts to three. Nevertheless this disorder is more or less dangerous, according to its terminations, as *cachexy*, dropfy, &c.

Of a *cachectic* FEVER.

THE third kind of slow fever is called *cachectic*, from *κακος pravus* and *ηξίς habitus*, or a depraved habit, because the whole body is tumified.

THOUGH all kinds of a genuine *phthisis*, whether caused by suppuration or exulceration, &c. may terminate in a *cachexy*, yet every *cachexy* terminates not in a *phthisis*, wherefore we shall speak here only of an essential *cachexy*, or that which is originally such, not of a symptomatic one, or that which happens in consequence of another disorder.

CAUSES. The lymph, not the pure *serum*, is the cause of this disorder; for it is well known, that the lymph makes at least, the one half of all the other juices. For we find this true in a certain quantity of extravasated blood. This fluid in a healthy state is perfectly blended with the other fluids, till it is thence secreted by its particular secretory ducts, or arterial extremities; whence it is discharged into the lymphatic veins, most of which empty themselves afterwards into the left subclavian vein, where the lymph is once more intimately mixed with the blood, from which it had a long time a different course.

Now the above lymphatic ducts containing only their natural quantity of lymph, maintain a free circulation without any interruption: but when once they are distended with a plentitude of this humour, they are no longer capable

pable of performing their usual function, or reaction on the lymph; hence the dilated vessels give rise to a *leucopblegmata* or *œdema*.

THEREFORE, when we ask the cause of a *cachexy*, and of these *œdematous* tumours, we should rather demand what interrupts the circulation of the lymph, and causes the distension of these vessels. Not only the lymphatic vessels are thus affected, but also the *paniculus adiposus*, which is composed of a multitude of small cells or vesicles to receive the fat; if this is once consumed, and the receptacles empty, it will instead of fat, receive the lymph, which is thither conveyed, by these lymphatic ducts, through their communication with this cellular substance, in order to maintain the circulation of the fat. Hence we may say, that great *œdema's* are caused by the repletion of the lymphatic ducts and cellules with lymph; but less considerable ones are confined to the capillary arteries alone. That these smaller *œdemas* proceed not from the extravasation or infiltration, as they say, of the lymph, is clearly proved from the translation of the lymph from the affected parts into others, according to the situation of the body; for in a horizontal one, as at night, the stagnating lymph of the lower extremities, is thrown on the face, through the relaxation of most of its parts, as the eye-lids, &c. But if the *œdema* of the lower extremities proceeded from the extravasation of the lymph, it would not change it's seat so speedily, nor be absorbed. Moreover, we see that

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in an erect posture, this lymph returns to the extremities, as in the morning when the patient begins to walk.

Now these superficial *œdema's* or *leucophlegmatia* growing inveterate, give room to the acrimony of the lymph, and at length to a slow fever; but in general, the causes of this kind may be reduced to the following heads.

1. To all obstructions in the kidneys, whether total or partial, whereby the urine is not fecerned at all from the blood, or only in a small quantity; for the urine thus retained in the blood, soon joins with the other humours of the body; whence the lymphatic ducts are over-loaded, and a *leucophlegmatia* induced. This symptom soon happens, if the urine be intirely or suddenly suppressed, and is as soon discovered; but it is not easy to find out the reason, if only a small portion of the urine is retained, and if the *leucophlegmatia* gradually comes on; whence we are apt to attribute this last kind of dropfy to some other cause.

IF the *serum* is thus continually retained, and the disorder becomes habitual, the slower fever will be kindled at length.

As to the obstacles in the kidneys, they may be gravel, stones, abscesses, congealed blood, &c.

2. This disease may proceed from the redundancy of the *serum*, independant of any obstacle in its emunctories; the encreased quantity of *serum* is owing to the dissolution of the blood; for in this case, its principles
are

are soon separated from each other, the fibrous part no longer enveloping or sheathing the lymph; moreover, the globular part of the blood is in this case reduced to a *serum*.

I shall not, like some authors, refer this dissolution of the blood to some poisons which are said to have this effect, because such accidents are too rare; but I will deduce rather this effect from chronic disorders, which are its most frequent productive causes; as also the continual use of aperitives, and copious drinking of mineral waters, especially if the latter be used at the same time with the aperitives; for the disorder is thereby both ways augmented.

3. To the same class may be referred the relaxation of the parts, which I imagine, is the most frequent cause of all; for in this state the lymph is propelled into the origin of the lymphatics by the motion of the heart; but there it remains for want of the reaction of the lymphatics, which are supposed to be too much relaxed, whence *œdematous* tumours soon appear.

THIS symptom frequently happens in *palsies*, wherein such collections of lymph are commonly the fore-runners of a gangrene. They may happen likewise in consequence of violent continued exercise, or slow disorders: wherefore we are not to admire if they should happen in real consumptions, slow fevers, or other disorders, which may continue for thirty-five or forty days, and though well treated, may nevertheless degenerate into these dropfies; because,

because, 1. bleeding gives room to a great quantity of serosity, formed by the patient's drinking. 2. The solids are very much weaken'd in these disorders; for we find that a patient frequently bled in such disorders, has his vessels almost filled with this serosity alone, as the last bleedings prove. Some attribute this phenomenon to the dissolution of the blood, by the force of the disorder; but the same thing may happen in a healthy person treated the same way; and in a sick person who has not sufficiently drank during his fever the last bleedings will exhibit a viscid blood; we may therefore conclude, that this symptom is the effect of plentiful drinking, which has been suddenly imbibed by the half-empty vessels, to make amends as it were for the extracted blood. Yet I cannot deny, but chronic disorders by the dissipation of the animal spirits destroy the tone of the solids, procure a languid circulation, and at length give rise to stagnations of the lymph, and to lymphatic collections.

THE lymph collected through the means of any, or all the preceding causes, by stagnation, becomes thicker and more acrid, but much more so if it was naturally disposed to these qualities. The stagnating lymph is gradually returned into the course of circulation; where through the forementioned qualities, it excites in the same proportion a slow fever. We may therefore conclude, that all chronic disorders which terminate in a *leucophlegmatia*, or *œdema*, will end by a slow fever.

SYMPTOMS. These *œdema's* generally begin in the feet, whence they ascend to the kidneys, in which case the tumour is called *anasarca*; if they swell the whole body, they are called an exquisite *anasarca*, or *leucopneumatia*. This lymph may at length fall into the breast, and cause a dropsy of that part; or it may be thrown on the *abdomen*, and produce an *ascites*; and by so much the sooner if any of the *viscera* of this cavity are considerably obstructed, or schirrous. As to the symptoms of the slow fever alone, they are much the same as in the preceding article.

DIAGNOSTICS. If the *œdematous* tumours appear, and we have room to suspect them to have proceeded from the foregoing causes, we may conclude, that the patient is cachectic, and cannot be easily cured, if the disease be inveterate.

BUT in order to judge well of its danger, we should industriously examine its causes, to which enquiry the preceding theory will contribute. Moreover, if the patient has taken too much aperitives, the dissolution of the blood has given rise to the distemper: if long and violent disorders have preceded, we should accuse the relaxation of the solids: if obstructions of the kidneys, the disorder has thence sprung. The same thing may be said of the other causes.

PROGNOSTICS. An incipient cachexy is easier removed than the same degree of any other slow fever; for nothing is considerably,

as yet, damaged, except the lymph. If this kind of slow fever is the effect of a preceding disorder, though it has been well treated, or if the patient be young, the season favorable, the obstructions moderate, especially of the *viscera* of the *abdomen*, the fever is in a fair way of being cured. The contrary symptoms render its cure very difficult; for if it be very inveterate, proceeds from a permanent fault, is attended with great obstructions, as those of the liver, &c. it may be deemed incurable; for the generality of cachectic patients die either of a dropsy, consumption, or gangrene. The reasons are evident, because consumptions or dropsies hurry away the patient by mortal *diarrhæas*, or a *diabetes*; the relaxation likewise of the solids gives room to great stagnations, and entire mortification of the parts affected.

Cure of the foregoing slow FEVERS.

I Don't intend to speak of the cure of the preceding fevers, since they are local disorders, as the suppuration of the lungs and liver, obstruction by gravel, abscesses of the kidneys, redundant serosity of the blood, and relaxation of the solids, nor of other particular causes which may produce divers disorders, in consequence of which these slow fevers may arise, because this digression would lead us too far; wherefore I shall content myself to deliver the cure of these slow fevers purely as such.

THE general indications in the cure of these fevers, are, 1. To dilute the blood. 2. To remove the obstructions. 3. To evacuate the redundant serosities, by the different emunctories of the body. 4. To prevent any more lymphatic depositions.

THE remedies commonly used to fulfil the first indication are milk, of whose different kinds and qualities hereafter, and balsamics.

BEFORE the exhibition of any other medicines in the first kind of slow fever, the *pus* must be evacuated by its proper remedies. This is often done by the help of nature alone, and the situation of the part: Thus if the *pus* be in the lungs, it is frequently discharged by expectoration; if in the intestines, it is removed by their peristaltic motion; the perpendicular situation of the *uterus* likewise contributes to the evacuation of the *pus* of that organ.

WHETHER the *pus* be discharged by the help of art or nature, the remaining ulcer should be deterged, and the affluent lymph rendered more balsamic in order to heal the ulcer the sooner. These two indications are fulfilled by milk or balsamics, ordered in a small dose, and with necessary cautions.

As to the milk, there are four sorts used for this purpose, as breast-milk, asses, goats, or cows-milk. The milk of wild goats was formerly used in *Asia*, but neither that nor sheeps-milk are in use at present; for the last is very viscid, heavy, and indigestible; and the

the former is difficultly found ; wherefore the rest are preferable, particularly the breast-milk, which is the most natural; yet its use is attended with some inconveniencies, though several advantages result from it; for it is, 1. Intimately blended with the *saliva* in sucking. 2. It is transmitted into the blood with almost its natural heat. Lastly, as being an animal production of such affinity with the patients constitution, it has all the qualities requisite for the support of nature.

BUT all these advantages are balanced by several inconveniencies: For this milk suffers by the passions of the nurse, as sadness, wrath, intemperance, indigestions, &c. Besides, the patient, by the most exact calculations, will require three pints of this milk every day to nourish him. But one nurse cannot supply this quantity; wherefore two or three nurses are necessary; yet these unfortunately can never agree, either in the quality of their milk, age, temperament, or humour; hence the patient suffers considerably. Add to this, that few patients in this state can suck well; nay, though they could, their lungs are thereby much affected through the efforts they make.

As to the nature of asses or goats-milk, it is much the same; but cows-milk is so thick, pinguious, and hard of digestion, that it will hardly do well in these fevers, except it be sufficiently diluted or corrected with some remedy; nay, goats or asses milk, for much the same reasons, cannot be sometimes digested.

In these cases, which ever is preferred, may be corrected with *aq. gram. canin. aq. calc. succ. cochlear. vel absynth. &c.* The milk thus prepared may be given morning and evening. But if the patient is of a phlegmatic constitution, or if his stomach is lined with a viscid matter, he should take it only in the afternoon, when his stomach is empty.

THAT this milk-diet should have the intended effect, the patient's stomach and digestion must be well conditioned, neither the fever nor its returns should be great, and it should be ordered always with some of the above remedies, especially if it be cows-milk. Besides, it is found by experience, that this is better digested when taken for entire food, than when the patient uses other aliments at the same time. But as goats or asses milk are not sufficient alone, or for entire nourishment, let the patient use cows-milk at his meals, and one of the former in the intervals, if necessary. Should his appetite require more solid and nourishing food, order him new-laid eggs, rice milk, or fresh fish, &c. for these will agree both with his disorder and the milk, especially, if the patient begins to mend.

THAT this treatment may succeed the better, let the patient be purged now and then, particularly before the use of the milk. Moreover to prepare him the better for this diet, and introduce insensibly its use, the patient should take mineral waters for four or five

five days before it; let him then take a small quantity of milk diluted with a proper decoction or with whey, of which he may take twice a day, in the morning early, and at night, till he is gradually brought to drink a sufficient quantity.

IF the patient digests the milk ill, as his want of appetite, vomiting of coagulated milk, acid eructations, griping, &c. prove, it should in this case (in order to prevent curdling) be corrected with a bitter decoction of *camædr. centaur. min.* &c. of which add two or three spoonfuls; or let him take absorbent boluses a little before it: these are made of *ocul. cancror. sang. drac.* &c. always remembering to purge the patient now and then, if the use of the milk be continued.

BUT if the patient digests the milk well, as the contrary signs denote, especially his costiveness, which is a proof that all the ferrous and balsamic parts have entered the blood, nothing remaining in the intestines but the gross or caseous particles, we must not, in this case, be too hasty in purging.

As to the above costiveness, it rarely happens in spring, the milk being then very ferrous.

IF, notwithstanding these measures, this costiveness becomes considerable, the patient's milk should not be boiled, and it may be diluted with water. If this won't do, dissolve some *cassia* or *manna* in it.

As to the second remedy of these fevers, or the balsams, they are *balsam de mech. tolu-tan. Capiu. Canaden. balsam. sic. peruv.* The first is acrid and heating, wherefore it is rarely used, least it should augment the fever and other symptoms; besides, it is seldom genuine; neither is the *balsam. tolut.* often prescribed internally, and the *Peruvian* balsam is commonly used in fumigations only, especially in cold phlegmatic persons, with intent of drying and corroborating their lungs. But it must be carefully avoided in dry or atrabiliary constitutions, or in those which are subject to coughing, or inflammation of the lungs.

WHEREFORE none of these balsams are used internally, except the *balsam. Capiu.* and *Canaden.* whose manner of acting is much the same. Their dose is from viii. to xv. drops, given in some appropriated syrup, as *syr. Capill. ven. alth.* or the like. They may be also given in boluses made up with a little sugar; or may be combined with oleous remedies, as *vitel. ovar. sperm. Cet. ol. Cacao.* which last form is best. Thus far of the treatment of a consumption proceeding from internal sup-puration, now of the cure of a tabid consumption, called otherwise nervous; the indications in this slow fever, are, 1. To dilute. 2. To remove the obstructions.

To answer the first intention, diluents should be ordered and taken, not only by the mouth, but by the *anus*, pores of the body,

dy, or all together, to dilute the more effectually.

DILUENTS taken by the mouth, are not the most successful, because they relax the stomach too much, and impair digestion; whilst glysters and baths produce no such inconvenience. Nevertheless, if we give any, let them be of the following, *aq. pull. vel vitul. emulsionat. cum 4 sem. frig. maj. ad ℥iii.* or prescribe mild aperients, as *Chicor. alb. silvestr. pimpinel. agrim. &c. ex quibus f. decoct.* or prescribe whey alone, or prepared with a bitter decoction of *Camædr. Cent. min.* or mix it with *syr. viol. capill. ven.* or the like.

WE may also have recourse to mild mineral waters, which may be used for five or six months, and afterwards return to the use of milk as before; for this will at once dilute and sweeten the humours.

THE same things may be ordered for clysters, which are useful in this case, because they are soon absorbed and conveyed into the blood. That the fluids injected into the intestines are thus imbibed, is proved, 1. By the injection of a decoction of the bark which cures agues. 2. Wine, or spirituous liquors, thus administered, cause drunkenness. 3. We have some examples of several who have been nourished for a time by the use of clysters. From all which we may infer, that there are lacteal veins, or absorbent vessels in the large intestines; and though these clysters never

passed into the blood, yet they are serviceable by relaxing the crisped intestines.

BATHS and half-baths are preferable to the above methods; for by these means, the diluents are insensibly imbibed by the pores of the skin, and blended with the blood. All the preceding diluents may serve for this purpose.

THE second indication, or removing the obstructions, is fulfilled by deobstruents taken by the mouth; of these are *sal. admir. Glaub. ad gr. xxxv.* with such like aperient salts, particularly the *tart. vitriolat. tart. martial. &c.* these are dissolved in aperient decoctions, or may be given in other forms.

To these salts may be added the sulphurous, but not the saline preparations of mercury, as *Cinnabar. v. gr. æthiop. miner. a xii. ad gr. xx.* Antimonial preparations are also expedient; such as *diaphoret. min. ad gr. xx. antihæct. potter. a xii. ad. xx. gr.* All which, when taken by the mouth, are usually given in a bolus.

As to the ordinary *Croc. mart.* I don't class it among these remedies, because the method of preparing it renders it too astringent; for which reason we are commonly obliged to mix it with *Cassia* or *manna*, to prevent its astringence: let it be prepared in the following manner. Take a sufficient quantity of the filings of iron, put them into a B. M. with a sufficient quantity of water, which must be renewed as often as it is evaporated by the sand-fire. Thus we continue till the iron is reduced

duced to an impalpable powder, which must be porphyrized, and ordered as occasion requires. Thus are the obstructions of the nerves commonly removed. We now come to the last, or

CACHECTIC slow fever, which suggests the following indications, 1. To evacuate the superfluous and stagnating serosities. 2. To remove the obstructions. The last is answered by the above method, so we come to the remedies which the first indication demands. Of these are purgatives, diuretics, and sudorifics: the last are only used when the *serum* naturally inclines to pass by sweat.

THE purgatives used in this case should be very mild, such as *Cass. man. sal. veget.* to which may be added some grains of *diagryd. Cornachin.* or *rhabarb.* never using *fenna.*

THE diuretics are of two kinds, *viz.* the cold and hot; the first should be very cautiously and sparingly used, for fear of inspissating the humours: yet if the colliquation of the blood be very great, they may be used for some time. Of the cold diuretics are, *nitr. cristal. min. sal. prunel.* of each ʒj. to which may be added some preparation of the dog-rose, citron-juice in some proper syrurp; but the salts are more properly employed in decoctions.

IF the fever be moderate, the pulse weak, with frequent cold fits, or the like symptoms, hot diuretics are more commonly used. Such are decoctions of *fol. cbærefol. sjsymbr. aquat. pulv. cockinel.* to which add *rad. ap. fœnicul.*

but these are too powerful, as is also *pulv. milleped.* which heats and irritates much more; wherefore neither this nor the former should be employed, if the patient has a cough, considerable fever, &c. If the *millepedes* are prescribed, let them be corrected with an emulsion of the cold seeds, or boiled alive in some proper decoction. Their dose in these different preparations, is from xij to xx grains.

THE above *cochinella*, is not only diuretic, but also pectoral; for it contains a great many balsamic volatile particles, it is commonly ordered in substance, rarely otherwise; its dose is from iv to x grains.

THOUGH a decoction of the woods is naturally sudorific; yet it may be rendered more diuretic and useful by combining it with the *millepedes*, and to render it more efficacious in removing the obstructions, add *sal. glaub.* or *cristal. min.* &c.

Of the febris EPIALIS.

BEFORE we treat of these species of fevers, under which that called *epialis* is included, it will not be foreign to our purpose to take a general view of the division of those we have hitherto considered.

AFTER having examined fevers in general, which we have divided, into intermittent and continual; the first class we subdivided into regular and irregular; the regular agues are *quotidians*, *tertians* or *quartans*, whether simple, double or triple. Under the irregular
agues

agues are comprehended all the erratic ones, and such as preserve no regular *type* or period.

WE now come to the second part of the general division, or to the continual fevers. These are divided into simple and compound, or such as redouble. The simple continual ones comprehend all such as are purely simple, or of twenty-four or thirty hours, and protracted fevers, or those which hold for six or seven days. The compound continual fevers are divided into regularly compound, or such as have regular *paroxysms* or redoublements, and into irregularly compound, or those which have irregular *paroxysms*.

AFTER these general divisions, we may for brevity's sake, reduce all fevers to three principal heads, *viz.* agues, acute and slow fevers.

WHEREFORE, as the following are naturally the symptoms of the former, their differences are also accidental. Hence we shall be often obliged to make some repetitions during their explanation.

IN consequence therefore of the proposed method, we come next to the differences of acute fevers attended with returns. These differences arise, 1. from some particular symptom of the fever. 2. From the degrees of its danger. 3. From its cause. 4. From the cause and effect, especially when the former consists in some foreign levain or *virus*, followed by a depuration of the blood, as cutaneous eruptions, &c.

UNDER the first class are comprehended the *febris epialis*, *febris typhica*, *febris asodes*, *syncopalis*, *colliquativa*, and scarlet fever, or that attended with an almost universal *Erysipelas*.

To the second class belong all fevers highly dangerous, as the ardent fever or *causos*, the malignant, and the pestilential one, to which we shall add a short dissertation of the plague.

UNDER the third class are ranged all inflammatory fevers, as those which accompany a peripneumony, pleuresy, phrensy, *hepatitis*, *nephritis*, dysentery, &c. As these are inseparable from the inflammation of the *viscera*, &c. and as one cannot be explained without the other, we shall pass them over lest we should be too prolix.

THE fourth class includes all depuratory fevers, or such as are attended with cutaneous eruptions, as the small-pox of all kinds, measles, miliary fever, &c. to which class we also reduce the *febris lactea*, since it is terminated by a kind of critical evacuation, though it is not attended with any cutaneous eruption. To these may be added in like manner the *febris petechialis*, though it has eruptions properly speaking, as will be shewn hereafter.

Now of the *febris epialis*, which is a mild not an ardent fever. It is attended with a vicissitude of heat and cold immediately succeeding each other, and their succession is so speedy, that the vulgar imagined them to exist both together in the same place; nay the
patient

patient complains of great cold in one part, and of heat almost at the same instant in the same place.

Avicenna, that famous *arabian* physician, is the only author I know, who gives a different description of this fever; for he seems to have inverted, as it were, the nature of this disorder, and to have described the *febris lypiria* in its place; for he says, that the *febris epialis* is attended with a preternatural coldness of the *viscera*, with considerable heat of the surface of the body; but as this seems rather the reverse of the *febris lypiria*, and as there is none such in nature, we shall follow the first description and idea of the disorder, in which sense it may be real.

CAUSES. *Galen* with most of the antients, derived this fever from an inflammatory acid *pituita*; but we may more justly deduce it from the following causes, of which the three first are not only possible, but frequently observed in practice; yet the fourth and last I ever met with.

As to the first cause, it is the same with that of a *quotidian* ague, since this has both hot and cold fits which quickly succeed each other, with this difference, that the morbid humour of the present fever is otherwise modified, so as to create several cold and hot fits, with alternate and sudden transitions, in the *febris epialis*, which are not however manifestly distinguishable.

THE second class of these causes comprehends all catarrhous dispositions; for in such disorders, the sudden systaltic constriction of the skin produces the chilness; and the efforts which the blood makes to pervade the cutaneous sanguine vessels, with the patient's great desire to warm himself, as he generally does by a brisk fire. These, I say, give rise to the hot fit. Thus the alternative of heat and cold continues in the beginning of these disorders for two or three days.

THE third cause which I have met with is the effect of suppuration, especially if the *pus* be viscid and confined; for in that case it will be gradually absorbed in a small quantity, and will produce some slight fits of heat and cold, such as are necessary to characterize this fever. But if the *pus* be fluid, very abundant, and has a free issue, so that it may be transmitted into the blood in a great quantity, the fits will be too distinguishable to be taken for those of a *febris epialis*.

THE fourth cause, whose reality I very much doubt, is a *semitertian* fever; but as its *paroxysms* are not frequent enough to degenerate into a *febris epialis*, I should rather imagine that a continual *quotidian* fever, complicated with a *tertian*, or a *tertian* combined with a *quotidian* ague, through the frequency of their fits, might be rather the cause of the present fever, in which sense it may be called *febris horrida*.

SYMPTOMS. If the *febris epialis* be simple, or originally such, it is not dangerous nor violent
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lent, for the sudden fucceffion of heat deftroys the effects of the preceding cold fit, and *vice verfa*.

THE pulse is proportional to the intenfitv of the fever and its fymptoms; but in general, as the heat and cold are tranfitory, the pulse is not much concentrated and depreffed in the cold fit, nor raifed in the hot one; for the fudden viciffitude of the attacks, corrects each other, and prevent thofe effects. This fever feldom terminates by fweats, for the conffri- ction of the fkin, and fhort duration of the hot fit, prevent it.

As the circulation of the humour is very languid, and the fibres of the fkin contracted, the ferofities are diverted to the urinary paf- fages; wherefore the urine is both copious and limpid.

DIAGNOSTICS. As the fucceffion of heat and cold is very quick and frequent in this fever, it is confequently very manifef, and though the difcovery of the caufes is more difficult, yet by attending to what we have faid in the theory, they will be foon difcover- ed; for when we find a patient affected with the preceding fymptoms, and if rheums, fup- puration, agues, &c. preceded, we may con- clude, that it is a *febris epialis*.

PROGNOSTICS. When the heat and cold are moderate, this fever is not dangerous; but if thefe be violent, inflammations or *metafafes* are to be apprehended; for whenever there is a great lentor of the humours, fucceeded by their rapid motion, the above fymptoms are threatened

threatened, particularly when the disorder is attended with rigor and horror, and a proportional heat, as may be sometimes seen in the *febris epialis*, in which case, not only infarctions, but rupture of the vessels, and extravasation of the humours are to be feared; none of which will happen when the circulation is uniform and undisturbed.

To prevent therefore such symptoms, we should bleed more frequently and copiously, than if the causes had been simple; for instance, if an ague has degenerated into this fever, or if a rheum or suppuration, have given it rise, we must bleed more than in a simple ague, rheum or suppuration, treating the fever in all other respects, as is necessary according to the different causes, which being once discovered will indicate the cure.

Of the Febris Lypiria.

THIS disorder is real, great, and dangerous. Its essential characteristic consists in a violent coldness of the extremities, without any sensation of heat in the same parts, with a very languid and weak pulse, but an immoderate heat in the *viscera*, dryness of the tongue and *fauces*, and the air emitted in expiration is very hot; all which are attended with returns.

THIS disorder is not frequent; it arises as a symptom from the erysipelatous inflammation of the stomach, as many observations prove. Some pretend, that it likewise happens in consequence of the erysipelatous inflammation of the liver and small intestines; and though these

these are attended with violent symptoms, yet none like those of the present fever appear; and if it supervenes, it is owing to the inflammation of the stomach, in consequence of that of the said parts, *per consensum*.

To explain the nature of this fever, we should have recourse to that of inflammation. Though I did not propose the explication of local disorders, yet I cannot omit it here; wherefore we must observe, that there are three sorts, or rather degrees of inflammation. The first and mildest is called *phlogosis*, or the *lentor* and slow circulation of the humours in any particular part; whence this kind is also called *inflammatio per stagnationem*. The second and more intense degree, is called *inflammatio per irruptionem*, because the blood therein rushes into the lymphatic ducts. The third, and most violent, is called *inflammatio per extravasationem*, because the humours rupture their vessels, and are extravasated. This species is never resolved, but always turns to suppuration. Now the inflammation of the stomach may be of any of these kinds.

As to its procathartic causes, they are such as descend by the *oesophagus*, or ascend by the intestines.

THOSE which descend may be of an infinite number; yet we shall endeavour to reduce them to the following heads.

I. All corrosives, as most poisons, pounded glass or diamonds; for the two last, by their asperities, irritate and cut the coats of
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the stomach; though debauchees often take them to discharge their stomachs of crudities, in which case they are not so pernicious; because the quantity of crudities and phlegmatic humours lodged in their stomach, serve to sheath the *spicula* of these poisons.

2. All irritating substances, which produce a constriction of the fibres of the stomach, as acrid meats, spirituous liquors, or such like, are the frequent parents of this disorder, as are also bilious indigestions, which give rise to colics of the stomach, whereby a *febris typhica* is frequently induced; drastic purgatives and emetics, especially when they create an *hypercatharsis*; for these blister and inflame the stomach as they do the skin.

3. Cold or inspissating causes, particularly if taken whilst the stomach is very hot, as ice-water, lemonade, and the like.

As to the causes of this inflammation, that ascend by the intestins, they are, as observations prove, the *faeces* in a *miserere*, as also a regurgitation of the bile, worms, &c.

THE fore-mentioned causes may also produce the inflammation of the intestins, as blows, contusions and wounds, may inflame the liver, as do likewise cold draughts, from its lying so contiguous to the stomach, whereby the bile is inspissated in it's channels, which it obstructs and inflames, whence often proceed violent hepatic colics. Observations likewise prove, that violent passions of the mind, especially anger, by generating a great quantity of bile, may give occasion to the inflammation

mation of the liver, and fecundarily to that of the stomach. An inflammation of the stomach may be also fecundarily produced by the inflammation of the small intestins.

SYMPTOMS. The first and most remarkable symptom in this fever, is the excessive heat of the *viscera*; this is a manifest consequence of the inflammation of the stomach, for hereby the whole intestinal canal with the *œsophagus* are affected with a *phlegosis* through the continuation of their fibres, and this inflammation is communicated likewise to the adjacent *viscera* through their contiguity.

THE patient's excessive thirst is owing also to this inflammation, wherein it is greater than in an ardent fever, because the tongue and *fauces* are inflamed *per consensum*, or because the hot air in expiration parches them; for in this disorder the lungs are loaded with so much blood, that their heat is augmented, and consequently that of the air.

FOR the production of thirst, three circumstances should concur, *viz.* dryness, heat and acrimony; the cause of the two first we have mentioned; that of the acrimony is owing to the salt of the *saliva*, and other humours of the mouth and *fauces*; for the most subtil and liquid parts being evaporated, the salts or most fixed parts remain; but as these conditions are here found in a very intense degree, the thirst thence resulting will be proportionable.

THE patient is restless, and subject to frequent syncopes and cardialgias; these are owing to the irritation of the superiour orifice of

the stomach, whose vellications are augmented or renewed as the patient turns or changes his situation; for the motion he then makes, puts the irritating humour in action also; so that the cardialgia is no sooner augmented but a sympathetic syncope is produced.

THE respiration is difficult; this is caused by a crispation of the fibres of the lungs, whereby they are overloaded with blood; for this reason, the blood passes in a small quantity to the left ventricle of the heart, and thence into the *aorta*, and in a much less quantity, if this constriction is augmented by any adventitious cause, wherefore the *syncope* necessarily ensues.

THE coldness of the extremities may be explained by the same theory; for the ventricles of the heart being furnished with a small quantity of blood, the *aorta* receives but a proportional quantity, and the cutaneous vessels in like manner; hence the motion of the blood is languid, for want of a proper action of the fluids on the solids; consequently coldness will be produced; but as the cardialgia is constant, so is the syncope, and the coldness also; for the syncope produces the coldness. The languid and weak but hard pulse, owes its rise both to the inanition and constriction of the arteries; for the last generally happens in consequence of the inflammation of all membranous sensible parts, though there were no depletion, yet both together cause a hard pulse.

Nausea and vomiting frequently happen in this disorder, from the constant irritation and sensibility of the stomach, whose region, particularly the *scrobiculum cordis* is very sensible.

THE urine is red, and in a small quantity, for the heat dissipates the serosity, attenuates the sulphureous parts of the blood, and retains the bile.

As to the convulsive trembling of the lower lip, it is owing to the sympathy this part has with the stomach, &c.

DIAGNOSTICS. The preceding symptom well examined, render the existence of this disorder sufficiently obvious, its cause is also evident; for nothing is more manifest than the inflammation of the stomach, especially of it's superiour orifice, which gives rise to the most violent kind of a *febris typhica*, through its sensibility.

IF these signs are precarious, feel the region of the stomach, liver, and small intestins, that we may discover which is inflamed, and though we perceive not which, it is of no great moment, because the method of cure is much the same for all.

PROGNOSTICS. To be brief on this head, no fever of what kind soever, whether malignant or pestilential, is so dangerous as the *febris typhica*.

CURE. The intensions to be pursued in curing the inflammation, should tend to procure it's resolution; but unfortunately the inflammation of all membranous parts, generally terminates in a gangrene; and if this does not

enfue, suppuration unavoidable will, which is here of very bad consequence, for the *pus* insensibly is convey'd from one cell into another in the cellular coat of the stomach.

BUT if by good luck the disease tends to a resolution it happens within the ordinary term, or from the 7th to the 10th day; which termination will appear by the insensible and gradual, but intire cessation of all these symptoms.

IF a resolution is not procured, but the symptoms only allayed, and soon after renewed, the disorder has certainly turned to suppuration; but if all the symptoms disappear, and are succeeded by a general calmness and insensibility of the affected part, with frequent *lypothermias*, &c. the inflammation has degenerated into a gangrene.

As to the cure of the fever alone, which chiefly regards our present purpose; in order to proceed methodically, we must not be imposed upon either by specious appearances, or vulgar error; wherefore we must not be deterred from bleeding in consequence of the patient's great coldness, or weak pulse. For though venesection is commonly forbid on such occasions, yet we should rather recommend it, but by degrees, and a little at a time, during the first twenty-four hours; since by this means the patient's pulse and strength are gradually raised.

THE second error, though a very popular one, which we must avoid, is the exhibition of cordials, as if it was to revive the languish-
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ing patient, *viz. lil. paracel. pulv. viper. &c.* for they say, that these are necessary to dissipate the patient's cold fits, and raise his pulse. But, as it plainly appears, it is only adding fuel to the fire; wherefore we should substitute in their place simple or emulsified ptisans, or *aq. simp. pull. emulsionat.* If we order broths, let them be very light, and made of veal, in which boil *rad. alth.* or the like; but we must beware of overloading the patient's stomach, lest its distension should be augmented.

THO' I lay no great stress on external applications in this or the like case, yet to afford satisfaction, we may order a linen cloth dipped in new milk warmed, to be applied to the patient's *abdomen*, on the region of the stomach. Emollient clysters, to bathe and relax the patient's intestines, &c. should be also frequently injected, for some days, in the beginning of the disorder.

BUT whether narcotics should be prescribed on this occasion, is not easily determined; nevertheless, as they diminish the sensibility of the stomach, and procure rest, I would recommend them, but ordered with extraordinary caution. So let one grain, or one grain and an half of opium be dissolved in some proper vehicle, and let it be exhibited at several times, and at due intervals.

HAVING thus proceeded for four or five days, we may order a mild decoction of *scorzonera.*

IF the symptoms are in the least augmented by this, we are to return to the emulsified remedies; nor should we prescribe any oleous medicines, as *ol. amyg. dul.* or the like, in this disorder, unless it has been produced by poisons.

IF the violence of the symptoms are checked by this method, we may order some gentle purgative, as *cass. ʒj. in ser. lact. dissol.* This we give by degrees to relax the patient insensibly. About the sixth or seventh day, order a stronger purgative, which should be skilfully exhibited, lest a gangrene should be suddenly brought on, which is often caused by unseasonable purging.

Of the fever ASODES.

TO the two preceding fevers, as so many symptoms or characters of other disorders, should be added the present fever of the same kind, for it may supervene any fever whatever.

IT is called *asodes* from the greek word *ασωδες*, which signifies restlessness. So it may be described a fever wherein the patient frequently changes his situation, one while sitting, another lying, sometimes throwing of the bed-cloaths, at others, closely covering himself.

CAUSES. As this may be a symptom of several fevers, it would lead us too far, if we attempted to explain the essential disorders, on which it may supervene. Moreover, to avoid repe-

repetitions we shall only examine the causes of this symptom alone, which may be reduced to the five following.

I. A *cardialgia*, or painful impression made on the superiour orifice of the stomach, whereby the patient is in danger of fainting very frequently. Though I have detailed the causes of this symptom in the disorders of the abdomen, yet they are, 1. The preternatural sensibility or *phlogosis* of the said orifice, whereby it becomes susceptible of painful impressions from all things which act upon it, though they be suitable and natural to it. 2. The acrimony and spissitude of the crudities of this organ. 3. The excessive plenitude of the stomach from intemperance, &c. 4. A heterogeneous levain communicated to the blood, whereby the gastric juices are also affected, as in the small-pox, measles, &c. 5. Worms either bred in the stomach, or have crept into it from the intestins.

II. *Nauseas*, whereby the crudities are raised to the affected part only. All these causes of *cardialgia*, may likewise give rise to a *nausea*, with this difference, that in the production of a *cardialgia*, they should act on the superiour orifice of the stomach; but on its bottom to create a *nausea*. If both places are affected at once, these two symptoms appear.

III. The following causes are not so frequent as the two former; the first of these is a hot and acrid sweat, which is very subject to create anxiety when it happens.

IV. An irritation or troublesome pungency of the skin much like flea-biting; this commonly happens in consequence of all depuratory fevers, or those accompanied with cutaneous eruptions, as the small-pox, measles, erysipelatous tumours, &c.

V. A certain disposition of the body, whose cause does not manifestly appear, yet produces anxieties and restlessness, in which case it is an infallible fore-runner of a *delirium* in all fevers, and to which the physician should have great attention.

DIAGNOSTICS. The existence of the disorder, is so evident, that it requires no particular explanation. The *diagnostics* of its causes are more difficult, but by examining the patient, they are soon discovered: thus he will inform the physician whether he has a *cardialgia* or not, and from what cause, whether *phlogosis*, which we must well examine, or too great a plenitude of the stomach, depuratory fever, &c. for if the *cardialgia* is violent and proceeds from the *phlogosis*, or increased sensibility of the stomach, we may apprehend a *febris typhiria*; the hot sweats, irritation of the skin, &c. may be examined the same way.

PROGNOSTICS. This symptomatic fever always augments the danger of the essential one; for attribute it to which you will of the forementioned causes, it is attended with eminent danger; for the *phlogosis* of the stomach threatens its real inflammation: The imminent *delirium* denotes the malignity of
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the fever, and so of the rest. Yet the prognostics are more or less dangerous, according to the violence and continuation of the symptoms.

To give farther light in regard to the prognostics, we should strictly examine the patient's temperament; for a very transitory mild cause will have considerable effects in a hot bilious and naturally restless constitution; whilst a much more intense cause will hardly indispose a cold mild-tempered easy patient; hence we may come to know the intensity and effect of the cause.

CURE. The cure of this fever must be adapted to the nature of the different causes above-mentioned; but as their various methods of cure are only so many corollaries arising from the cure of continued fevers, we shall therefore treat of them briefly. Thus,

I. If the cause of this restlessness be a *phlogosis* of the stomach, bleed often, though not so much as in the *febris typhica*, and it should be always done in the arm, for bleeding in the foot would determine the blood too abundantly to the stomach.

II. If the cause be *nausea*, or *cardialgia*, from the abundance and acrimony of the crudities, indigestions, &c. or heterogeneous ferment, worms, and the like; first, let blood, then dilute the contents of the stomach, for two or three days constantly, in the beginning of the disorder, that thereby they may be become more fluid, and fitter to be evacuated, chiefly by an emetic, otherwise this remedy
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may rupture some vessels, and cause an extravasation of the blood. The emetic should be soon succeeded by a purgative medicine.

III. If a *phlogosis* of the stomach is apprehended, we should bleed three or four times before we give the emetic.

Tho' some discommend the use of vomitives in this circumstance, for fear of augmenting the inflammation, yet as its danger is much prevented by the use of the above diluents, and as we thereby remove the chief cause of the disorder, *viz.* the crudities, which would otherwise enter the blood, and render it more inflammatory, the danger, therefore, to be incurred, is well recompenced by the advantages thence resulting.

IV. If the malignant *fomes* of depuratory fevers is partly thrown upon the *viscera*, where it is mixed particularly with the gastric humours, we must bleed two or three times. If then the *exanthemata* do not appear sufficiently, or not at all, and if we have other indications for purging, order preferably a cathartic or emetic, for reasons to be mentioned when we come to treat of the small-pox. If we discover no crudities in the first ways after bleeding, order cordials alone. If the head be affected, bleed once or twice in the foot, then purge *ανῶ* or *κατῶ* or both at once, for purging is the most sovereign remedy in all affections of the head.

Of the febris Syncopalis.

THIS fever is called *syncopalis*, because the patient faints by the least motion which he makes, in turning himself, either to stool or urine, &c. I here understand the *syncope*, which happens in the beginning of several fevers, not that which supervenes in consequence of the patient's weakness from preceding disorders, from too great evacuation of blood, &c.

THE principal cause of the present *syncope* is a *cardialgia*, whose causes are mentioned in the *febris asodis*; wherefore the *febris syncopalis*, as having the same causes with that fever, differs from it only by the greater intensity of its causes: So we may esteem the one as a degree of the other; for these reasons I omit the symptoms and diagnostics of this fever, referring to those of the *febris asodes*, with this difference, that they are more sensible here; and though the prognostics and cure are much the same in both, yet I shall speak briefly of them, to shew wherein they differ from each other.

PROGNOSTICS. As this fever is more dangerous than the preceding, we should have the greater attention to its prognostics, for whether the cause of the present disorder be a *phlogosis* of the superiour orifice of the stomach, acrimony of its contents, or worms, &c. as they are here more violent than in the *asodes*, the patient will be consequently rendered

dered the weaker, and the circulation of his blood more languid and unequal ; all which prove likewise that the danger is more eminent in this disease, than in the foregoing ; moreover, the slow circulation and spiffitude of the humours which continue for an instant, and the acceleration of the said humours which immediately succeeds, manifestly threaten obstructions and rupture of the blood vessels.

CURE. The indications being much the same in this as in the preceding fever, the cure should be also nearly the same ; but we must bleed more frequently in this fever ; then order diluting ptisans, afterwards gentle emetics, if they are indicated ; to which add a light ptisan of *scorzoneræ*, or the like.

Of the scarlet FEVER.

THIS is a kind of fever wherein the patient is as red as scarlet from the beginning ; whence it has got this name : It is described only by some moderns. It is often confounded with the incipient measles, purple and miliary fevers, and other exanthematous disorders, though it is very different from them ; for in the former there are sensible eminences or tumours, but in this there is only a superficial redness without any elevation on the skin ; wherefore we may call it an *eresypelalous* fever, for the redness with which it is attended, disappears by compression, like that of an *eresypelas*. I have once seen this fever to have occupied the whole surface of the body ;

body; but at another time, its efflorescences affected only the extremities, the trunk being free.

THE seat of this fever is in the *corpus mucosum* of the skin, whence the latter is commonly inflamed thereby. The better to conceive what we shall say of this disorder, it will be necessary to speak of the structure of the skin.

THE skin in general is composed of the following parts; 1. the scarf-skin or *cuticula*; 2. the skin properly speaking; 3. an intermediate body called the *corpus mucosum*, through which several filaments run, whereby the *cuticula* and true skin are connected with each other. The *exanthemata* of the present fever are seated in the very surface of the skin, or where it immediately adheres to the *corpus mucosum*; wherefore we must seek for their causes in this part, since the *cutis* is only affected where it touches the *corpus mucosum*; nor are we to place the seat of these efflorescences in the piliferous, sebaceous or mucous glands, as some imagine, whose obstruction I own, may give room to some of the *exanthematous* fevers, with which this is confounded.

CAUSES. As we have attributed this effect to the *corpus mucosum*, let us examine by what fault it may become capable thereof. This is principally an acrimony, which may be caused, 1. by the retention of an acrid exalted bile, which is subject to flow to the skin, and in its passage to infect the said *mucous* body; for which reason, we find that bilious hot constitutions

stitutions are very subject to this fever. 2. By the great acrimony of the matter of transpiration, which likewise in its passage through the pores of the skin, will irritate the fibres thereof, and vitiate in the mean while the *corpus mucosum*; hence this fever is very rife in hot countries, and in others during the summer, &c. 3. By the innate acrimony of the blood, independent of any of the former causes, though they are all frequently combined. The last named cause is more common in young than in aged persons; for the blood of the former is acrid, and exalted by its lively motion; but that of the latter watry and phlegmatic for the contrary reason. Yet bilious, hot constitutions of any age, are subject to this fever, especially in the dog-days, or most intense heat of summer; to which may also contribute, violent exercise, the excessive use of spirituous liquors, or an unseasonable suppression of bilious, diarrhæas and the like.

SYMPTOMS. 1. The skin is dry, sensible and very hot, because of its superficial inflammation. 2. The patient feels a general itching all over his body, much like the sensation excited by flea-biting. This is owing to the stagnating blood which irritates some vessels here and there. 3. About the fifth or sixth day, in proportion as the fever declines, the scarf-skin falls off like meal, more or less plentifully, according to the intensity of the preceding inflammation, as it happens in the declension of the small-pox, measles, &c. This symptom happens, because the vessels and o-

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ther filaments which connected the *cuticula* and *cutis* with each other, were corroded and destroyed by this acrid humour; wherefore as being no longer nourished or lubricated by the usual humours for want of connection with the live parts, it thus dries and falls off.

DIAGNOSTICS. The disorder from what we have said is evident; its causes are also palpable, for the acrimony of the humours in general is easily discovered: as to the different signs of the remote causes above-mentioned, it would be a useless disquisition to examine each in particular, seeing the method of cure is the same for all; moreover, they all generally concur in the production of this disorder.

PROGNOSTICS. This fever is more or less dangerous, according to the danger of the original, or continual one, which gave it rise: nevertheless, the greater this superficial inflammation, or *exanthemata*, are, the more the events are to be apprehended; for it presupposes great acrimony of the humours, which is not easily corrected. Moreover the pores of the skin are by this means obliterated through its dryness and constriction, wherefore the blood is not purged of the excrementitious humours which should pass through the surface of the body, as the matter of transpiration retained in the blood, which it corrupts.

CURE. As this is a kind of inflammatory fever, bleeding should be the oftener repeated, and much more frequently than in a simple
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one. If the disorder affects mostly the superiour parts, let blood in the foot; but in the arm, if the inferiour parts suffer: afterwards order emollient clysters, into which put the oil of sweet almonds, or fresh butter, and which you may render purgative once a day by adding *cassia*, *manna*, &c.

As the patient's thirst is great, through the acrimony of his humours, let him drink plentifully of a decoction or apozem, which correct both these symptoms; as *decoct. rad. cichor. fragar.* $\overline{\text{aa.}}$ q. s. Or he may use simple or emulsified pullet-broth; or of the following apozem, *rad. cichor. borrag. bugloss. lactuc. f. apozem. cui add. syr. viol. q. s.*

THE patient being thus treated for three or four days, his skin generally recovers the natural colour; but if notwithstanding this, and particularly four or five bleedings, the redness of the skin still subsists beyond this time, let the patient take a simple emetic, or an emetico-cathartic remedy. After the fever is over, the patient's blood should be sweetened with proper medicines, as *ser. lact.* or *aq. pull. ferrat. aq. miner.* or we may dissolve some *tart. martial. solub.* in a sudorific decoction: after the use of which, the patient may take plentifully of simple whey, or asses-milk.

Of a Colliquative FEVER.

THIS disorder is the fatal catastrophe of all slow fevers, and consists in a general dissolution of the humours, which are evacuated by stool, urine, sweat, or other excretions. It supervenes, as experience proves, because all the gelatinous parts of the blood are attenuated, dissolved, and consumed by the preceding fever. Besides, the patient's depraved digestion does not furnish proper chyle, either in quantity or quality, to repair the daily losses sustained; wherefore the lymphatics, instead of genuine lymph, contain nothing but serosity, which abundantly flows by some of the above emunctories; for we find by the most exact calculations, that in the natural, or healthy state, the gelatinous lymph is to the *serum* as five to one; but now the proportion is inverted, through the exuberant quantity of *serum* contained in the vessels, and supplies, in some manner, the want of genuine lymph; for the abundant evacuation of *serum* by the excretory organs of the skin, kidneys, and intestines, proves that the different glands in these parts are loaded with these serosities: moreover these excretions are much promoted by the irritation of their organs from the acrid humours, which have been considerably exalted by the fever. An instance of this we have in the operation of a cathartic or emetic, the bile, and

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such like, which by their stimulating quality, derive the humours in abundance to the irritated parts, and so promote different excretions.

BUT it is to be observed, that no patient is affected with the above evacuations at the same time; for the one is diminished or entirely suppressed, in proportion as the other encreases; but the evacuation by the urinary ducts, is the most uncommon of all. I purposely omit the symptoms and diagnostics of this fever; for, as it generally happens in the third degree of a consumption, its effects and causes are sufficiently obvious.

PROGNOSTICS and CURE. As this is the last stage of a slow fever, it affords little or no hopes of a recovery; yet the patient should be supported by some remedies, especially those of the incrassating kind, as milk; but as this very often promotes the above evacuations, we must have recourse to farinacious remedies, as gruel or broth, made of excoriated oats, and the like. Broths likewise prepared with snails and frogs, or capons, will be of use.

SOME in this case recommend opium to stop the *diarrhœa*; but as it is sudorific, it will promote sweat in the same proportion as it stops the *diarrhœa*; wherefore I would not recommend it. A mild purgative of *manna*, or the like, may be exhibited now and then; but all these commonly prove ineffectual in this disorder.

Of the ardent or burning FEVER.

AS we have mentioned four classes of fevers in our second division, *viz.* 1. Such as are characterized by some remarkable symptom. 2. Such as are eminently dangerous. 3. Those which owe their rise to the inflammation of some of the *viscera*. 4. Depuratory fevers, or those attended with cutaneous eruptions. According to this order we now come to the second class above-mentioned. This includes those of the ardent, malignant, and pestilential kind. The third class I omit for the reasons already given.

As to the ardent fever, it is called in *Latin febris ardens*, in *Greek* *καυσος*, from *καύω* to burn, and so in other languages, which evinces, that all countries agree in their idea of a fever, as being essentially hot.

THERE are two pathognomic signs of this fever, *viz.* a burning heat of the whole body, and insatiable thirst. The heat is so great, that the patient cannot bear the least covering: he is besides perpetually restless: the thirst is in proportion to the heat. Nevertheless these symptoms are more or less intense according to the patient's constitution, and other circumstances.

THO' the word *ardent*, the epithet of this fever, may agree with most others, yet some *tertians* only, or those which supervene the inflammation of the *viscera*, as the liver, &c. are mostly subject to degenerate into a

burning fever; for the fits of the other kind of agues are too mild to produce it. All continual fevers, attended with returns, may likewise degenerate into one of the ardent kind.

As I have sufficiently explained continual fevers, &c. I omit them at present, confining myself to speak of the causes that may convert them into a burning one, or, which is the same thing, the causes which give rise to the characteristics of this fever, *viz.* intense heat and thirst.

CAUSES of these two symptoms, are three, 1. The accelerated, progressive, and intestine motion of the fluids. 2. The brisk oscillations of the solids. 3. The combination of both. Nor must we imagine, that the rapid motion of the fluids necessarily excites that of the solids; for we shall hereafter demonstrate the contrary in some particular cases.

As to the first cause or peccancy of the fluids, it is two-fold, 1. The spissitude of these fluids. 2. Their adustion. The spissitude of the blood contributes to its motion and heat, since it is more compact, and contains more matter under an equal bulk, than before; wherefore being once put in motion, its *momentum* is greater; for by mechanics it is proved, that the *momentum* of any body is equal to the number of particles in its mass, multiplied by its velocity or degrees of motion: but as the blood in this case, contains more matter under an equal bulk, than it did in a healthy state, consequently its attriction and intestine motion are greater; moreover it retains its
motion

motion the longer, since it communicates less to the ambient body through the compactness of its mass. From all which it may be concluded, that in this fever, where all these conditions meet, the heat will be not only greater, but more durable.

THIS matter will be farther illustrated by considering the different degrees of combustion caused by ignited bodies of different compactness. Thus the effect of boiling water, will be greater than that of boiling spirits or spirituous liquors, of vinegar than either, and of melted lead or boiling mercury than all. The same thing may be said of solids; for kindled wood burns not so violently as red hot iron, nor does this produce the same effect with melted gold.

II. The dryness of the blood will have much the same effect with its spissitude and compactness; for while the blood is sufficiently diluted, its massive particles swim in a great quantity of a fluid vehicle, or *serum*, whereby their attrition is prevented. Besides they are thus kept so pliant as to glide smoothly, not only by the sides of their vessels, but also over each other, nay are kept at some distance, so that they do not frequently meet, and when they do, they do not rub so hard against each other for want of asperities; wherefore it will happen in these cases as with an axle-tree, which will run a great way without considerable heat, when well greased; on the contrary, if it be not greased, attrition and heat will ensue.

As to the procathartic causes of the spiffitude and aduſion of the blood, they are, exceſſive uſe of ſpirituouſ liquors, venery, immoderate exerciſe, watching, grief, or application of the mind, and all other things which greatly diſſipate the ſeroſity of the blood. For theſe reaſons we find that all perſons addicted to ſuch irregularities, are moſtly ſubject to this fever.

Now we come to the cauſes of the augmented heat from the fault of the ſolids. Theſe are chiefly reducible to the ſimple vibrations of the integrant or component parts of each fibre, which compoſe the veſſels; and the more the fibres are diſpoſed to theſe vibrations, the greater the motion and heat will be.

THIS diſpoſition to vibration in the fibres, may be natural or accidental; natural, as we ſee in ſome who from their infancy are of a ſtrong, elastic, and robuſt make; but eſpecially when there is a rigidity of the ſolids; for in this caſe they are incriſpated, and each fibre tenſe, like the chord of a muſical inſtrument, ſo that they are not only ſuſceptible of theſe oſcillations, but of retaining them very long. Thus we ſee that a dry firm wall will retain longer the motion communicated to it by a cannon-ball, &c. than a wool-pack is found to do. This dryneſs of the ſolids may be alſo (as it is moſt commonly) accidental or acquired, by the means above-mentioned, in treating of the exciſion of the humours.

MOREOVER we are taught by mechanics, that the drier bodies are, the more they are braced up ; but the greater their tension is, the greater their elasticity will be ; consequently their vibrations will be the more violent, and continue longer ; on the contrary, we find that the elasticity of all bodies, is considerably diminished by moisture, for they become more lax thereby. All this is evidently applicable to the solids of the human body.

THAT these two general faults of the solids and fluids concur in the production of a burning fever, clearly appears, because this fever rarely attacks cold and phlegmatic persons, as infants, old men, and the generality of women ; on the contrary, melancholic, bilious, and atrabiliarious constitutions, as also those who use immoderate exercise, or the like, are very subject to it ; because they have the necessary conditions to produce it, both in their solids and fluids.

SYMPTOMS. Though the heat is very violent in this fever, yet it is not of the same intensity in all patients ; because of the different degrees of the spissitude and excication of the fluids, and vibratility of the solids. Thus, for instance, it is more supportable in a young subject, than in an adult ; because the humours of the former are more fluid, and their solids weaker and more delicate.

THIRST is in this case excessive. This is a sensation composed of three others, *viz.* heat, dryness, and saltishness ; and though the

last should not concur, yet the two former would be sufficient. We have before demonstrated how the heat is excited all over the body, consequently in the seat of thirst. Besides the particular heat of this organ, the heat of the expired air contributes very much to this sensation. The saltishness is owing to the evaporation of the serosity of the mouth, whereby the salts of these humours are concentrated and collected in a sufficient quantity to excite this sensation. The dryness is a necessary consequence of both these causes.

Now the reasons why the thirst is perpetually insatiable in this fever, are, 1. By reason its causes are permanent. 2. Because the liquids taken by the mouth cannot mollify the fibres, or immediately touch the organ of thirst, on account of a thick crust, or dry *mucus*, which covers the tongue and *fauces*, whereby the action of the fluids is eluded, though they reach the stomach.

THE tongue is dry, rough, and black; it is dry, because of the heat and dryness of the whole body, but especially through the heat of the expired air. It is rough and full of asperities for the same reasons; for here are a great number of nervous *papillæ*, which in a healthy state are soft and pliant, much like velvet; but by dryness they become rigid, erect, and sensible to the touch.

THE tongue is black, especially in its middle, from one extremity to the other, by the thickness or inspissation of the foresaid *mucus*, but its margins all round preserve their natural

tural colour, because they are closely applied to the emunctories of the lower salival glands, which constantly lubricate them.

PERPETUAL watchings afflict the patient; for as we have observed, when treating of the disorders of the head, sleep proceeds from a certain laxity of the fibres of the brain, which during rest in the natural state, are in some measure moistened, whence follows a kind of inaction; but all this humidity is evaporated in the present case, consequently the fibres of the brain are rendered more tense, susceptible of vibrations and painful impressions. Besides, the sensibility of the patient's whole body, gives rise to uneasiness and anxiety; to which we may add, the constant and violent oscillations of the arteries of the brain, which shock its fibres, and more vigorously propel the animal spirits into the external organs of the senses; all which are more than sufficient to procure constant watchings.

THE *delirium* is very sensible, not obscure in this fever, as we see it in malignant fevers. This is owing to the disproportional tone of the fibres of the brain; for when the chords of a musical instrument are well tuned, or of a proportional tension, the notes and music are melodious; on the contrary, the disproportional tension of the same chords will render the music very harsh and intollerable. Something analogous to this happens with regard to the brain, whose fibres, if they be dissonant, as they are in the present case, will render the judgments resulting from the combination

bination or separation of the ideas, very incongruous, and in this consists the *delirium*; hence if the fibres which were consonant before, now become dissonant by their preternatural rigidity or laxity, &c. the judgment will be different from what it usually was.

THE respiration is great, frequent, and painful; it is great, because the stimulus or real quantity of blood propelled to the lungs, and its rarefaction therein, are great, so as to determine a violent and preternatural afflux of the animal spirits to the organs of respiration. This action is also frequent thro' the speedy repletion of the pulmonary vessels by the blood, which is propelled to them by the frequent contractions of the heart. As respiration is great and frequent, it is necessarily difficult and painful, as appears.

THE urine is intensely red, and in a small quantity, though the patient drinks plentifully; for the burning heat dissipates part of the serosity of the blood by the other emunctories; and the redness is induced, through the dissolution of the salts, and sulphureous parts of the blood, by the excessive motion of the arteries; whence the urine deposits a turbid sediment.

SWEAT never appears in this disorder, tho' the heat is very violent; the reasons are, 1. because the solids are so dry that the fibres of the skin are incrispated and contracted, and the emunctories of sweat, as it were effaced. 2. The blood is too viscid, for it has lost its humidity by the means abovesaid; hence the
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one as well as the other, prevents this evacuation, which requires not only a relaxation and free passage in the surface of the body, but also a proper fluid to be fecerned from the blood.

THE pulse is strong, great, frequent and hard; the pulse is strong, because the dilatation of the arteries is great, as are also the contractions of the heart. As the motion of the heart is the primitive cause, let us examine how it comes to pass in this case. It is owing to the augmented *momentum* of the *stimulus*, or blood, and contractile force of its own fibres, or to both together, all which are very intense in this fever. 1. The *stimulus* is great, because of the quantity and velocity of the blood; the quantity is great through the rarefaction of the blood, which is rather an apparent than a real *plethora*; the velocity of the blood is great, as is manifest, so both concur to excite the frequent contraction of the heart.

THE contractile power of the heart is augmented; 1. because its fibres, like all those of the rest of the body, are become rigid, dry, and tense, through the heat and dissipation of the fluids. 2. The influx of the animal spirits is excessively promoted by the violent and repeated contractions of the arteries of the brain, which incessantly and forcibly propell them into the nerves and fibres of the heart, consequently the contractions of this organ, the dilatation of the arteries and the pulse will be very strong.

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THE pulse is great from the plenitude of the arteries through the strong contractions of the heart, and rarefaction of the blood.

THE pulse is frequent from the repeated contractions of the heart, to which correspond the frequent dilatations of the arteries.

THE pulse is hard from the great repletion and dilatation of the arteries, together with the tension and dryness of their fibres.

DIAGNOSTICS. Though the two pathognomic signs of this fever, *viz.* excessive heat and thirst, would be sufficient to characterize it; yet any great and universal heat of body, with a black tongue, and other symptoms, though in a milder degree than the former, should justly give room to suspect this disorder, as may also a young patient from the age of eighteen to forty years, a bilious temperament, hot season or climate, excessive venery, exercise, watching, and the use of spirituous liquors, which if they have preceded the fever, are strong arguments of its being a burning one; so that independant of the intensity of the foregoing signs, we have several other means of discovering, or at least plausibly conjecturing the existence of this fever.

THE species of the disorder is likewise manifest, though we have beforementioned its principal kinds, *viz.* 1. an ardent fever which supervenes an ague. 2. That which supervenes a continual inflammatory fever. 3. A continual simple fever, which degenerates at length into an ardent one.

OF all agues, the *tertian* is the most subject to become a burning fever; nevertheless, its intermissions are so considerable, that it rarely degenerates into an ardent one; for tho' the attacks of a *tertian* be violent, yet they merit not the name of an ardent fever.

THE inflammatory fevers are more deservedly ranged under this head, particularly that which proceeds from the inflammation of the liver; for the bile in this case is retained in the blood, whereby the solids are irritated, their oscillations augmented, and the principal dispositions for an ardent fever induced.

BUT the most frequent sources of this disorder are simple continual fevers, which if fomented by powerful causes, easily degenerate into an ardent one.

As to the diagnostics of each of these kinds, they are manifest; for when the ardent fever is once discovered by the preceding signs, we can easily find whether it sprung, 1. from an ague, which is known by its intermissions, &c. 2. If from an inflammatory fever, it is soon discovered by the particular signs of the inflammation of some *viscus*. 3. If a simple continual fever has given it rise, we know by the symptoms.

PROGNOSTICS. This fever must be always pronounced extremely dangerous; for the standard of danger in all fevers, is inflammation; but this is either actually present, or instantly impending in a burning fever; because the rapid circulation and rarefaction of
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the blood, threatens every moment infarction and rupture of the vessels.

MOREOVER, if this fever has sprung from an inflammatory one, the danger varies according as the inflammation terminates, and this may be three ways; 1. by resolution; 2. by suppuration; 3. by gangrene.

THE first is the most salutary termination; the second is dangerous, nay, very often mortal; because the effused *pus* in all internal suppurations, as that for instance, of the liver, at length mortifies some of the adjacent *viscera*; nevertheless, we often see it to be happily expectorated after peripneumonies, &c. but it is always to be feared. The case is hopeless, if the inflammation terminates in a gangrene. As to the impending inflammation, it is always threatened by a burning fever, and that for four reasons. 1. Because of the inspissation and immeability of the blood, which is always inseparable from the nature of this fever, and whereby the capillary arteries are easily obstructed and ruptured. 2. By reason of the degree of rarefaction of the humours and their heat, both which are extremely intense in this disorder. 1. The heat is violent, as we have proved in the symptoms; 2dly. the rarefaction is also excessive; for the degree of the disposition to rarefaction in any fluid, &c. is estimated from its spissitude and consistence, but this is very considerable in the present case; thus we see that turpentine is much more capable of rarefaction, than an equal bulk of spirit of wine, or such like fluid. Consequently

quently the blood which is in this fever more viscid than in the natural state, will be proportionally more rarified, will distend the vessels more than ordinary, and give room to inflammatory depositions. 3. On account of the violent motion of the heart and arteries. 4. Because of the rigidity of the vessels, which in all other fevers remain somewhat more pliant and flexible; whence they the easier yield to impelled fluids, without danger of rupture, which is to be feared in this fever; wherefore upon the whole, we have good reason to apprehend inflammation therein.

A second danger is here threatened, by the kind or degree of the actual or impending inflammation; for this is commonly *inflammatio per extravasationem*, not by the irruption of the blood into the lymphatics, the reasons of this we hinted at before; for the capillary arteries and lymphatics are so rigid, that they sooner burst than yield; whence extravasation of their contents necessarily happens.

A third danger proceeds from the termination of this inflammation, which is commonly a gangrene, a mortal period, as we observed before; since in this case the other terminations cannot be well expected: for,

I. Resolution cannot be hoped for, which should be performed by the resorption of the extravasated blood into the lymphatic veins, to be thence conveyed into the *receptaculum perqueti*, &c. but as this cannot be acquired if the stagnating blood be not sufficiently diluted, and, as it were, dissolved in a proper vehicle,

vehicle, to be thereby adapted to the narrow ducts, through which it should pass in its way to the circulating blood. Moreover these conveying vessels should be very soft and pliant, to give way to this preternaturally gross humour with which they are loaded. As these conditions are wanting in this sort of inflammation, since the blood in general is destitute of serosity, and as the solids are too dry and rigid, the resolution of the inflammation is almost impossible.

II. Suppuration cannot be procured; for, that this should happen, the humours should be sufficiently fluid, and the action of the solids duly vigorous. As to the first condition, it is wanting in this case; but the second, or motion of the solids, though considerable, yet contributes rather to render the obstructing blood more dry and compact, till at length the vessels, whether veins or arteries, are so glutted with this hard matter, that they entirely lose their action, so that there is an entire cessation of motion or life in the affected part, consequently the opposite state, or gangrene, will ensue. Nay this mortification may happen in the very vegetables, as it does here; for the life of these consists, as several experiments prove, in a sort of circulation of their sap, promoted, without doubt, by the oscillation of its canals; but as soon as these ducts become dry and rigid, the vegetables wither, or fall into a kind of gangrene.

It may perhaps be thought, that this theory of gangrenous dispositions, induced by a burning fever, is fictitious, and only the fruit of pure imagination. Nevertheless, repeated observations sufficiently attest it; for, in order to prove that there are such dispositions, let us first observe the disorders of the head, in an incipient burning fever. Here we find lethargic affections, *deliriums*, and the like; all which are sufficient instances of the obstruction of the brain. If we descend to the *thorax*, there we find difficult respiration, &c. which likewise proves the infarction of the lungs. By descending to the *abdomen*, we find considerable tension therein, which denotes the inflammatory or phlogistic state of its contents. We may therefore conclude, that all parts of the body, in a burning fever, are threatened with inflammation and its terminations, particularly a gangrene.

THO' we spoke of the eminent danger of an ardent fever in general, yet it varies according to the different age, temperament, sex, country, and other occasional causes. Moreover, we are to remark, that the danger of this fever does not entirely manifest itself till the tenth day, or thereabouts.

CURE. As this is a fever, like all other continual ones, with redoublements, it should be treated in the same method, as bleeding, purging, diluting, &c. but as it partakes of inflammation, either anterior to the fever, or threatened by it, it should be treated with more caution than any of the former. For

this intent, we must let blood more frequently than in the others; for instance, four or five times a day, at least, during the two first days. Nor must we be deterred from this practice by an apprehension of weakening the patient; on the contrary, after these bleedings he will be better, nay as lively as before the venesection, through the great tension, or rigidity rather, of his solids, which still subsists.

AFTER bleeding, we are to replenish the empty vessels with some aqueous fluid, whether ordered in the form of broths, ptisans, or clysters.

As to the broths, they may be made of veal, pullet, &c. and as they should be light, not nourishing, they are to be taken very plentifully.

IN order to refresh the patient the more, his ptisans may be made of *lactuca. rad. acetos. fragar. &c.* in which dissolve some of the *sal. sedat. bomberg.* or rather some nitre, as being the most powerful refrigerant, yet known in medicine.

IF these fail, and the fever is still encreased, we must come to emulsions, which are very proper to check the violence of the heat, both by their cooling quality and viscosity, whereby they adhere longer to the passages, and have a more durable effect; while simple ptisans, or such aqueous remedies, are soon discharged.

To render these emulsions more adhesive, if the violence of the disorder requires it, they may be slightly boiled.

A decoction of the above plants, in which is put some *oxycrat*, or broths, wherein the plants are boiled, will be very proper for the clysters, which may be employed six times a day, as the violence of the disorder, and indication of cooling demand.

To fulfill the same intention, we may apply lettuce-leaves to the patient's forehead. These may be kept on till they begin to dry. A thin slice of lemon may be put on the patient's tongue at the same time. His *abdomen* may be also frequently fomented, by surrounding it with a thin flannel, which should be dipt in a proper decoction, almost cold.

THE fever thus treated, remits generally towards the sixth or seventh day, as will appear by the remission of the symptoms, clearness of the urine, &c.

Now we come to examine the use of some remedies, highly recommended in the cure of this fever, by several physicians.

I. Bathing in cold water is recommended; but as I have not been hardy enough to attempt the use of such baths hitherto, I dare not recommend them; yet some, perhaps, may employ them with success. Nevertheless their use is so uncommon on this occasion in modern practice, and their effects not as yet sufficiently established by observations, that we must not be too forward in their use, for

fear of miscarrying, or lest the disorder should be augmented by some other cause; in which case the vulgar will not fail to attribute these accidents to the unwarrantable prescription of such remedies, though they are ever so properly directed.

NOTWITHSTANDING all these difficulties, I imagine cold baths may be used, when there is no internal inflammation; for in this case they would be pernicious, since they repel the blood from the surface of the body to the *viscera*, through the compression they make thereon. For the same reasons they should not be used till after sufficient bleeding.

II. Narcotics are ordered by some, and rejected by others; but as they are hot, and produce the rarefaction of the humours, they may perhaps throw the patient into a *delirium*, or some other disorder of the head; wherefore they should not be exhibited in the beginning or violence of the fever: yet when it begins to decline, or remit a little, their use may be pardonable. Thus a few poppy-heads boiled in ptisan will prove successful, as I have often experienced.

III. It is disputed at what time the patient should be purged. As for my part, I would recommend it in the very beginning of the disorder, especially if the patient has been a debauchee, and if any indications of crudities in the stomach, &c. present themselves; for in this case a gentle emetic may be ordered. But unfortunately the stomach is generally empty at the approach of this disorder; nevertheless,

vertheless, should it be the sixth day on which we meet the above indications, we may order an emetic, or a gentle cathartic, when the fever requires it. Of this class are *decoct. tamarindor. in quo dissolv. cass. mund. ℥j. cum pauxillo nitr.* for these cathartics purge and cool at the same time. But we must absolutely banish all resinous heating purgatives.

Of the malignant FEVER.

THE symptoms and varieties of this fever are so many, that I cannot pretend to define or describe it in general; for not only the accidental, but also the essential symptoms, are subject to the above variations; whence, to have a just idea of it, would require a very extensive treatise: But in order to describe it the better, I shall separately treat of its different stages, with the symptoms peculiar to each. Thus,

I. Its beginning is accompanied with a general lassitude, heaviness, and inactivity, as if the patient had been fatigued by violent exercise; yet his pulse, heat, urine, &c. are almost as in the natural state; nevertheless he feels a particular pain in some part of his head, sometimes about the orbit of the eye, at others about the *occiput*, and so of the other parts, and this for reasons to be hereafter mentioned. This pain, with the above general lassitude, are the principal characteristics, during the first, second, and, very often, the third day.

II. In the augmentation of the distemper, or from the 4th day to the 7th, 12th, or 15th, and very often longer, the preceding symptoms become much more manifest, especially the head-ach, heaviness of the eyes, sleepiness, with a supervening *delirium*; for by strictly observing the patient whilst alone, and not interrupted, we find he makes several incongruous discourses; yet he soon perceives his error when he reflects on what he said, or the absurdity of it is represented to him. Thus he continues till the 7th or 15th day, or perhaps longer.

III. The State of the disorder happens at one or other of these periods, though I have frequently seen it arrive only on the 35th day, on which it often proved mortal.

IN this stage all the forementioned symptoms are evident and violent, redoubling at night, so that the patient can hardly turn himself in his bed. His *delirium*, or lethargic affections, are no longer obscure, but perceptible at first view. However, though his *delirium* be very considerable, yet he often discovers some of the errors of his mind by the presence of awful persons, or those whom he particularly respected before his disorder; on the contrary, his raving fits are encreased by the presence of such as he hated or disdained.

WE are to observe, that the longer the augmentation of this disorder is, and the slower it advances, the later the state will arrive, and the greater its danger will be; on the contrary,

trary, if it happens, for instance, on the 7th or 10th day, it will be soon succeeded by the declension of the fever, and remission of its symptoms, with hopes of a speedy recovery.

BUT it is not to be expected, that after this fever is over, or even effectually cured, the patient should be entirely restored to his former state of health; for some of his functions are still impaired, though he walks in public, eats and drinks seemingly well, yet he still retains a sort of *delirium*, and other disorders of the head, with indigestions, &c. so that he hardly recovers himself for six months, or perhaps longer.

WE may next observe, that the most constant symptoms from the beginning of this disorder to the end, are those of the head, in a more or less degree of intensity, such as the head-ach, *delirium*, convulsion, lethargy, &c.

DIFFERENCES. Though we have above-mentioned some symptoms which should seem to prove, that this fever has generally the same *type* or appearance. Yet some able physicians say, that all disorders, but this in particular, have some analogy with the aspects of men, of which no two are exactly alike. This I own may be true, by comparing the different stages of one disorder, or malignant fever with those of another; but by comparing the whole course of one, with that of another, they bear some similitude with each other; so that we will not pretend to distinguish a malignant fever into as many kinds, as there are patients affected therewith, but rather content

ourselves to distinguish it into symptomatic and essential.

THE symptomatic malignant fever is that wherein some other part besides the head is primarily affected: thus it often begins, like a pleuresy, with a stitch, coughing and spitting; at other times, the disorder seems to have its principal seat in the *abdomen*, as in the liver, &c. whence it has been treated in the beginning like the disorders of these viscera, with bleeding in the arm, &c. which practice is not detrimental; thus the symptomatic malignant fever continues for the two first days, and sometimes till the third; but then it evidently manifests itself in the head, with its various concomitants, whilst the symptoms of the other *viscera*, which seemed to be primarily affected, intirely cease. Then the instituted method of cure should be changed; so that instead of bleeding in the arm, it is now to be performed in the foot.

THE essential malignant fever always begins to appear in the head, where it creates the usual symptoms without any disorder of the other parts.

THOUGH this distinction is much in repute, yet I would rather affirm, that the one as well as the other of these kinds, is essential; for the symptomatic one begins it's scene in the head, as the symptoms prove, though other parts; for the reasons to be hereafter mentioned, seem to suffer at the same time.

CAUSES. The genuine theory of the causes is not to be met with in any books, I know,

know, whether antient or modern; as to the latter, when they began to restore medicine, some of them asserted, that the cause of all malignant fevers consisted in the dissolution of the blood; others, on the contrary, affirmed, that it was rather the spiffitude; but a third party maintained both sentiments.

NOTWITHSTANDING the reasons alledged for these different opinions, the dissection of persons who have died of this fever, plainly evince, that the causes thereof are rather the inflammation of the very substance of the brain, particularly of the cortical part; this is proved. 1. By a constant head-ach from the very beginning of the disorder; for as the proverb imports, *ubi dolor, ibi morbus*. 2. By the great sensibility and heat of the head, just as in a frenzy, so that the patient can bear nothing on it. 3. By a violent oscillation of the carotid arteries, and through the great contractions of the heart and resistance in the extremities of these arteries; nor is this oscillation so apparent in the other arteries of the body, which sufficiently proves, that the capillary extremities of the internal carotides are so obstructed, that the blood is abundantly diverted to the collateral branches, or to the external carotides. 4. By the delirium, which is the strongest argument that can be drawn from the symptoms, and is alone sufficient to prove the seat of this disorder, because it infallibly presupposes an infarction of the brain. 5. By the *cedematous* swelling of the face; for this demonstrates an inter-

interrupted circulation in the internal parts of the head. 6. By a deafness, which is generally owing to the infarction of the arteries of the organ of hearing; the parotid-glands are also obstructed, both which are the effects of the obstructed brain. 7. We now come from the symptoms, to the *phænomena*, observed in the dissection of subjects, particularly of the brain, in which if the patient died about the tenth day, is found a sensible inflammation, and sometimes an incipient gangrene; but if the patient has died later, the gangrene, or *sphacelus* is evident by a great many black and mortified spots: finally, if the inflammation has continued a long time, neither gangrene nor *sphacelus* are found; but a suppuration or abscess of the brain, has rather caused the patient's death; all which evidently prove that an inflammation of the brain, is the parent of this disorder.

BUT it may be demanded, how a malignant fever differs from a phrenzy, since both equally proceed from an internal inflammation of the head. As to the phrenzy, it is an inflammation of the *meninges*, or *dura* and *pia mater*; consequently, as being an affection of membranous parts, it is accompanied with violent pain and heat of the head, a very acute and burning fever, agitation of the whole body, &c. on the contrary, the seat of a malignant fever is in the cortical part of the brain, which being soft and indolent, produces no such violent symptoms.

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THESE two disorders differ also in the kind of inflammation: for that of the phrenzy, is phlegmonous; wherefore it terminates more speedily, than the inflammation of the malignant fever, which is *œdematous*, consequently slow and mild; for the former rarely exceeds the 7th, or at most the 15th day, without terminating in suppuration or gangrene, &c.

WE have already remarked, that the cortical part of the brain is that which is affected in the present fever, but its whole substance is rarely inflamed at once, for the inflammation is confined to the antierior, posterior, or lateral parts thereof, and sometimes to the whole hemisphere of this substance. For these reasons the patient generally refers his pain, or head-ach, to some particular part of his head. Nevertheless this inflammation has been sometimes seen to extend itself to the very medullary substance of the brain.

THIS kind of inflammation, as before observed, is *œdematous*, as the deafness from the œdematous obstruction of the vessels of the ear, and indolent swelling of the face, prove; wherefore its symptoms and progress are not violent nor speedy; yet it often approaches to the nature of a phlegmon, and consequently to that of a phrenzy, in which case the symptoms are more acute; if it partakes of an *œdema*, they will be milder; so that these different combinations, greater or lesser intensity of the inflammation, and the like, will also produce a great variety in the symptoms, which

which may be very numerous. Thus by considering these different cases, we shall discover the varieties of the disorder.

IT is not sufficient to investigate the immediate cause of this inflammation, but we should also examine its remote causes. These are general and particular. The first comprehend the general spiffitude of the blood, especially if it be suddenly rarified, or if it suddenly passes from a state of rarefaction to that of condensation; both which cases are very instrumental in the production of this fever. Nor must we understand here the slow inspissation of the humours by chronic disorders, or the like; but rather that induced by the fault of the external air, excess in eating and drinking, exercise, and, in a word, all things that dispose the humours to an inflammation.

NOR are these general causes capable of producing an inflammation of any particular part, without the concurrence of some partial or local disorder, which in this fever should be in the head, whereby the blood is determined thither; for instance, it is not sufficient to demonstrate the general dispositions that produce a peripneumony, or the like, without shewing why this inflammation is formed in the lungs, rather than elsewhere.

As to the particular causes which give rise to the inflammation of the head, they are blows or falls on this part, megrims, too great application or intention of the mind, as contributing to the great tension of the fibres of
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the brain, grief, sadness, melancholy, or the head suddenly exposed to the excessive heat of the sun; to all which, add the habitual disposition of the brain. Thus some are constantly subject to head-achs, through the difficult circulation of the blood in that part. For this reason I have seen persons, who at the approach of any kind of fever, seemed to have always a malignant one, through the tendency of the blood to the brain, and its difficult circulation there. Others, on the contrary, I have seen, who were frequently subject to peripneumonies, through the natural weakness of the lungs; and so of all other disorders which attack the parts most disposed to receive them.

THO' the generality of all other acute inflammatory fevers, terminate upon or before the second septenary, as they say, or on the 14th day; this, notwithstanding, continues longer, nay to the 18th, 19th, sometimes to the 28th day, and perhaps to the 35th. To discover the reason of this difference, let us

I. observe, that the inflammation of the head in a malignant fever is mostly œdematous; consequently it is very obstinate, and hard of resolution, through the greatness of the obstruction, and weakness of the vessels. For this reason we find, that a rheumatism, as being a kind of œdematous inflammation of the ligaments, membranes, and other parts of the articulations, is very obstinate and hard to be dissolved. Besides, both these inflammations happen in vessels in which the circula-
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tion is very languid, and unfit to procure a speedy resolution.

II. The want of tone of the affected part prolongs the disorder ; for we find, that a sanguinous inflammation, formed in an elastic part, whether purely muscular, or in a *viscus*, endowed with this quality, is soon terminated by a speedy resolution or suppuration, as the disease is more disposed to the one, than to the other ; all which is owing to the lively motion of these parts, which are impatient of this preternatural collection of humours. The brain, on the contrary, which we suppose affected in the present case, is an indolent mass, void almost of elasticity, and what little motion is communicated to its vessels in order to promote a resolution, is soon lost in such a soft mass. Moreover the arteries of this part are divested of their external coat ; consequently their vibrations are weaker than those of the other arteries. I have dwelt thus long on the theory of this disorder, because it is very frequent and dangerous. Now of the

SYMPTOMS. To examine these signs with more accuracy, it will be necessary to distinguish this disorder into four stages, *viz.* its beginning, augmentation, state, and declension ; and to trace the symptoms which accompany each.

I. Therefore, the symptoms which attend an incipient malignant fever, are a mild fever, through the slightness of the inflammation, or rather simple obstruction of the brain ; heat
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and urine, almost as in the natural state, from which they always recede in proportion to the intensity of the fever; but as it is very mild in this stage, they are not much changed. So the principal symptoms in this state are those of the head, as head-achs, which return every now and then; but as their cause which is the distension of some membranous parts of the head is mild, so are these; besides, the lax and yielding texture of the brain prevents the violence of this disorder. As to the returns of these symptoms, they are owing to some application of the mind, vexation, or the like.

THE patient's universal lassitude proceeds from the inflammation and infarction of the vessels of the head, whereby the origin of the nerves is compressed, or rather because the secretory organ of the animal spirits, *viz.* the cineritious part of the brain, through its compression, cannot discern a sufficiency of this fluid to give the solids their necessary tone and action.

THE patient's lethargic affections are the offspring of the same cause. Moreover, as watching proceeds from the impressions communicated by the external organs of sense to the common sensory, which being now too lax, cannot transmit such impressions. Thus no reflux of the spirits happens to disturb the brain, consequently sleep ensues. In this manner the patient is affected till the 4th, and sometimes the 5th day. Nay he often, tho' thus affected, walks in public, keeps com-
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pany till about the above time, the disorder becomes too evident and violent. Nevertheless whilst the fever remains in this obscure state during the first days, the patient's seeming weakness engages those about him to make him eat and drink with a view to restore his strength; but through these means the disorder is augmented; the patient being thus fed, his indigestions and fever are increased: for we may observe, that the two essential conditions of digestion are wanting here, as, 1. The necessary quantity and activity of the digestive humours. 2. The tone or due elasticity of the stomach. As to the former, these humours, by their gentle velleitation on the stomach, determine more the afflux of the animal spirits thither, whereby not only appetite is procured, but the tone of the stomach is fortified. But as these humours are vitiated in this case, and the spirits too languid, indigestions necessarily happen. Nay indigestions are so powerful in the production of this disorder, that they alone have often created it, as has been observed after excessive intemperance; besides the nature of this fever alone, promotes these indigestions, from which afterwards follow *cardialgias*, *nauseas*, vomiting, &c. according to the part of the stomach on which these crudities act, as we have before explained.

II. IN the augmentation of this disease, the symptoms arise from two sources. 1. From the cause of the fever. 2. From the fever itself, with the above indigestions, which give
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room to irregular, but more violent returns than in the preceding stage; yet these, in the progress of the disorder, become periodical, or more regular, because of a more regular generation and transmission of crudities into the mass of blood. Nevertheless, we must distinguish this adventitious fever, with returns, from the original or malignant one; both which are commonly united in this case.

THO' the causes of the disease seem to be augmented and become more violent, yet the disorder itself is not encreased in the same proportion, in consequence of the languid motion of the heart and arteries, for want of a due supply of animal spirits; whence the heat and urine will exactly correspond to the intensity of the fever; only we must observe, that they recede much more from the natural state in the returns, than in the intermissions. Moreover, it is to be observed, that as the head-ach, and other symptoms encrease, the patient's strength declines in the same proportion; which is a necessary consequence of the augmented compression of the brain: hence proceed very intense lethargic affections, depraved taste, &c. Besides, the patient's head is not only hot in the returns, but also in the remissions, though the rest of the body preserves still almost its natural heat. The eyes are also swelled and full of tears, through the distention of their vessels by the blood, which circulating with difficulty in the ramification of the internal *carotides*, is conveyed

veyed, by their *anastomosis* with the external *carotides*, more abundantly into the latter. To which add, that the blood of the common trunk of both these arteries is disposed to run where it finds least resistance, or into the external *carotides*, independant of the above *anastomosis*.

THE reason why these arteries beat more violently, though not more frequently, than the other arteries of the body, is evident by considering that the cause of the motion in the arteries is the heart, which should consequently distend them all equally in proportion to their diameters, if they were free; but as the extremities of the internal *carotides* are supposed to be obstructed in this fever, the motion of the blood, instead of an uniform progressive motion as in the rest, is on the contrary in these vessels more sensible from its lateral pressure; whence their dilatations will be proportionable, and consequently greater than in the other arteries, in which there is no obstacle; wherefore their oscillations will be greater.

THE *delirium*, as we have said, consists in denying what the patient allowed when in his senses and in allowing what he then denied. This proceeds from the state of the fibres, which in a healthy state were isochronous, but now are become heterochronous, or dissonant, through their inflammation. Nevertheless this *delirium* is not as yet entirely characterized; for discourse the patient for some

some time, and he will reason pertinently on the subject; but pursue the discourse a little longer, and his infirmity will appear. This is what we call an obscure *delirium*.

III. The state of the disorder happens commonly on the 10th or 12th day, and sometimes later, but seldom or never before the 10th day.

IN this stage all the above symptoms still remain, but in a more intense degree than in any of the former stages, particularly the affections of the head. The redoublings become more regular, but at the same time more violent; so that the patient in their height seems very often to have a phrenzy, through the greatness of his agitation and oscillations of the carotid arteries. For this reason the patient is much stronger, and more lively in the fits or exacerbations, than in their intervals, because the animal spirits are vigorously propelled into the nerves, through the agitation of the arteries of the brain. Nay, these redoublings are sometimes so violent, that the *meninges* are thrown into a *phlogosis*, whence the patient contracts a phrenetic *delirium*, hence its uninterrupted continuance differs from the *delirium* of a malignant fever, which remits after the redoublement is over.

THE *coma vigil*, and drowsiness, which happen in this stage, may be also explained by the aforesaid principles.

THE *abdomen* generally swells in the state of this fever. This tumour is called *meteorismus*, and is of two kinds; the one is an in-

flammatory tension of the abdominal *viscera*; the other a distension of the intestines, &c. by the included air.

THE first kind owes its rise to the fault or retention of the excrementitious humours fermented in the *abdomen*, as the bile, *succus gastricus*, *pancreaticus*, &c. in consequence of the affections of their respective organs, as their obstruction, &c. whereby they become more hot and sensible.

THE second kind, which, strictly speaking, is the genuine *meteorismus*, proceeds from the great quantity of air generated in these parts from indigestions, to which concurs the laxity of the intestines through the want of animal spirits, whereby they yield the more to the elastic air. Nay the intestines have such a sympathetic connection with the head, that the more this is affected, the more these are tumified; so that we may call them, in this sense, the thermometer of the head.

THE face is also considerably swelled, which is owing to the great quantity of blood received by the external *carotides*, for the reasons above given.

THE same reasons may be assigned for the dilatation of the arteries of the ear, whereby the nerves of that organ are either compressed, or relaxed; as may also the other parts of the same organ, as the *membrana tympani*, &c. whence they become unfit to transmit the impressions made thereon; consequently deafness will ensue.

THERE is another symptom observable in this fever, which is a violent convulsion. This may be explained, by saying, that the inflammation of the cortical substance is communicated to the medullary part of the brain, whereby some of the nervous orifices are suffocated, whilst the animal spirits are violently propelled by the unequal oscillation of the arteries of the brain, into others. Or we may say, that the unequal obstruction of the cortical substance alone, gives occasion to the unequal pulsation of the arteries, whence the corresponding parts of the medullary substance are so shocked, that the animal spirits there contained are more vigorously protruded into the nerves which are distributed from these parts, and also into the muscular parts to which these nerves are conveyed; whilst the other nerves and muscular fibres receive little or no spirits; for convulsions consist in the involuntary and violent contraction of some muscular parts, whilst others, and most commonly the antagonists of the former, are in a state of inaction for the reasons above specified. Thus we see the patient suddenly raise one member, and soon after another; but the convulsions of the lower-jaw, tongue, and hands, are the most frequent and sensible. The convulsion of the lower-jaw occasions the gnashing of the teeth, which is frequent in this state. As to the tongue, it is so rigid, that the patient cannot speak, nor thrust it out of his mouth; his hands tremble by making the least motion; his wrist, or *carpus*, is in such a convulsive trembling,

trembling, in consequence of the *subfultus tendinum*, that we can hardly feel his pulse; whence the common people call this pulse, convulsive. This symptom is mostly observable in the beginning of the state of the malignant fever.

THO' we have hitherto observed the symptoms which attend the most intense degree of a malignant fever, or, which is the same thing, its state; yet neither this disorder, nor its returnings, or other symptoms, are so seemingly violent, as an ordinary acute fever with its symptoms. Nevertheless the danger is manifest to all by its cause and the preceding symptoms, but more particularly by the following, which denote a superiour danger and intensity of the disease, threatening a sudden death.

I. A hæmorrhage of the nose; for this is a proof of the extraordinary plenitude and obstruction of the vessels of the brain.

II. *Parotids*, which are nothing else but tumified lymphatic, not salival glands, situated about the neck, ears, &c. These tumours have given occasion to two different systems for their explication. In the first is supposed, that these now obstructed glands are intended to receive only the lymph of the external parts of the head; and as these are affected with an œdematous inflammation, through the obstruction of the internal *carotids*, consequently their lymph stagnates a long time, and becomes viscid, acrimonious, and disposed for obstructions.

ANATOMY seems to favour this opinion, because it has not yet discovered any lymphatic ducts in the brain; so that it is not probable that it emits any such vessels to these glands, whereby their obstruction may happen otherwise than as we have above explained.

THO' this system is plausible, I would nevertheless rather embrace the second opinion, which imports, that there are lymphatic vessels which transmit the lymph from the internal parts of the head, to these glands, and that this lymph being in the present case vitiated by the inflammation of the brain, has a difficult amfractuious passage, and at length arrives in these relaxed glands, where, because of all these concurring dispositions, it is soon deposited; whence arise these obstructions.

THIS sentiment seems to be farther proved by the obstruction of other glands in this state of a malignant fever. For we find that the glands of the arm-pits are obstructed in consequence of the infarction of the glands of the groin, whether in this fever, or other disorders. But betwixt these lymphatic glands is discovered an indisputable communication, whence arises this sympathetic obstruction of both; wherefore we may conclude the same thing with regard to the affections of the brain, and the glands of the neck, &c. betwixt which there should be some communication like that of the glands of the groin and arm-pits, seeing the affections of the brain commonly produce the obstructions of the paro-

tid glands. Thus an *erisypelas* of the legs occasions a swelling of the glands of the groin. A venereal inflammation of the parts of generation in both sexes, produces the same effect. The scald-heads of children likewise create tumours in the glands of the neck.

IN the state of a malignant fever, the lymph is not only deposited in the glands, but also in all other parts of the body, where it finds no great resistance, as in the joints and muscular interstices, because the oscillation of large arteries, and muscular contraction, are not to be met with in these places, at least such as are requisite to express this stagnating lymph. These lymphatic abscesses are one of the most infallible signs of imminent danger in a malignant fever.

III. Bubo's frequently happen in the height of this disorder; they appear in the groin and arm-pits, and are owing to the inspissation of the lymph, and laxity of these organs.

IV. Carbuncles, in *Latin*, *carbones*, or in *Greek*, *anthraxes*, are tumours with a black and mortified basis, elevated about a line above the skin, as large as six-pence, or a half-crown, frequently beset with small vesicles, through the elevation of the scarf-skin, and dissolution of some parts of the *corpus mucosum*; for by this means the small fibres which connect the *cuticula* and *cutis*, are destroyed in these parts. Not only these symptoms, but also tumours in general, are owing to the obstruction of some sebaceous glands, wherein, through their relaxation, a viscid and acrimo-
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nious lymph settles. Both these qualities of the lymph are principally caused by the retention of the bile, which is ill fecerned in this fever, and which renders the lymph so acrid, that it soon corrodes and mortifies these glands.

V. And, lastly, the red or purple spots observable in the state of a malignant fever, and which are sometimes like the welts raised by the strokes of a rod on the skin, called in *Latin* *vibices*. These are not always red, but from that colour degenerate into a livid, and, lastly, into a black one. These spots proceed from the stagnation or extravasation of the blood in the skin, through the languid circulation of the humours.

BESIDES the forementioned symptoms of the state of a malignant fever, there supervenes another at the same time, which seems to have no greater connection with this, than with other chronic fevers. This is the excoriation of the *coxis*, which is notwithstanding more frequent in this distemper, than in any other fever; for a malignant fever which continues to the 17th or 18th day, is rarely without this excoriation; because the patient presses so long upon that part, being obliged in some measure to lye on his back all the time. Moreover, as he frequently wallows in his excrements, this exulceration is the sooner procured. It begins first with small blisters, or vesicles, which when bursted, leave a superficial ulcer, which penetrates insensibly into the *membrana adiposa*, and is very difficultly cured. I here omit the explication of the patient's

tient's emaciation, as being a necessary consequence of his disorder. His deafness proceeds from the obstruction of the vessels of the ear, caused by the inflammation of the brain.

WE now come to the symptoms of the last stage of a malignant fever, which is its declension and diminution.

IF the patient is so happy, through the mildness of his fever, or its methodical treatment, to grow better, all the forementioned symptoms decline in the same proportion with the fever; such as the *delirium*, head-ach, convulsion, *meteorismus*, &c. but the declension of the symptom which principally denotes the patient's recovery, is the detumefaction of his face; for it presupposes a resolution of the obstruction and a free circulation in the brain, whereby the humours which were redundant, and forced into the external *carotides*, now have room enough, and sufficient liberty, to pass into the internal ones. Nevertheless this sign alone is not sufficient to prove, that the resolution or declension of the disorder is at hand; for I have seen some patients, the swelling of whose face disappeared with a seeming and general calm, who were notwithstanding in the utmost danger, through the suppuration which was then formed. But if the *delirium* sensibly remits along with the above symptom, its a strong proof that the patient will recover.

NOR must we expect, though all this happens, that the *delirium* will entirely cease; nay, the patient after the disorder is quite over,

over, will still remain stupid, and make extravagant discourses. I have met with some who forgot even their very name, so that they were obliged to learn once more to read, write, &c. nay some have remained stupid all their life time, because the fibres of the brain and common sensory were so distracted and relaxed by the force of the disease, that they demand a proportional time to repair their natural tone and elasticity.

NOT only the relicks of the *delirium*, but indigestions, depraved taste, &c. remain after this fever, for the reasons before given; yet we see that in all other fevers, after seasonable purging, &c. the patient is restored to his former state of health, enjoying a good appetite, &c. So that of all fevers, the plague itself not excepted, there is none shocks so much the very foundation of the human machine, impairs health, and renders its amendment so slow, as a malignant fever, whose remains are still so deeply implanted in the body, that some *paroxysms* of this disorder return every now and then, let it be never so methodically treated, nay even cured.

DIAGNOSTICS. We are to distinguish a great many circumstances in this disorder, and that unfortunately by the help of equivocal and dubious signs. 1. We must examine whether the patient's fever be malignant or not. 2. Its species. 3. Its differences. 4. Its various stages and times. 5. We are to observe some spurious malignant fevers, or such as have unjustly got this name.

I. The existence of a malignant fever cannot be well discovered for the two or three first days, nay, experienced physicians have been deceived in it during this time; for the small number of its characteristic signs which begin to appear then, as moderate lassitude, head-ach, &c. are attributed, not only by the patient, but by the physician, to some preceding symptoms, as intemperance, violent exercise, &c.

BUT as the disorder advances, it begins to give some clearer instances of itself, and more room to conjecture. For about the 4th or 5th day, though the fever is not high, nor the urine impregnated, or otherwise considerably changed; yet an obscure *delirium*, incongruous reasoning, general lassitude, head-achs, &c. which then appear, are strong proofs of it; so that we may reasonably judge a fever, attended with such symptoms, to be malignant; though we must not pronounce it such for fear of miscarrying in our prognostic, yet the disorder should be always treated as malignant, till we arrive at greater certainty.

ABOUT the sixth or seventh day, this fever is too well characterised to be mistaken for any other, since the above symptoms are then very manifest; wherefore the disorder should be then treated with thin broth, bleeding, purging, and other remedies to be hereafter mentioned.

II. Immediately after the discovery of the fever, we are to examine of what kind it is; for instance, what sort of inflammation gave it

it rise, whether it be *œdematous*, *phlegmonous*, or *erisypelalous*, &c. for the nature of the inflammation considerably changes the prognostics. Thus the two last, particularly the *erisypelalous* inflammation is very apt to terminate in a gangrene. This we may discover by the violence of the symptoms, as intolerable pain and heat of the head, with an excessive *delirium*, &c. We must also endeavour to find out the extent or magnitude of the inflammation, for that which attacks or occupies the whole cortical substance of the brain, commonly reaches the medullary substance, and is much more dangerous, than that which is confined to a small portion of the cineritious substance alone. This is discovered by the greater or less tenacity of the symptoms, by the patient's complaints of pain in part, or all his head, &c.

THE degree of the inflammation should be likewise examined in order to make a good prognostic, and even a methodical cure. But, as all these are too remote, from our senses, and have no distinct or manifest signs, both the cure, and particularly the prognostics are imperfect.

III. The different symptoms which supervene in this disorder, as the inflammation of the lungs, liver, or other viscus; all which may frequently happen in consequence of this fever, and should be sought for, from their respective signs.

MOREOVER, we must examine whether the patient has any purple spots or tumours, as the
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carbuncles, parotides, &c. all which are easily discovered by what we have said.

WE must next enquire, whether the patient's *delirium* approaches to a phrenzy, *coma vigil*, or lethargy; for in the first, the inflammation is generally phlegmonous, and violent; but the second kind of *delirium* is constant, the patient speaks much, and is continually grasping the air, as it were to catch flies, or the like, with other preposterous motions of his hands. But in the third species, he is very silent, stirs neither hand nor foot; in a word, he seems to sleep, so that we may conjecture, that the inflammation in this case is œdematous.

IV. The different times or stages of the disorder must be observed, as its beginning, augmentation, state, and declension, all which are easily distinguishable by the description we have already given. Yet to know the progress of the disease is of some importance to the physician, who is not called in perhaps till the 7th day; so by knowing the stage of the disorder when first he sees the patient, he can the better give his opinion thereof, and attempt the cure.

V. We have already given the differences of the genuine malignant fever, we now come to some smaller kinds of it, which are rather so many spurious malignant disorders, or such as put on, in some respects, the appearance of malignant ones. Of this kind is, 1. The inflammation of the *pericranium*, or other external integuments of the head; for this is
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frequently attended with several symptoms of a malignant fever, and may perhaps impose on the physician as such. 2. The inflammation of some of the small *sinus*'s about the *sella turcica*; the symptoms of this approach much to the nature of the symptoms of a malignant fever. This kind of spurious fever I have certainly met with, as I may conclude from the nature of the symptoms, which were like those of a malignant fever, and by the effusion of *pus*, from the patient's nose, in which it was not formed, as I discovered by examination; so it has been discharged from the above place, by its communication with the nose.

A third species of these spurious malignant fevers, has been seen, from the inflammation of the internal ear, as the evacuation of *pus* by the *tuba eustachiana* into the mouth, seems to prove very clearly. The vulgar say in this case, that the *pus* came from the brain.

PROGNOSTICS. These depend upon the following heads, 1. The danger of the fever. 2. Its duration. 3. Its incertitude, or propensity to different changes. 4. The signs which denote its happy or fatal event.

I. The danger of this disorder is not only great, but the greatest of any other; 1. Because all internal inflammations are desperate, but this especially, by reason it occupies the organ most necessary for life, *viz.* the brain; for, through the affections of this part, all the other organs suffer more or less for the want of a sufficient influx of the animal spirits.

II. THIS

II. This inflammation is dangerous, because it is difficultly removed. For the terminations of an inflammation in any other part, such as resolution and suppuration, which alone tend to life, can hardly be expected in the inflammation of the brain, gangrene being its most usual period; nay, though it terminates in suppuration, it proves mortal, because the *pus* has no discharge. As to resolution, if there be any room to expect such, it will be very slow, because of the soft and pulpy substance of the brain, and the delicate coats of the arteries which enter it, and which, as anatomists know, lose their external coat after their entrance into the *cranium*, lest they should injure this tender *viscus* by the force of their oscillations. The arteries, on the contrary, of all other parts, always preserve their coats; wherefore they are sufficiently strong to forward the circulation, and attenuate any impacted humours lodged in them; whence resolution is performed in these vessels about the 7th day, whilst it cannot be expected in the brain till about the 15th.

III. In most of the other internal inflammations which suppurate, the *pus* has some sort of vent; for in that of the lungs, it may be discharged by the *trachea*; in the intestines, by the *anus*; in the *uterus*, by the *vagina*; &c. but here is no such passage, consequently the patient is threatened with the utmost danger; to which we may add, the violent symptoms of a malignant fever, whereby the functions are impaired; nay, the patient's flow
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and difficult recovery alone, is sufficient to demonstrate the danger thereof.

II. The duration of this disorder is long, especially if it tends to the patient's recovery; if not, it is generally short. Its long continuation is owing, as observed, to the softness of the affected part, so that it rarely ends, or is cured, before the 18th or 20th day, whilst other inflammatory fevers terminate about the second septenary, or 14th day. The disorder is not only long when it tends to resolution and health, but also when it turns to suppuration, before which, as in all other impending suppurations, the symptoms redouble, and are in their most violent degree; but as soon as the *pus* is formed, they decline; then the patient reasons better, his pulse is moderate, the circulation is freer in his head than usual; yet at length he begins to languish with all the symptoms of a slow and mortal fever, till at length he dies about the 40th or 50th day.

ON the contrary, if the inflammation has been so considerable as to rupture some of the vessels, which generally happens between the 10th and 18th day, rarely before, through a more languid circulation of the humours, then a gangrene will happen in consequence of the extravasated fluids, and perhaps it may only ensue about the 25th day; yet unfortunately we cannot foretell or discover seasonably this impending mortification for the reasons already given, and those to be hereafter mentioned.

III. This fever is very dubious; for if the inflammation had been on the surface of the body, we could the better discover its kind, whether phlegmonous, œdematous, or erysipelatous, as also its extent and degree; but being seated in the brain, we are ignorant of its species; so neither the preceding, present, or future state of the disease can be perfectly discovered; consequently the event of the disorder is uncertain: wherefore a prudent physician should not decisively pronounce the patient's death or recovery, but rather suspend his judgment, which should not be given abruptly, neither in this fever, nor in any other disorders; for I have seen some patients, particularly in a malignant fever, who were given up for dead, and yet recovered. So that we may say, that there are both hopes and danger in this disorder. Hence appears the uncertainty of a malignant fever, and the imprudence of making any absolute prognostics thereon, or they should be at least suspended for some time.

BUT it may be perhaps objected, that since the matter is so, it is in vain to study the nature of a malignant fever, and that a peasant in such uncertainties will be as clear-sighted as the most able physician. To obviate this difficulty, we shall immediately come to the fourth head, upon which the prognostic partly depend, and which comprehend the fatal and lucky omens of a malignant fever, which, though not sufficiently evident, will yet afford considerable light to

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skilful physician, whereby he may distinguish himself in this case from the sciolists or vulgar.

THE signs, therefore, of a fatal malignant fever, are,

I. The multiplicity and violence of the symptoms; such as a great *delirium*, difficulty of respiration, lethargy, and other violent affections of the head.

II. A cessation of all these symptoms for two or three days, about the 15th day of the disorder, with an exasperation of the same in a short while after; to these supervenes an unequal intermittent pulse, convulsive respiration, &c. for these denote suppuration, and that the inflammation has gained the *corpus canellatum*, or medullary substance of the brain, whereby the origin of some of the nerves in that substance, especially that of the nerves of the heart, is compressed, the preternatural oscillations of the arteries of the brain being violently conveyed to others at the same time. Hence proceed the *subsultus tendinum*, convulsion of the lower-jaw, tongue, hands, and other muscular parts of the body. The *nausea*, *cardialgia*, hiccups, vomiting, &c. denote also the agitation of the spirits, particularly in the nerves of the stomach, especially when there is no reason to suspect crudities therein, as when the patient is sufficiently and seasonably purged.

III. The suppression, or rather retention of the urine is very dangerous, as we see in the phrenzy, whether it proceeds from the con-

vulfive constriction of the *sphincter* of this organ, or from the too great relaxation of the bladder, whereby it becomes incapable of contracting itself, and expressing the included urine.

IV. The *meteorismus*, or tenfive swelling of the *abdomen*, sounding like a drum when struck, is held a very dangerous symptom, because it proves, 1. The rarefaction and collection of air in the intestinal tube. 2. The laxity of the intestines, for want of a due influx of spirits, through the violent compression of the brain. We may likewise esteem the *parotides*, *bubo's*, and other cutaneous eruptions, as very dangerous symptoms.

THE symptoms which promise some hopes of recovery here, are few and mild, especially about the 15th or 20th day, the patient beginning at the same time to reason better, and to sleep with more tranquillity, &c. for resolutions may then be expected.

THE particular symptoms deemed favourable in this case, are, 1. Deafness, because this denotes an œdematous inflammation, particularly if it supervenes on the 14th or 15th day; wherefore suppuration or gangrene are not to be much apprehended in the brain. 2. The detumefaction of the visage. This is a surer sign, if it does not happen in consequence of suppuration, as we remarked before; but in the former case it denotes a free circulation in the brain. 3. Sneezing is also reckoned a favourable sign, for it proves the sensibility of the nerves of the nose, &c. and con-

consequently that they are now free from compression or inflammation, which rendered them insensible before. 4. Copious sweating when it does not much fatigue or weaken the patient, nor over heat him, is a good omen, as are also a serous *diarrhœa*, and abundant flux of urine; for they denote the removal of the serosities of the brain to these emunctories.

The general Cure of a malignant FEVER.

AS this is an internal inflammation, it should be treated as such, *viz.* by bleeding, purging, &c. The bleeding should be performed in the *saphena*. This bleeding must be soon succeeded by purgatives, but especially by emetics: let the patient drink of thin broth, or a simple light ptisans, in which is boiled a plant only, for a mixture of them is useless, nay prejudicial; with these the patient is to be treated till the 15th day. Nor must we be deterred from bleeding, by the practice of the antients, who imagined that this disorder proceeded from a corrupt ferment, or *virus*, which preyed on the patient's spirits, and caused his weakness; wherefore they had recourse to cordials, or alexipharmic remedies alone, entirely banishing venesection.

As to the bleeding of the foot, it must not be so speedy or abundant as in a peripneumony, or the like inflammation; nay, those about him would not permit it, because they imagine the patient to be very weak, and unable to bear it. Let this revulsive bleeding,

however, in the foot, be made during the two first days, four times a day, in a proper quantity, or as the patient's age, temperament, &c. will permit; nor should his seeming weakness prevent this practice, because it is rather an oppression, or suffocation of the patient's strength, than a real weakness, as the success proves, the patient being thereby considerably invigorated.

AFTER this bleeding, we must not follow the method of *Hippocrates*, by deferring purgation till the humours are (as they say) concocted; but we must rather soon after prescribe emetics, either alone, or combined with cathartics, giving the latter two or three hours before the former.

WHY emetics should be preferable to cathartics in this case, is not easily determined; besides, the latter seem to be better indicated, since the contraction of the diaphragm, stomach, &c. so compress the contents of the *abdomen* in vomiting, that these, with the inferior *aorta*, receive less blood; therefore the quantity of blood which flows by the superior *aorta* into the head, &c. is proportionally augmented, and consequently the obstruction of the brain. Nevertheless experience proves the contrary; for the head is rather considerably eased by vomiting, in consequence of which experience, I have often given these remedies in ophthalmies, which, I own, they have augmented for a short time, but soon after proportionally diminished.

THO' there have been several reasons assigned for this phœnomenon, yet I think the most plausible is that deduced from the reciprocal sympathy of the stomach and head, as we see betwixt the *uterus* and *dura mater*, in hysteric fits, in which there are convulsions, *delirium*, and the like, though there be no primary obstruction, or cause of these symptoms in that part. This sudden epilepsy, or convulsion, therefore, seems to proceed from the irritation made on the *uterus*, with which the *dura mater* sympathizes by its convulsive contraction.

WE may say the same of the stomach, for we see that the impressions made thereon, give occasion to a megrim, which may be speedily allayed by a dish of coffee, or the like; because these induce a different impression from the former on the stomach. Emetics also change the impressions made by any other thing on the stomach. Wherefore I may conclude, that the irritation made by these remedies on the stomach, procures at the same time the sympathetic constriction of the *dura mater*, whereby the stagnant blood is expressed out of the vessels of the brain; in which sense I imagine vomitives are good on this occasion. Emetics take place chiefly when an intemperance has preceded; nay, they may in this case be very often previously used to bleeding, particularly when they are indicated by continual *nauseas*, vomiting, &c. to these, purgatives may succeed, as before.

BUT if the malignant fever is accompanied with an inflammation of the stomach, intestines, liver, or any of the considerable *viscera*, emetics should be industriously avoided, or if they are requisite, let them be ordered only after sufficient bleeding. If the patient has violent redoublings, *delirium*, and headaches, bleeding should be copious.

As to purgation, some repeat it only every third day with a brisk purgative, giving laxatives in the intervals, as *syr. viol. sal. veget.* rarely exhibiting *manna*. Others give minoratives more frequently, without purging powerfully upon any determined time.

WHILST we order these remedies, diluents must not be forgot, as thin broths, ptisans, &c. If the above emetics purge upwards and downwards, as sometimes they do, we need not give a cathartic after them. Thus we have proved the efficacy of emetics, not only on the present occasion, but also in all other affections of the head.

As to my method of purging, I order it every third day, but on the intermediate days I keep the patient so lax, that he will have three or four stools on these days: for this intent I order a decoction of *borrag. scolopendr.* &c. rendered active by *sal. veget.* or *manna*; afterwards I have recourse to bleeding, if necessary; and though I cannot well determine the number of venesections for all patients, yet they may be repeated in general nine or ten times during the first eighteen days of the disorder, now and then, as the fever, &c. require;

require ; five or six of them should at least precede the use of purgatives.

As to the patient's common drink, let it be simple ptisan, made of the roots of *gram. canin.* and liquorice. If we want to cool more effectually, let the ptisan be made of *rad. fragar. acetos. cum nitr. purif. vel sal. prunel. ad gr. xxxv. vel sal. veget. ʒss.* The salt may be dissolved in a quart of the ptisan.

Of the particular Cure of a Malignant
F E V E R.

HAVING treated of the general method of cure which this disorder has in common with most other inflammatory fevers, we now come to some rules relating to the particular symptoms of this disorder as malignant. The chief symptoms which require this treatment, are reducible to ten.

I. The patient's excessive weakness, an essential symptom of a malignant fever, and of which, if the patient does not complain, the assistants seldom fail to do. The reason of this symptom I have already given. If it has attended the disorder from the beginning, and is not very great, it is not to be much dreaded : on the contrary, if it supervenes only in the middle of the disorder, or especially towards the end or decline, it is extremely dangerous ; for then it denotes the obstinacy and greatness of the obstruction, and the patient's real weakness. Not only the weakness in general should be considered, but also its degree ; for a small weak-

weakness should not interrupt the general method of cure, as bleeding, purging, &c. on the contrary, great weakness absolutely forbids it, and will admit of no other remedies at the same time, but such as are calculated for the weakness, as cordials.

As the antients fancied this weakness to be owing to a foreign and contagious *fomes*, mixed with the blood, their views always tended to expel it by the use of hot and powerful alexipharmics; but the moderns have substituted in their place more gentle cordials, not with the same intention as that of the antients, unless in the circumstance above remarked. The most usual cordials are the following. 1. *Trochisc. viper.* to gr. xxx. the simple powder of vipers, or that made by drying them without any ebullition, is also an excellent cordial: its dose is from x. to xx. grains. To this class may be also added, the *sal. volat. viper.* which is not inferiour to either of the above medicines, and is given in the same dose with the eding powder. 2. *Theriac.* is an excellent cordial, or the *aq. theriac.* which is made by distilling the treacle with other simples; the most ordinary are lemon-juice, white-wine, brandy, or spirit of wine. The *theriac.* distilled with the above juice is called the treacle-water of *Bauderon*; the dose of which, as also of that distilled with white-wine, is to an ounce; but if the treacle be distilled with brandy, or spirit of wine, as the liquor is very hot and strong, its dose should be much less; as should likewise

likewise the dose of the tincture of treacle. These circumstances I mention, that the different waters above should be always specified in the *recipe*, for fear of ordering an immoderate dose, when we know not the ingredients of which the water was composed. 3. The *elixir pptis.* from xx. to xxx. drops is much in vogue, as also the *lil. paracels.* from xx. to xl. drops, nay sometimes to ℥ij. or ʒss. *La Motte's* drops are now the most celebrated cordial, and are given from x. to xx. drops, in a glass of some *Spanish* wine, or simple broth, &c.

As to the action of these remedies, let us first begin with the *pulv.* and *sal. volat. viper.* with the *trochisc. viper.* The virtue of these consists in an alkaline volatile nature; they therefore stimulate the action of the solids, and in the mean while attenuate the fluids, and thus they invigorate the patient. Much the same may be said of the *aq. theriac.* and *elix. pptis.* As to the *lil.* it is a tincture of antimony, &c. drawn by the help of spirit of wine. I have formerly seen it better made than at present; for then the spirit of wine was more impregnated with the particles of the ingredients, and its colour was much deeper; now, on the contrary, very little antimony is put into the *menstruum*, the quantity of which bears no proportion with the antimony. Moreover, some by the method of preparing, render it so caustic, that the tongue can hardly bear it; nay, it is at present, rare to find any without more or less of this causticity; wherefore

fore the physician should be very circumspect in chosing it; nay, he should always taste it to discover its different qualities; so that if it be acrid, and if he can get no other, let him correct the dose with a proper quantity of some appropriated water.

THIS description I thought necessary to be premised, both to know the different kinds, or rather faults, of the *lilium*, and its action, which, as is obvious, consists in nothing else but its weight, whereby the humours are divided and attenuated, and the tone of the solids augmented.

As to the drops of *La Motte*, they are nothing else but an *aqua fortis*, dulcified by repeated distillations and cohobations. This is made of two different kinds of vitriol, *Hungarian* antimony and nitre distilled together several times; yet, notwithstanding these frequent distillations, it still retains some of its causticity: an instance of which I have seen in an infant, whose stomach was covered over with small ulcers, or *aphthæ*, in consequence, as I am persuaded, of these drops which he took: wherefore, if necessity requires their use, let them be ordered in some *Spanish* wine, which by its oleous and sulphureous particles, may correct this acrid quality; or let them be combined with the oil of sweet-almonds for the same purpose.

As we cannot pretend that this remedy should invigorate the fluids by its immediate action, but inspissate them rather, as the spirits of such ingredients generally do; so we
must

must have recourse to their immediate action on the solids, whose tension they augment, as the patient's full, strong, and quick pulse, after their exhibition, clearly proves.

THESE cordials may be ordered under several forms, but especially in potions, mixed with some proper waters, as *aq. scord. ulmar. scabios. &c.* the *lil. gutt. de la Motte*, and *elix. pptis.* may be also given after the same manner, or rather as we before mentioned.

II. The symptom subsequent to the above weakness, which we should remark in this fever, is the violent *delirium* attended with convulsions and a madness, which sometimes approaches to that of a phrenzy. To alleviate this symptom, let the patient be bled in the foot, if he can bear it, and is not much reduced by the preceding bleedings; for we must not imagine, that a *delirium*, with convulsive motions and seeming strength, are proofs of real force; because the patient may be affected with all these symptoms, and be weak in the mean time; wherefore, if we discover that the patient is really exhausted, instead of letting blood, we should have recourse to narcotics, though they are extremely dangerous, and should be exhibited with all possible circumspection, for they rarify the blood, and have a particular tendency to the head. Nevertheless, as we have no other resource in this case, if the watchings, convulsions, &c. be excessive, they may be prescribed after sufficient bleeding, if the patient can bear it. The most select narcotics are *theriac.* from ℞j. to

to ʒj. *laud. liquid. vel tinct. anodyn.* to xv. drops, *pil. de cynogloss.* from xx. to xxv. gr. *syr. de karab.* to ʒvj. and if necessity requires, we may order *laud. opiat.* or *extract. op.* one grain of which will be equivalent to xxv. drops of the *tinct. anodyn.* and to ʒvj. of the syrup of amber, or *karabe.* but we should not give the full dose of any of these narcotics at once, but rather divide it, to be taken at proper intervals.

As to the tinctures of opium, drawn by the help of vinegar or water, they are generally weak and insignificant; because such *menstruums* dissolve not the gummy particles of the opium, which are better extracted by spirit of wine, consequently the tinctures thus drawn, are preferable to such as are drawn by the above *menstruums.*

SOME may perhaps say, that the *sal. sedativ.* of *bomberg,* may be as effectual in this case as the narcotics, which are subject to some inconveniencies. As for my part, I never found this salt to allay these symptoms like the narcotics; nay, I am persuaded, it would be no more serviceable in this respect, than the *sal. admir. glaub.* for the effect of the one, as well as that of the other, chiefly consists in cooling the blood, and promoting the secretion of urine. Wherefore this *sal. sedat.* has of late lost the most part of its former credit.

III. The patient at length, or about the tenth day, commonly loses his senses and knowledge, and involuntarily discharges his excrements; and

and all that can be done in this case, is to order the nurse to take special care of keeping the patient clean, by changing as often as occasion requires his sheets, shirt, and bed; which last must be sometimes covered with a cere-cloth, particularly if it has been spoiled by the excrements, otherwise it may render the patient worse: he should be also washed with a little warm urine and water, especially his fundament, and the parts about the *os sacrum*, to prevent the following symptoms.

IV. The *os sacrum*, and adjacent parts, are excoriated by degrees. This symptom begins first with red spots, then small blisters, or vesicles, which being bursted, give rise to superficial ulcers; these are gradually encreased, till at last they penetrate into the cells of the fat, and so become often an inch deep. This is a kind of an erysipelatous affection, which generally happens about the 14th day, and proceeds from the compression of these parts, whereby the circulation is obstructed; to which also the heat concurs, but especially the patient's urine and excrements.

To remedy this symptom, some vulnerary plants, as *rosmarin. absynth. &c.* should be boiled in milk or wine; or the common vulnerary water may be employed, with which the affected parts should be frequently fomented, or a fine thin piece of parchment, or gold-beater's leaf, may be dipped in these remedies, and applied to the excoriation; for which intention a thin paper dipped in oil,
or

or the internal tegument of an egg-shell immersed in the same, will be useful. Notwithstanding these efforts, the ulcer becomes daily more extensive, nor can it be cured till the fever is over; at which time we may order the *unguent. de styrac.* or *album rhas.* &c. to heal it.

V. The patient out of an odd fancy, or other reasons, shuts sometimes his mouth, so that he will by no means open it to receive any medicine, but will immediately, by some natural instinct, open it at the first sight of water; wherefore, as we have no other means to give him proper remedies but by this vehicle, and in case he is not yet purged, a dose of emetic tartar, &c. may be slipped into the water, thereby to deceive him: the other remedies may be exhibited the same way. Some perhaps may say, as the passage by the *anus* is free, we may convey the remedies by that way, without waiting for the occasion of conveying them by the mouth. This I own is true; but unfortunately clysters, or the like, are not so convenient, because they promote the excretion of excrements, the ill consequences of which we are to fear.

As to the patient's nourishment during this symptom, his broths should be cold, or so made as to impose on him for water; for if they be hot, he will not take them. Jellies may be ordered the same way. In the above broths may be also boiled some *chærefol.* or the like plant. We may also beat up in these broths the yolk of an egg, or make a water-gruel,

gruel, otherwise called *Hippocrates's* ptisan. To this may be added, a little sugar and cinnamon-water; or let him eat of rice-cream, that nothing may be wanting to nourish him properly.

VI. The hæmorrhage of the nose is a very equivocal sign; for it is very dangerous in the beginning, augmentation, and state of the disorder, because in all these stages, it denotes the greatness of the obstruction; nevertheless, if it happens towards the middle of the state, or decline of the fever, as it immediately discharges the affected part of so much blood, it relieves the patient very much, as experience proves. The hæmorrhoids, if they flow not excessively, are also very salutary, because they are revulsive from the head. Neither of these hæmorrhages are so frequent of late as formerly; for bleeding, purging, &c. prevent such fluxes, or at least render them much more rare than they were formerly, when these methods were not followed. We meet with them nevertheless now and then; for if the obstruction of the head be great, notwithstanding all we can do the hæmorrhage of the nose will happen. If the abdominal *viscera* are obstructed, the blood will the more abundantly flow to places of less resistance, particularly to the hæmorrhoidal vessels; yet their flux requires not so much attention as that of the nose if it be excessive, to check which, refreshing astringent ptisans are recommended, such as those made of *rad. fragar. acetos.* but the most in vogue is that of

R *symphyt.*

symphyt. maj. If this will not stop the discharge, add some few drops of *aq. rabel. ad grat. acid*; which may be given at night, but the simple ptisan at other times. If these are insufficient, we may introduce a tent dipt in *aq. rabel.* into the patient's nose.

VII. Lymphatic rather than sanguine abscesses, or collections, are formed in several muscular interstices. These should not be opened so soon as a fluctuation is perceived in them, because the ulcers remaining are subject to become gangrenous; wherefore the included matter should remain till it acquires a purulent nature. To hasten maturation, let some emollient cataplasms be applied to the tumour, as *emplastr. de mic. pan.* or such as are made of emollient plants with *ol. lilior.* or *theriac.* If the tumour is hereby considerably augmented, let it be opened with the knife in its most depending part, or where the pus collected will best permit of it, so that the matter may have a free issue; nor should the aperture be very great; for if the tumour was opened in its full length, the cicatrix would be, perhaps, as long as the part affected, the matter being so subject to fusion. The aperture must be sometimes made crucial, the better to deterge the bottom of the ulcer. For the first apparatus, it may be dressed with simple and dry doils; for the second, the ordinary digestive may be employed, *viz.* the *unguent. basilic.* or *terebinth. cum vitel. ov.* For the next, this digestive may be rendered more active with *ol. millepert. hyper. tinct.*

tinct. myrrh or *aloes*. In the beginning it should be dressed twice a day; afterwards, when the suppuration is over, and when the ulcer begins to be clean and full of well-conditioned flesh, it must be dressed but once a day, and that with the *liniment. arc.* alone, as being the best digestive I know to give a proper colour and consistence to the flesh: on the contrary, if the flesh becomes pale, soft, and fungous, the ulcer should be dressed with *balsam. virid. metensium.* or with *unguent. rubr.* which is nothing else but the *basilic.* mixed with *præcipitat. rubr.* we may at length employ, if necessary, the *lap. infer.* If the loss of substance in the ulcer has been considerable, a great cavity will remain, with an adhesion of the skin, where the cicatrix is formed, to the subjacent muscular parts, whereby it becomes almost immoveable in that place, through the loss of the adipose membrane, which rendered it pliable, and of an easy motion over the muscles before.

BUT we are to observe, that it is not only difficult, but also very dangerous, to heal this ulcer during the fever, for it serves as a general issue or emunctory to the morbid humours, which flow, as it were, critically to this place, whereby the disease is considerably lessened: wherefore in case of such a flux, you may leave the part open till the disorder is entirely removed; nay, so long as any of its remains appear which will be a considerable time.

THIS ulcer, during the disorder, becomes often pale, dry, and gangrenous; in which case we must mundify and enliven it with some phagedenic water, or the solution of mercury in *aq. fort.* to repair the languid oscillations of the solids, thereby to disengage themselves of the mortified parts. For the same intention may be afterwards applied cataplasms, animated with sal ammoniac, or the resolvent meals mixed with a little foot, and to bathe the part at every dressing with simple, or rather camphorated brandy; but in spite of all our attention, the patient generally dies on the second or third day after the appearance of this ulcer; wherefore we may always pronounce it the period of his life.

VIII. The parotides, not the swelling of the parotid glands, as some imagine, but rather of the conglobate glands about the ears and neck. This symptom should not hinder the general cure; nor must we here follow the method of the antients, who imagining that these tumours were so many critical depositions of the malignant humour, or rather *virus*, as they called it, durst not purge or bleed, for fear of interrupting this wholesome *crisis*, or reducing this venom into the course of circulation; on the contrary, pursuant to the principles already established, we should reject these absurdities, and therefore continue our method of cure, which will contribute to prevent the generation of these tumours so common among the antients, and unjustly esteemed

esteemed venemous, whilst they are nothing else but the effect of a viscid lymph of the head, through the inflammation of that part, and laxity of these organs, as we proved before.

IF these parotides are very large and incapable of resolution, apply some suppurative cataplasms to them, and if they still augment, we must not wait for a formal suppuration, but rather open them, least their bulk should too much compress the jugular veins, or lymphatic ducts of the head, and so procure the patient's death by a suppression of the circulation, and a gangrene of the brain; wherefore it is one of the most essential and curious points in the practice of medicine, to know how to manage these tumours methodically, so as to open them seasonably. To lay open these *parotides*, cover each with a perforated plaister of *diapalma*, or the like, and then lay on a caustic. The *lap. caust.* should be kept on the tumour in proportion to its activity; nor must we be content to corrode the skin and adipose membrane alone, but we should also consume part of the very substance of the gland. By this means the compression of the jugular veins, or lymphatic ducts, is somewhat removed, though not entirely, till the eschar of the corroded gland falls off; to hasten which, we may relax it with fresh butter, the yolk of an egg, or with an emollient cataplasm; and if we discover any humidity betwixt the scab and the gland, it is a good omen; for it denotes the suppuration of that part. If the

eschar is not entirely separated by this means, cut it off by degrees, as the parts require. These measures being taken, the compression of the brain will be removed, and its inflammation probably brought to resolution. When the *parotis* begins to suppurate, let the supuration continue for some time, though glandular supuration is not easily procured; but when it happens, let it be promoted, and afterwards treated like the above ulcer. But if it does not suppurate, if the patient is weak, and a gangrene impends, let him take some cordials, and let the tumour be touched with the caustic, and afterwards bathed with *aq. vit. camphorat.* or with a solution of sal ammoniac, in which the compresses may be also dipped. But this, as well as the gangrenous disposition of the *parotid* ulcers, is a sign of approaching death.

IX. Carbuncle, in *Latin carbo*, from its similitude to a coal. This begins with a red spot, gradually augmenting, till it is a little elevated above the skin. It is attended with violent heat, and some small, or almost imperceptible vesicles; it becomes livid, and lastly, black or gangrenous.

THE treatment of this should not interrupt the general cure. The resolution of this tumour should be attempted upon its first appearance, wherefore apply *catap. ex mic. pan.* but as it entirely discovers itself in twenty-four hours, we are commonly obliged to have recourse to the cautery, for the maxim, *ignis igne extirpatur*, holds good here. Nor will it

it be sufficient to consume the tumour alone, as in all other gangrenous cases, but its circumference should be destroyed, as in the *parotides*.

IF this tumour be small and superficial, a pledget dipped in a solution of the *lap. caust.* and applied to the tumour will consume it. If its bulk be greater, arm the pledget with the same caustic in powder, and apply it to the carbuncle. After the eschar is formed, scarrify the part to the quick, in order to make it fall off by the forementioned oleous remedies; then corroborate the part with aromatic wine, camphorated brandy, or vulnerary waters, in which the compresses should be dipped. A humidity betwixt the eschar and live parts, denotes suppuration and a laudable state of the ulcer, which afterwards should be treated as above directed.

IF the suppuration is duly carried on, a critical flux, as in the ulcer and *parotid*, will happen to the patient's advantage. On the contrary, this ulcer sometimes dries up, becomes gangrenous, and the mortification is soon transmitted to other parts in a weak and consumptive body, so that the patient soon dies as in the former cases. All therefore that we can do in this circumstance, is to animate the patient with some of the mild cordials, not such as are hot and active, and the ulcer should be treated with the remedies proper in parallel cases.

X. Purple spots, which I shall briefly consider, intending to treat of them more fully in the purple fever. These are in general like flea-bites, without any elevation upon the skin, because they are deeply implanted in it.

IT has been long disputed, whether they happened in consequence of an extravasation of the blood in these parts, or from its stagnation only in the capillary vessels: but as this argument is of no great consequence, we shall drop it at present.

THESE spots are sometimes very numerous and sometimes few. They frequently appear on the hands or feet, and often on the breast; but rarely on the face. Sometimes they are collected in a line, from their similitude to which they are called in *Latin* *vibices*. They are also often dispersed without such contiguity. They may be likewise of different colours, as red, livid, or black.

THIS, as well as some of the preceding symptoms, was formerly very frequent, but is much rarer now. The ancients fancied, that these tumours owed their origin to the malignant *virus* which was thus discharged by the skin through the means of the expulsive faculty; but they are rather the effect only of the spissitude of the blood, and laxity of the cutaneous fibres; wherefore some affirm, with a great deal of probability, that they proceed from drops of blood which are extravasated along with the mucous humour of the skin in these places.

As these require no considerable method of cure, their treatment should not interrupt the cure of the malignant fever in general; but to be attentive to them, we may in the interim prescribe some mild sudorifics, as a ptisan of *Scorzonera*, which I esteem very good for this purpose.

Of the pestilential FEVER and PLAGUE.

BEFORE we proceed to treat of this fatal distemper, it is necessary to observe the division of some disorders into sporadic and epidemic.

THE former are not popular, nor do they owe their rise to any general cause, for they are confined to one or some few towns, villages, &c. on account of the particular causes and dispositions of these places and their inhabitants to such disorders, as peripneumonies, pleurifies, coughs, &c.

THE epidemic diseases, so called because they are popular, seize on the contrary a great many; of this class are also peripneumonies, pleuresies, malignant fevers, rheums, and all depuratory fevers, as the small-pox, measles, &c. to which we may add, epidemic dysenteries.

THESE epidemic disorders may be also of two kinds. 1. These of which more die than recover, and which may be properly called epidemic. 2. These of which more recover than die. The pestilential fever, &c. is of the former class; an epidemic malignant fever,

fever, &c. is of the latter, though its malignity may be sometimes so intense, as to deserve a place among the former. From this we may conclude, that every pestilential fever may be epidemic, but that every epidemic disorder is not pestilential.

THE characteristics of a pestilential fever, are, 1. Its epidemic nature. 2. Its proving mortal. 3. The particular quality of its symptoms, as *bubo's*, &c. but more particularly the flaxidity of the parts and limbs after death. 4. The common and known cause of the disorder, as the fault of the air or aliments.

THE diseases which from simple may become pestilential, are all malignant or continual redoubling fevers, peripneumonies, and pleuresies, dysenteries, rheums, and all depuratory fevers. To distinguish the plague from these disorders when pestilential, as it may assume their forms, it is necessary to say something of its nature; in order to which, the following characters of a plague should be remarked. 1. Its epidemic nature. 2. Its proving mortal. 3. The quality of its symptoms, as *bubo's*, relaxation of the parts, &c. which are more violent in this, than in the pestilential fever. 4. Its rise, at least in *Europe*, is owing to a foreign pestilential contagion. So it appears, that the three first characters of a plague agree also with a pestilential fever; but they differ in this respect, that the symptoms of the former are more intense, that it springs from a foreign *fomes*,
generated

generated in other countries, as those of *Asia*, &c. and finally, that its first rise cannot be referred to the bad constitution, particularly of the air we breathe in, or our aliments, as the origin of a pestilential fever may be.

Tho' the name *plague*, may seem to suggest the idea but of one uniform disorder, yet it discovers itself under such various shapes, that it has got several epithets. Thus the plague described by *Herodotus* in his epistles to *Lucretius*, which happened about three hundred years before the birth of Christ, is called *pestis inguinalis*, because of the *bubo's*, and other symptoms which it produced in the groin. The plague which raged in *England* some years ago, was called *pestis sudatoria*, or *sudor Anglicus*, from the excessive sweats which attended it. There is an other described by the same *Herodotus*, wherein neither *bubo's*, nor such like symptoms, happened, but a particular gangrene discovered itself in the genital parts, whereby they fell off. We have another recent distemper, called the plague of *Siam*, because it was conveyed from that country into some of our *American* colonies, whence it was also transmitted to *Rochelle*, and some other sea-port towns of *France*, which trafficked with those places: this consists in sanguineous sweats.

As we have made this digression on the plague, we may once more remark, that it arises not from any fault of our air or aliments, as shall be hereafter demonstrated; yet, as it is a most violent distemper, it must have some proportional

proportional cause: this, whatever it be, is lodged in the humours, as experience proves; wherefore they should degenerate from their natural *diathesis*, or disposition, either by the fault of their sensible or insensible qualities.

I know very well that the generality of medicinal writers, constantly accuse the viti- ation of the sensible qualities of the blood, as its languid motion, great rarefaction or fermentation, its acceleration, its saltishness whether acrid, acid, or muriatic, its too great or defective quantity, its spissitude, and all other such like sensible qualities. Hence they never fail to mention some one or other of these in all kinds of plagues; nay, I have myself formerly wrote a dissertation of the plague in vindication of the same principles, which I am not ashamed to disavow at present, being now guided by more light and experience. Thus the generality of authors affirm, that a certain degree of spissitude produced in the humours an ordinary disease, whilst a more intense spissitude created the plague. But if this was true, where and whenever the humours are very viscid, the plague would necessarily ensue, and be a product of our own country, which is false. The same thing may be said of the other sensible qualities before- mentioned. Wherefore we may conclude, that the plague consists not in a depravation of these sensible qualities, but rather in the peccancy or change of the intimate texture of the humours, or of their integral parts, whereby they degenerate from their natural state, and become incapable of performing their usual

usual functions ; as we see the particles of wine divest themselves of their natural conformation, form, or other in sensible quality, in order to become vinegar.

THO' this reason is hypothetic, yet it is no way detrimental to practice, on which it has no great influence, be the fault either in the sensible or insensible qualities of the blood ; and though I am ignorant of the manner or mechanism of this conversion in the blood, wine, &c. whose essence lies hid in obscurity, yet the fact is no less true ; wherefore we may affirm, that the one, as well as the other, is susceptible of such alterations.

Fernelius, with several others of his learned contemporaries, were not ignorant of this latent degeneration in the integral particles of the blood ; wherefore they called the disorders thence resulting, *Morbi totius substantiæ*.

MEDICINE being reduced to such difficulties and systems, as are commonly found in the explication of the plague, seems a reflection upon it ; nevertheless, physicians are obliged to have recourse to these systems, as the absolute cause of this evil is still unknown : nor has the late plague at *Marseilles*, whereby two hundred thousand souls perished, afforded us any new light in this distemper, which may be rather imputed to the fault of the physicians who then treated it, than to the natural obscurity of the disorder. Neither is it surprizing that all the other plagues which raged before that of *Marseilles*, should supply

us with less knowledge of their nature, seeing the theory of medicine in general was not so well improved in those days, as it is in the present age.

THO' all we have hitherto said of the nature of the plague, be nothing else but meer conjectures, yet we shall be obliged to draw some corollaries from them, as, 1. That the pestilential fever is originally generated in *Europe*, consequently it springs from some causes natural to this part of the world, which we find to be reducible to the fault of the aliments or air. 2. Inasmuch as the origin of no plague is discovered in our countries, it must be therefore necessarily introduced among us from some other part of the world; and as this pestiferous contagion is attended with more violent symptoms than the pestilential fever, I therefore conclude, that its effect on our humours is likewise more considerable and intrinsic.

MOREOVER such a foreign levain is so disproportioned to our nature, that its effects will be the greater; nor must we admire, that this mortal ferment should be the product of some particular countries; for we see how several plants, animals, &c. are generated in some places, whilst they perish, or at least are imperfectly produced in others: for instance, the palm-tree flourishes in some hot countries of *Asia*, but never here. The same may be said of the date-tree, with several other things of the like nature; nor are monkeys and parrots prolific in *Europe*.

FROM

FROM these observations we may collect, that the humours of the human body, have also their particular productions in every different climate, among which we may reckon the *miasmata* of the plague.

As to the countries which transmit to us this fatal seed, they are commonly the oriental ones. The common passages whereby it is introduced into *Europe*, are sea-port towns; for *Marseilles* was infected by the crew of an *East-India* Ship. The next and chief place whereby it enters, is the kingdom of *Hungary*, where the *German* armies in their frequent wars with the *Turk*, seldom fail of contracting it, this kingdom being the most common theatre of war betwixt these two powers. For this reason the plague is very common in *Germany*, where more perish of it than by the enemy's sword. Why the plague should be at present more rife among the *Turks* than it was formerly under the Government of *Alexander* the great and the antient *Romans*, though their conquests in those countries were as extensive as the *Turkish* empire in our days, may be owing, 1. To the prudent laws and principles of these warriors. 2. To the indiscretion and erroneous principles of the *Turks*. Their indiscretion is remarkable in the universal correspondence which they entertain with each other through their vast empire; for some caravans of the *Turks*, often consisting of three hundred thousand souls, go once a year in the month of *May* a pilgrimage to the lake of *Mecca* in *Egypt*, where

where not only the caravans of *Constantinople*, but also of *Africa*, &c. meet; so that they mutually, and almost necessarily, communicate their infirmities to each other, whence they are diffeminated through the *Turkish* empire. Nay, we are credibly informed, that in the very city of *Constantinople*, the plague thus conveyed, has frequently killed three thousand persons in a day. For the above reasons likewise *Prosper Alpinus* concludes, that the plague should constantly rage in *Egypt*, as experience sufficiently proves.

As to the pernicious principle of the *Turks*, which contributes to foment and propagate this evil, it consists in holding predestination; in consequence of this error, they never avoid the plague; nay they publickly sell in the market-places of *Constantinople*, &c. the cloaths of such as die of this distemper, thinking that if they were destined to die of this disease it would be in vain to avoid it.

FROM all this we may again conclude, that the plague is the product of some foreign climate, and that when communicated to us, it acts on the intimate texture of our humours, which likewise the dissection of such as die of it evidently proves, since we find no considerable change in the sensible qualities of their humours.

Now we come to treat more particularly of the pestilential fever, whose

CAUSES may be in general reduced to two.
 1. To those of the original disease with which it is complicated, as peripneumonies, pleuresies,
 &c.

∴c. these we have already treated of, as proceeding from the preternatural spiffitude of the humours, ∴c. 2. To the causes of a pestilential fever; for we may say that every pestilential fever is a complication of a common disease, with some rare and violent symptoms, which bear no proportion to these disorders; and consequently must be the product of a pestilential *fomes*. Thus a pestilential fever in a patient disposed to a pleuresy, will be complicated with such, whilst in another who is disposed to a dysentery, it will appear under that form.

WE have before referred the causes of a pestilential fever, to the vicious qualities of the air and aliments.

THE faults of aliments may be many, as blasted or otherwise corrupted corn; thus a white frost, which happened in *Europe* some years ago, so tainted the corn of that season, that a raging pestilential fever ensued. Corrupted aliments also in camps, besieged towns, or the want of meat, whereby these persons are obliged to eat sometimes the most nauseous things, will give rise to this fever, as doth likewise acid, musty wine, thro' the fault of the season, ∴c. for the foregoing reason; bad wine has some years ago, given birth to the pestilential dysenteries in *France*. Muddy stagnant waters, as those of deep wells, standing pools, especially when they are very low, thro' great heat, nay, river water, reduced to a low ebb, thro' its muddy corruptive quality, or thro' the cau-

stic particles of some plants which grow over its surface when low; these are very instrumental in the production of a pestilential fever. Thus we see how the water of the river *Seine* in some hot summers, is apt to create the same fevers; wherefore it may be concluded, that all waters exposed to the above injuries, may be prejudicial in hot weather.

As to the vicious constitution of the air, it may likewise depend on a great many causes, such as earthquakes, whereby the entrails of the earth are often exposed, or the opening of large caverns, or other subterraneous passages which impregnate the air with vitriolic or arsenical particles: the dead lying exposed and putrified, as in the field of battle; the drying of marshy places, draining of standing water, and the like, do also infect the air.

THE inconstant and preternatural vicissitudes of the seasons, as a wet and cold summer, hot autumn, &c. will have the same effect, as will likewise a hot and dry spring, after great inundations in the winter. But we must not expect that these causes will constantly produce pestilential fevers; for some of them often generate but simple epidemic disorders, whilst at other times, when in a very intense degree, they give rise to pestilential fevers: for instance, the arsenical constitution of the air, extraordinary fault, or defect of the aliments, most commonly create pestilential fevers; for the *Greeks* justly remarked, that

in a great scarcity of meat, pestilential disorders were very rife, as their proverb intimates, *post penuriam pestis.*

SYMPTOMS. I have already spoke of a simple pleurisy, dysentery, malignant and continued fever, &c. all which I have said to be sometimes complicated with the plague; wherefore I shall say no more on that subject at present, but proceed to the signs of a pestilential fever as such. These are, 1. an acrid corrosive degenerated blood; because the pestilential *miasmata* pervert, alkalize, and disengage the saline particles of the blood from the rest. 2. As the blood is thus constituted, it is unfit for the generation of animal spirits; wherefore the patient seems to be very weak and languid, not only in appearance, but in reality, from the real dissipation and depravation of his functions; whilst the weakness in a malignant fever is rather a suffocation of these functions, which may be soon relieved by proper medicines. 3. The patient's respiration is very difficult, painful, and unequal, as well for the want of a sufficiency of animal spirits, as from their depraved condition, whereby they are incapable of supporting the regular motion of the organs of respiration. 4. The patient's weak and uneven pulse is owing to the same reasons as in the 3d article. 5. He is subject to frequent *nauseas, cardialgias, &c.* because of the crudities in his stomach, proceeding from broths, and other food, which he takes, and being ill digested, through the re-

laxation of the stomach, for want of a due influx of spirits, and through the want or deprivation of his digestive humours. 6. His urine is very turbid, and his sweats viscid and clammy, both which symptoms are owing to the colliquation or dissolution of the sulphureous parts of the blood. 7. The carbuncles, *bubo's*, &c. are the offspring of a viscid acrimonious lymph; by the former quality it stagnates in its receptacles; by the latter it corrodes and mortifies them; for the irritation induces an inflammation, and this a gangrene. Moreover, the dissolved blood is exalted, rendered acrid, and capable, by its fluidity, to enter into the lymphatics, where it either inspissates the lymph, or, by its proper spissitude, cannot proceed farther, so that it settles at length in the glands of the groin, arm-pits, &c. whence proceed these tumours. The red, purple, livid, or black spots, which are here sometimes as big as a lentille, sometimes only of the bigness of a pin's head, forming streight or curved lines, called *vibices*; all which are produced much the same way with the *bubo's*, &c. *viz.* the acrid dissolved blood procures itself a passage into the sebaceous glands; whence it is, perhaps, extravasated betwixt the *cutis* and scarf-skin, so that these spots necessarily ensue.

BESIDES the preceding symptoms, which are not peculiar to a pestilential fever alone, there are two which rarely appear in any other but in this fever, whence they seem to be
more

more particularly its characteristics. 1. The softness of the members after death. 2. A dry gangrene, which most commonly affects the lower extremities without any preceding inflammation, beginning first with the toes, which, though cut off at a proper distance from the affected part, we are nevertheless still surprized to see it soon after farther advanced. By the dissection of such bodies, we find, that in its progress it pursues the direction of the large venal trunks of the extremities.

THIS kind of gangrene attended a pestilential fever which reigned in *Auvergne*, in the year 1694, and was always found to be an infallible forerunner of death, without admitting of any cure.

To have a just idea of this symptom, we must observe, that the circulation is very languid all over the body, particularly in the inferior extremities, where the blood easily stagnates, and its acrid serosity transudes thro' the coats of the vessels, in the interstices of which it settles, corrodes, and mortifies the ambient parts, till it is by degrees evaporated. Nor must we imagine, that an inflammation should follow this stagnation of the blood; for an inflammation requires a quick circulation, which is on the contrary very languid in this case. This sort of gangrene is very like the dry gangrene of a scurvy.

As to the second symptom, or softness of the members, it seems somewhat strange, since

death induced by all other disorders, is followed by a rigidity of these parts. This symptom therefore seems to be the chief diagnostic of a pestilential fever, or the plague.

To conceive the reasons of this phenomenon the better, let us examine whence proceeds the rigidity of the members in all other disorders. This rigidity is owing, 1. To the want of circulation and motion in the muscular parts of the members, which have still retained much of their natural elasticity. 2. To the inspissation of the lymph, as well in the muscular interstices, as in the substance of the muscles. Now, if both these causes are deficient in such as die of a pestilential fever, it will naturally follow, that their limbs will be soft and relaxed.

I. Therefore the solids, though motionless, have lost notwithstanding their elasticity, thro' their attrition and consumption; nay, the very principles of colliquation, which prevailed in the fluids, are at length communicated to the solids.

II. As the blood is frequently dissolved and acrid in this disorder, so are also the humours secered from it, consequently the lymph; wherefore it is incapable of inspissation: So that the only two causes of rigidity, are not to be found in this disorder; whence a laxity of the members will necessarily ensue.

THO' the softness of the limbs after death is a great sign of a pestilential fever, yet it is not always confined to this disease alone; for it is often observed to happen in consequence
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of an *hydrophobia*, hectic fevers, and some other chronical disorders; wherefore the spontaneous evacuations of blood by sweat, urine, or stool, obtained by gentle purgatives, are the most convincing proofs of its existence.

DIAGNOSTICS. The diagnostics of a pestilential fever, of which only we intend to speak, depend on three things. 1. To discover whether the fever be pestilential or not, that the magistrates of the town or place where the distemper rages, may be the better able to provide for the safety of the inhabitants. 2. To discover the degree of the fever, and disorder with which it is complicated: for instance, if a malignant fever is combined with a pestilential one, we are to know which is the more predominant of the two. 3. To investigate the causes of the distemper.

THE first of these is the most necessary; in order to the discovery of which, we should observe, 1. That a fever, in order to be accounted pestilential, must be epidemic. 2. It should be very mortal. 3. Accompanied with some of the characteristic symptoms above-mentioned, as the cutaneous eruptions, dry gangrene, softness of the limbs after death, bloody evacuations, &c. But it is not necessary that all these symptoms should concur in the same patient, to lay a foundation for a just conjecture as to the existence of this fever, yet if they all appear, it will be a demonstration of its presence. Moreover, the qualities of the causes should be examined, as whether

ther the faults of the air or aliments give it rise.

THE second part of the diagnostics, consists in knowing whether the epidemic is more predominant than the pestilential disease: this is discovered by examining whether the greater part of the affected persons die of a disorder, which of its own nature is not generally very mortal; for instance, let us suppose a pleurisy complicated with a pestilential fever, if more die of this than do recover, we may be assured, that the pestilential fever is predominant; wherefore the principal part of the cure should be directed to the removal of the pestilential disorder; but if more recover than die, the pleurisy is predominant, and the remedies appropriated for that disorder should be chiefly employed.

As to the third part of these signs, or such as contribute to the discovery of the causes, they are not difficult; for we soon learn whether the exhalations arising from the sordes collected in the bottoms of drained lakes, fault of the corn, produced this distemper; thus some years ago, we saw a pestilential fever in *Languedoc*, from the use of bread made of *asphodel*, which was not only ungrateful to the taste, but noxious to health. Nor are we to confide too much in the use of foreign grain, which is commonly transported to us in the time of dearth; for tho' this seems to yield good flour, and to be fit for food, yet it is not so natural to our constitutions

stitutions. Thus the *Barbary* wheat not only retains something of its native soil, but also undergoes changes by the sea, &c. wherefore we may account it improper for our use. After this manner we may also investigate the other causes of this fever, which are however sooner discovered than corrected.

PROGNOSTICS. Was I obliged to enumerate the prognostics of all the disorders which may be complicated with a pestilential fever, particularly of the malignant and continued kind with redoublings, the digression would be too tedious and useless; wherefore I shall speak of the prognostics of a pestilential fever merely as such.

Of this we may say in general, that there is no disorder so desperate, both because it changes the qualities of the blood, and so much eludes the efforts of medicine; for we have not as yet discovered a specific which has any power over it; so that our ignorance of proper remedies, of the quality of its *virus*, and impossibility of correcting it, render this disorder destructive. Nevertheless its prognostics vary according to the quality of the symptoms; for if the *bubo's*, purple spots, and other cutaneous eruptions, with the gangrene, &c. be considerable, they denote a proportional quantity of these pestiferous *miasmata*, and consequently prognosticate eminent danger. On the contrary, if these symptoms are mild, they denote the weakness and small quantity of the morbid particles; but we should

should not confide too much in this sign, for the greatness of the abovesaid eruptions, particularly if they be critical, as sometimes they are, like the small-pox, proves the copious evacuation of the peccant matter, whereby the patient is greatly relieved; whilst, on the contrary, few or no such tumours denote that this matter is deeply lodged in the humours, which it instantly destroys without procuring itself any issue. But the most happy state is, when neither of these appear, for then the blood is not much impregnated with such particles; all which cases will plainly appear, by observing the nature of the other symptoms.

ANOTHER reflection to be made, is, that those who find themselves very much oppressed in the beginning of the fever, generally recover; for this denotes the predominancy of the epidemic, over the pestilential disease; on the contrary, such as are not much reduced in the beginning, commonly die of it; for this state signifies the weakness of the epidemic disorder, which is like to yield very soon to the violence of the growing pestilence. Though this is plausible, yet we must not rely too much on either case; for the progress of the fever may be very violent and dubious in both. So that in order to make the surer prognostic, we must have recourse to the nature, whether mortal or favourable, of the reigning distemper, as also to the number and violence of its symptoms, whether they denote a great or small quantity of the morbid humour, likewise to the state of the pulse, for

a slow, interceding, unequal pulse affords no hopes, whilst a soft, full, and regular one promises recovery; but especially we must be attentive to the gangrene, which when present, soon affects the *viscera*, whence we may reckon this the standard of danger; but we should always make a doubtful prognostic in all other cases.

CURE. One of the most important questions in medicine presents itself here, *viz.* whether bleeding and purging are to be employed in the cure of a pestilential fever. Such of the moderns as do not strictly follow *Hippocrates*, affirm, that these are the most efficacious remedies in the treatment of this disorder; and that not only its danger is thereby avoided, but that it is reduced to the nature of a common disease.

THE antients, on the contrary, till about a hundred years ago, with such of the moderns as are zealous abettors of *Hippocrates*, not only cite his authority for the contrary, but likewise constant and repeated experience, whereby they affirm, that the above method has proved mortal to vast numbers of patients in several fevers of this kind.

Now as we have received no great light in this affair from the treatment of any plague in *Europe*, not even from that of *Marseilles*, we have no other rules to follow in the decision of this difficulty, than those prescribed by common sense; by which we find, that we should not closely adhere in all cases either to the one or the other of the above opinions.

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THUS if the patient be very weak, and if there is no danger of inflammatory infarctions in any part of his body, as his humours are very much infected, nay corrupted, we should not let blood; but if the inflammation is actually formed, as in pestilential pleuresies, peripneumonies, inflammations of the brain, &c. or if it is threatened, bleeding should be immediately performed; nay, the fixed pain in these parts, with the great quantity and rarefaction of the blood, high pulse, preternatural heat, &c. without any signs of a formed inflammation, should determine us to let blood, in order to prevent the impending inflammation. Nevertheless, in all these circumstances the bleeding must not be so plentiful as in similar cases, when simple or free from a pestilential *virus*.

THE use of purgatives on these occasions, is more warmly disputed; but I am of opinion, that they should be used as often as we discover crudities in the first organs of digestion; because these very probably augment the fever, as well as other disorders; so that they may be repeated now and then, especially after sufficient bleeding. If the patient's strength is not much impaired, a cathartico-emetic potion will be proper; but if he be weak, let gentle purgatives alone be exhibited, for those of a drastic nature would weaken him too much, though on the contrary, in a simple malignant fever, they repair his strength considerably.

AFTER

AFTER the general treatment of the disorder, we now come to its particular cure, which chiefly consists in the exhibition of some remedies called its specifics, though there are none such in reality as yet discovered, and if there were, they should be of the class of cordials, of which the following are the most efficacious, and common in the treatment of this fever, *viz.* *Iberiac.* ʒj. *mithridat.* the same dose. *confect. alkerm. de hyacinth.* aa ʒj. *bezoard. animal.* gr. xxv. *lap. porcin.* ordered in substance, but most commonly in infusion. *camphor.* gr. xxv. though some dispute the efficacy of the last. *Lil. paracel. sal. volat. cran. human. viper. ammon.* These remedies may be ordered along with some sudorific decoction, apozem, distilled waters, or given in form of an electuary. But the most celebrated of this kind, to resist the action of the pestilential *virus*, are oxymel and citron-juice; for these are very mild and efficacious, as experience proves. On the contrary, the other cordials are very heating, and therefore hasten the degeneration of the humours; wherefore the two last remedies may be combined with them, in order to correct this quality. Which ever of these we prefer, it must be used from the beginning of the fever, nay, upon the days of bleeding, purging, &c. There are also two more in great vogue at present, in the cure of a pestilential fever, *viz.* the treacle-water of *Bauderon*, and the remedy of that famous astronomer *Tycho Brahe*. The first is made of equal parts of the
juice

juice of lemons, *scord. acetos. card. bened.* and *scabios.* to which is added, a proportionable quantity of treacle; the whole must be put into a well covered mattrafs, and put over a sand fire, where it should remain for eight days, then distill the whole in a *balneum mar.* and you will have an excellent cordial, which may be ordered in this fever, or on the like occasion, to two ounces thrice a day.

THE remedy of *Tycho Brahe* is made of treacle, upon which is poured a sufficient quantity of spirit of wine; this is to be left in digestion for eight days over a sand heat; the whole is then filtrated and distilled. After the distillation, we find in the cucurbit a substance called the essence or extract of treacle, to which is added, the sulphurated oil of juniper, which finishes the process; this remedy, I own, may prove excellent in *Denmark*, where the author lived, or in such northern climates: but it is too hot for the southern parts of *Europe*; wherefore I would prefer the oxymel and citron-juice to it; nay some generous spirituous wines, as *Alicant* wine, &c. which may be also ordered with the other remedies, as correctives.

As we have discovered no one specific for this disorder sufficient alone to remove it, whilst we thus employ these remedies to correct in some measure its *fomes* in the blood, we must endeavour to open more passages for the remainder to be discharged. To answer this intention, we may use cauteries or issues, did they not act too slowly, so that
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the patient may die perhaps before they can be of any service to him ; wherefore vesicatories are preferable, nay, more approved of, though some perhaps may say too much in their favour, because they have cured, as they imagined, some pestilential fevers by their use, whilst these fevers were but simple malignant ones. We must not be too prodigal in their use, nor order too great a quantity of the *cantharides* for each plaister, for fear of irritating too much and augmenting the evil ; wherefore use but very little of this powder at a time, and repeat it gently and gradually. These plaisters may be applied to the thighs, arms, shoulders, or neck. To the same parts we may afterwards apply cupping-glasses, then a plaister *ex bulb. lilior. albor.* which is esteemed a great specific in this case. *Emplastr. de beton.* is used for the same purpose. As to the amulets used in this disorder, they serve only to amuse the patient's imagination. Some are made of arsenic, mixed with the white of an egg, or with *gum. tragacanth.* sewed up in a piece of cloath ; this is neither of good nor bad consequence. Others are made of crude mercury, inclosed in a hollow nut, sewed up in a piece of cloth, or leather, &c. and tied about the patient's neck. Others are made the same way of *pulv. bufon.* some superstitious words being muttered over it at the same time. This is applied to the *scrobiculum cordis* ; but it is nauseous to the smell, and generates worms.

As to the *bubo's* which happen in this disorder, if they are critical, or ease the patient in proportion as they grow, they must not be touched; but we should only apply some suppurative cataplasm to them. as *emplastr. de bulbis lil. albor. cum theriac.* giving in the mean while some treacle, or other cordial, to the patient. If, on the contrary, these tumours are symptomatic, as the eruptions of the small-pox may be without any ease to the patient. Let the *bubo's* in this case be consumed with *lap. caust.* or we should rather apply a cupping-glass over them, in order to attract more of the morbid particles, then scarrify them, and use the above cataplasm; afterwards the patient may recover, if these are not gangrened.

THE carbuncles are to be treated the same way as we observed in the malignant fever. If the patient be weak, let his ordinary ptisan be made of *rad. scorzoner. angel. scabios. &c.* to enliven his spirits, and promote transpiration; but if he be strong, as we find by his full and high pulse, let his ptisan be made of *rad. acetos. trifol. acetos. fragar, &c.* for these correct the acrimony and rarefaction of the humours.

Of the SMALL-POX.

WE now come to the third and last class of fevers, which comprehends all those of the depuratory kind, or such as are attended with cutaneous eruptions, through a corruptive external ferment joined to the humours, which foments the fever till it is discharged by these eruptions. Of this class is the small-pox, with other fevers of a simular nature to be hereafter mentioned.

THE theory of the small-pox suggests three things. 1. Some questions relating to the antiquity, nature, &c. of this disease, of which I shall briefly treat. 2. A description of this fever, which is of great importance. 3. Its differences.

THE first part of our explication comprehends three principal questions. These are, 1. Whether the small-pox is of so old a date as to be known by *Hippocrates*, *Galen*, and the rest of the antients; or whether it be only a modern disorder, as the opposite party will have it.

THOSE who do not maintain the antiquity of this disorder alledge for their reasons, that it is not described by the antients, consequently that such a considerable disease did not appear in their time, otherwise such famous men would not have passed it over in silence; besides, it has got neither greek nor latin name.

THESE I own, with a great many other reasons advanced for the same purpose, are

great arguments to prove that this disorder is modern, and not known by the antients; nevertheless, *Avicenna*, and many other *Arabian* writers, nay older than the former, seem to have described it very exactly, though it was not well known in *Europe* till about 900 years after the birth of Christ, at which time it was farther extended.

Two eminent *Germans* have treated accurately of this subject; the one endeavoured to establish the antiquity of the small-pox, saying, that it was described by *Hippocrates* under the title of *carbuncles*, or what he called *anthrax*. The other affirms, that his antagonist did injustice to the forementioned passages, united what should be separated, and separated what should be joined: in a word, that he made his authors speak what he pleased. Wherefore he concludes, that the small-pox was known only in *Arabia* in those days, and that the inhabitants of that country, by means of their immense conquests, disseminated the seeds of this disease through all the then known parts of the world. For we find, besides their conquests in *Asia* and *Africa*, that they penetrated into *Italy*, nay, into *France* as far as *Toulouse*, in consequence of which the *Europeans* contracted the small-pox, and afterwards transported it into *America*, &c. From this account, which seems probable, I conclude, that this distemper is modern in some measure, since it was formerly confined to *Arabia*, and not at all known to other countries. Moreover, that the progress, propagation, and uninter-

interrupted transmission of this disorder evince, that it may be generated in all countries and climates, and that it is likely never to cease, whereas the *lues venerea* will probably disappear at last, since it has declined hitherto: and though we have mentioned in our treatise of the pestilential fever, that there are trees, animals, and disorders, &c. peculiar to each different climate; yet there are others of the above kinds which flourish indifferently in all countries, as the tree we call *marognier d'Inde*, which grows and bears fruit, as well in *France* as in the *Indies*. To these we may likewise compare the small-pox, which may also indifferently prevail in all countries.

THE second question is extremely difficult, *viz.* what the cause of the small-pox is. The most common and received opinion, especially among the ancients, is, that the infant fed with menstrual blood in the *uterus*, has thereby imbibed such impurities, that its blood is at length, after delivery, put into such a fermentation, that it strives to throw off the above impurities, and deplete itself by the cutaneous eruptions we see in the small-pox.

MOST authors treat this doctrine at present as chimerical; because, they say, the infant in the *uterus* is fed with no such thing as this impure blood; on the contrary, it is nourished with pure blood, or a milky lymphatic humour; wherefore they affirm, that this system cannot be maintained. The *Arabians* were the principal abettors of this opinion.

SOME of the moderns proposed another system, *viz.* that the small-pox proceeded from the abuse of the non-naturals, like all other common disorders, namely, from indigestions, &c. but as all countries are equally subject to the fault of digestion, or the other causes deduced from the non-naturals, and as these have always subsisted in every country, this opinion is not sustainable, till the antiquity and universality of the disorder are proved, which is not an easy task.

THERE is a third opinion concerning the cause of this fever, which I account the most probable, and which is, that it consists in a heterogeneous *virus*, which being transmitted by contagion, infects the humours, so as to create the small-pox, but some perhaps may say, that observations prove some certain and retired places to be infected with this distemper, whilst there was no such thing in the neighbourhood, nay within a great distance of the infected place; and consequently that in this case, the small-pox should be the product of the non-naturals alone.

THIS is a popular notion, arising from prejudice, for the small-pox never appears any where but by contagion, which happens sometimes after such a subtile and insensible manner, that its origin is doubtful. Thus I myself have seen a person who conversed with some affected with the small-pox in *Germany*, without having any sensible symptoms of this disorder for fifteen days, till he arrived in *France*, where immediately afterwards he
found

found himself manifestly seized with this distemper; but after due examination of the circumstances, I found, that in all probability, he contracted this disorder in the said affected place; so that we may say, that this disease is frequently brooding for a long time before it appears, which case, very likely, has imposed on the abettors of the above sentiment. Hence we may compare the subtile invasion of the small-pox to the generation of rats in new ships, to which such animals could not be possibly conveyed, otherwise than by their *semen*, which lurked in the timber, &c. nevertheless some credulous persons fancied, that these rats were the product of corruption alone, because they could imagine no other cause in this circumstance: the same may be understood of the small-pox, whose *fomes* is always transmitted to others from some infected persons, though this contagion may be hid from the eyes of the vulgar. Thus it happens in the *hydrophobia*, whose *virus* is first received from a mad dog, wolf, or fox, which are the most usual origins of it; but we never find that it is transmitted without some manner of contagion independant of the non-naturals, &c. for these in either case can do no more than dispose a patient to entertain either of the above diseases, and to assist only their multiplication.

THE third question is, whether those who have once had the small-pox, may contract it a second time. I know several observations attest that this rarely happens in hot countries.

If it is so, I imagine it is owing to the large and free cutaneous pores of the inhabitants of such climates, where the habit of body is so free, that the blood is perfectly discharged of the *miasmata* of this fever, even by the first attack, whence the small-pox is not apt to return. But in cold countries, where the habit of body is more compact and imperspirable, the depuration of the first small-pox may be so imperfect, as to produce another in process of time.

THO' I have advanced this opinion concerning the regeneration of this disorder in the same subject in cold climates, yet I fancy our countrymen are often imposed upon for a second or third small-pox, by the chicken-pox, measles, &c. so that this our ignorance in distinguishing exactly these disorders the one from the other, has given room perhaps to this prejudice, whilst in hotter climates, where the physicians are much acquainted with these diseases, they distinguish them better, and do not confound them together, though they successively attack the same patient.

THE description of the small-pox deserves our next attention. This comprehends its three different states, as, 1. Its eruption. 2. Its suppuration. 3. The drying of the pustules.

THE description of these three stages, requires great exactness. As to the first, it comprehends two different times, *viz.* from the first reception of the variolous matter, or whilst it is fomented in the blood, till it be-
gins

gins to appear on the skin. This time is extended to the third, fourth, nay to the fifth day, and sometimes longer. This we may call its brooding time; but at the expiration of the above days, it begins to manifest itself on the skin, and this we call its hatching time.

IN the former, various symptoms arise, as a great fever, which is sometimes ardent with all the symptoms of such, as lethargic affections, uneasiness, *delirium*, *coma vigil*, or a kind of frenzy without a *coma*, different affections of the kidneys, as pain, &c. in that region; *nausea* and vomiting also sometimes attend it. Whilst these incommode the patient, convulsive motions of the tendons invade the limbs, through the convulsion of the body of the muscles. This symptom may also attack the muscles of the face, which is red, as are also the eyes at the same time, and the patient's nostrils itch to such a degree, as to make him scratch them and draw blood, or at least to provoke violent sneezing. But we must not expect to find all these symptoms in the same patient at this time.

IN the second period of the first stage, called eruption, or when the pustules begin to appear, the fever is not accustomed to redouble with as much violence as in the preceding days. This state continues generally for three days, counting precisely from the first eruption, to the end of the entire expulsion of the *papulæ*.

IN the first day of the eruption, these tumours appear only on the face; in the second, on the hands and breast; in the third, on the feet, &c. so that we may reckon three different eruptions during this time, of which the second is the most decisive.

IN this state the skin appears diversified like marble, with red and white colours, pyramidal pustules appearing at the same time. The other figures of these *papulæ* we shall observe in the diagnostics.

THESE tumours are called continued, when their bases seem to touch each other; discrete, when their intervals are sensibly distinct; but confluent, when the pustules are so thick, that they touch, or rather seem to cluster one upon another, and this most commonly happens on the face, though they be not confluent on the rest of the body.

THE next stage is the suppuration of these tumours. This commonly begins immediately after the third day of the eruption, or when this entirely ceases, as likewise doth the depuratory fever. Hence about the fourth or sixth day, counting precisely from the beginning of the eruption, the patient finds himself much better, wherefore we ought in this favourable intermission, prepare him for the rude attack which he is afterwards likely to suffer at the approach of the suppuratory fever. About the sixth day, counting as before, the pustules, instead of red, become whitish in their extremities, which is a favourable sign, provided they are still tumid and full; and on the
contrary,

contrary, if they become flat and hemispherical.

AFTER the above change, the pustules at length become white all over, with a pale red basis or circumference, which happens about the tenth day; at which time the suppuration is commonly perfected, and a new fever of a different character from the depuratory one becomes very sensible. This fever is called suppuratory or secondary, whilst the former is called depuratory or primary.

IN this state, a great many things are to be observed, 1. The *papulae* are sometimes filled with a lymphatic crystalline humour, whence they are called crystalline. 2. They are sometimes called carbunculous, because of their similitude to that kind of tumours, being then black and gangrenous, which symptom is very dangerous. 3. Their bases are sometimes so inflamed, that the inflammation is communicated to their interstices, which should be white in the ordinary small-pox; the pustules in this case are called erysipelatous. Their event is very doubtful, nay dangerous, not only in this last case, but also when they appear of an angular figure, sink as if they were suddenly struck in, or finally when they are too hot or cold.

THIS stage holds from the fourth, and sometimes from the eighth day after the eruption, till the tenth or twelfth day. At the last mentioned term, these tumours fall into another state, which is that of their exsiccation, though there are some of them which are so

turgid, and contain a corrosive humour, that they burst without suppuration and drying, disfigure the patient's skin, and give room to several small and superficial ulcers: but such as are naturally dry, never burst, because their fluidity being evaporated, the viscid matter remaining in their cavities forms a crust or scab, which may be of different colours, as grey, yellow, black, &c. If the suppuration does not still continue under the scab, the fever will cease, and *é contra*.

THIS state generally ends about the fourteenth or fifteenth day, counting from the beginning of the eruption; though it has been sometimes observed to terminate on the tenth day, and at other times to have been hardly over at the twentieth. In case the pustules are large and numerous, several small cavities remain on the patient's face, &c. which hardly disappear in a year's time, and perhaps never.

DIFFERENCES. Having given the symptoms peculiar to each stage of the small-pox, in order to describe it the better, we now come to its differences. Wherefore, 1. The small-pox is of three kinds, *viz.* distinct, continued, and confluent; all which are explained. 2. It is benign, when accompanied with few and mild symptoms, as a slight fever, few and distinct *papulæ*, particularly on the face. There is even a kind, which, though it threatens much in the beginning through the violence of its symptoms,

as intense fever, frequent vomiting, &c. yet proves benign at length. The malignant small-pox, on the contrary, is attended with violent and numerous symptoms, as great and redoubling fever, with different affections of the head, as *coma's*, *delirium*, &c. with erysipelatous pustules, and the like symptoms. Thirdly, The small-pox receives some epithets and differences from the variety of its pustules; as, 1. Carbunculous or mortified. 2. When the pustules are depressed in the middle, though they may afterwards become tumid. 3. They may be tumid and of a crystalline colour. 4. They may be grey, yellow, or black like carbuncles; but we must not expect that the pustules in the same patient should be all of any one of these colours; for its sufficient to constitute a difference, if many of them are black, or of any of the other colours.

THE most favourable *papulae* are the large white ones, filled with a viscid matter, having a pale red circle round their basis; but if their whiteness degenerates into a red or green colour, it is not a favourable omen, because it denotes a mixture of blood with the lymphatic matter of the pustules, which is a proof of its acrimony, whereby it procured itself a passage into these tumours. If there be a general inflammation, or *erysypelas*, all over the skin, as it generally happens in the confluent kind, nay in some discrete ones, it is then called an erysipelatous small-pox.

CAUSES. The explication of these is not only difficult, but also different from those of all other disorders; and as the origin and nature of the variolous ferment, are still unknown to us, except what little of them we learn *a posteriori*; I shall speak therefore of the properties, seat, and mechanism of this *fomes* alone, whereby it produces the *papulæ* of the small-pox.

As to the first or qualities of this *virus*, we find by several observations, that it is communicated *per fomitem*, as they say, or by means of traffic, wherefore we may conclude, that it is much more volatil than the *virus* of several other disorders. This is also phlogistic, or inflammatory, as its concomitant tumours evince, and its acrimony is manifest from the corrosion of the skin, which is all that can be well said of the nature of this *virus*; for we know nothing of the form, conformation, &c. of it's particles, nor are we likely to know any more of this matter, than we do of the particular form or conformation of several things which are more familiar to us, as of the particles of water, wine, &c. As to the seat of this disease, the common opinion holds, that it is in the cutaneous glands, as the tumours seem to prove; nevertheless this opinion, though general, is ill grounded; for the measles and other disorders which manifest themselves on the skin, should also have the same seat. But it is inconceivable, how two such disorders, as the small-pox, and measles, could
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be so different from each other, had they the same seat; besides, if it was so, most of these cutaneous glands, would be destroyed by supuration in all kinds of the small-pox, as well confluent as distinct; and consequently the skin would be much disfigured by cicatrices and cavities, which however is not commonly the case. Hence I conclude, that this distemper is seated in the cells of the mucous humour of the skin, with which this *virus* has some sort of analogy, whereby it is disposed to settle there, more than any other contagious disorders. These cells becoming turgid with this viciated matter, raise the *cuticula*, which, though destroyed, will seldom give room to any cutaneous marks, and when such happen, they are owing to the acrimony of the *virus*, whereby the *cutis* is corroded, and these depressions or deformities induced.

THE third question is whether the variolous *fomes* produces the efflorescences which happen in consequence of this disorder. To understand this mechanism, we are to observe, that a fever is excited thereby, and that the humours are violently propelled to the surface of the body, where through many particular causes, this volatil ferment soon joins the cutaneous mucus, whose cells it corrodes, irritates their fibres, induces their contraction, and at length an inflammation, with redness almost of the whole skin, whereby it acquires a straked or marble-like colour. After the inflammation, the *papulae* or tumours naturally appear from the swelling of these cells, which
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at length sometimes burst and leave several small ulcers. This inflammation lasts during the three days of the eruption, *viz.* whilst it is supplied with new humour, and whilst the *papulæ* augment. These are sometimes white, or attended at least with a white and lymphatic spot, from the effusion of some lymph in their cavities, through the compression of some lymphatic ducts; nor should this lymphatic matter be attributed to the compression or other affection of the cutaneous glands which are sufficiently free.

THESE tumours afterwards contain a more viscid humour, through the evaporation of the serous parts by the inflammation and supuration. The purulent matter at length either ruptures its reservoirs, or dries in its cavity; whence we see the mechanism of these tumours, from the time of their formation, 'till they disappear.

SYMPTOMS. We shall first treat of the symptoms which appear in the beginning of the small-pox. These are very numerous and proceed from the mixture of the variolous matter with the blood, except some few to which the crudities of the first ways may contribute.

DID we know the quantity and quality of this *virus*, with the susceptibility or disposition of the humours to entertain it, as we attribute all the symptoms of a small-pox to these two causes, we might say a great deal on this subject; but as unfortunately they are hid from us, so we must content ourselves with

with remarking the sensible effects or symptoms of this distemper, which upon its first entrance into the body, is soon disseminated through all the humours, and is gradually multiplied, till it kindles an ardent fever by irritating and incrispating the solids.

THIS fever is attended with violent heat, thirst, &c. it is also increased and redoubled by the crudities of the first ways; for we find that by seasonable purging, this symptom is considerably diminished.

As this humour has some relation, or analogy with the mucus matter of the body, it soon joins it in its different secretory organs; hence by mixing with the mucous humour of the skin, it produces the *papulæ*; its mixture with the mucus of the nose, irritates that part and causes sneezing, &c. In the trachea, coughing; in the stomach, nausea, vomiting, &c. In the intestines, diarrhæa's and the like; but its mixture with the animal spirits, produces more pernicious symptoms, as coma's, lethargies, delirium, convulsions, &c. or we may explain these last by the tumefaction of the face, &c. whereby the blood flows more copiously to the brain, where it provokes preternatural oscillations of the arteries; whence arise these affections of the head.

IN general, all these symptoms, let the causes be what they will, disappear towards the end of the eruption; though they are renewed in some measure during the time of suppuration for the reasons to be hereafter mentioned.

As the preceding symptoms may attend the small-pox from its beginning to the end of the eruption, we shall now treat of those which the suppuration induces.

To understand therefore, how and why the pustules suppurate, we are to recollect, that the virulent humour of this disorder is, 1. Very subtile and volatile; for we find that it affects persons at a considerable distance. 2. It is of a phlogistic or inflammatory nature, as its acrimony, irritation, and the cutaneous inflammation prove. 3. It is remarkably corrosive, not because it is inflammatory, like brandy applied to some parts of the body which may have the same effect, but because it has something more in it than its common phlogistic quality. These observations on the cause of this disorder, with respect to practice, are sufficient. Now the peccant humour thus constituted, does not affect the miliary, sudorific, or sebaceous glands, as some unjustly suppose, otherwise after every small-pox great cavities would remain on the skin, but it is rather seated in the celular substance, lodged betwixt the *cutis* and *cuticula*, whither from its analogy with this *mucus* it is conveyed.

HAVING premised these things, we are to observe, that the morbid matter, not of its own nature alone, but through the help of circulation, the blood serving as a vehicle, is conveyed into these cells, whose fibres it irritates, inflames, and elevates, so that the different pustules, above described, soon appear, which have a kind of blister or vesicle on
their

their *apex* or top, filled with a whitish sort of matter.

THE number of the affected cells, constitutes some of the differences of the pustules; for if such a quantity of them is so tumified as to make them touch each other immediately, or seem to be formed into clusters one over another, then the small-pox is called *confluent*; if they appear only to join at their bases, they are called *continued*; but if they have sensible and free interstices, they are named *distinct*. These pustules may be confluent or continued on the face, and discrete on the rest of the body. The reason of this phenomenon we may deduce from the great number of blood-vessels in the face, as its florid colour seems to prove; for these vessels receive a proportional quantity of blood, and consequently of the virulent humour, wherefore the pustules must be the more numerous.

OR we may ascribe this symptom to the thinness of the skin of the face, whereby it less resists the eruption of these tumours. The pustules thus formed, shoot out into a lymphatic white protuberance, with a reddish inflamed basis, through the heat of which the volatile fluid parts of the vesicles are evaporated, and a suppurative motion induced. This is the usual progress of the suppuration; but if many cellules are joined together to form one pustule, instead of a round surface, it will be intersected by several lines, which are owing to the fibres or divisions of the cells, where-

by the part of the *cuticula* to which these fibres adhere, is depressed, whilst the top, or middle of the pustule, as less resisting, is elevated: on the contrary, if one cell alone is affected, the tumour is round; if many cells immediately and successively are seized, an oblong cavity succeeds; but if these are disposed in an irregular form, the pustules will be angular. When the lymph which fills these vesicles is pure, they are whitish, and disposed to a laudable suppuration; but if they are filled with a limpid aqueous fluid, they are called crystalline, and will not suppurate in so laudable a manner.

THESE tumours may be also black without any danger; as for instance, when they acquire this colour by being excoriated or scratched by the patient; but if they are naturally black, they are eminently dangerous, as being a proof of the acrimony or caustic quality of the included humour.

THE danger of the small-pox varies considerably according to the diversity of these colours: for the pustules which have red bases, and whitish lymphatic apices, are generally the most favourable. I have seen the pustules of the small-pox extremely white in some women, particularly in nurses, which made me form a salutary prognostic, knowing that this extraordinary whiteness was owing to the mixture of the breast-milk with the morbid humour; whence its acrimony was much corrected by the balsamic nature of the milk.

IF these tumours are yellow, it is always a proof of the mixture of some blood with their contents, as we see in the yellow spits generally expectorated in a peripneumony. If the quantity of blood is considerable, the pustule will have a brown or black colour: for we find, that the stagnant blood gradually undergoes these various colours. Thus we find that the urine of some patients is intensely black, which is owing to the mixture of blood with it.

BESIDES these differences of the *papulae*, not only their substance, but also the interstices between them, are frequently erysipelatous, because they compress the subjacent vessels: they also differ by the intensity of their inflammation, acrimony, and quantity of the morbid particles, which are sufficient to inflame not only some few cells, but likewise the whole surface of the body.

IF this inflammation is not very violent, but the small-pox, on the contrary, benign, and the suppuration laudable, the inflammation decreases in proportion as the pustules suppurate. These tumours are likewise often observed to subside very suddenly, becoming pale, soft, and flaccid, instead of being turgid, and full at the time the suppuration should be perfected.

THIS symptom may happen at the time of the eruption, and the beginning or progress of suppuration. The same symptom happens because the variolous *miasmata* tend no more to

the surface of the body, being diverted to other emunctories by considerable evacuations, as diarrhœas, excessive sweats; as also by violent passions of the mind, and, in short, all other affections or accidents that put a stop to the usual afflux of the blood to the skin.

THE next symptoms to be considered, are those of a drying small-pox. The disorder generally arrives at this stage about the ninth day, at which time, 1. The tumours are so full and tense, that they burst the scarf-skin and soon dry: or, 2. The purulent matter being very corrosive, procures itself a vent through the corroded *cuticula*, in which case the matter of the small-pox is said to flow; because the *papulae* do not dry for a considerable time; though after twenty-four hours the heat may be so great, as to dissipate the fluid particles, and form a scab or crust on these ruptured pustules.

THE third and last case concerning the matured but drying pustules, is when they do not burst, but form a scab on their top. This, with the other signs of the ripe *papulae*, depend chiefly on the quantity and quality of the morbid matter: for if the tumours contain a great quantity of mild and balsamic *pus*, the first case happens; if it be redundant and acrid, the second will occur; but if it is in a small quantity, and of a balsamic nature, viscid, and dry, it will spontaneously form a scab without procuring itself any issue.

THESE three cases are sometimes observable in the same patient; for the two first may happen on the face, breast, &c. but the last most commonly on the soles of the feet, palms of the hands, and where the scarf-skin is hard and callous, not easily yielding to distention. The pustules which plentifully discharge an acrid serosity, and are ulcerous for some time, will hardly yield to any other remedies, than repeated purgatives. But we must not ascribe the cavities or furrows which remain after these efflorescences to the scarf-skin; for we often see it destroyed by an erysypelas, without any succeeding impressions; wherefore this symptom must be owing to the corrosion of the *cutis*, by the morbid matter.

NOT only ordinary pittings of the skin appear, but considerable cavities, like the impressions made by the head of a nail in any soft substance, whence they are called in french *des clous*. These generally happen in the malignant small-pox, in which the pustules are large, numerous, and full of a corrosive humour; so that by their compression and inflammation, the sebaceous glands are affected, and at last destroyed by suppuration; to prevent which accident, no remedies are so efficacious as purgatives.

DIAGNOSTICS. These signs depend on five heads. 1. The discovery of the disorder before it manifests itself by any eruption, that it may be timely and properly treated. 2. To judge of the progress of the eruption. 3. To

discover the incipient eruption. 4. To investigate the character or nature of the suppuration. 5. To judge of the state of the drying pustules.

I. The first class of diagnostics is the most important, least we should treat the incipient small-pox in quality of some other disorder, which may prove detrimental to the patient; but as unfortunately all the signs of this class are purely conjectural, so great caution is requisite in employing any remedies in the beginning of this disease. Nevertheless we may justly suspect the small-pox, if the patient be young, and never had it before; if it be in the spring or autumn, in which seasons the small-pox is commonly rarer than in summer or winter; if the patient has lived in infected places, or conversed with infected persons: but the most decisive symptoms are, convulsive motions, *nausea*, vomiting, pains of the kidneys, and a fever, which seems to have the characteristic of a double *tertian* or *quotidian*, with frequent returns, &c.

THE only comfort we have in this doubtful state, is that an incipient small-pox requires much the same treatment with all inflammatory fevers; but the bleeding here should be performed in the foot. As to glysters, purging, diluting, &c. they are the same as in other fevers, but should be very seasonably employed in the small-pox.

II. The eruption begins, though not always, on the third day, and gives some clearer evidences

evidences of itself on the fourth, the skin being then of a chequered or marble colour. The eruption is again more manifest on the fifth, but beyond dispute on the sixth, which is the case when the eruptive fever and other symptoms are very mild.

III. As to the progress of the eruption, it commonly happens in three days after the manner described in the theory; inspection will inform us if it be performed sooner, as in twenty-four or forty-eight hours; our senses will likewise guide us in discovering whether the small-pox is benign, as when the pustules are well conditioned, when it is attended with few and mild symptoms: if it is malign, we will see the malignity of the pustules, *delirium*, and other affections of the head, hemorrhage of the nose, &c.

THE time betwixt the eruption and suppuration has likewise its particular symptoms, which are easily learned; for by examining the patient, we know whether he is in a tolerable state or not; whether his respiration be free or difficult, his spits well or ill conditioned; whether he has a troublesome cough or not, or whether his urine, &c. flows in a proper quantity and quality, &c.

IV. The symptoms of suppuration are as manifest and sensible as any of the former. Thus inspection will inform us of the different forms of the *papulae*, whether round, angular, flat, or otherwise shaped; as also of their colour, whether pale, red, white, grey,

or black, &c. likewise whether they be cold or hot, having erysipelatous bases and interstices.

V. In the last stage, or when the pustules begin to dry, we see whether they burst or not, and the time they require to heal; likewise of what quality the driveling serosity may be, whether acrid or of a purulent balsamic nature: moreover our judgment will inform us if there be any cutaneous ulcers, and of their number and magnitude, as also of the other characters of the pittings or cavities remaining after this disorder.

PROGNOSTICS. This disorder is extremely troublesome, did we considered nothing else, but the affections of the skin; as it's heat, irritation and sensibility during the eruption, and it's fretting ulcers during the suppuration: besides, the patient is in a continual agitation, and is troubled with different affections of the head; all which are more sensible in adults, particularly men, than in children and women: because the two last have a soft lax skin, and balsamic humours, whereby the eruption and other symptoms of this disease are render'd the milder. For these reasons likewise, women and children are less disfigured by the small-pox, than men; yet the beauty of women is not a little impaired by this disorder, for tho' it does not pit the face much, yet it commonly swells their features, and makes them so coarse and bloated, that they are somewhat disagreeable. To all these
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inconveniencies we may add the extraordinary danger of the small-pox, which in some cases exceeds that of a malignant fever: wherefore the physician should be very circumspect of giving any decisive prognostics of the event of such a dubious distemper.

I shall not content my self to give the general prognostics, but shall enumerate those peculiar to each stage of the small-pox; wherefore I begin with the symptoms of the first, or the prognostic signs of the time of the ebullition, wherein the symptoms may bode good or bad. Thus, a violent fever, different affections of the head and breast, as convulsions, *subsultus tendinum*, which signifies the convulsion of the bellies of the muscles communicated to, or rather moving the tendons; and this again supposes the obstruction of the brain, and is a frequent fore-runner of convulsions, delirium, &c. to these we may add difficult respiration, coughs, &c. all which denote the too great acrimony, quantity, or both together of the *variolous* ferment; and which consequently suggest very bad prognostics, whilst milder fever, and more favourable symptoms promise better. Moreover, if the ebullition be soon quelled, it is a good omen, for it argues the easy separation of the morbid humour from the blood, and a more perfect depuration. On the contrary, a long and violent ebullition, indicates the intimate mixture of the *virus* with the blood, in the substance of which, it is, as it were, sheathed; consequently

quently it cannot easily disengage it self, nor procure a perfect depuration.

NOTWITHSTANDING, an ebullition may be long, and attended with dreadful symptoms, we see nevertheless some rare cases, wherein the ebullition is slow, yet the event is happy by a perfect eruption. But this hardly comes to pass, except when the eruption is preceded by some evacuations, as vomiting, or the like, whereby part of the *virus* is removed.

DURING the eruption of the small-pox, we observe two sorts of signs, 1. Such as promise a happy termination. 2. Such as denote a dangerous one.

OF the first class are, 1. A considerable diminution, or entire cessation of the fever, with a perfect eruption on or about the third day after its first appearance. 2. A speedy eruption; because it presupposes an easy, but perfect suppuration of the variolous *miasmata* from the blood. 3. The eruption is favourable, when, upon its appearance, the principal symptoms of the ebullition cease, such as *delirium*, convulsions difficult respiration, &c. The eruption is also good, when the pustules are round, elevated, firm, not too hot nor cold; on the contrary, if they are soft, pale, and cold, they soon disappear.

THE signs which denote a dangerous eruption, are an imperfect slow eruption, a few pustules, like clusters, now and then appearing, and continuing longer than the usual time, or the three days requisite for that purpose;

pose; the eruption, on the contrary, should be continued, uniform, and finished in the foresaid time. It is also a dangerous omen when the *papulæ* are small, flat, confluent, angular, pale, very much inflamed, erysipelatous, interspersed with purple spots, the symptoms still continuing, without affording any perfect tranquility to the patient.

I shall follow the same method as above in giving the signs of a happy suppuration; so I begin with the prognostics which foretel a favourable one.

THESE are white pustules, not transparent, but of the colour of suet, or white wax, tending to a sort of darkness: they should be also turgid, and surrounded at their bases with a pale red circle; each pustule separately should suppurate without communicating with any adjacent one; the fever should be mild, and attended with no violent symptoms; the skin should be tense, and the tumours should remain full and turgid during the whole course of the suppuration; for if they were soft and flat, it would indicate that they were no longer supplied with the virulent matter which would consequently remain in the blood.

WHEN the suppuration does not succeed, it has the following signs. 1. Many lymphatic limpid pustules. 2. Black ones, or such as have a gangrenous apex, I mean naturally, not those which become black by scratching them. 3. Brown or yellow pustules, or such as have a whitish pale circle about their bases.

4. Such as communicate with each other in the time of suppuration, and are attended with a violent secondary or suppurative fever. 5. Such pustules as in the time of suppuration are accompanied with different affections of the head, as a *delirium*, *coma*, &c. or with a difficult excretion of urine, painful respiration, or finally a soft and flaccid skin, which denotes a *metastasis* of the morbid ferment, as the ancients called it.

THE state of the drying pustules is hopeful when they dry without bursting, and though they burst it is not dangerous, provided they soon dry, and that the *eschars* fall off without leaving any ulcers, or do not entertain a fresh suppuration under them, nor give rise to what we call pittings. On the contrary, it is an unhappy omen when the pustules suppurate a long while, or burst and drivel continually, form a new scab under the old one, and may give occasion to deep ulcers, or many cavities like the above which are called pittings. In a word, they are very dangerous when they have opposite qualities to the favourable ones.

WE may now make some general reflections on this disease; in order to which, we are to observe, that the fatal term of this distemper is not included in the first or depurative fever, but in the secondary one, *viz.* from the sixth to the twelfth day; during which time the most violent symptoms happen, as different affections of the head, lungs, &c. Nor is it to be admired, that these sensible parts

parts should be grievously affected, since they are as subject to the eruptions, as the surface of the body: for we find that the membranes of the lungs and brain are often crowded with these pustules; wherefore the physician should industriously examine the lesions of the different functions of these organs; for instance, a patient whose lungs or brain are not affected with these tumours, respire without difficulty, retains his reason and the like. On the contrary, if they are affected, respiration is frequent and precipitate, his reason is disturbed, and the carotid arteries beat violently. I own that these arteries always beat preternaturally in this disorder, because of the swelling of the face, which makes considerable resistance to the ascending blood; but in the present case, I understand their exorbitant oscillations.

WE may observe next, that the nature of the violent symptoms in the small-pox is different from that of the symptoms of all other dangerous fevers; for instance, the malignant fever, in which a patient, who has a dying aspect for twenty-four hours, through the violence of his disorder, may nevertheless recover, as experience proves. On the contrary, if the patient, is so ill by a griveous small-pox, he rarely survives it; for he instantly perishes; which, I imagine, is owing to the excessive crispation or convulsion of the meninges, or to a syncope through the sudden convulsion of the heart.

CURE. The future symptoms of a small-pox are always to be prevented, by a methodical treatment of it's first stage, for whether this be good or bad, it has considerable influence on the disorder in its course; wherefore we should endeavour to adapt the cure to the small-pox alone, not treating it indiscriminately like any other fever.

HENCE, if the *nausea*, vomiting, pains of the kidneys, and other signs above-mentioned present themselves, though the small-pox does not as yet manifest it self; nevertheless, the surer way is to treat it as such and with more speed and attention than any other continued fever whatever; wherefore if the fever and other symptoms be violent, the patient should be let blood twice in the foot; if the symptoms are mild, once will do; this must be performed, if possible, during the two first days.

THE bleeding of the foot is recommended here, because it lessens the eruptions of the face, with the other symptoms of the head, through the revulsion thus procured; in the interval of bleeding, let the patient drink plentifully of weak broths, or of a ptisan made of *malv. rad. gram. et liquoric.* If the fever be mild, we may add *rad. scorzoner.* to the ptisan. The patient thus treated from the beginning, may be purged on the third day, nay sometimes earlier, or soon after the first bleeding, as occasion requires. The purgatives may be *fol. senn. man. rhubarb. cathol. duplicat.*

duplicat. to which we may sometimes add an emetic unknown to the patient, and attendants if they have any aversion to this practice. We must not fail in our intention here, since it is of great importance to purge the patient briskly; wherefore we must order him a sufficient dose of the purgative that it should not miscarry in its operation.

THIS is the most approved practice in the small-pox, amongst the best and most experienced physicians of this kingdom, when called in seasonably. But if the physician is employed later, let him order a bleeding in the morning, and let the patient be purged in the afternoon; nor should a few prematured pustules which sometimes appear on some parts of the patient's skin a day or two perhaps before the genuine eruption, prevent bleeding and purging. If the fever be violent, we must banish all heating remedies; but if it be mild, we may order a ptisan of *scorzoneræ*, and if the fever be too languid, order some of the following cordials, in the form which is most agreeable to the patient: of these are the distilled waters of *card. bened. scabios,* &c. *Theriac. confect. hyacinth. alkerm. antim. diaphor. sal. volat. viper.* If the fever be more intense, the following mild cordials will be more expedient, as *syr. limon.* or the like.

To these cordials may be added obsorbents; and if the patient or attendants are so superstitiously inclined, as to think that these medicines

cines should have a red colour, we may give them such a tincture by adding a little of *decoct. pap. rhead.* nor should we forbid to change the patient's linnen, if he sweats profusely, or if any other occasion requires it, provided the linnen be well aired before a fire, &c.

THUS far of the treatment of the small-pox till it begins to suppurate, at which time the patient should be constantly kept loose with clysters, which may be sometimes rendered purgative, or laxative only by the addition of the oil of sweet-almonds, giving at the same time proper decoctions, apozems, &c. towards the end of the disorder, or when the pustules begin to dry, the patient should be purged; the general method of doing which is thrice in this stage before the patient quits his bed; but it may be repeated oftener if the pustules flow very much, and especially if the cutaneous ulcers be considerable. The use of gentle diuretics will not be likewise unseasonable.

IF the *fauces* are considerably affected about the fifth or sixth day, the patient should be nourished very slenderly, and treated with proper gargarisms.

IF the eyes are closed too early, the purulent matter, which is then collected in them, may be of dangerous consequence, nay destroy, if neglected, the patient sight, as we see very often happens to children and infants. Some for these reasons apply to the patient's eyes a little

little of the infusion of saffron, with some rose-water ; but I commonly make use of *aq. malv.* to wash off this matter.

SOME are so superstitiously fond of their own notions, as not to be satisfied with the ordinary and methodical cure of the small-pox, wherefore they introduce some chimerical assistance, as an amulet, or a bag filled with the powder of millepedes, which they suspend about the patient's neck. Some order a sheep to be fed in the patient's room, that it may gather in its fleece, as they fancy, a certain quantity of the *miasmata*, in order to ease the patient. Others hang his chamber with red tapestry, thinking this colour analogous to the nature of the disorder, and consequently capable of attracting some of its particles. This was done in the *Dauphin's* apartment when he had the small-pox.

THESE fancies I would willingly permit, since they are no way prejudicial to the patient, and may serve to please the imagination. But as some frequently warm the room with a large fire, I absolutely forbid this practice, especially in the spring and summer. Nor do I approve of the superstition of those who never change the patient's linnen till he is recovered ; on the contrary, I would advise to have it changed as often as occasion requires.

HAVING given the cure of the ordinary and benign small-pox, it will be likewise necessary to treat of the cure of the malignant one,

or of that which is attended with some violent and uncommon symptoms, which do not yield to the above method of cure.

THESE symptoms may happen at any time during the course of the disorder. But for perspicuity's sake we shall reduce them to the four principal stages before mentioned, *viz.* 1. The symptoms of the ebullition. 2. Those of the eruption, which are the most numerous. 3. Of the suppuration. 4. And lastly, of the exsiccation.

IN the ebullition, or during the four first days, and sometimes till the eighth, all the symptoms of a violent burning fever may appear, such as a *delirium*, *coma vigil*, convulsions, and sometimes hæmorrhages of the nose; various affections of the breast, as difficulty of respiration, peripneumonies; in the *abdomen*, *diarrhæas*, and the like; all which present so many and complicated indications to the physician, that he is sometimes at a loss, not knowing how or which to fulfil. But, as I have spoke of these different symptoms in the ardent fever, I shall wave them at present, contenting myself to say, that they should be treated in the same way with those of that disorder, by prescribing emollient and laxative clysters, and other purgative remedies, &c. I come now to the symptoms of the second stage, or those of the eruption, which seem to be most peculiar to this disorder. Yet as some symptoms, much like the former, may also happen in this case, for instance, a *delirium*,

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um, convulsion, spitting of blood, *diarrhæas*, and the like, so they should be treated in the same way, and without having any regard to the eruption, though some early pustules may appear. Hence in the forementioned affections of the head, the patient should be let blood in the foot as the symptoms require; after which, let a purgative or especially an emetic be prescribed. If the attendants should object against its exhibition, let it be conveyed imperceptibly into the patient's cordial or ptisan. In proportion as we bleed and purge, we may order cordials, if necessary; the stronger sort are the *lil. confect. hyacinth. alkerin. theriac. sal. volat. viper. &c.*

As the hæmorrhage of the nose denotes the impetuosity of the blood to the head, so it may be treated with venesection in the foot. If this does not stop the flux, the ordinary astringent powders may be employed: if more powerful remedies are necessary, order one part of *aq. rabel.* with two of common water or ptisan.

THE peripneumony, and other symptoms of the breast, are to be treated as if alone, *viz.* by bleeding, purging, and the use of pectorals, as *loboc. alb. ol. amygd. dul. &c.*

THE *diarrhæa*, which supervenes in this case, is fomented and promoted by the various pustules which often appear in the intestines, as well as on the surface of the body, since in the former, which are very sensible organs, they induce this symptom, not only

by the humours they continually discharge, but also by the preternatural irritation of the Parts. Wherefore physicians prescribe on this occasion anodyne lenient clysters of tripe-broth, *decoct. verbasco. granor. lin. ol. amygdul. syr. pap. ad ℥iv. vel ℥v.* then the patient is to be purged with *syr. magistr.* or *cathol. duplic.* In a word, the chief remedies must tend to correct this symptom; not forgetting, in the mean while, to promote the eruption, if languid, by the help of cordials; *diascord.* is well calculated for this purpose, for it contributes to stop the flux, and promote the eruption at the same time.

I am not ignorant that the antients discharged the use of bleeding and purging, in case of any cutaneous eruptions or tumours; nay, they would not purge in venereal chankers, saying, that in all these cases the abovementioned remedies drew the humours from the circumference to the center, consequently hinder the depuration of the blood by these evacuations. The moderns, on the contrary, forsook this prejudice, and employ these remedies whenever they are indicated. As to the first or bleeding, when it is moderate and proportionable to the patient's strength, temperament, &c. and not so plentiful as to overweaken him, it rather favours the eruption, as experience and reason prove; for it procures a freer circulation. I have often seen that a languid eruption of the small-pox was considerably forwarded by one seasonable bleeding

in the foot. Purging also has very great advantages, for it diminishes very much the fever, and renders the circulation much easier in order to a more perfect secretion of the morbid particles; for we are to observe, that there are two sorts of fevers, as we may say, combined in the small-pox; the one caused and promoted by the crudities of the first ways; the other by the *miasmata* of the disorder: but this remedy, by cleansing the *primæ viæ*, diminishes the former; and by attracting the humours in the course of circulation into these ways, will necessarily drain off some of the morbid particles, and consequently lessen the other fever. Hence we may conclude, that seasonable bleeding and purging are so far from being opposite to these eruptions that they rather promote them. I own, if the eruption is once languid, the danger is very eminent, independantly of the effect of bleeding or purging: Wherefore a prudent physician should always declare it to the attendants, least they should attribute to these remedies, which are otherwise excellent, what is rather the effect of the malignity or violence of the disorder.

As to the use of cordials, when necessary, I always found such as I ordered in a liquid form to prove more successful than those which I administered in a dry one, such as powders or salts, &c. Hence I would recommend a decoction of the following plants, *viz.* *ulmar. card. bened. scabios. &c.* or for want of these, a decoction of the vulnerary plants

of the *Swisse*, and these are to be given in the intervals of the patient's broths. We come next to the symptoms of

SUPPURATION, of which the first and most pernicious, is the subsiding or sinking of the pustules. We must not here expect a considerable depression of these tumours; but it is sufficient, if they become pale, soft, and flaccid. As this symptom rarely happens in the small-pox, without a preceding cold fit, or attack of a fever, I therefore imagine, that the blood is inspissated in this case, whence the secretion of the peccant humour is not duely performed, and consequently the pustules are not supplied with sufficient matter, wherefore they subside, which often proves fatal. As the pulse is weak, the circulation languid, and the humours inspissated, we should immediately have recourse to cordials to invigorate the languid motion of the solids and fluids; for this purpose we may use the distilled waters before-mentioned, adding a proper Quantity of *bezoar mineral. lil. confect. hyacinth.* of which we may give two or three spoonfuls at a time. But the most efficacious remedy on this occasion is an emetic, which may be conveyed into the patient's cordial, ordering him afterwards, at a proper interval, a purgative remedy.

BESIDES the above reason of the subsidence of these pustules, the violence and greatness of the fever may be also assigned. For by this means, the rarefaction of the humours, distension

tenſion of the ſolids, &c. hinder the excretion of the morbid particles : but this caſe is rare, ſince we commonly find a weak pulſe to attend this ſymptom ; yet, when it happens, nothing will correct it ſo well as bleeding.

THE *delirium*, *coma vigil*, and *ſomnolentia*, convulſions, &c. ſhould be firſt treated with bleeding in the foot once or twice, afterwards with an emetic, ſucceeded by a cordial, which ſhould be varied according to the quality of the ſymptom ; thus, for inſtance, a ſudorific cordial will do better in lethargic affections, as *ſal. volat. viper.* but a milder ſudorific is preferable in a ſubſiding of theſe puſtules with convulſions, ſuch as *pulv. valerian. ſilveſtr.* or *de guttet.* adding a little treacle or *laudan.* in the ſame potion : but opiates ſhould be avoided in lethargic affections. We muſt not forget to order in the mean time, that the patient ſhould drink plentifully of a ptifan or decoction made of gentle ſudorific or diaphoretic plants.

A *diarrhœa* may likewise happen in this ſtage from the ſuppuration of the puſtules, ſeated, as we have ſaid, in the inteſtines ; or it may ſupervene, if the patient was not purged in the beginning or ebullition of the diſorder, through the dilution and rarefaction of the crudities of the *primæ viæ*, now put in motion, and irritating the inteſtinal fibres.

IN both theſe caſes we ſhould order anodyne rich broths, to the quantity of ſeven or eight ounces, to be given by way of glyſter every ſe-

cond or third hour, to bathe, as it were, continually his intestines. Tripe-broths, in which are beat up the yolks of a few eggs, with *syr. papav. alb.* ℥ss. or ℥j. is well calculated for this purpose. We may likewise order *ol. amygd. dul. syr. alth.* or *capill. ven.* in the same clysters, or a proper quantity of them to be taken by the mouth.

THE patient thus treated for one day, may be purged the next, and if the crudities are viscid and adherent, we may add a little *ipecacuanba* to some other purgatives, as *cathol. duplic. syr. magistr.* ℥j. and such like cathartics.

THE mortified or carbunculous pustules, those, I mean, which are essentially so, not those which become black by scratching, should be treated by ordering the patient a cordial and diuretic infusion, bathing in the mean time the mortified tumours with a linnen rag dipped in camphorated spirit of wine, to prevent their farther mortification; or the same linnen may be covered with *styrax*, to promote a laudable suppuration.

IF the pustules of the small-pox suppurate too much, let the patient be sufficiently purged, which will correct that symptom. As to the eyes, they are frequently affected in this stage, through a purulent matter formed of the tears, &c. which corrodes them, especially when they are closed too early; this commonly happens when the lids and *cilia* are full of the pustules; for in these cases the lids are considerably swelled, and, as it were,

conglutinated ; besides, the conjunctive membrane and pupil of the eye, are sometimes so crowded with these tumours, that they not only contribute to close the eyes, but also to leave a spot or speck on these parts, whereby the sight is impaired. Moreover, the pustules of the *cilia* very often terminate in ulcers, which can never be cured. To prevent these inconveniencies, nothing is so efficacious as to humect the patient's eyes morning and evening, especially as soon as any danger is threatened. Warm water, or *aq. alth. vel malv.* are good for this purpose, because they dissolve and wash away the *sordes* of the eyes.

IF the *cilia* are ulcered through the erosion of the cartilages, let them be dressed with powder of antimony, or calcined lead. To cure the *staphiloma* or speck, employ six parts of sugar-candy to one of common salt, of which make a powder, and blow it into the patient's eye. If this proves ineffectual, encrease the quantity of common salt.

If the *eschars*, or scabs, foment a new supuration under them, let the patient be purged every other day, till this is checked ; and if there are cutaneous ulcers, and if we are afraid lest deep impressions should remain, apply *emplastr. diachil.* to the affected parts, using at the same time a decoction of *cochlear. scolopendr. ssysymbr.* or milk turned with a decoction of *china-root.*

As women are generally more timorous of being disfigured by the small-pox, than men, we should endeavour to prevent this accident, for which intention, some recommend pricking the pustules of the face with a sharp-pointed instrument; others for the same purpose, or for a speedier evacuation and drying of these tumours, recommend the cutting of their bases, to give the freer issue to the purulent matter, and in both cases to rub the pustules with the oil of eggs; yet each of these methods is equally prejudicial; for this oil, stopping the pores, and hindering transpiration, forwards and foment the disorder, nay excites a more obstinate suppuration; whence the impressions become deeper. In order to avoid this inconveniency, some, instead of the above oil, make use of cream; but this has proved as unsuccessful as the former practice. As for my part, I have always found, that the fat of persons suddenly cut off in good health, proved the most useful remedy of this kind; for as it is a most powerful and hot resolvent, in one or two days time it will dry up and heal all the pustules of the face, and produce an universal crust or scab thereon; but it should be first reduced to oil over a fire, and applied twice a day for four days successively, with a feather, to these tumours; nor must we use this remedy till about the middle of suppuration, as before remarked, lest by employing it sooner, the pustules should subside.

Of the MEASLES.

THAT this is a real depuratory fever, is proved, 1. Because the time of the ebullition is always attended with a fever, which continues very often during the whole course of the disorder. 2. It is depuratory, in as much as there is a critical cutaneous eruption proceeding from a peccant matter in the blood, which we may call a *virus*, or kind of le-
vain. It should resemble the small-pox, because each is commonly attended with a depuration of the humours; but we have distinguished four stages in the small-pox, whereas in the measles there are but three, *viz.* the time of ebullition, eruption and drying; for the measles are not subject to suppuration. Now let us examine this disorder in each of these three stages, and see what happens in them, that thereby we may have a more exact idea of the disease, than any definition can suggest.

I. In the time of ebullition, it resembles very much the small-pox; for a continued acute fever is observed therein, with head-achs, sometimes vomiting, pruriginous affections of the whole skin, which symptoms are milder here than in the small-pox. But the characteristic symptom of the measles is a dry and obstinate cough, which we may call *guttural*, because the patient feels more pain in the throat during his cough, than in any other

other part. The ebullition continues two, three, or four days, and sometimes longer; but this stage is generally shorter in the measles than in the small-pox.

II. The eruption soon succeeds the ebullition. This appears by some pyramidal eminences, particularly about the mouth, from the first day of this stage; but afterwards they appear on the rest of the face. On the second day, the eruption declares itself on the breast, loins and the rest of the trunk. On the third day only the extremities are attacked. This state commonly continues for three days. These pustules at first are red, inflamed, erysypelalous, and sharp-pointed in their middle, and are less and more red than those of the small-pox.

III. In the time of drying, the pustules are red for three days during the eruption, but on the fourth, they begin to grow pale, for their resolution begins then, because no suppuration is to be expected. This resolution is performed in one or two days; so that on the fifth of the disorder, nothing appears on the skin; whence it may be esteemed very short, continuing most commonly but six or eight days, rarely till the tenth. The cough which was very obstinate during the time of ebullition, begins to decline instantly in the eruption, but returns at the resolution of the pustules; nay, it sometimes continues a month after the disorder is cured, then it may disappear, and in two months after return again,
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in which case, the patient ought to use a milky diet.

THIS disorder is subject to cause the following symptoms, a defluction of the eyes, a kind of deafness, a pain in the breast, obstructed tumified glands about the neck, several affections of the head, and, perhaps, a pthific, which sometimes succeeds. It is called in French *Rougeole*, and when the Latin began to lose its purity, it was called by the barbarous name *Rubeolæ*.

THE physicians name it *morbilli*, which was formerly a general appellation, not only for the measles, but also for the small-pox, chicken-pox, and miliary fever. But as these disorders received other names, that of *morbilli* was appropriated to the measles alone. In Spain this fever is called *serampion*, perhaps because *Serampion*, an Arabian physician, was one of the first who described it. In other parts of Spain it is called *serapion*.

D I F F E R E N C E S. There are various kinds of measles, which we should know, in order to understand the physical terms. 1. The simple measles are those wherein the pustules are red and small. 2. It is called pimpled measles, when the pustules are big and elevated. 3. When the pustules are extremely red, and when their intermediate spaces are likewise red, it is called erysipelatous. 4. It is termed inflammatory if the redness does not disappear by compression. 5. It is called impetiginous, when the tumours are full of scales,

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in which case they sometimes cause obstinate tethers. 6. It may be complicated with the small-pox or purple fever.

CAUSES. To examine these, we should know two things. 1. What the quality of the morbid humour is. 2. Where the seat of the disorder lies. We shall not here undertake to prove, that the measles proceed from a certain humour, or *virus*, mixed with the blood, since that is too manifest by the continual fever wherewith the disorder is accompanied, while this matter remains in the blood, and since this fever disappears as soon as the eruption is performed; consequently there is some heterogeneous humour, or *virus*, blended with the blood.

IT is not easy to determine, what the quality of this matter is, because we are ignorant of its nature. Nor is this surprizing, since we know not the composition of one drop even of simple water. Nevertheless we are acquainted with some properties of the morbid humour of the measles, as, 1. That it is more subtile than that of the small-pox, since the former is speedily dissipated, whereas the latter continues for ten or twelve days, before its *virus* is evaporated, whilst that of the measles is dissipated in three or four days.

THE small-pox always produces suppuration and cannot be resolved; the measles on the contrary are attended with no suppuration, and are always terminated by resolution; all

all which is a demonstration of the subtilty of the *virus* of the measles with regard to that of the small-pox. 2. The fomes of the measles, is less acrid and phlogistic, or inflammatory than that of the small-pox; for it produces only a transitory inflammation; but the *virus* of the small-pox produces its effects gradually, and with more violence till the eighth or ninth day, and gives room to supuration, which certainly must be owing to its superiour acrimony and corrosive quality, which irritates and inflames more than the other *virus*. On the other hand, the venom of the measles is milder and more ferous, since it does not corrode, nor rupture its receptacles like that of the small-pox.

As to the seat of this disorder, I don't imagine that its *virus* is lodged in the *corpus mucosum*, otherwise it would produce small vesicles like those of the small-pox, or chicken-pox; it must be therefore placed in the miliary or sudorific glands, where it settles in its passage through them; these it tumifies and irritates by its acrimony, whence a crispation of the fibres and inflammation follow, whereby these small glands become more sensible and red than they were before. Hence we may conclude, that these small cutaneous pimples are no more than inflamed miliary glands.

THE manner in which the measles appear and terminate, and the symptoms produced by them, prove, that they have not the same
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seat with the small-pox, but especially the exact resemblance which the measles have with the eruption of a miliary fever, whose pimples are indisputably in the cutaneous glands; wherefore the pustules of the measles must be seated in the same place; and as their *virus* has such analogy with the matter of sweat and transpiration, it is therefore lodged in the glands of these tumours.

THE resolution of this disorder may happen, either because its *virus* is dissipated along with insensible transpiration, or because it is absorbed by the lymphatic veins, and conveyed into the mass of blood; or it may be resolved both ways at the same time.

WHEN the *virus* is entirely dissipated by the cutaneous pores, the resolution is perfect, which happens when the season is hot, or the patient's room kept warm, if he does not uncover or expose himself to the air; yet all the *virus* is not always carried off by this means, but part of it imbibed and returned into the course of circulation by the lymphatic veins. This happens in cold weather, or when the patient has exposed himself to the air, or taken cold, then the remainder of the *virus* is more or less copious, according to the cold and quantity of the humour. Hence commonly proceeds the dry cough, which we are obliged to correct after the measles are cured, by the use of milk, &c.

SYMPTOMS.

S Y M P T O M S. As there are three stages in this disorder, we shall separately treat of the symptoms of each.

I. Then, the principal symptom of ebullition is a continual fever, the blood being agitated by the presence of the *virus*, which it still contains. This has its usual attendants, as head-ach, watchings, sometimes a *delirium*, with convulsions, &c. Besides the ordinary fever of the measles, there is another accidental one caused by the crudities of the first ways, whence proceed the returns of this disorder. The *virus* of the measles, like that of the small-pox, joins itself with the recrementitious humours of the different parts, where it has different effects; for its mixture with the stomachic humours, produces *nauseas*, vomiting, &c. with the sweat, heat, and itching of the skin; joined with the *mucus* of the nose, it irritates the *membrana pituitaria*, and causes sneezing, &c. mixed with the bronchial humour, it irritates the muscles of the *larynx*, the membrane of the *trachea*, &c. and causes the dry guttural cough, which is obstinate and peculiar to the measles.

II. In the eruption, all the preceding symptoms, which principally arose from the acrimony of the morbid matter, begin to disappear in this stage, the peccant matter being conveyed from those parts to the surface of the body; whilst at the same time, the miliary glands begin to swell and to be inflamed; whence

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proceed the small pimples which are elevated somewhat above the scarf-skin; but the obstruction of these glands is not so great as to cause extravasation, pustules, or suppuration.

III. The resolution begins on the third, or, at most, on the fourth day. This is manifest by the declension of the inflammation, and paleness of the pustules, the redness disappearing in the same proportion, and giving room to their natural colour. The morbid matter is partly dissipated by the cutaneous pores, and partly absorbed and received into the blood; whence the cough returns, which ceased during the eruption. If much of the *virus* is dissipated, it is a good omen; if more is absorbed, its consequence is bad, and will be proportionable to the quantity returned into the mass of blood. Hence proceeds the troublesome cough and defluctions, which are either erysipelatous or phlegmonous, and formed on the eyes and ears, especially if the patient was not seasonably and sufficiently purged. When the measles are very thick and crowded, the inflammation so parches and burns the scarf-skin, that it scales off like meal or bran, as in an *erysypelas*. But if the quantity of the *virus* be very small, no such symptom will happen. It is also according to the quantity of this *fomes* that the measles are confluent or distinct. The skin is sometimes red and erysipelatous. This disorder is frequently complicated with the small-pox;

pox ; in which case the symptoms of both are also complicated ; and we may say, that the *virus* of each was put in motion at the same time.

DIAGNOSTICS. We must first endeavour to know, whether there will be measles before the eruption appears. 2. When the eruption begins, whether it be that of the measles. 3. What kind of measles we are to treat. 4. The progress of the disorder should be also learned.

I. We judge of the future measles by the nature of the symptoms, as the fever, cough, itching, irritation, sneezing, &c. But as most of these signs agree likewise with the small-pox, a prudent physician should not too hastily make decisive diagnostics ; but he may be assisted in forming a right judgment, by learning if the patient conversed before with such as had the measles, and not with those who were affected with the small-pox ; but especially if the patient has a dry guttural cough ; for this is the most decisive fore-runner of the measles : but it is a matter of no great importance to know, whither the future eruption be that of the measles or small-pox, since the preparative remedies of both are the same in the time of ebullition.

II. It is more material to know the disorder when the eruption begins. This is easy, for the pustules of the measles are, at their first appearance, more red than those of the small-pox ; they suddenly grow large, for they ac-

quire their ordinary size in three or four hours, whilst the pimples of the small-pox require more time. The small-pox likewise has some whitish or lymphatic vesicles at the extremity of each pustule, from the second day of the eruption, which symptom is not observable in the measles.

III. The kind of measles which we are to treat, is easily discovered; for inspection alone will inform us, whether it be abundant or not, confluent or distinct, elevated or flat. Lastly, whether it be complicated or not with the purple fever, &c.

IV. The progress of the disorder is evident, for we know that the measles beginning on a certain part at any determined time, will disappear on the same part the third day, but will entirely vanish on the fourth, for when once the resolution begins, the pustules soon grow more flat and pale, &c.

PROGNOSTICS. These in general are easy, since the measles are dangerous in consequence both of their cause, and the symptoms, which have either preceded, attended, or followed them. 1. By their cause, in as much as they proceed from a heterogeneous *virus*, mixed with the blood, whose presence is always dangerous. 2. They threaten danger by the symptoms which precede them, as continual fever with returns, *delirium*, convulsions, cough and vomiting, &c. 3. By the symptoms which attend them, as those which happen in the eruption, particularly the

the subsiding of the pimples, which must be duly managed, otherwise if the *virus* is returned once more into the blood, it may have fatal consequences. 4. This disorder is dangerous with regard to the symptoms which succeed it, as obstinate cough; whence a *phthisis* may happen, and deafness also may supervene: hence it must not be neglected, even at this time.

BUT notwithstanding all these circumstances, this disease is less dangerous than the small-pox; for the *virus* of the measles is milder, more volatile, and sooner dissipated; that of the small-pox, on the contrary, remains a long time, produces *metastases* in the *viscera*, as in the brain, lungs, intestines, &c. which have commonly fatal consequences.

THE measles seldom or never give occasion to such depositions, wherefore they should be accounted less dangerous; but the danger in general should be estimated, 1. From the number and violence of the symptoms which preceded. 2. By the eruption, which, if laudable and uniform all over the body, is a good omen; but if the eruption is slow, difficult, and in clusters, it shews the difficult separation of the *virus* from the blood, which is very bad, as denoting an imperfect depuration. 3. If the eruption is very sudden, we may apprehend that the greatest part of the *virus* will return into the blood; but if the matter is gradually resolved, we may expect that the greater part of the *virus* will be dissipated.

4. The consequences of this disorder are sometimes very terrible, such as an obstinate cough, ophthalmy, deafness, spitting of blood, *phthisis*, &c. all which are very dangerous; whilst on the contrary, if it is removed without such consequences, the prognostics will be happier. Thus we see how these signs vary, according to the different circumstances.

CURE. The different stages of ebullition, eruption, and resolution, require different treatments.

I. In the ebullition, we must act as in the small-pox, fulfilling at the same time all other indications which present themselves; wherefore bleeding should be employed, then purging, in order to cleanse the first ways, and diminish the symptomatic fever. If the cough is violent, venesection may be twice performed; after which, we may employ emollient or purgative clysters, adding some *cassia*, that the patient may be thereby the better prepared to take a cathartic. He may be purged soon after with *fol. senn. sal. veget. man.* &c. If the cough be very obstinate, order only *ol. amygd. dul.* with the *man.* and *cass.* If the head is considerably affected, an emetic may be combined with the purgative. By this means the measles are rendered benign. The patient must be kept to a strict regimen; nay, some will permit him to use nothing but *aq. pull.* or *vitul.* yet I would allow a little beef to render his broths the richer, that his cough may be thereby in some measure abated: his
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ptifan may be made of *rad. malv.* to which may be added a little of *rad. scorzon.* provided the cough be moderate; for the mallows in this case sweeten the humours, and the *scorzonera* promotes the eruption. If the fever and cough are slight, a gentle cordial potion may be ordered; but if the fever be great, cordials may heat too much.

II. Thus we are to proceed the first two or three days before the eruption; but as the physician is rarely called in till the patient is covered over with measles, so in the time of eruption he has no more to do, but to order the continuation of the above broths and ptifan, adding a little more of the *scorzonera* in this case, especially if the eruption is not lively enough. At the same time may be ordered *ol. amygd. dul. syr. alth.* of each equal quantities, or two parts of the former to one of the latter, and if the fever be mild, order a gentle cordial. Thus we should proceed during the three first days, or those of eruption.

III. In the resolution, the method is somewhat different. If the patient was not before purged, order him *aq. cass.* and permit a little rice to be added to his broth; order him also a light soup, or a new-laid egg; but flesh-meat should be forbid, as also rich soups, till the patient is at least once purged. It is customary to purge three times after this disorder, nay more strongly than after the small-pox. To supply, therefore, the defect of depuration,

which in the measles is imperfect, part of the *virus* being returned into the blood, the patient is to be purged on the seventh or eighth day, counting from the beginning of the eruption. If the cough be very violent, purge only with *ol. amygd. dul. man. et cass.* We may leave one day's interval between every purgation; but something more betwixt the two last; afterwards order milk and water, or afs's-milk, or a broth made of a calf's liver, according to the violence of the cough.

A troublesome symptom which happens here is a *diarrhæa*, because some of the *virus* has joined the intestinal humours, whereby some *papulæ* are formed in the intestines; whence these organs are irritated, and their peristaltic motion accelerated. In this case *diascord.* or treacle, are to be exhibited; or if the fever continues, a small dose of some narcotic will do better, for this checks the fever, and puts an end to the *diarrhæa* in two or three days.

IF any other symptoms happen in the measles, (which is rare through the shortness of the disorder) we must fulfil the indications which present themselves; but this may seem difficult, particularly in the time of eruption; yet in this very juncture, if the symptoms require it, we may bleed and purge, as in inflammatory disorders: in a word, the indications are answered according to the principles laid down in the cure of the small-pox. But if an importunate cough still continues, milk
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and water may be used, or else afs's milk. If defluxions happen, let the milk be turned with a decoction of *china*-root, for this decoction dilutes the blood, purges it of impurities, and does the patient vast service. If a woman at the time of her *menses* is seized with the measles, we must defer the purgation.

Of the CHICKEN-POX.

THOUGH this is a disorder of less note and danger than the small-pox or measles, yet the knowledge of it is necessary. This, as well as the former, is a depuratory fever, being attended and terminated with an eruption; for in this there is no secondary or suppuratory fever, since it is not subject to suppuration. We shall therefore divide its whole course into three stages, which, I own, are hardly distinguishable from each other by reason of their short duration. The first of these is the ebullition. 2. Eruption. 3. The drying of the pustules.

I. The time of the longest ebullition is very short, lasting only about twenty hours, without any sensible fever, or if any should happen, it seems to be rather one paroxysm, rarely extending beyond the beginning of the eruption.

II. In the time of eruption, several large and lymphatic vesicles appear, more crowded on the face than on any other part of the body, but always preceded by an universal itching

ing of the skin, without any redness. These tumours remain twenty-four, sometimes thirty, but rarely forty-eight hours. No sensible fever seems to accompany them so long, and the only uneasiness which the patient feels during that time, is his itching; but at last they are dried up.

III. These vesicles once drying, the scarf-skin begins to scale off, which is almost over upon the third or fourth day, with some impressions left on the skin. The disorder thus described, is called by the Italians *rosaria*, or *rosania*, from its speedy fading like roses; in our provinces, it is called *la rosée*, for the above reason it is termed *piquotin*, from the itching it causes; it is also named *verolette*, a diminutive of *la verole*. In Paris it is termed *la petite verole volante*; but among the Latin writers *variola alba*, *volatiles*, or *fatua*; the etymologies of which are intelligible from the description of the disorder. Those who generally treat of the small-pox and measles, neglect the description of this, as not thinking it, perhaps, worth their while, or being ignorant of it.

CAUSES. Though the time of ebullition and eruption of this disorder is attended with no sensible fever, yet as there happens a depuration of the blood in the second stage, there must be some preternatural motion of the blood to produce this effect, and, consequently, some particular ferment in the humours, of which being once disburthened,

ed, they return to their former tranquillity; this *virus* likewise should have it's peculiar characters, as we see by the effects: for it must be very serous, little or not at all acrimonious, subtil and volatil.

THAT it is serous appears by the lymphatic vesicles which it creates; we may also affirm, that it is not acrid or caustic, since the eruption of these tumours, is not attended with any redness or inflammation: finally it is subtil, because it is so easily secerned from the blood and evacuated suddenly.

BUT it may be asked, why do not these tumours suppurate, as well as those of the small-pox, since we maintain that their seat is the same, and allow heterogeneous *miasmata* in both. To this I answer, that the *miasmata* of the small-pox are very corrosive, acrid, of a dry viscid nature, and consequently more fit to produce inflammation and suppuration. Moreover the pustules of the small-pox gradually encrease, are difficultly ruptured, and produce this symptom, being enclosed, and causing uneasiness by their presence, irritation, &c. Add to this, that the small-pox are more deeply seated in the *corpus mucosum*, and therefore find more difficulty in their eruption, and in bursting the *cuticula*; for this skin is not generated as the antients fancied of a mucous matter, or the exhalations of the body condensed and reduced to this consistence by the external air; but is originally formed along with the other parts

parts of the body; nor is it regenerated, as some imagine, when it scales off in an *erecty-pelas*, or the like; but as it consists of several *laminae* lying over each other, when one is destroyed, another always appears; just as one tooth soon appears after the fall of another, though both were primarily lodged in the jaw or socket. But to return from this digression, which is only systematic and curious, I say, that the pustules of the small-pox are covered with many more of these *laminae* of the *cuticula*, than the present vesicles; moreover these break out very suddenly, without giving time to the *cuticula* to yield to a gradual distension, as in the pustules of the small-pox; we may therefore conclude, that the former should sooner burst, and not be subject to suppuration, like those of the small-pox.

SYMPTOMS. As the ferment of this disease is not acrid nor irritating, it causes little or no fever; and as it is not viscid, but thin and lymphatic, it is easily discerned from the blood; nevertheless, as it is disposed to lodge in the *corpus mucosum*, it tends that way, like the *miasmata* of the small-pox, where it raises in a short time the tumours before described, without redness, heat, or inflammation, thro' its balsamic nature. For this, and the reasons already given, as also because it is not impregnated with any globules of the blood, it gives room to no suppuration, if the thickness and resistance of the *epidermis* did not cause it,
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as we sometimes observe in certain parts of the body. The general itching is owing to the distension of the cutaneous fibres, by the sudden eruption of this matter. The vesicles soon burst, and when they begin to dry, the *cuticula* scales off in the same proportion, being no longer nourished for want of connection with the live parts.

DIAGNOSTICS. This disorder is easily known in the time of eruption; but its shortness and obscure state during ebullition, render its knowledge very difficult in that juncture; whence the physician is rarely consulted till the eruption begins. Thus I have seen a gentleman, who, whilst in company had her whole face cover'd with the lymphatic vesicles of this disorder in a very small time, being no way sensibly incommoded before, and probably would not have sent for me, had it not been for these tumours. We must not confound these pustules with some small ones, which are not unlike them, and which sometimes happen in the summer, particularly on the neck and shoulders; for these are cured by rubbing them hard with a napkin without any great consequence.

PROGNOSTICS. I know no danger to attend the present disorder in any of its stages, for it is accompanied with neither ulcer nor other cutaneous sores; for which reason, I imagine, authors have neglected to describe it.

CURE. Nothing is to be done during the whole course of this disorder, but to confine the patient to a strict diet, as broths, potages, and the like; and he should be purged after it.

THOUGH the small-pox, as we have said was unknown in Greece, Italy, and other parts of Europe, till about nine hundred years ago; because its *virus* is the effect of contagion alone, not of the fault or abuse of the non-naturals, yet the present disorder, as being their off-spring, though consisting in a particular *virus*, was known, if I be not mistaken, in all ages and climates, though it has been very inaccurately described.

Of the MILIARY FEVER.

I Shall at present treat of the miliary fever which happens sometimes in France, and with which I am best acquainted, reserving another particular miliary fever, which reigns in Piedmont and Germany, for the end of the present lecture.

THIS miliary fever may supervene a simple *ephemera* of twenty-four hours, an extended *ephemera* of three days, a continual simple fever of six days, or, finally, the violent paroxysms of an intermittent fever.

IN this disorder the patient has many pustules, attended with itching, and of the bigness of millet-grains, whence they are called *miliares*. They are also very red and small,
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and their eruption is commonly accompanied with a sweat, or moisture of the skin, whereby it is much promoted; which, on the contrary, is more painful and dangerous, when the skin is dry. These tumours appear very suddenly; for in two hours time the body is covered all over with them; but they are more numerous where the sweat is most abundant, as on the breast, &c. nor do they, like the small-pox, appear in greater numbers on the face. Though the fever is commonly terminated by the eruption; yet if the first eruption was imperfect, the fever, though milder, still subsists, till it is removed by a second eruption. These pustules never suppurate, but are always resolved, the scarf-skin falling off, like meal. Nevertheless, if any particles of the morbid humour still remain in the cutaneous glands, they cause superficial impetiginous ulcers, or the like. This fever is very common in bilious temperaments, or such as have an obstinate *schirrus* in the liver. It is also very rife towards the end of hot summers. Since, therefore, the cause of this fever has a particular tendency to the skin, we may suppose it to proceed from some heterogeneous *fomes* in the blood, which I take to be the bile, and which when sufficiently exalted, tends to the surface of the body. That the bile is the cause of this fever, may be deduced from the persons it affects, such as those of bilious hot constitutions; likewise from the diseases and time it reigns
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in, as the disorders above-mentioned, which promote the generation of the bile. Violent fits of *tertian* agues cause the same. Hot weather also generates a great quantity of the bile, and renders it viscid at the same time: this, when attenuated by the force of the fever, brings on a depuration or despumation of the blood. Hot and spirituous liquors, excessive venery and exercise, &c. produce the same effect; because all these inflame the bile, by which the arteries are irritated, whence a fever is kindled, whose intensity is proportionable to the quantity and quality of this bile. This fever is generally removed by the eruption; though it may continue to the sixth day, nay sometimes degenerate into a continued fever, with redoublings. The eruption happens; because the bile, sufficiently attenuated, joins the matter of transpiration and sweat, through its affinity with these humours: but as the organs of perspiration are all over the body, yet more numerous in certain parts, the pustules appear in the same proportion. The bile is thus conveyed to the skin, the fibres of which it irritates, whence result the cutaneous inflammation and tumours. If the bile be entirely evacuated by this means, the fever terminates with the eruption; but if the depuration be imperfect, or if any of the bile still remains in the blood, a second fever and eruption will follow, but much milder than the former two.

SYMPTOMS. The irritation of the solids, rarefaction of the humours and fever proceed, as we have said from the bile. This fever is terminated by profuse sweat; the reason of which may be drawn either from the great quantity of drink used by the patient in the height of his disorder, or from the dissolution of the blood by the bile. The eruption does not happen till the fever and agitation of the blood are abated; for no secretion whatever can be laudably performed during the ebullition of the humours, the matter of secretion being then too much blended with them; besides, the plentiful sweat whereby the fever is terminated, serves as a vehicle for a discharge of the morbid matter. But if the patient be too dry, or of a compact habit of body, the eruption will not only be slower, but also more imperfect, through the spissitude of his humours and resistance of the skin; moreover the sweat, which serves to transmit the peccant matter to the skin, and to lubricate it at the same time, is wanting in these patients: and the itching in this disorder is owing to the acrimony of the morbid particles, which irritates the skin very sensibly. The disorder continues according to the quantity, spissitude, thinness, and other qualities of the bile. The eruption is always removed by resolution, either through the complete evaporation of the morbid particles, or the resorption of the stagnant humours,

by some absorbing vessels about the affected parts. As this humour is absorbed, the efflorescences become dry in the same proportion. If the matter is highly acrid, it will make several fissures in the scarf-skin, whereby it will scale off in large *laminæ*; but if it be milder, the *cuticula* falls off like meal. If any of the *miasmata* still remain in the sudorific glands, they will become ulcerous, or like an *impetigo*.

DIAGNOSTICS. The imminent eruption of this fever, like all other of the depuratory kind, can hardly be foreseen; but if the forementioned causes have preceded, as excessive venery, or the use of spirituous liquors, obstruction of the liver, &c. we may justly conjecture, that a miliary eruption may succeed, notwithstanding which several other eruptions may also ensue. But though we should mistake this for some other depuratory fever, the consequence is not dangerous, because the actual fever, let the future eruption be what it will, should be always treated according to its character. Hence it is of greater moment to know of what kind the present eruption is. This is not very difficult, since it can only be confounded with the measles, or another kind of eruption, called in French, *echa-boulure*.

THE miliary eruption is distinguished from the former, in as much as the pustules appear more suddenly, are more numerous, sooner resolved, of less bulk and elevation, and attended

tended with a troublesome itching. The measles, on the contrary, are particularly known by their characteristic sign or obstinate *guttural* cough, whereby it is also distinguishable from all such fevers.

THE eruption of the measles is distinguished from that of the *echaboulture*, in as much as the latter is always without fever, and happens in consequence of great heat and exercise; whence the vulgar call it an ebullition of the blood. But though the miliary pustules should be confounded with the measles, it is of no great moment, since the cure of both is much the same. As to the other eruption above-mentioned, it deserves no great attention.

PROGNOSTICS. Tho' this fever is very rarely mortal, yet the prognostics may vary,
 1. According to the intensity of the fever.
 2. According to the perfect and imperfect depuration of the blood; for the danger is evidently less in the former, than in the latter.
 3. The danger is more or less, according to the acrimony of the morbid humour; for if it be very acrid, as the heat and itching of the skin will denote, it is not void of danger.

CURE. The cure of a miliary fever should be adapted to its several stages, namely to the ebullition, eruption, and declension of the disorder.

I. In the ebullition the fever alone should be treated, as if there was to be no such thing as a future ebullition; wherefore bleeding two or three times in the foot should be performed,

if the head is affected, or in the arm, if the *abdomen*, &c. ordering in the interim emollient glysters. Let the patient also drink plentifully of veal broth, or the like, boiled emulsions, to which should be added some drops of rectified spirit of salt, or a small quantity of the syrup of lemons, to render it gratefully acid, will be a good remedy; nor must we purge in this state; for the violence of the fever will not permit it.

II. If the eruption begins to appear at the same time, without any considerable itching, or other bad symptoms, plentiful drinking of some diluting ptisan, &c. will alone be sufficient. But if the skin seems to be erysipelatous, with oppression of the breast, cough, &c. bleed copiously in the foot or arm, as the indication shall direct; and if the cough be violent, order some poppy-heads to be boiled in the patient's ptisan. If this will not do, prescribe a small dose of some more efficacious narcotic, as the anodyne tincture, syrup of *diacodium*, &c.

III. The eruption being thus treated and finished, the patient may be purged frequently towards the decline of the disorder, with *caff. man. sal. vegetal.* nay *senna* may be added, if any indication requires it: but the principal ingredient in all these purgatives, not only in the miliary, but also in all other bilious inflammatory fevers, should be *tamarinds*. The purgative mineral waters, as those of *Val*, &c. prove the most universal remedy, and at the same time answer most intentions.

THE fever being thus treated and removed, we come to the prophylactic cure, or the removal of the causes; for instance, if the cause be an obstruction of the liver, or the like, they should be treated in their respective methods. If the patient be of a bilious constitution, let him use chalybeated whey, bitters, baths and *semi-cupiums* and, at last, asses's milk, or the like.

WE now come to speak of another kind of miliary fever, confined almost to, and very common in Germany and Piedmont, in which places pregnant women are particularly subject, which sometimes becomes both epidemic and mortal to both sexes and all ages indifferently, returning also very often. It was not known so early in Piedmont as Germany, since it discovered itself in the latter place only in the year 1678, or thereabouts. The Germans, in their language, call the fever *frisen*; it is called in latin *purpura miliaris*; that sort where the pustules are red, and much smaller than in the measles, is the most common one. There is another kind of it, whose pustules are very livid and black: This is esteemed the most dangerous of all; but the species which is attended with whitish pustules, is more favourable; yet all of them are not void of danger in these countries, which, I presume, may be partly owing to the methods in which these fevers are treated; for the physicians in Germany think it very rash to employ any other than heating remedies,

dies, or cordials, to carry off, as they imagine, the *miasmata* of the disorder by transpiration, &c. and this they do without bleeding, which they forbid as a pernicious remedy, though the disorder they treat is intensely inflammatory.

THIS disease has given occasion to a great many dissertations all over Germany, though it reigns more in Saxony than in any other part; yet it is hitherto almost unknown in Italy, England, &c.

Of the PURPLE, or SPOTTED-FEVER.

IF I was to advance every thing that might be said of this disorder, I should be obliged to repeat what I have mentioned of the malignant, ardent, and other continued fevers, with redoublings; as also of the small-pox, measles, &c. because this disease may be a symptom of any of them; but I purposely omit such a detail.

THIS fever is of two sorts; the one called true or proper, the other spurious or improper. In the genuine purple-fever are many small spots, like flea-bites, very distinct and circumscribed, circular and without any sensible elevation or inequality, void of itching, of a red, brown, violet or black colour. They rarely appear on the face, as the small-pox do, but are thick on the trunk of the body, particularly
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on the breast and hottest parts, though less numerous on the extremities.

THE spurious or illegitimate purple-fever is attended with angular or uneven spots of great extent, nay sometimes of the bigness of a sixpence, just as if the patient had scratched himself. They are more numerous on the parts where the heat is most sensible, as the breast, &c. but particularly on the parts of the body which are mostly compressed, as the shoulders, loins, &c. as we see in some acute disorders, wherein the patient bears or presses for a long time by the whole weight of his body on these parts; for this reason they are very common in malignant, ardent, and continual fevers, with returns. In the small-pox, &c. they rarely burst or discharge any humidity, but are commonly resolved. They frequently appear on persons in the agonies of death, and those threatened with a sudden privation of life.

THE celebrated *Fracastrorius* affirms, that this fever was not known in Italy before the year 1528; but that it was much more ancient in the island of Cyprus, whence, he says, it was transmitted to them. He likewise assures us, that it never appeared in Paris till the year 1550, whither it was then transmitted by a venetian embassador, who fell sick there of another disorder in which these spots appeared. The truth is, that this disorder is recent in Europe; but, in all probability, it was formerly well known in Arabia, and perhaps

in Greece, &c. It is called *petechiæ*, or *febris petechialis*, from the Italian word *Petechi*.

CAUSES. These are of two classes, very different from each other: the first comprehends those of a true spotted-fever, the second those of a spurious one. As to the causes of a genuine spotted-fever, or that wherein the spots are small, distinct, circumscribed, and circular, like their seats, they should have the same characters; whence, it is very probable, that they are lodged in the cells of the *corpus mucosum* of the skin, otherwise they would be more irregular; for they cannot be seated in the *cuticula*, since it has no sanguiferous vessels to entertain the cause, of which we shall treat hereafter; consequently they are lodged in these cells to which they are better adapted, and to which their figure agrees best.

THEIR causes, therefore, are all such things as procure an extravasation of the blood in the above cellules; and the more or less the quantity of this extravasated blood is, the colour of these efflorescences will be accordingly livid, black, or of a pure red colour. But it may be asked, how this extravasation of blood happens in this disorder, where these spots are observable? To this I answer, that a dissolution of the blood is manifest in the disorders in which this symptom occurs, as experience proves; for it happens commonly towards their state or decline, at which time the patient is
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very much reduced ; so that if the dissolved blood is not discharged this way, it will be evacuated by stool, urine, &c. But this dissolution alone is not sufficient to produce the above effect without an atony or relaxation of the skin : this symptom is likewise observable at the above time, through the want of a due influx of the animal spirits, because they have been too much wasted by the preceding disease. Hence the blood flows without meeting any resistance into the forementioned cells, whose figure it immediately receives. As to their colour, when they are of a bright red, they contain but a small quantity of blood ; if more, they become livid ; but if they are over-charged with blood, they are black.

THE reason why these spots appear not on the face, may be deduced, 1. From the languid circulation in that part ; for we observed, that they only happen, or at least in greater numbers, where the motion and heat are most considerable. 2. From the rigid strong texture and smallness of the vessels of this part, whereby they are not easily ruptured, nor will they consequently admit the extravasation of the blood ; and though the motion be languid in the extremities, yet their softer and more spongy texture will give room to some few spots. As those of the spurious purple-fever are very irregular, and somewhat like the marks raised by the strokes of a rod on the skin, so I imagine, that they are the product of blood stagnating in the capillary vessels

fels of the skin, through their relaxation, and, perhaps, some particular spiffitude of the blood. They commonly appear on the loins, back, and shoulders, from the compression of these parts, by lying too long on the back, as frequently happens in long and violent acute disorders; wherefore they are not properly the sign of a purple-fever in such cases, but rather a simple stagnation of the blood in the cutaneous vessels.

S Y M P T O M S. In the genuine spotted-fever, the spots are round and circumscribed, because the cells of the *corpus mucosum* are of that form: they are flat, without any elevation, because their contents, for want of an impelling force, cannot raise the *cuticula*. They do not itch, because the matter is not acrid enough; they appear not on the face, for the reasons already given. They are always resolved, because the small quantity of the extravasated blood is absorbed by the orifices of the absorbent vessels.

T H E spots of the spurious purple-fever are always livid or black, those of the genuine one are commonly red, though they likewise become livid or black in the end. These spots formerly attended most fevers, but since bleeding has been more frequently used in these acute disorders, they are become more rare, except in some cases, wherein venesection is either too sparingly, or not at all employed.

DIAGNOSTICS. The purple-fever should be distinguished from all other fevers of the depuratory kind, as the measles and miliary fever, with which alone it may be confounded: But this error is too palpable, in as much as the pustules of both these disorders are sensibly elevated, whilst the spots of this fever are very insensibly, or not all raised. These spots should be also distinguished from some others nearly of the same appearance, which sometimes attend these acute fevers, as being of no great consequence, generally red, but diversified in the mean while with other colours, which commonly appear on the face: hence, as the efflorescences of the present fever have different characters, they are easily distinguished from the former; wherefore it will be more essential to distinguish these spots from flea-bites, with which they have very great resemblance, and seldom fail appearing in dangerous acute fevers. But as the flea-bites are rarely numerous or so universal as these, and as they always have one dark point in their centre, are of an irregular figure, with a red basis or circumference, which is so transitory, that it soon disappears; so the flea-bites are distinguishable from the spots of a purple-fever. The genuine and spurious purple-fever may be sufficiently distinguished from each other by the form and colour of their spots, as before observed. Finally, it is very easy to discover the degree of intensity in each, from an inspection of the patient.

PROGNOSTICS. This symptomatic disorder was formerly reckoned a critical eruption; but some of the antients affirmed it to be a favourable *crisis*, whilst others asserted that it was dangerous, both alledging experience, or the course of the disorders in which they discovered it to be good or bad. But the moderns, with more justice, account it a genuine symptom, commonly denoting the augmented violence and intensity of the disorder which it accompanies. Let it be what it will, if it be true and genuine, it argues a dissolution of the blood; if spurious, it denotes the relaxation of the skin; both which are very bad omens: nevertheless the danger varies considerably, according to the violence and danger of the principal disorder, or that of which it is a symptom.

CURE. As this fever is rather a symptom than a *crisis*, which denotes the dissolution of the blood, or relaxation of the skin, we should therefore direct our principal intentions to the fundamental disorder, whether it be a malignant fever, small-pox, or measles, &c. all which are to be treated after their respective methods, as before delivered, with this difference, that the remedies calculated for each, as bleeding, &c. should be more speedily and plentifully employed, because of this symptom, which however is not to be entirely neglected; for whether the dissolution of the humours be actually present or imminent, it requires some remedies, of which
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are rice-cream, of which may be added two or three spoonfuls to each mess of the patient's broth, or rather to his ptisan, as a simple one made of *rad. consolid.* and *malv.* which alone is a good remedy. But the chief remedy in repute for this purpose, is a ptisan of hart's-horn, which I own is a good balsamic and penetrating jelly, very proper to connect the disunited principles of the blood. Boiled emulsions, light and well clarified, to which may be added *syr. granat.* or *limon.* is also an excellent remedy; or, if the patient has no cough, no inflammation, nor other considerable disorder of the breast, we may order proper juleps, in which we may put *spir. sal. rectificat. ad grat. acidit.* As the patient's strength is much impaired by the spurious purple-fever, which the relaxation of the skin denotes, we may order him a ptisan of *scorzoneræ*, or cordials, as his weakness requires; for these remove not only the relaxation of the skin, but also the spissitude of the humours.

Of the LACTEAL FEVER.

THOUGH this disorder proceeds not from any heterogeneous ferment, yet as it is intended by nature to disburden the blood of a redundant troublesome humour, it may be justly called a depuratory fever, and more properly deserves that name, than the preceding, which some will not allow to be of this class.

AFTER child-birth, women have commonly, for some hours, a flux of milk and blood by the *uterus*, called in Latin *lochia*, which may nevertheless continue in a certain degree for two or three days, at the end of which time it sensibly decreases, the breast growing painful and turgid in the same proportion: hence the third day at night, or fourth in the morning, the patient is taken with a sudden cold fit, succeeded by a very acute and violent *ephemera*, which lasts for some hours, nay, sometimes for one or two days, the breasts still augmenting, till it is at length terminated most commonly by profuse sweats. If the breasts are not sucked, or if the milk is designedly suppressed, this fever will be by so much the more violent; for the milk thus suppressed and repelled into the blood, through the heat, &c. acquires an irritating quality, which if thrown on the intestines, will give rise to pernicious colliquative *diarrhæas*, &c. Before we speak any more of the causes of this

this fever, it will be necessary to premise something of the structure and functions of the *uterus*. As to the structure of the *uterus*, with regard to our present purpose, it contains in its intermediate coat, several contorted spiral arteries, whose capillary extremities contain a lymphatic humour in girls about the age of twelve or fourteen years: but a real lacteal humour in pregnant, or newly delivered women: there are also such like vessels in the breasts, which in men contain a simple lymph. Besides the above vessels of the *uterus*, there are some venous ducts, or appendages, which are prominent from the internal surface of the *uterus* about the distance of two or three lines. These two different kinds of vessels, are as it were implanted in so many corresponding extremities of some vessels which open into the surface of the *placenta*. Thus the *placenta* and internal surface particularly of the bottom of the *uterus*, are united; to which we may add the mutual depressions and eminences of the *uterus* and *placenta*, which also favour this adhesion; so that by the above-mentioned capillary arteries and veins, a lymphatic or lacteal humour and the blood circulate from the mother into the *placenta* and *fœtus*. Now it is manifest, that through the divulsion of the *placenta*, from the *uterus*, the above orifices discharge their contents, *viz.* a lacteal humour from the capillary arteries, and a sanguinous one from the veins; both which being blended, yield the

the evacuation, we call *lochia*. This comes to its height in three hours after the birth; but afterwards, through the retraction of the arterial and venal extremities, the passages are instantly strengthened; so that about the third and sometimes the fourth day, they are almost obliterated, and a stop is put to the flux.

C A U S E S. The *lochia* being thus suppressed, must regurgitate into the mass of blood, which this chylous matter quits and lodges itself in the breasts; but women unacquainted with this circumstance for some time before, are too sensible of the distention of these mammary vessels, by the great afflux of this humour. On such occasions, a sudden distraction of the fibres begets pain, and this, a convulsive crispation of the cutaneous fibres, whence arises the cold fit or attack with which this fever begins; for we see that all sudden pain will have the same effect. Thus painful operations, as searching for the stone, amputation, &c. are always succeeded by a cold fit. This symptom may be also explained, by supposing that the milk thus detained in the course of circulation, has at last, through the heat, acquired an acid quality, to which it is naturally disposed, and by this acidity inspissates the blood, whence arises the cold fit, which is sometimes very short, and sometimes of a considerable length, according to the intensity of the cause; but the fever which succeeds it is always proportional to its violence. This fever thus kindled, is very hot, nay sometimes
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burning: respiration is difficult and painful: the expired air is intensely hot; the tongue and *fauces* dry, and the patient's thirst consequently very great; her urine is intensely red, and her breasts often so prodigiously swelled, which by compressing the pectoral muscles communicates pain to the shoulders, &c. The breasts are thus rendered tumid, either through the rarefaction of the humours, or great quantity of drink which the patient takes during the violence of the fever; both which causes do not a little contribute to the abundant sweats, whereby the fever is terminated, and which are a very happy omen; for if they do not happen, a dangerous *diarrhœa* may succeed, particularly in those who purposely suppress their milk, in whom this fever is also much more violent.

SYMPTOMS. As I have specified most of the symptoms in the description of the disorder, I shall briefly observe, concerning the swelling of the breasts, that this symptom happens through the plenitude of their vessels; for these organs are, as it were, the receptacles of all the external lymphatic ducts of the breast. The superfluous lymph they transmit to the axillary glands by the vessels called *ductus toriferi* of *Bilsius*, thence into the left subclavian vein, and into the mass of blood: but now the afflux of the lymph to the breast is so great, that through the compression of these ducts, not only the breasts swell the more thereby, but the course of the

lymph through the axillary glands, is intercepted; whence we commonly find them swelled in such fevers. But if this humour procures itself a spontaneous evacuation by the nipples, or is thence sucked, all these symptoms become thereby much milder: the contrary will happen if no such passage is procured by art or nature. This fever, as appears, is the more violent, the more abundant and acrid the milk is, and the more the breasts are swelled. With this fever is commonly complicated another, which is naturally putrid and much worse than the former. This is the effect of the crudities of the first ways now put in motion. The milk conveyed along with the circulating humours, is very often thrown on other parts, where it creates *metastases* the most incorrigible and obstinate, perhaps of any, to which the human body is subject; for they never suppurate, and are rarely dissolved or resolved; on the contrary, the application of resolvents renders them rather more stubborn and hard, because the milk is very subject to such a consistence by the use of such remedies. As to the other symptoms, they are either already mentioned, or easily conceived.

DIAGNOSTICS. Nothing is easier than to discover this disorder; for a fever seizing a woman on the third or fourth day after her delivery, being attended in the mean while with a swelling of the breasts and axillary glands, can

can be taken for no other than a milky fever.

THE intensity of this disorder is also known by the state of the pulse and swelling of the breast. It is more difficult to discover whether it be a simple lacteal fever, or complicated with a putrid one, or whether it be this last alone. This we may learn, 1. By examining whether the patient was purged before the birth. 2. Whether she fed herself too heartily with nourishing meats, not only before, but immediately after the birth; for if she was not purged, and has thus indulged herself, we may justly suspect that the principal fever is owing to the crudities of the *primæ viæ*; wherefore if it continues longer than the ordinary period of a lacteal fever, we may conclude, that the consequences of it may be dangerous, by giving origin to several other obstinate disorders.

PROGNOSTICS. If this fever is simple, it is easily removed, especially if the breast-milk be naturally sucked; but the danger is very considerable, if a putrid fever accompanies it; for such commonly degenerates into an inflammation of the *uterus*, or violent *diarrhæa*, &c. The *metastasis* likewise of the lacteal humours, which may be made in the brain, breast, and other noble parts, is dangerous; as also when it happens only in the glands, interstices of the muscles, or other external parts, because it is extremely difficult to resolve even here, as before observed. We
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may remark in general, that this fever is more common and dangerous in young women, and at the first birth than afterwards; for those who are subject in the beginning to it through the immeability of the vessels of their breasts, are afterwards, or after several births exempt from it, through the relaxation, dilatation, and free circulation in the vessels. Those also who were accustomed to be sucked after delivery, if they neglect this method in the subsequent ones, are very apt to contract this fever. But if those who nourishing themselves too highly, are not purged before the birth, but have little or no *lochia*, together with hard and resisting breasts, they are much more subject to this disorder than those who govern themselves prudently, and have opposite conditions to the above-mentioned, in whom this fever will be, on the contrary, milder and more rare.

CURE. To prevent this disease, the patient should observe a strict diet; though I know that the good women, in order to recompense the *vacuum* left by the infant, &c. recommend the plentiful use of rich and nourishing aliments. But this method is absurd and dangerous, and much more if the fever has appeared; for in this case all nourishment should be retrenched, except light broths. The patient's ptisan should be made of *rad. gram.* which, as being a gentle diuretic, I always found to be excellent. Besides these, we should order the patient a clyster

fter every two hours, that the *uterus*, in particular, may be bathed thereby, and fufficiently relaxed, to prevent its inflammation, which is very much threatened by all fevers of this kind. Thefe clyfters may be made of a decoction of *flor. matric. artemis.* and *camomel.* with the oil of fweet-almonds. We may order at the fame time, the patient's breasts to be rubbed with warm linnen, to promote fweat, and prevent the coagulation of the milk there; for by this means it may be refolved. Though midwives, of late, do alone pretend to fupprefs, as they fay, the breast-milk, when it is required; yet a phyfician fhould not be ignorant of the method of doing it. This is performed by rubbing the breasts with the oil of fweet-almonds, then the whole is covered over with warm cotton, over which may be tied a napkin, lightly compreffing the breasts therewith. The patient's diet fhould be at the fame time very flender; ſhe fhould alfo take frequent clyfters, and drink plentifully; but, in reality, this practice is dangerous; and I have frequently known a neceffity for difufing it, in order to prevent ſome impending confequences.



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