

**An essay upon the effects of camphire and calomel in continual fevers ...
To which is added, an occasional observation upon the modern practice of
inoculation. And from the whole is deduced an argument ... that the
alimentary canal is the principal seat of a fever / [Daniel Lysons].**

Contributors

Lysons, Daniel, 1727-1800.

Publication/Creation

London : E. Reeves for J. Wilkie, 1771.

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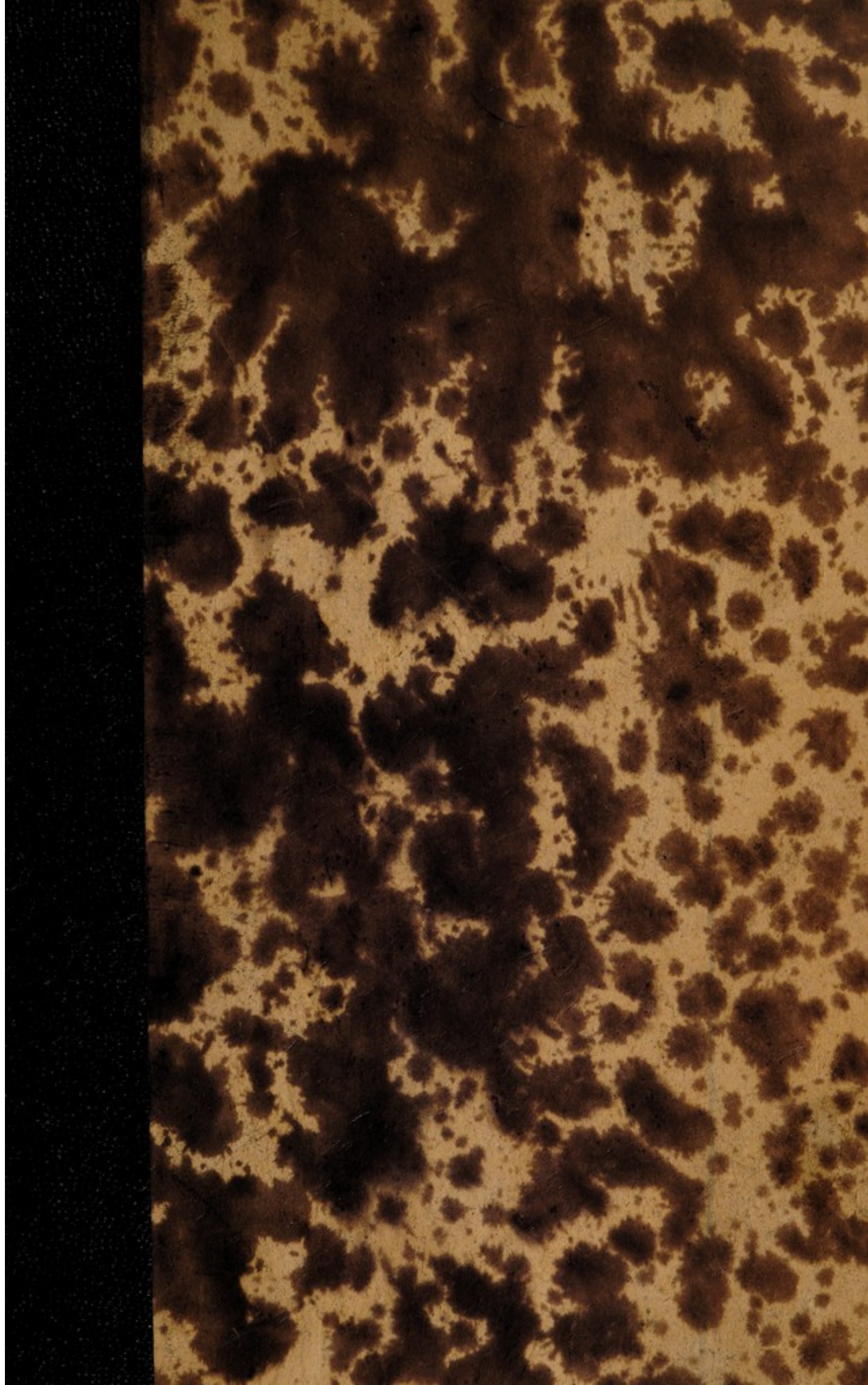
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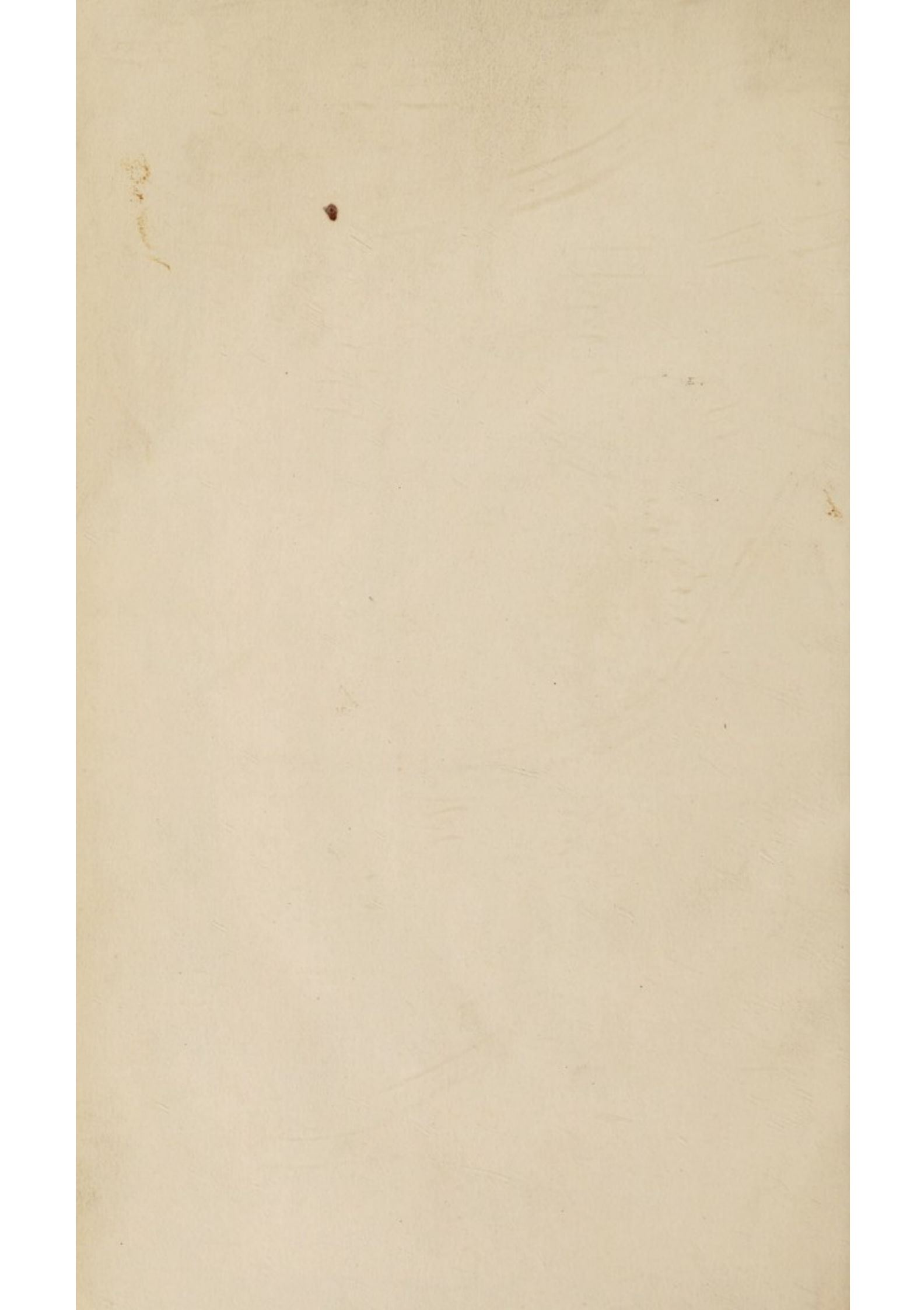


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AN
E S S A Y

Upon the Effects of
CAMPHIRE and CALOMEL

In Continual F E V E R S.

Illustrated by several C A S E S.

To which is added,

An occasional Observation upon the modern Practice of
Inoculation. And from the whole is deduced an Ar-
gument in Support of the Opinion, that the alimentary
Canal is the principal Seat of a Fever.

By DANIEL LYSONS, M. D.

Physician at BATH, and late Fellow of
All Souls College, Oxford.

*Medicamenta sua fata experiri nemo in dubium vocabit. Ob
virium potentiam ad cælum usque tolluntur, quæ intervallo
temporis ob noxam, quam forte creantur, iterum culpantur et
ad ima usque relegantur. HOFFMAN. de Camphora, § i.*

L O N D O N:

Printed by E. REEVE, in the Savoy:
And Sold by J. WILKIE, in *Saint Paul's Church-Yard*;
W. FREDERICK, *Bath*; S. PARKER, *Oxford*;
and G. HARRIS, *Gloucester*.

M.DCC.LXXI.

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P R E F A C E.

THE foundation of the following observations arises from memorandums taken in the course of practice to assist my memory, when similar cases occurred. These, at my leisure hours, I have laid together. At first view they may convey an idea of novelty, but upon a more strict examination will be found to receive a considerable degree of countenance, and authority, from the most approved practical writers.

The administration of Camphire in continual Fevers, after the manner I shall describe, will not in general fall within the province of the English physician, who is seldom called in until the Fever is too far advanced for the patient to receive any benefit from the method I am about to mention. But the Apothecary, who is commonly consulted sufficiently early in the disease, may reap some advantage from being acquainted with the large doses in which Camphire may be given with ease, and safety. The physician also will find this intelligence of service in other disorders, as the mania, perpetual watchings, deliria, and some of the more violent nervous affections. Upon all these

these occasions I have given large, and frequent doses of Camphire with great success in removing the complaint, and without injury to the patient in any other respect.

In the continual Fevers commonly attending Europeans upon their arrival in the East Indies, upon the coast of Guinea, and in all hot countries, Camphire is found beneficial when given in the form of the *Julepum e Camphora*, which can convey but a small portion of the drug at a dose. We may therefore expect much greater success from it when given in the large doses, and administered in the manner

manner proposed in the following Essay.

With regard to the use of Calomel in continual Fevers, the physician will find himself more immediately concerned, since few patients pass through the dreadful scenes usually attending the latter end of bad Fevers, without procuring all possible assistance. The method observed in giving Calomel in such cases I have faithfully related, and shall be very glad if what I have delivered concerning its effects, may tend to excite Persons of better abilities than myself to give us fuller evidence of its utility.

The

The supposition that the seat of a Fever exists chiefly in the alimentary canal is a doctrine not entirely new, some hints of it having been occasionally thrown out by others; but as the effects of the above-mentioned medicines appear to me very much to elucidate, and confirm, such a system, I have therefore added these small efforts towards establishing so interesting a point upon a more firm and certain basis, being fully persuaded, that whether it be true or false, is by no means immaterial in the practice of physic.

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An E S S A Y
UPON THE EFFECTS OF
CAMPHIRE AND CALOMEL,
in continual F E V E R S.

S E C T I O N I.

*Introduction to the use of Camphire in
continual Fevers.*

CAMPHIRE is a drug possessed of as singular qualities as any in the whole *Materia Medica*. It has been used as an internal medicine for several centuries; and much has been wrote by physicians concerning it.

Some have esteemed it a cold medicine,
and rejected it upon that account; but more
B especially

especially as it was thought to extinguish all inclination, or aptitude, for venery. This has been * contradicted, and instances brought to prove that Camphire is not endued with any such cooling, or mischievous quality.

Whilst it had the good fortune to be thus rescued from the disgrace of being rejected, on account of its cooling qualities, it suffered in its turn by the contrary charge, of being so heating that it could with safety be administered only in very small doses.

Physicians being thus divided in their opinions, Hoffman, in the beginning of the present century, endeavoured to bring this extraordinary drug into general practice, by writing a treatise, upon the internal use of Camphire, in which he recommends it as a most safe, and excellent medicine.

† Hoffman's opinion is, that it is possessed of a cooling quality, and that it has a pe-

* Hoffmanni Dissertatio medica de Camphoræ usu interno securissimo et præstantissimo, § ix.

† Loco citat, § xi. § xv.

cular virtue, if given in the beginning of Fevers, to mitigate the violence of their access, or rather entirely to eradicate the seeds of them. This virtue in Camphire he endeavours to establish upon the experience of others, as well as of himself, and, in the most earnest manner encourages future physicians to make trial of it.

A later writer, in his ingenious † observations upon the disorders which generally pass under the denomination of nervous, says, ‘ that Camphire, as its effects in the mouth, and on the skin, and the eyes shew, is naturally heating, but sometimes it may cool, by lessening, or removing, some disorder in the body which increased its heat, and quickened the pulse.’

Although the last-mentioned author asserts Camphire to be naturally heating, yet, as he allows that it may sometimes cool, by lessening, or removing, some disorder in the

† Doctor Whytt’s observations on the nature, causes, and cure of those disorders which have been commonly called nervous, Hypochondriac, or Hysterical, page 367.

body which increased its heat, and quickened the pulse, he seems to come very near to what Hoffman has advanced, namely, that it will moderate, or prevent the most dangerous Fevers.

It was reasonable to have imagined that a medicine, ushered into the world by the experimental authority of a man so eminent in his profession, would long since have been established as a principal medicine in Fevers. And yet, whether it is owing to an apprehension of its heating quality, or to what other cause I know not, certain it is that, notwithstanding the great pains taken by Hoffman in its favour, Camphire is, even at this day, rarely used in so full a dose as a scruple, or half a drachm, but is commonly given in the small quantities of three or four grains, as an assistant to other medicines, esteemed of greater consequence. I think therefore that I cannot employ my leisure time with more satisfaction to myself, or benefit to the public, than in using my endeavours to restore the credit of Camphire, by shewing that it is really capable of
pro-

producing the wonderful effects ascribed to it, by the excellent author above mentioned.

This I shall attempt to do, by mentioning some cases that have fallen under my observation. I shall afterwards take notice of the opinions of the learned respecting the qualities of Camphire; and lastly make some occasional remarks concerning the manner of its operation.



SECTION

SECTION II.

The Effects of Camphire in Epidemical Fevers.

ABOUT ten years ago, when an epidemical Fever prevailed in Gloucestershire, and in some of the adjacent counties, I had frequent opportunities of observing its effects. This Fever, if not properly taken care of at its first appearance, after having continued but a few days, so fixed itself in the habit, that it was not to be removed without great difficulty, and after a very long conflict.

The use of cordial medicines, and an emollient nourishing diet, was the most general, and most advantageous method, pursued. When unfavourable symptoms arose, attempts were made to palliate them; as for instance, by cooling medicines given occasionally if the patient complained of heat and thirst: by
taking

taking care to open the body, if a costive habit prevailed, or the head was affected, but I had the mortification to find that, notwithstanding the utmost of my own endeavours, and those of some very eminent physicians, who were often joined in consultation with me, we could never accelerate a crisis. The disorder, after continuing three weeks, or a month, and sometimes longer, seemed at last to be quite spent, and removed by resolution, rather than subdued by any peculiar virtue in the medicines prescribed; although those reputed to be the greatest specifics were repeatedly tried.

The urine of patients ill of this Fever was high coloured, and bilious. And although, perhaps for the first day or two, it might have neither cloud nor sediment in it; yet in the course of the disorder it never failed to shew either a cloud suspended at the top, or a floccous light sediment at the bottom of the vessel containing it.

Doctor Johnstone, of Kidderminster, who published an historical dissertation of an
epidemical

epidemical fever, nearly similar to this, which happened in the year 1756, says, that the urine is too fallacious to be depended upon. I have, indeed, observed that it frequently alters in the course of the disorder, and often puts on an high bilious tinge, with a light sediment, or cloud, or changes to a clear amber colour, and *vice versa*, without any remarkable change in the state of the disorder.

But yet the cloud at the top, or the light floccous sediment at the bottom, so frequently occurred in the urine of those patients who fell under my observation, that I esteemed either of those appearances, when preceded by the following symptoms, to be a sure criterion of the lingering, dangerous, epidemical Fever, which at that time shewed itself very frequent, and has since more sparingly visited those parts.

Its first symptoms were heaviness, great lassitude, pains in the head, or back, and a loss of appetite. The patient, having continued in this state for a day or two, was
then

then deprived of all his strength on a sudden; insomuch that the strongest men have been rendered as helpless as children in so short a space of time as four days. This Fever frequently run through whole families, especially amongst the poor; and was so well known, that every body dreaded the event of it upon the very appearance of its first symptoms.

The symptoms attending the first stage of this Fever were sufficient inducements for me to believe that the perspiration was obstructed. And the weak irregular pulses, sudden prostration of strength, fetid colliquative stools, and purple spots, which were often observed in its more advanced state, have generally been allowed to be certain indications of a very considerable tendency to a putrid habit.

Upon this occasion no medicine appeared to me so proper as Camphire, which is esteemed by Hoffman as * the principal of all alexipharmacs,

* Nos sumus ea in sententia, quod in universa rerum natura ad summovendam de corpore malignitatem, cujus
C naturam

alexipharmacs, and therefore recommended by him in malignant, and petechial, Fevers; and also against such violent † internal inflammations as are productive of sphacelation, and the greatest danger.

In the last instance we are advised to join Nitre with the Camphire, which I have found an excellent addition upon all occasions, as it makes the Camphire fit easy upon the stomach in much larger doses than it otherwise will by any means that I am acquainted with. ||

A variety of forms for the exhibition of Camphire, either in a liquid, or solid state,

naturam in penetranti putredine tam solidarum, quam liquidarum partium reponimus, vix ullum simplex camphora detur præsentius atque potentius: hinc et jure suo alexipharmacorum princeps dici meretur. Deinceps ad contagii sive maligni miasmatis morbifici vim infringendam, idemque mox ab initia de corpore propulsandam, summum camphora est remedium. Hoffmanni Dissert. med. de Camphora, § xii.

† § xviii.

|| And in like manner a few grains of Camphire are by experience found to be equally effectual in correcting a large quantity of Nitre.

arc

are given us by Hoffman ‡ as elixirs, essences, powders, &c. But as these are compounded with other ingredients, that might render the operation of the Camphire rather dubious, I chose to give it without any other material addition than that of Nitre.

As to the time of the disease most proper for the administration of Camphire, instances are produced from Riverius, where it had wonderful success in malignant fevers, when given in the quantity of twelve grains, on the eighth, ninth, and eleventh days of a Fever, to patients labouring under deliria, fluxes, hæmorrhages, petechiæ, and other dreadful symptoms. But Hoffman himself lays the greatest stress upon, and very much urges, the giving it either in the beginning of Fevers, or when a crisis is apprehended to be just at hand.

A crisis rarely happened in the Fever, which is the object of our present enquiry, which perhaps was the reason that I had not the satisfaction to observe any signal benefit

‡ De Camph. § xxi.

arising from Camphire when given in its advanced state; but in the early days of it I had the happiness to experience the most desirable success.

In that first stage of the disorder, proper evacuations being premised, where necessary, my practice was to order twenty grains of Camphire, and ten grains of Nitre, with a little Conserve, or some other inoffensive glutinous substance, to be made up in a bolus. This bolus being taken at night, and repeated early the next morning, many, who have not been able to lift their heads from their pillows, and in all appearance were upon the verge of a long and dangerous Fever, have been so entirely recovered within the short space of twelve hours, as to go about their usual business as soon as they rose in the morning.

Whenever I gave this bolus I ordered a draught of white wine whey to be drank after it, going to bed, and that a quart of balm tea, or some other weak liquor, should be laid by the bed-side, because the Camphire commonly made the patient thirsty, and a
copious

copious sweat was the most usual, and salutary evacuation in such cases. However, it frequently happened that the Fever was removed without any thirst, or sensible evacuation ensuing, but the patients found themselves cured as it were by a charm.

From a great number of instances, where people have been recovered by this method of treatment, I have selected the few following cases, which are so very full to the point in question, that it appears scarcely possible for us to be mistaken in our opinion concerning them, or to doubt whether the original cause of the Fever was removed by this bolus.

C A S E I.

Rebecca Taylor, a lusty young woman, of about twenty years of age, during her occasional attendance upon a † gentleman, whilst exceedingly ill with this Fever, was herself attacked by it, having violent pains in her limbs, loss of appetite, and such other

† This gentleman recovered, after lying a month in very great danger.

symptoms

14 ESSAY UPON THE EFFECTS OF
symptoms as were well known to be its
usual concomitants.

January the eighth, 1761, I ordered the
following bolus :

R Camphor ʒi
Nitri purificat gr. x
Mucilag Gum Arabic,
Syrup ex althæa ana q. s. fiat bolus.

This bolus was taken in the evening,
going to bed. A copious perspiration ensued
from all parts of her body; and the next
morning she was well, without taking any
other medicine.

C A S E II.

A lusty, strong, robust country lad, under
twenty, who at the same time was servant
to the above gentleman, complained of so
violent a pain in his head that he could not
sit up. And at the same time was also at-
tended with a sense of cold to such a degree,
that he could not by any means keep himself
warm.

After

After losing a sufficient quantity of blood, I ordered him to take the bolus above prescribed, going to bed. The consequences were, that he perspired freely in the night, and the next day was able to attend his business as usual.

C A S E III.

Another young man, upwards of twenty, servant in the same family, was also attacked with febrile symptoms, at the same time, and taking the above bolus recovered in the same expeditious manner.

C A S E IV.

In the latter end of June, or beginning of July, 1766, a shepherd, servant to two brothers who were farmers, had frequent access to his masters whilst they were ill of a Fever, which appeared to me similar to the epidemical Fever that had prevailed in 1761; and afterwards complained of such symptoms as sufficiently convinced me, and all that saw him, that he was attacked by the same disorder of which one of his masters
was

was then dead, and the other dangerously † ill. Confident of success, I gave him the Camphire bolus in the evening, going to bed, and the next morning he was able to attend his flock.

C A S E V.

A more recent instance of the like effect of Camphire happened since in my own family. Upon Saturday, June the twenty-third, 1770, a maid servant, after perceiving some febrile symptoms for a few days preceding, which she thought too slight to mention, was on that day affected with a considerable degree of pain in the lower parts of her head and face. She had also a vertigo,

† The ages of these brothers I believe were about thirty. When I first saw them, one had been ill six days, the other eight, wherefore I had not an opportunity of administering Camphire in the first beginning of their Fever; and, although I did give it afterwards, I experienced no good effect from it. And the same observation I have made upon other occasions. One of these men died upon the twelfth day of the Fever, the other upon the twenty-sixth. They were both delirious, and upon him who died upon the twelfth day, petechiæ appeared.

great

great thirst, a very quick pulse, and a white tongue.

After being bled she found herself very low, her head as confused as before the bleeding, and in no respect relieved by it: her thirst likewise continued, and her pulse was still very quick.

From these symptoms, imagining she was sickening with the epidemical fore throat and Fever, which had, in the preceding spring, spread over most parts of England, as well as in and about Bath, and from which two or three in our neighbourhood had but lately recovered, I directed the following pills.

R *Camphor Spirit Vin mædefact* 3ss.
Conserv Cynosbat gr. x
Mucilag Gum Arabic, q. s. ut fiat
massa pilularis, unde fiant Pilulæ no. viii.
Sumat quatuor hac nocte, et repetat hora
tertia matutina.

D

These

These pills were ordered to be washed down with a draught of mountain wine and water, and that a quart of water with a burnt crust of bread in it should be put by the bed side. A few grains of nitre were intended to have been dissolved in the wine and water, and drank after the pills, but that was neglected. In other respects the pills were taken according to direction; the consequences of which were that a moderate perspiration ensued, upon which the || thirst, and all the other symptoms departed, and the next morning the patient was well.

Upon these occasions I frequently directed a second dose of Camphire to be given as early as possible in the morning, or at least before the patient rose, as in the last case. I believe the shepherd repeated his bolus about three o'clock in the morning, but I cannot recollect that any of the others had more

|| Camphire will in general occasion thirst. But in this case it is remarkable that thirst was removed by it, although, by accident, the nitre intended to have been taken with it was omitted.

than

than one, except my maid servant. None of these patients had any relapse, neither did they suffer any inconvenience from this method of treatment in any respect whatever.

Since I wrote the above I have had the satisfaction to find Hoffman recommending the giving of Camphire, in the beginning of Fevers, in other parts of his works. And although he has not, that I know of, any where illustrated the utility of Camphire, by leaving us a narrative of such cases wherein he found it successful, yet in his treatise upon the doctrine of putrescence he encourages its use, in the most explicit terms, upon the credit of his own experience, which * his words express to be exactly correspondent to the cases above recited.

* Plurimum itaque, imo summopere in malignis commendamus interne camphora tam ad inflammationes, quam malignas febres sanandas, idque non ex theoria, vel vana speculatione, sed ex solida ratione et experientia suademus.—Novi plurima exempla ubi quidam *maligna contagiosa*, febre certis indiciis videbantur correpti, qui hoc remedio *mature* semel vel bis adhibito, subsecuto sudore, ex toto a malo hoc liberati sunt. De Putredinis doctrina, § 28.

To the instances I have already mentioned of the great success experienced from Camphire in the beginnings of epidemical continual Fevers may be added, that it is found to be a most capital medicine in those dreadful continual Fevers which visit Europeans upon their arrival in several parts of the † East-Indies, and upon the coast of Guinea.

But it is not in continual Fevers alone that Camphire acts as a *febrifuge*. I have known several instances of its good effects in the intermitting Fever, the above bolus being given two or three times a day between the fits. However, having known it fail in some cases, and finding bark and snakeroot more to be depended upon, I shall not insist much upon its efficacy in that disorder.

Having shewn the virtues of Champhire as a febrifuge, especially if given in the very first stage of a continual Fever, we are next to enquire into its qualities, from

† Doctor Lind's essay on diseases incident to Europeans in hot Climates. Pages, 62, 90.

whence

whence we may endeavour to form some conjecture concerning its manner of operation.

SECTION III.

An Account of Camphire, and its singular Qualities.

WE are told that Camphire is gained from a large glandiferous tree, as tall as an oak, growing in the ‡ East-Indies.

For a more full description of this tree Hoffman refers us to Breynius || on exotic

‡ We may here observe that the remedy for continual malignant Fevers is produced in the same climate where those disorders are most frequent.

|| 1. Arbor Camphorifera Japonica, foliis Laurinis, fructu parvo globoso calyce brevissimo, Breyn. Prodr. 16.

2. Arbor Camphorifera Sumatrana, foliis Caryophyli aromatici longius mucronatis, fructu majore, oblongo, calyce amplissimo Tulipæ figuram quodammodo repræsentante. Breyn. Prodr. ij. 16. These references are taken from Dale's Pharmacologia, the original upon enquiry at the Bodleian Library not being to be found as quoted either by Dale, or Hoffman.

plants.

plants. He says that these trees are found, in great abundance growing wild in the woods at Japan; and that trees of the same kind grow also in great numbers, of their own accord, in the woods at Sumatra, and in the island of Borneo. They are evergreens, and their leaves, bark, and roots all emit the smell of Camphire.

Camphire is of two sorts, native, and factitious. The native trasudes from the trunk, or branches of the tree, either naturally by the heat of the sun; or artificially when any part of the tree is wounded. This sort, which is granulated, and produced at Sumatra, and Borneo, is very rare.

The factitious is imported in great quantities, and brought from Japan. It is there collected from the leaves, roots, and branches of the tree; which, being cut in pieces, are boiled in water, and the Camphire, rising with the vapour, is collected in cakes at the top of a conical vessel placed over the pot, or caldron, in which the parts of the tree are boiled.

These

These cakes are of a brownish white, and, when purified by a second evaporation, exhibit the pure white masses called Camphire in the shops.

From hence Camphire is esteemed to be a most || thin volatile oil inspissated. Like the aromatic resins, and gums, it stimulates the animal juices, and increases the secretion of them. But it differs from all of them; inasmuch as, not being encumbered with so viscid a fat, it is wholly inflammable, and evaporates, leaving no *residuum* behind it, which is not the case with any of the gums, or resins.

Upon account of this extraordinary subtlety, it, with great celerity, pervades the most minute series of vessels, and speedily dissolves the humours stagnating in them; partly by animating the relaxed fibres, and partly by opening the obstructed pores; whence these humours, so dissolved, are either exhaled, or forced into the circulation.

|| Oleum volatile tenuissimum, aut coagulatum, non liquidum Hoffman de Camphora, § iv.

Other

Other aromatic gums, as myrrh, gum ammoniac, fagapenum, galbanum; the oils of cloves, cinnamon, lavender, rose-mary: these, and such like, by means of their aromatic particles, move the mass of blood and humours, and violently shake the whole corporeal system. But then these stimulating particles, being intimately united with a gummy viscosity, remain long in the body acting upon the circulation; whereby the blood is greatly heated, and a Fever raised, or increased.

The difference between Camphire, and other oils and gums is farther illustrated by the following experiment. Camphire, if exposed to the open air, will evaporate; but if joined to the expressed oil of almonds, or any other oil, its particles, being retained by the oil, will not easily get loose from its embraces*. Hence the ancients ordered oil to be added to Camphire in order to prevent its volatile parts from flying off. And upon this principal Hoffman says that ‡ one drop

* Hoffm. de Camphora, § vii.

‡ Ib. item in dissertatione de putredinis doctrina, § 28.
of

of the oil of Cinnamon will heat the body more than ten grains of Camphire. And that in general it adds little to bodily heat; he says he has often proved, by giving a scruple, or half a drachm, † dissolved in spirits of wine, and, sufficiently diluted, to an healthy man: and that he found it occasioned ‡ no heat, or anxiety, but, on the contrary, introduced a coolness, especially about the *præcordia*.

The quality of Camphire by which it increases perspiration, at the same time that it removes the symptoms of a Fever, is supposed to proceed from its antispasmodic virtue. For, when great heat subsists, the muscular fibres are || constringed, and the pores of the skin closed, and shut up. These being opened, and the spasm allayed, a sweat

† Hoffm. de Camphora, § xi. item de Putredin doct. § 28.

‡ In several recent instances I have given a scruple of Camphire without any præternatural heat, or thirst being the consequence, and instead of increasing, or causing anxiety have with pleasure observed the most troublesome restlessness removed by it.

|| Hoffm. de Camphora, § xviii.

E

immediately

immediately breaks out. Upon the whole therefore Hoffman esteems Camphire, as the most subtle, penetrating, and at the same time least noxious drug in the universe: which whilst it pervades the most minute series of vessels, is so far from increasing the heat, and tumult of a Fever, that it rather restrains, and composes them.

Having mentioned some of the qualities of Camphire, I proposed next to enquire into its manner of operation in removing, or preventing Fevers. But before we proceed any farther in this matter it will be necessary to take a view of the original cause, and quality of a Fever.

SECTION IV.*Of the Cause and Quality of a Fever.*

ALL Fevers have some species of irritation for their origin, proceeding from external, or internal causes.

First, From external causes, the irritable matter of a Fever may be received by the mouth, or by the nostril. The air we breathe is a fluid body; in which are suspended the most healthy effluvia, and also the most pernicious poisons. Of the first we are sensible from the fragrant air of a mild spring morning; impregnated with the finest, and most volatile, parts exhaling from a vast variety of vegetables. On the contrary, we are no less sensible of the unhealthy qualities of the air when a damp atmosphere, loaded with noxious vapours, covers the earth. For then we find our spirits dejected, and the

season becomes sickly by the prevalence of epidemical Fevers.

As the salutary, or noxious effluvia, produced in the common course of nature, are conveyed into the body, and cause health, or disease, according to the quality of the air that prevails; it is easy to conceive that the effluvia issuing from contagious diseases may be brought to us by the same medium, and at the time of inspiration, entering the nostril, or mouth, may pass directly to the lungs, or being enveloped with the mucus, or saliva in the mouth, or fauces, may descend into the stomach.

Secondly, Internal causes may be said to give rise to the stimulus of a Fever. The bile stagnating in the gall-bladder, or ducts: ill conditioned matter, whether in an abscess, or wound: any of the juices, secreted by the glands, being obstructed in their passage out of the body, as urine, sweat, &c. when by any of these means the fluid that ought to be discharged stagnates, it becomes acrid; and, being absorbed by the veins,
and

and by them carried into the circulation, such acrimony may be said to be produced, and to raise a Fever from internal causes.

But from whatever cause, whether external, or internal, the irritating matter arises, sooner, or later, according to its peculiar quality, it stimulates the tender coats of the arteries, and excites in them more frequent contractions, which of course moves the blood through them with greater rapidity.

* A Fever then is justly said to be an effort of nature to overcome, and expel the morbid matter obtruded upon her. And the conflict continues until nature is subdued, and death closes the scene, or till the cause of irritation, being intimately mixed with the animal juices is thereby broke down, and subdued, and afterwards carried out of the body by such outlets, or passages, as nature has appointed.

Thus, when the digestive powers are strong, health is frequently restored in the

* Sydenham de morbis acutis. Sect. prima. Cap. 1. Cap. 4.

space of twenty-four hours; whence such a Fever is called an Ephemera, or Day-fever. But when the digestive faculties are too weak to overcome the irritating matter in one day, the Fever continues, and often extends itself to the length of seven, eleven, fourteen, or twenty-one days, and sometimes to a longer date, before the crisis, or final determination of life, or death takes place. Having shewn what a Fever is, how it arises, and in what manner it acts; we are next to enquire after its seat, or that part of the body where it chiefly resides, and from thence endeavour to form some conjecture concerning its removal.

SECTION V.

Of the Seat of a FEVER.

WHEN a Fever arises by the absorption of an acrid corrosive ichor, taken up from an ill conditioned ulcer in the leg, the cause, and seat of the disease are manifest. And experience assures us that except we can by external, or internal means, bring the wound to a better state, the Fever must gain ground, until all the humours in the body are contaminated.

If by medicines, or any topical applications, the humours can be inspissated, and the solids strengthened, or the flux of ichor to the part prevented, the wound puts on a better appearance, and, in due time, being consolidated, health is restored. But if on the contrary the endeavours both of the physician, and surgeon prove ineffectual, a sudden

sudden mortification hurries off the patient, or he is consumed by a slow lingering marasmus.

Whilst a mortification rages cutting off the diseased limb is no remedy. But otherwise, when a man is reduced to the last extremity by a continual Fever, attended by colliquative night sweats, no sooner is the limb removed by amputation than the sweats usually leave him, the Fever abates, and the constitution is gradually mended: and by the time the stump is healed the patient generally finds himself perfectly recovered.

What happens visibly in daily practice from external causes, as in the case above mentioned, may by analogy be concluded to take place in the recesses of the body impervious to our outward senses. Thus could we, without destroying the patient, take away the part where the peccant matter resides internally, we might expect the same success as from removing a diseased limb. But as the lungs, liver, and other internal parts cannot be taken away, but with
life

life itself; therefore whenever an abscess happens, and thence the irritating cause of a Fever resides in any of the viscera, the only methods of relief are by inward means to expell it out of the body, or to make a drain for the corrosive matter immediately from the part affected.

When the body has contracted an hectic Fever, by the absorption of putrid matter from the lungs, health has been restored by a drain being made for the discharge of the irritating cause. Of this Willis has given us † two instances.

C A S E I.

A gentleman of a middle age, from a good state of health being fallen into an hectic Fever, had an abscess burst in his lungs, and in the space of four or five hours about two pounds of a purulent, very fetid matter was thrown up by coughing. The cough continued afterwards for two months;

† Thomæ Willis, *Pharmaceutice Rationalis*, five Diatriba de medicamentorum operationibus in corpore humano. Quarto, p. 205.

F

and

and a quantity of thick purulent, highly fetid matter was daily spit up, until by a consumption of his flesh, and prostration of strength, he was reduced to the most languid, and emaciated state, whilst the stench arising from his spittle, and breath made his room so very offensive to his family and servants, that they could not, for any length of time, bear to be present with him.

In this state of things, Willis, in consultation with two other eminent physicians, proposed making an opening into the thorax by means of a cautery, and, upon laying bare the breast for that purpose, a tumor appeared on the left side. This tumor being in three days broke, by means of a suppurative plaister applied to it, a thin ichor first appeared, and a little afterwards a yellow concocted pus. From the time this flux took place the fetid spitting began to decrease, and in fourteen days entirely ceased; the morbid matter finding a more convenient and speedy exit. The aperture was at length turned into an issue, and within
half

half a year, all pectoral taint was intirely shook off, and the patient restored to his former robust healthy constitution.

C A S E II.

A lady, who for many years had been troubled with a cough, and heat about the præcordia, had an abcess burst in her lungs, and immediately a copious excretion of filthy stinking matter ensued. This kind of spitting having continued for a week, and seeming rather to be increased than diminished, notwithstanding the means of relief she made use of, an issue was made in her side, near the place from whence she perceived the pus to ascend; and, within three days from the time of the issue being cut, true pus, such as she spit up, began to flow through it. Lastly, the morbid matter, finding a sufficiently free vent by the issue, the cough and spitting of pus entirely ceased, and within a fortnight the patient was perfectly well.

To the above might be added instances of the same good effects being produced by

F 2

drains

drains made from abcesses in the liver, and other internal parts; all which shew that the Fevers, and ill habits of such patients were entirely owing to the contagion of the poisonous contents of the abcesses; since these being removed, health has been in consequence restored.

As we observe such great benefit often arises in a symptomatic Fever, by taking away the irritating cause of it from the part originally affected, it follows, that whenever a Fever is removed, or prevented, by the administration of any medicine, that medicine must operate upon the irritating cause of the Fever; either directly, by its own specific virtue, expelling it from the body; or indirectly, by its action upon the fluids, or solids, enabling nature to perform the work.

The operation of Camphire in removing contagious Fevers is by Hoffman supposed to be effected by its † antispasmodic virtue, relaxing the fibres of the small vessels, which are constricted by the febrile irritating mat-

† See page 25.

ter, at the same time that this subtile, penetrating, drug || attenuates the viscid humours stagnating in these vessels; whence a sweat ensues, and carries off the disease. Hence then it appears that Hoffman, in this case at least, understands the seat of a Fever to exist in viscid matter obstructing the organs of perspiration.

This opinion is supported by most of the modern physicians, and applied to Fevers in general. But there are some who look for the seat of Fevers in a more obvious part, the stomach. And although Hoffman does not seem to have had an idea of any other manner by which Camphire could be supposed to remove a Fever, except by its very minute parts insinuating themselves into the minima vasa; yet Whytt, in his treatise upon nervous disorders, pages 365, 366, and 444, informs us, that its most remarkable effects are owing rather to its action upon the nerves of the stomach, than to its being mixed with the blood. He likewise adds some farther confirmation of this doctrine in

|| Page 23.

another

another part of the same work, page 344, where, speaking of the effects of steel, he says, — ‘ The Chalybeat waters, although
 ‘ they contain but a very small proportion of
 ‘ iron, are often observed to have remarkable
 ‘ effects in strengthening the body. Parti-
 ‘ cularly the waters of Bath in Somersetshire
 ‘ have been of great use to many, who, from
 ‘ a weak state of the stomach and bowels,
 ‘ were affected with low spirits, and other
 ‘ nervous complaints.’

‘ It may be worth while to observe, that
 ‘ notwithstanding the remarkable effects
 ‘ of Chalybeats in many diseases, yet these
 ‘ medicines in a state of solution, or in a
 ‘ saline form, do not seem to enter the ‡

‡ Whytt founds this opinion upon an experiment of Dr. Wright, in Philosophical Transactions for 1750, vol. 50, part 2d. p. 595, where the Doctor having made a dog, who had fasted 36 hours, swallow a pound of bread and milk, with which he had mixed an ounce and a half of sal martis, dissolved in a sufficient quantity of water and filtrated; he opened the dog an hour after, and collected from the thoracic duct near half an ounce of chyle, which did not suffer the least change of colour by dropping into it a tincture of galls; although this same chyle, after $\frac{1}{4}$ of a grain of sal martis was dissolved in it, acquired a deep purple colour from that tincture.

blood.

‘ blood. ——— If sal martis and other pre-
 ‘ parations of iron do not enter the blood,
 ‘ it is obvious they must produce their ef-
 ‘ fects solely by strengthening the stomach
 ‘ and intestines ; whence not only the diges-
 ‘ tion of the aliment will be better per-
 ‘ formed, but by means of that remarkable
 ‘ sympathy which subsists between the ali-
 ‘ mentary canal, and the whole system, a
 ‘ greater degree of vigour will be communi-
 ‘ cated to every part of the body : for there
 ‘ is nothing more certain, than that we feel
 ‘ ourselves either vigorous and healthful, or
 ‘ feeble and sickly, as the nerves of the
 ‘ stomach and bowels are in a sound, or an
 ‘ infirm state.’

Whatever regard is to be paid to the sup-
 position that iron, neither in a saline form, nor
 in a state of solution, enters the blood, certain
 it is, that invalids, coming to Bath, in a very
 weak, languid condition, frequently find re-
 lief, and refreshment from our medicinal
 waters, as soon as they are drank. Others,
 who do not find this immediate effect, gene-
 rally

rally observe the first symptoms of amendment to be an increase of appetite.

These effects of Bath waters shew that their first operation is upon the stomach, but that they also contain principles which most probably enter the blood, may be concluded from their very signal diuretic virtue. And in like manner Camphire, although its first, and principal, operation is probably upon the stomach, may yet sometimes, by its subtlety, pass through the smallest series of vessels, and occasion perspiration.

The sickness at stomach in the beginning of an eruptive Fever, before the pustules appear upon the skin, its going off as soon as the efflorescence shews itself, its returning again if the eruption happens to be repelled, all prove the great correspondence there is between the pores of the skin and the stomach. Therefore, whether the bare action of Camphire upon the stomach may affect the organs of perspiration by the sympathy of the nervous system, or whether it really enters the perspirable vessels I will not pretend

tend to determine. But I am rather inclined to believe that Camphire removed the Fevers in the cases above mentioned chiefly by its peculiar influence upon the stomach, and therefore cannot but conclude that the Fever principally resided in that part.

In this opinion I am farther confirmed by the following observations. A foul stomach will often cause the head-ach. A fracture of the scull, or a stone passing the ureter, will commonly occasion sickness, and vomiting. The irritating cause of the gout, affecting the foot with great pain, frequently leaves its first residence, and immediately the stomach suffers from it.

In such a case stimulating medicines, essentially warm, being given the stomach is relieved, and the gout returns to the foot, or attacks some other of the extreme parts. A common purge, as rhubarb, or senna, will often affect the schneiderian membrane of the nose, and occasion a flux from it as soon as the medicine is in the stomach, similar to what happens during the operation of a

G

vomit.

vomit. I have known a person troubled with nervous throbbing pains in the head, repeatedly suffer a return of them during the operation of a common cathartic as often as it was taken. Old ulcers in the legs have been also known to be affected with a considerable degree of irritation and pain upon the like occasions. When water is contained in the ventricles of the brain, the patient is commonly troubled with gripings, and pains in the intestines, nearly similar to what usually attend worm cases †. Since therefore such a surprizing communication appears to be maintained between the stomach, and all parts of the body, from the crown of the head even to the sole of the foot, is it not extremely probable that diaphoretics effect the perspirable vessels rather by sympathy from the nerves of the stomach, than that they are carried directly to the smallest series of vessels, in order to commence their first operation?

† Several of these instances are mentioned in the fourth volume of the medical observations and inquiries lately published.

A glass of good port wine given to a person in a Fever, who has a small quick pulse, will, as I have experienced, and || others have observed, afford refreshment to the patient, and the pulse at the same time will become more slow, and full: yet wine is not cooling, but its effect in such a case proceeds from its action upon the stomach. Whether Camphire in like manner is really a cooling medicine, or not, is not very material, supposing it is endued with a peculiar virtue in removing continual Fevers, when given sufficiently early in the disease, and after the manner above described.

I have already mentioned Camphire as a good medicine in the continual Fevers of hot countries, but it does not appear to be given in larger quantities than are usual in the *Fulepum e Camphora*. Upon this occasion therefore I beg leave to introduce a quotation from Doctor Lind.

|| See Whytt on Nervous Disorders, page 367. Also Huxham's Essay on Fevers, page 86.

‘ ‡ After the rainy season at Senegal began,
 ‘ a low malignant Fever spread itself among
 ‘ the Europeans. It seemed to proceed from
 ‘ a poison, as it were got into the *stomach*,
 ‘ beginning with severe reachings, and often
 ‘ with a vomiting of bile. Upon its first
 ‘ attack in this way a few grains of tartar
 ‘ emetic being administered, if the medicine
 ‘ operated both upwards and downwards it
 ‘ commonly relieved, and often entirely
 ‘ abated all the symptoms; but this lucid
 ‘ interval continued only a short time, for
 ‘ commonly in six hours afterwards the Fever
 ‘ and vomiting returned, accompanied with a
 ‘ delirium. The administration of a second
 ‘ emetic did not produce so good an effect,
 ‘ or cause a remission of the Fever. A
 ‘ second remission was however sometimes
 ‘ accomplished by the *Julepum e Camphora*,
 ‘ *Pharmacopæiæ Londinensis*, and the *haustus*
 ‘ *salinus Pharmacopæiæ Edinburgensis*; and
 ‘ then the bark was administered without
 ‘ delay.’——Quere? might not the above
 Camphor bolus probably have succeeded if it
 had been given immediately upon the first

‡ Essay on diseases of hot countries, page 55.

remission

remission being obtained by the emetic? And if upon trial in this manner, or rather upon the very first symptom of the Fever being perceived, it should be found as effectual in putting an entire stop to the progress of an East Indian Fever, as it was in eradicating the seeds of the epidemical Fever in Gloucestershire, may we not have reason to carry our views a little farther, and hope that, even the dreadful effects of the Plague itself may be prevented if large doses of Camphire are opposed to it upon the appearance of its first symptoms?



SECTION

SECTION VI.

*Of the Form, and Dose most proper
for the administration of Camphire.*

THE most simple uncompounded manner of giving Camphire in a state of solution, recommended by † Hoffman, is, by dissolving it in spirit of wine, and then diluting it sufficiently. Now although spirit of wine will so perfectly dissolve Camphire as to exhibit a clear transparent liquor; yet upon the addition of a watery fluid the Camphire is immediately separated from the spirit, and its parts re-uniting coagulate, and form large disagreeable masses. The Camphire also, retaining its pungency, irritates the mouth and fauces to such a degree, as to render it very difficult to be taken in any large quantity. However, should a liquid form be re-

† De Camphora, § xi. Half an ounce of good spirit of wine will dissolve half a drachm of Camphire.

quired

quired for the administration of Camphire, the most commodious method of mixing it with a watery fluid, that I am acquainted with, is by opening the Camphire with a little spirit of wine, and then rubbing it with a sufficient quantity of mucilage of Gum Arabic before the watery parts are added. Or a good extempore draught may be readily prepared in the following manner :

R Camphor ʒi
Spirit Vini gtt. vi
Gum Arabic pulv ʒi
Nitri purificat gr. x
Sacchar alb ʒi. fiat pulvis, et misce sen-
sim in mortario terendo.
Aq fontan ʒij.

This forms an uniform white draught, sufficiently agreeable to the eye, and not very pungent to the taste. I have given it, as well as the bolus above mentioned, with great success in removing a delirium, and have found it equally efficacious in preventing hysteric fits, except when a plethora, or
 some

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some other predisposing cause interrupted its
effect.

In such cases as the above I have several times given the bolus every fourth hour, for a considerable time, with much good, and no bad effect attending its use: and a lady who had taken the draught six nights successively, in order to prevent a violent nervous affection, which had for sometime visited her every other night with as much regularity as a common intermitting Fever, informed me, that it did not cause sickness, heat, or thirst, nor heighten the colour of the urine to an inflammatory degree, but occasioned a sediment in it. She likewise remarked that it did not promote perspiration, except upon the approach of the hysteric fit, and that the fit ceased as soon as she perceived a gentle moisture upon the skin.

It is probable that the prejudice and ill opinion raised against Camphire by the old physicians was removed by the experience, and credit of Hoffman. The aversion of the present times to the free use of this drug
may

may proceed from the following account of its effects given us by Whytt; which though at first appearance somewhat alarming, will, upon mature deliberation, be found to contain no very powerful argument against its use when prudently administered. The case (which he tells us was communicated to him by a friend) is as follows:

* ‘ A gentleman desirous of knowing what
‘ effects a large dose of Camphire would
‘ have, swallowed half a dram of it dissolved
‘ in a little oil of olives, and very soon after

* Whytt on nervous disorders, page 366. The Doctor professes not to enter deeply into the dispute about Camphire. However, from the *Commentaria Bononiensia*, he mentions some of its deleterious effects when given in large quantities to different animals. My enquiries after these records have not been attended with success. I apprehend they were published about the year 1612, long before Hoffman’s time, and therefore are to be placed among those books whose fallacious opinions he opposed. And that Whytt himself had not a bad opinion of Camphire appears by his speaking of it upon the whole rather favourably. He does not believe it to be so cooling, nor so heating as is generally imagined, and he ventures to give six or seven grains at a dose to the human subject, without apprehending any ill consequences.

H

perceived

‘ perceived an uncommon, but not disagree-
 ‘ able glow of heat in his stomach. After
 ‘ having walked abroad for half an hour,
 ‘ upon looking at a news-paper, he found
 ‘ himself quite incapable to understand what
 ‘ he read, his head being crowded with a
 ‘ great many confused ideas. He now began
 ‘ to stagger when he walked; and sometime
 ‘ after, a dark cloud seeming to come over
 ‘ his eyes, and feeling other symptoms, which
 ‘ made him apprehend an apoplectic attack,
 ‘ he went to a neighbouring apothecary,
 ‘ with a view to get some blood taken away;
 ‘ but upon going into the open air, all these
 ‘ symptoms began to abate, and in a few
 ‘ hours he found himself in his usual health,
 ‘ without the assistance of any remedy.’

To this case of Doctor Whytt’s I find it
 necessary to subjoin two instances, something
 similar, observed by myself; since, whilst I
 am recommending Camphire, it would be
 disingenuous to suppress any thing that has
 hitherto come to my knowledge, which
 might afterwards appear in practice to its
 disadvantage.

OBSERVA-

OBSERVATION I.

The Camphire draught, given to the hysteric lady, being repeated after the hysteric symptoms ceased, with a view to prevent a return, at last produced a sudden vertigo, and tightness upon the breath. Immediate bleeding gave instant relief, and a costiveness, of which I was before ignorant, being removed by an opening medicine, these alarming symptoms totally vanished.

OBSERVATION II.

Being in perfect health, I was willing to try the effect of this draught upon myself, and took it at night going to bed. It occasioned an agreeable general warmth over the body, and I soon fell asleep. The next morning I awoke with that serenity, and pleasing sensation, which are usually felt by a person in perfect health in a fine spring morning; when the office of insensible perspiration being duly performed, the whole business of secretion is properly carried on in all its branches. The night following I re-

H 2

peated

peated the draught, and in like manner slept after taking it, but was soon disturbed by a sudden shock, which obliged me to start up in my bed. The fresh air, being afterwards admitted at the window, speedily relieved my head, which was a little confused, and I passed a good night.

It is to be observed in the instances I have mentioned, that Camphire affected the head only when administered in a state of solution. For although I have given the bolus upon a great many more occasions than I have directed the draught, and repeated it upon those occasions much oftener, yet I never knew a single instance where it ever caused any alarming symptom. For this reason I have always ordered the bolus, except to some few patients whose delicacy, or particular circumstances, rendered taking any medicine in a solid form very inconvenient.

Such sudden affections of the head are well known frequently to attend the drinkers of most mineral waters, and especially of those taken from the warm springs at Bath. When
a

a patient's vessels are overloaded, or oppressed by costiveness, he seldom escapes these kind of symptoms, which are by common experience found to be relieved by purging. The almost certain effects of cathartics in such cases (though bleeding may sometimes be necessary) very strongly prove the cause of such disorders of the head to reside chiefly in the stomach, and intestines. And as the effects of Camphire, when given in a fluid state, are nearly similar to those occasioned by the Bath waters, as I can testify from my own sensations, is it not reasonable to conclude that they are derived from the same source?

It was remarked that the Camphire bolus succeeded in removing Fevers only in their beginnings; but that it lost its effects if given after a Fever had continued a few days. May not this be occasioned by the inspissation, and putrescent state of the bile, and other secreted juices, caused by the continuance of the Fever? And if so, what good effect can be expected from Camphire, whilst a putrid, or viscid matter obstructs its operation?

In

In such a case something of a more deter-
sive nature is required to purge off the putrid
viscid colluvies. A medicine effectually an-
swering this purpose we are supplied with in
the mild preparation of mercury called Calo-
mel; of the good effects of which in Fevers
I beg leave to offer the following observa-
tions.



SECTION VII.

Of the Effects of Calomel in continual Fevers.

THE loss of appetite in the beginning, the thin fetid colliquative stools towards the latter end, and the bilious tinge of the urine, attending more or less through the whole course of the epidemical malignant Fever mentioned in the preceding sheets, point out to us that the stomach, intestines, and bile were all affected. And if we consult the writings of the most eminent amongst the ancient, or modern physicians, we shall find it their opinion, that in a Fever, attended with such symptoms, the bile contains the irritating cause, and that it exerts its baneful influence chiefly from its seat in the *duodenum*.

From

From Hippocrates, in his book *de Natura Hominis*, we learn, that bile is generated by the heat of the weather, and by that of a Fever: and also that the bile, abounding in too great a quantity, is itself the cause of additional heat in our bodies; whence it may be said to be both the effect, and cause of a Fever.

This opinion of Hippocrates is mentioned in many other parts of his works. And Hoffman has wrote a Dissertation entirely upon this subject, in which he tells us † that the bile is sometimes expelled in great quantities from the *hepatic ducts* into the *duodenum*, in a præternatural manner, where, especially if it errs in quality, it creates a deal of mischief, and produces a variety of symptoms, as bitterness in the mouth, nausea, prostration of appetite, heart-burn, vomitings, pains in the belly, and bilious diarrhæas.

‡ If this bile is not soon evacuated from the intestines, it easily corrupts and becomes

† Hoffmannus de bile medicina et veneno corporis, § 26.

‡ Ibidem, § 29.

putrid.

putrid. Now we know that nothing is more opposite to the nature and œconomy of our constitution, nothing sooner diminishes its strength and vigour, or more disturbs and perverts its operations than what is corrupted and putrid; whence we may, without violence to reason, deduce the origin of malignant Fevers from a copious bile corrupted in the first passages. To this he adds, that when putrid bile stagnates in the first passages it there easily receives the poisonous particles of the plague, malignant, petechial, variolous, and morbillous Fevers, dysenteries, and other contagious disorders, which are thereby multiplied, and rendered active.

The rectitude of this theory is again strongly urged by Hoffman, upon his own knowledge, in his treatise *de usu anatomes in praxi medica*, article the † 37th. We shall

† Certum omnino est, et urgeo unice, quod scio, hujus rei animadversionem, in hoc sacculo (viz. duodeno) gravissimorum malorum causas contineri. Quo præcipue intermittentes tertianas ardentesque et biliosas febres, item dysenteriam, diarrhæam et cardialgiam referre licet. Delitescit etiam ibi materia maligna, quæ in sanguinem postea translata variolas, purpuram, variique generis dolores suscitât.

I

likewise

likewise find the same opinion warmly supported by Sydenham, Boerhaave, and other writers to the present time. They are likewise as unanimous in their sentiments concerning the necessity of giving timely assistance by evacuating the morbid matter, for which purpose they recommended vomits, and gentle purges.

When the irritating cause resides in the stomach only, a vomit will undoubtedly reach, and frequently remove it. And it will also, from the violent concussion given to the adjacent parts by its operation, act upon the liver, and *duodenum*. Hence † Sydenham observes that although little was brought up, yet great benefit was often obtained by that evacuation.

In the advanced state of the Fever already treated of, it was too late for vomits, so that evacuations by stool were the only means that could with propriety be used to carry off the putrid fomes, which too evidently subsisted.

† In his observations upon the effects of vomits given in the continual Fevers of the years 1661, 62, 63, 64.

Rhubarb,

Rhubarb, and such gentle purges were not omitted either by myself, or the other gentlemen, whose assistance I had the satisfaction to receive in several instances; but all the advantage we could gain was only a palliation of symptoms, the Fevers being in no degree shortened by them.

Under these circumstances, considering the great efficacy of Calomel in cleansing the bowels, and at the same time weighing its operation in preventing the violence and malignity of the small-pox, as appears by the great success of inoculation, I determined to make use of the first proper opportunity that offered to try its virtue in the advanced state of a dangerous continual Fever, and in the following cases it was remarkably successful.

C A S E I.

JOHN BAYLEY, aged fifty-six, came under my care at the Gloucester infirmary February the ninth 1769, for a Fever, having been admitted some weeks before as a surgeon's patient for an ulcer in his leg, which at this time was just healed. Having

a quick pulse, a foul tongue, and an hot, dry skin, I ordered him a saline mixture, with the *Pulvis e Chelis Cancrarum*.

A purging coming on, the other symptoms continuing, and his urine being of such an appearance as I have before observed to indicate a Fever of a fatal tendency, and to require a warm regimen, he was ordered a mixture with *Confectio Cardiaca*, and had a blister applied to his back.

Upon account of a strangury, the cordial mixture was changed for the common emulsion with *Pulvis Contrayervæ Compositus*. His pulse notwithstanding continued quick and weak, his tongue and skin parched up and dry, his purging neither violent, nor yet entirely stopped, his body emaciated, and his strength very much impaired.

In this state the patient was, February the nineteenth, when, considering the effects of Calomel in curbing the variolous Fever, and being satisfied how great the present danger was, I gave him three grains of Calomel that
night,

night, being as I apprehended about the eleventh day of the Fever, for he might possibly have been ill a day, or rather more, before I was informed of it.

The Calomel gave him two or three stools; after which his *diarrhœa* ceased, his skin and tongue were moistened, and his pulse became soft, equal, and open. After a day's intermission he repeated the Calomel: and February the twenty-third began upon the bark. He repeated the Calomel once afterwards; and was discharged cured March the sixteenth, having perfectly regained his health, and strength.

C A S E II.

On Thursday April the thirteenth 1769, I was sent for to a very worthy clergyman, whom I found ill with a continual Fever, which had attended him for more than a Fortnight. His pulse was small, and quick, his skin hard, and dry, he was exceedingly restless, and had frequent spasms upon the muscles.

Three

Three grains of Calomel taken that night gave him two copious stools the next morning, by which he was greatly relieved. His skin became soft, and moist, his pulse more composed, and his spirits calm; whence he became sensible of his weakness, which, from the irritation upon his nerves, had not before been perceived. The next night he not only slept more comfortably than he had done for a week preceding, but found himself refreshed by it, a circumstance which had not happened for several nights. He was then ordered a saline draught with a scruple of *Pulvis Contrayerv comp*, and six grains of Nitre, to be taken every sixth hour, and a camphorated Julep to be taken occasionally when faint.

On the Sunday evening following he repeated his Calomel in pills, which not producing any stool, on Monday they were assisted with Rhubarb, which sufficiently opening the body I found him much stronger upon visiting him the next Thursday; his skin was also softer, and pulse more regular. In the evening his Fever increased, and he

was

was restless, but the next morning he had a fine gentle perspiration, and an open pulse. I then left him upon the bark, with directions that he should take the Calomel once or twice more, and interpose the bark and cordials occasionally. By these means he recovered, and undertook a journey of near forty miles.

It must indeed be acknowledged, that by exposing himself to the inclemency of the weather in his journey, he was again laid up with a Fever at the end of it; and after having suffered an ill state of health for some months came to me at Bath; where by drinking the waters, and bathing, he restored the breaches made in his naturally good constitution. This patient being so far recovered as to ride on horseback near forty miles, without any urgent necessity, I cannot look upon his second attack, otherwise than as a return of his Fever, which probably would not have happened had he not taken some fresh cold during so long and fatiguing an expedition.

C A S E

C A S E III.

On Christmas-day 1769, I was sent for to a gentleman's servant of Birmingham, who was with his master in lodgings near the Cross Bath. He had been ill about a week, had entirely lost his strength, he was hot, and dry, his tongue covered with an hard brown crust, his urine plentiful, but bilious (yet not very deep coloured) with such a cloud in it as I have before mentioned.

Being convinced that the Fever was of a very dangerous kind, and appeared to require the warm regimen, I ordered a scruple of the *Confectio Cardiaca* to be taken every fourth hour, and half an ounce of the *Spiritus Mindereri* to be given between whiles, and at the same time laid on blisters upon his arms, one having been applied to his neck before I came.

December the twenty-sixth, none of the bad symptoms being removed, his strength being farther diminished, his pulse weaker, and the heat of his skin yet remaining, I
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added twenty drops of tincture of Castor to the *Confectio Cardiaca* in a draught which was to be taken every sixth hour, and directed *Spiritus Nitri dulcis* ʒvi, *Tinct Castorei* ʒii, to be mixed, and taken a tea-spoonfull in a draught of white wine whey between the draughts. In the evening I ordered him three grains of Calomel and five of Rhubarb, the body being neither costive nor lax.

December the twenty-seventh he went on with his medicines as before, only with the addition of five grains of Rhubarb to every draught, until he had taken twenty-five grains, and then only one stool was produced. In the evening, his head being disturbed, blisters were applied to his thighs, and equal parts of the Cephalic and Blistering plaister to the feet.

December the twenty-eighth he went on with his draughts and drops as before, but no ground gained. In the evening I gave him three grains of Calomel, and ten of Rhubarb, and the following morning ten grains more of Rhubarb, and two drachms of

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tincture of Sena in a draught. This produced two stools, the first of which was very copious, and both of them intolerably fetid, and remarkably viscid.

December the thirtieth. By the late evacuation his head was relieved, the pores of his skin opened, and the dry hard crust upon his tongue began to grow moist, and slough off. This favourable turn in the disorder I attributed to the Calomel: and the offensive smell of the fæces indicated a farther evacuation that way necessary; but not chusing to proceed any farther with so active a medicine as Calomel in the weak state the patient then was, I directed ten grains of Rhubarb to be added to the cordial draught in the evening, and repeated at five the next morning.

December the thirty-first. The opening medicines ordered yesterday not having taken effect, about ten o'clock in the morning half an ounce of tincture of Sena, and five grains of Rhubarb were administered in a draught, which answered the purpose, and sufficiently pre-

prepared him for the bark, to which balsamics being joined upon account of a cough, he perfectly recovered ; but by slow degrees, the Fever having left him greatly emaciated, and debilitated.



SECTION VIII.

*Objections against the use of Calomel
attempted to be removed.*

CALOMEL being generally esteemed as a medicine endued with a very considerable efficacy in attenuating and dissolving the animal juices, may probably be objected to as improper to be administered in a Fever where there was so much reason to believe a strong tendency to putrescence, as in the cases above-mentioned. But if we apprehend this putrescency of the juices to arise from, and to be kept up by the corrupted bile stagnating in the intestines, and at the same time allow that Calomel is the most powerful known medicine to remove this putrid source, from whence the rest of the juices are supplied with their poisonous qualities: we shall then be obliged to confess, that instead of nourish-
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ing and increasing the putrid state of the body, it strikes at the very root of it, and thus effectually removes it.

The bile being accumulated, and stagnating either in the gall ducts, or intestines, loses its more fluid parts, especially when acted upon by the heat of a Fever, and acquires not only a darker colour, but also a greater degree of viscosity, and tenacity, until it assumes that state which the ancients distinguished by the name of Atrabilis.

As I have often observed that Calomel will bring off a greater quantity of fordes at one stool than any other purgative will at two or three, and is likewise possessed of a peculiar quality in cleansing the intestines from any slimy matter adhering to them, no medicine appears to me so properly adapted to carry off the Atrabilis as Calomel. But in opposition to the use of Calomel in Fevers, it may be said that we are cautioned against using any strong purgative; and advised to give the most gentle solutive medicines only, and not
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even these until the morbid matter of the Fever be first well concocted.

With regard to the first objection, I use Calomel in so small a quantity as not to ruffle or discompose the constitution; and if I gain but two stools by it I am satisfied: wherefore the doses given to adults, in the cases above-mentioned, were not stronger than might with safety be given to a child at another time. And, as to the second objection, if the bile is so entirely corrupted in this advanced state of the Fever, it is impossible that any progress can be made towards that concoction we are in vain waiting for. And this putrescence of the bile appears by the dark colour, and fetid smell of the stools themselves, as well as from the anxiety, restlessness, delirium, and other symptoms attending, which are handed down to us by the best authors as certain indications of such an event.

Before I proceed any farther I cannot omit mentioning a thought that has occurred to me

me upon the present occasion, namely, that from the above considerations we may possibly be able to account for the great success attending the modern practice of inoculation.



S E C T I O N I X.*Some Observations upon the modern
practice of Inoculation.*

THE manner of performing the operation has indeed been long known, although not generally practiced in Turkey. But the method of preparation, and the management of the patient in the course of the disorder, seem to have been discoveries of a later date. And yet they agree so well with the theory laid down by Hoffman, and the practice recommended by him in the small-pox, and other malignant Fevers, that if the management of the patients under inoculation, before and after the eruption, was not taken from him, it tends very much to confirm his doctrine concerning the origin of Fevers, as mentioned above, page 57.

The first point, attended to by the inoculator, is to keep the first passages clear. This
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is done by giving a few doses of Calomel in the time of preparation, or at least before the eruption appears: after which the body is kept rather open to the end of the disorder.

Secondly. The bile being thus prevented from stagnating, and corrupting, care is taken to guard against its receiving any bad qualities from fermented liquors, spices, or animal food.

And thirdly, that no addition of acrimony may be made to this source of malignant Fevers from heat, the patient, both sleeping and waking, is kept cooler than at other times in his ordinary course of life.

Nothing can be more consonant to the doctrine of Hoffman than this method of inoculation; excepting only that the administration of Calomel may be objected to for the reasons already given. But the usefulness of that medicine appears from the success attending it in the above cases, as well as in the following, which although a single one may yet be sufficient to encourage us to re-

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peat the same practice when a like opportunity offers.

A country girl, of about twenty years of age, who by my direction had for three weeks before been taking five grains of Calomel at night, and purging it off the next morning, twice a week, upon account of a chronical disorder, happened to have the small-pox make its appearance in her family, she herself having never had it.

As she could not leave the house, she desired to know if it was proper for her to continue the use of her medicines under these circumstances, which with my approbation she did, and in a short time had the small-pox so light as not to detain her within doors, nor to prevent her from performing her usual offices in a country farmer's family.

The consequences arising from this method of preparation are even foretold by Hoffman, who, speaking of the manner by which putrid diseases may be prevented, says, we must take care that salutary excretions, by which
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the blood is best depurated, may be made expeditiously and properly. For thus the poison, not finding any thing similar to itself, either does not operate at all, or at least a more happy termination of the disorder is effected. The original runs thus. *Deindè circumspiciendum est ut salutare, quibus sanguis optimè depuratur, excretiones expeditè fiant, et rite se habeant. Ita enim miasma, sibi simile non inveniens, aut planè nihil operatur, vel feliciorum progressum, et exitum morbi efficit.* HOFFM. *de putredinis doctrina, § 25.*



SECTION X.

*Fevers to be contracted or avoided,
according as the Stomach is affected.*

SANCTORIUS, who, by the most accurate experiments, proved the good and bad effects proceeding from the ingesta, and egesta, says, that a † difficulty of concoction retards perspiration. The reason of this Aphorism, Lister, in his commentary upon it explains thus, because the *stomach* is the store-house of perspiration. The same author also says, that ‡ such things as hinder perspiration are the cause of malignant Fevers. Of this sort he reckons melons, cucumbers, and other fruits.

|| Bontius, a celebrated Dutch physician at Batavia, informs us that the inhabitants of

† Sanctorius de statica medicina. Sectio 3^{ta}. de cibo et potu Aphorism 49.

‡ Ibidem. Aphorism 25, 61, 92.

|| Jacobus Bontius de Medicina Indorum, cap. xv.

Java,

Java, going to some neighbouring islands to cut faunders-wood, frequently contract dreadful malignant Fevers, as well from eating the fruits of the country, which they find there in great abundance, as from the impure foggy air they breath.

The histories of campaigns furnish us with numbers of instances where malignant continual Fevers have arisen from the bad improper diet which soldiers are often obliged to live upon, when distressed in their camps, or in garrisons, during long-continued sieges.

But the strongest argument in support of the seat of malignant Fevers being in the stomach, is, that by regularity of diet, and strengthening the stomach, even the most putrid impure air may be breathed without receiving any of its infectious *miasmata*.

Hoffman assures us that * invalids, who are obliged to expose themselves to the hazard of receiving putrid disorders, will best be defended from their attacks; first, by being

* Hoffmann de Putredinis doctrina, § 21.

moderate

moderate in their diet, especially with regard to such things as are difficult of digestion: and, secondly, by strengthening, and quickening the concoctive faculties, by means of corroborants and stomachics. And, in proof of this doctrine, I beg leave to quote the following particulars from Doctor Lind, communicated to him by Mr. Boon, who resided for three years at Senegal, as surgeon general to the troops.

‘ † Governor Worge, Mr. Boon, and
 ‘ others, drank every morning for breakfast,
 ‘ by way of tea, an infusion of the bark, or
 ‘ of some other bitter ingredient, such as
 ‘ chamomile, gentian, orange-peel, or the
 ‘ like, in warm water. Sometimes they
 ‘ mixed with their tea a small quantity of
 ‘ the tincture of bark. They drank these
 ‘ bitters morning and evening, and took a
 ‘ gentle dose of manna with purging salts
 ‘ once or twice a week. They were abste-
 ‘ mious in the article of food, and were par-
 ‘ ticularly careful not to drink wine or spirits

† Lind’s Essay on the diseases incident to hot climates,
 page 162.

‘ to excess: by which means their stomachs
‘ and bowels were preserved in such a state,
‘ as greatly resisted the attack of those bilious
‘ fevers, fluxes, and other disorders, which
‘ raged with destructive violence during the
‘ sickly season. Experience had so fully
‘ convinced them of the efficacy of those
‘ means, that the use of them became gene-
‘ ral; and when their stock of bark was ex-
‘ hausted, the most common bitter herbs or
‘ roots sold at an extravagant price.’



SECTION XI.

The CONCLUSION.

HAVING shewn in what manner Camphire and Calomel may be supposed to operate in removing continual Fevers, and from their effects, as well as from the reasonings and experience of some of our best practical authors, having attempted to prove that the seat of Fevers is chiefly in the alimentary canal; and lastly, having given a very memorable instance that by strengthening the stomach and bowels we may expect to avoid the infection of malignant Fevers, I cannot take leave of the benevolent reader better than by repeating the request of Horace,

*Si quid novisti rectius istis,
Candidus imperti: si non, his utere mecum.*

F I N I S.

P O S T S C R I P T.

THE above treatise was printed before I knew of the experiments made with Camphire at Edinburgh by Doctor William Alexander, as set forth in the second of his experimental Effays, the subject of which is upon the doses and effects of medicines.

From this gentleman we learn that he took one scruple of Camphire without any bad effect; but that very alarming symptoms followed his taking double that quantity. And he also informs us by an extract made from an inaugural dissertation on the virtues of Camphire by Doctor Griffin, that the Doctor having given half a drachm to a patient observed such effects produced by it as are fully sufficient to make us cautious in venturing to administer so large a dose. It is not however mentioned that Nitre was joined to the Camphire used in any of the experiments made by these Physicians.

P O S T S C R I P T.

Upon giving Camphire in a bolus without Nitre I found that a less quantity than a scruple would often occasion a sickness, and uneasiness at the stomach. But since I have added a few grains of Nitre to the bolus I have in several cases given a scruple every fourth hour for a considerable time without observing any bad effect whatever, or any disagreeable sensation; except sometimes a considerable thirst, which was of service, since it occasioned the patients drinking freely of some diluting liquor ready prepared (as I before mentioned) the consequence of which was usually an advantageous perspiration.

I cannot omit this opportunity of guarding against a mistake that may arise from reading a note upon the 25th page of my Essay on Camphire; where I say that I have often given a scruple of Camphire without any preternatural heat, or thirst, being the consequence. Now although Nitre is not mentioned, yet it is to be understood as given with the Camphire in these instances.

Doctor Alexander made his experiments upon Camphire with a view to determine
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the long contested question whether it is an hot, or a cold medicine. The Thermometer gave him but little assistance. And he observed that although the number of strokes made by his pulse in a minute decreased in a short time after taking the Camphire, yet that they increased greatly after it had been some considerable time in his stomach,

From this consideration, as well as from its frequently occasioning great thirst, it appears most reasonable to place it in the class of warm medicines; and if so, Nitre being evidently of a cooling nature, may we not conclude that from these different qualities in the two medicines proceeds their mutual correction of each other in such a manner as to render them agreeable to the stomach without being deprived of their medicinal virtues?

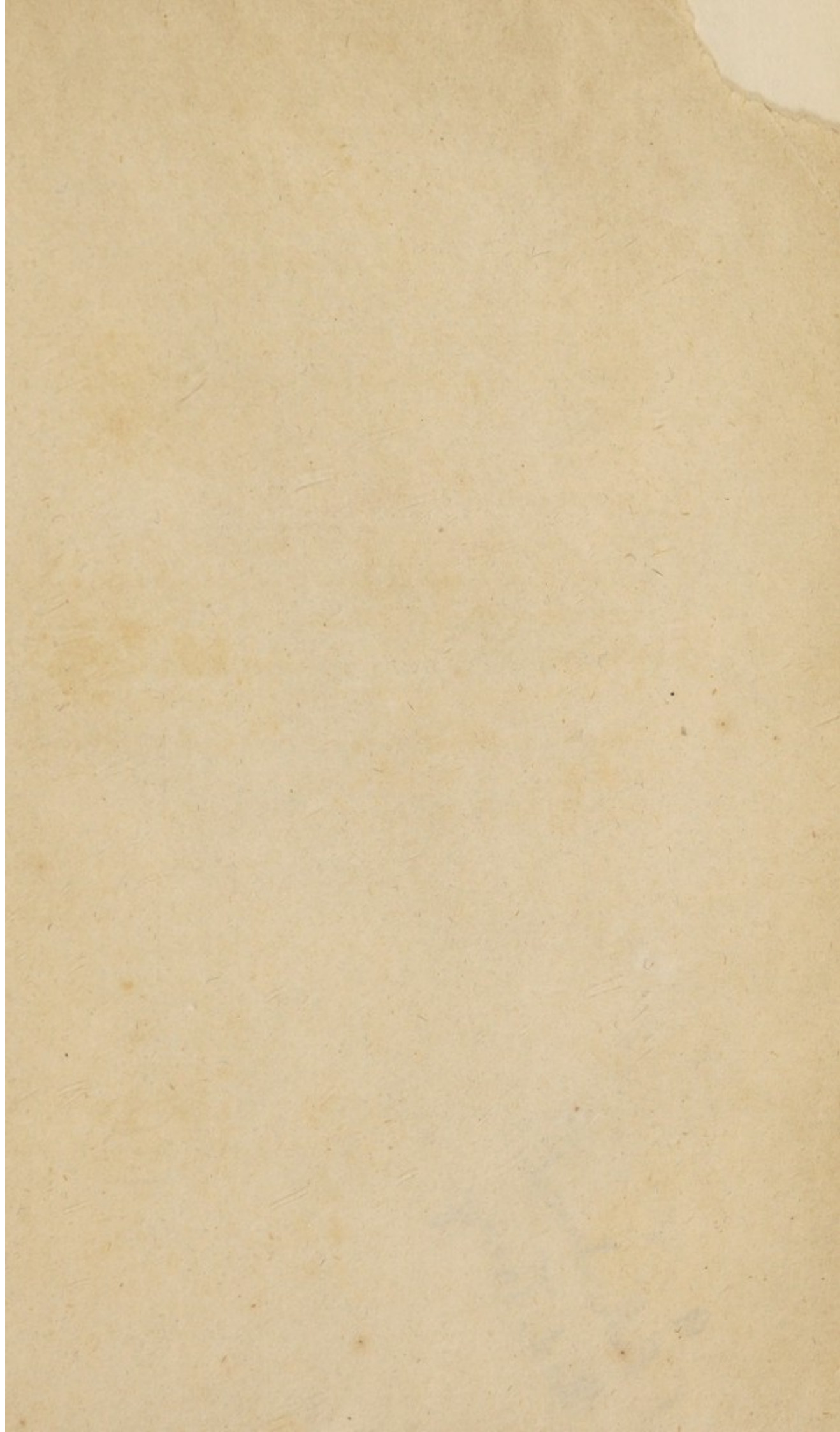
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P. 18, l. 11, dele "upon which:" p. 19, note, l. 6, dele
after contagiosa: p. 21, note, l. 6, for "caryophylli,"
read "caryophylli:" p. 24, l. 3, for "lavander," read
"lavender:" p. 25, l. 3, dele; after heat: p. 25, note, l. 4,
for "præternatural" read "preternatural:" p. 42, l. 17,
for "effect" read "affect:" p. 76, l. 13, for "cubun bers"
read "cucumbers:" p. 77, l. 12, for "seiges," read
"sieges."

without being deprived of their medicinal
virtues.



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(Path. Journal.)
Med. Therap.

