A reply to Mr. Maxwell's Answer to Mr. Kirkland's Essay on fevers; wherein the utility of the practice of suppressing them, is further exemplified, vindicated, and enforced / [Thomas Kirkland].

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A

REPLY

TO

Mr. MAXWELL's ANSWER

TO

Mr. KIRKLAND's *Eſſay on Fevers*;

WHEREIN

The UTILITY of the Practice of Suppreſſing them, is further exemplified, vindicated, and enforced.

By THOMAS KIRKLAND, SURGEON.

Nature has always a great abhorrence of a turbulent State.
MEAD.

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Advertiſement.

THIS Reply was nearly printed off before Mr. MAXWELL's death, and would now have been ſuppreſſed, had not the Subject, inſtead of the Adverſary, been principally conſidered. Mr. KIRKLAND, therefore, begs the Reader would overlook any ſtrictures which do not reflect credit on the memory of his antagoniſt, for whom he ſenſibly feels that concern, which naturally ariſes, where an untimely diſeaſe prevents the regular courſe of Nature.

INTRODUCTION.

IF I know my own heart, I am very certain, the Eſſay concerning Fevers, which I lately offered to the *conſideration* of the publick, was written with an honeſt intention: To lay before it what appeared to me a matter of importance, and which it was hoped would be acceptable; the facts produced in favor of the extinction of fevers, being delivered with the ſtricteſt regard to truth, whether collected from other Writers, or related from my own obſervation. — And I have ſince had the very great pleaſure of meeting with the approbation of many men of good ſenſe and learning; and of ſeeing the good effects of the doctrine advanced, both in other people's patients, and thoſe who have been immediately under my own care. — And I was in hopes cautious and impartial trials would have hereafter determined, whether the practice adviſed, was to be rejected or approved.

However, without *once ſeeing the effects of extinguiſhing a fever, or having had the leaſt experience* in this matter, Mr. MAX-

WELL, of Portſmouth, tells us, "He has "ſhewn the error of my arguments for the "uſe of cold water, in extinguiſhing fe- "vers;" and at the ſame time frankly owns, that he has undertaken to make this Anſwer, "leſt a ſubverſion of the "reigning *Theory* on fevers, ſhould *affect* "*the medical practice*;" which ſeems to be, in plain Engliſh, if fevers are not ſuffered to run out their uſual length, leſs profit will ariſe in *trade*, and hence "miſchiev- "ous effects will be produced."—But ſurely this is a paltry and ſcandalous conſideration, which cannot be excuſed, even by the plea of the half ſtarved Apothecary, whoſe poverty, and not his will, conſented to the ſelling of his *poiſon*.

If theſe were the reaſons for the ſteps this Writer has taken, it is no wonder he ſhould be ſeized with the HYDROPHOBIA; but, whatever were his motives, inſtead of examining this matter fairly, he certainly has miſrepreſented my meaning, falſely accuſed me of not candidly quoting the ancients, and ſays, I have perverted their ſenſe to ſerve a favourite theory; which charge he endeavours to prove, and to overturn the doctrine advanced, by taking only mutilated ſcraps, "inſtead of con- "ſulting the true ſpirit" of the Eſſay, by

falſe

falſe inſinuations, and by uſing all poſſible chicanery; therefore, I cannot think him *open to conviction* (*a*), or that he writes *with deference to truth* (*b*): as truth never ſtands in need of ſuch kind of art to ſupport it.—To this we may add, the ill manners, and ungentleman-like behaviour, which may be ſeen in almoſt every page of his Anſwer, and which were quite unneceſſary; for tho' they ſhew the ill breeding and diſpoſition of the Author, yet they can no way aſſiſt in inveſtigating truth.—Such treatment certainly deſerves contempt, nor can any excuſe be allowed, for his attempting to deceive people in what concerns their health, it being a crime of the worſt nature, as it may entail miſery and death upon multitudes, and therefore ought to be expoſed; for which reaſon, as his arguments may miſlead thoſe, who have neither leiſure, nor inclination to examine them, we will endeavour to ſet what he has ſaid in its *true light*.

It may be obſerved, that for want of experience, this PSYCHYDROPHOBITE was obliged to ſupply its place with quotations, and to depend upon opinions, than which nothing is more uncertain; and it is his misfortune to make ſo bad a choice, as to

(*a*) See Anſ. p. 8. (*b*) See Ibid.

reaſon from thoſe, which took their riſe in *Theory* only, and are deſtitute of any FACTS to ſupport them. — In particular, his favourite and uſeful theory of a fever being an effort of nature, ſeems at firſt cunningly to have been invented, to ſerve the moſt vile purpoſe; for we learn from PLINY (*a*), that the Profeſſors of Phyſic ſoon found that it was much more eaſy to captivate the minds of men by novelty, and ingenious theories, than by ſucceſs in curing diſeaſes; and therefore, from the time of CHRYSIPPUS, it was uſual for them to find fault with the practice of preceding Phyſicians, and to alter all the rules they had left concerning this art, by which means they got great credit, and immenſe ſums. — ASCLEPIADES, who was bred a Barriſter, not ſucceeding in his profeſſion, tho' as to other things a man of quick parts, ſeeing in what manner fortunes were acquired by the ſons of ÆSCULAPIUS, laid aſide the practice of the law, and ſuddenly, *without experience*, introduced an intire new practice of phyſic, making it a mere conjectural art; and by *his eloquence*, ſo far gained the opinion of the people, that they thought him a man ſent down from heaven to cure their maladies.

(*a*) See PLINY's Hiſt. Nat. lib. 26. cap. 3. et lib. 29. cap. 1.

Now,

Now, it is well known, HIPPOCRATES and his followers gave their patients plentifully of cooling ptiſans, and the like, to abate their fever; ASCLEPIADES, on the contrary, would not even allow the mouth to be waſhed on the firſt days; but, in the advance of the diſtemper, he even adminiſtered to the luxury of the patient; and the reaſon he aſſigned for this mad practice was, that

"*The cure for a fever was the diſeaſe itſelf* (*a*)."

This was readily ſwallowed by the infatuated multitude, and it ſeems from thence to have been handed down to us, as a certain axiom, without ever once doubting or enquiring into the truth of it; eſpecially as it agreed with the doctrine of Concoction, and was employed in the ſame ſenſe with the ſaying of HIPPOCRATES, "*that* "*nature is the curer of diſeaſes*," with which it ſeems not to have any connection.—To what purpoſe is it to tell us, that the *theory* of Concoction was a leading point with SYDENHAM (*b*)?—We know hun-

(*a*) CELSUS, lib. 3. cap. 4.

(*b*) This Writer's notions of Concoction were very different from Mr. MAXWELL's, (ſee Diſpute 2d.)—He imagined "the irregular commotion raiſed by nature in the "blood, is excited to ſeparate from it, a certain heterogene-"ous matter, or elſe to change the blood itſelf into a new "ſtate;" and, he ſays, "the concoction of the febrile mat-"ter, means no more, than a ſeparation of the morbific "particles from the ſound." But concerning his theory,

we

dreds, beſides himſelf, took this opinion for granted, without ever examining its merit; and thoſe who are converſant with this Writer, know that his theory and practice ſeldom agreed. — If, when the inoculation of the ſmall-pox was firſt introduced into this kingdom, the practice recommended by RHAZES, to extinguiſh the fever in the natural ſmall-pox, had been inſiſted on, what a torrent of *theory* and quotations, from the beſt Writers, would have been poured out againſt it, by Meſſrs. HOWGRAVE and Co. (*a*) — It is now adopted with little variation; and does not the ſucceſs, in this caſe, point out the utility of extinguiſhing every fever?

Again, tho' we can readily conceive that people in fevers, would more frequently recover by nature unaſſiſted, than when ſhe was teazed by a load of improper medicines; yet, can any man, with a grain of ſenſe, believe, that BAGLIVI, in continual and acute diſeaſes, could always preſcribe medicines ſufficient to keep the boiling blood within due bounds of fermentation, ſo that he could afterwards look on with attention, and leave the reſt to nature, and with pleaſure ſee the febrile fits

we recommend a peruſal of Dr. SWAN's Notes to the fourth Chapter of SYDENHAM's book, ſect. 1.

(*a*) Writers againſt Inoculation.

ſucceed

ſucceed by gentle and friendly turns, and run their rounds in appointed order of nature, ſo as to cure the patient?—Certainly the paſſage immediately preceding, deſerves equal credit, where he ſays, when he uſed bleeding, and a thin diet, with a prudent and ſeaſonable uſe of diluting medicines, he never had a patient ill of the ſmall-pox, that died under his hands (*a*).

In ſhort, we had before ſeen all the opinions he has brought in ſupport of his arguments; but, from knowing the manner in which ſome men, who juſtly bear the greateſt names, are drawn into popular doctrines, which want truth for their foundation; after ſelecting their matter of *fact*, from their *theory*, and after lately having ſome of the moſt convincing proofs of the utility of the practice adviſed, I ſee no reaſon to alter, but to confirm, what I have already written.

Whoever has read Mr. MAXWELL's Anſwer, muſt ſee, that his different arguments lie ſtrangely mixed and diſperſed throughout the whole of his performance, in order, probably, to make a reply more difficult; but I have at laſt methodized

(*a*) Mr. MAXWELL has quoted this paſſage in part, p. 62. but the reader is deſired to conſult the original, chap. 12. ſect. 7.

them,

them, and laid the arguments on both ſides before the reader, giving preference to his own words, where the ſentences were not too long; and have every where ſtrictly repreſented his meaning, referring to the places which are abridged, that it may appear we have not ſet him in a wrong light.—I have been particularly careful in giving his objections their full force; nor am I, as I believe I have truth on my ſide, under any apprehenſion from the REPELLER, with which, thoſe who favour the extinction of fevers, are threatned.

If the whole could have been brought into leſs compaſs, it would have given me pleaſure; but a general reply would have afforded freſh matter for the cavils of ſuch an antagoniſt.—Beſides, the importance of the ſubject requires a full diſcuſſion; and to make amends for the length, I have endeavoured, as much as poſſible, to render this diſpute uſeful, by an addition of new matter.—However, I will not attempt to confute any future publication of this Writer; for after expoſing his *tricks* and *contrivances*,

Si populus vult decipi decipiatur.

KIRK-

KIRKLAND AGAINST MAXWELL.

DISPUTE the FIRST.

Whether a Fever is an Oeconomical Proceſs of Nature for Relief.

IT appears from the recapitulation (*a*) in Mr. Maxwell's Anſwer, that the whole of it conſiſts in having proved (as he ſays) that "the principal poſitions of my Eſſay "concerning fevers, are not ſtrictly true; and

"FIRST, That there is reaſon to think, that "the doctrine of concoction in fevers, if rightly "underſtood, is not fallacious.

"SECONDLY, That we ought not raſhly to "drink cold water, in hopes of ſuppreſſing fe-

(*a*) Anſ. p. 65.

"vers;

" vers; and that the Ancients were far from re-
" commending it indiſcriminately.

" THIRDLY, and laſtly, That the fever may
" be an œconomical proceſs of nature for re-
" lief."

The latter of theſe we ſhall firſt conſider, as agreeing with the order in which the Eſſay oppoſed is written; and notwithſtanding Mr. Maxwell is ſo much averſe to the extinction of heat, we will venture to argue this matter coolly.—If the nature of the diſpute ſhould lead us to diſcover any thing, which this writer might wiſh to conceal, we recommend it to him to conſider, that honeſtly pointing out a man's faults, ſhews him the neceſſity of improving himſelf, if it concerns literature; if his moral character, that of amendment. And—

Maxwell. You cenſure the opinion of thoſe, who, from eruptive fevers ceaſing upon the morbific matter being expelled to the ſurface of the body, believe that a fever is an effort of nature to relieve herſelf; — yet there can ſcarce be brought a ſtronger argument to ſupport any opinion whatſoever (*a*).

Reply. If this was true, the more violent the fever, the ſooner and better would the morbific matter be expelled; but it has long been obſerved, *Quo ſedatior eſt ſanguis eo melius erumpent puſtulæ* (*b*). —It is alſo well known, that the leſs the fever

(*a*) Anſ. p. 8. (*b*) Sydenham.

is

is in the natural ſmall-pox, the fewer will be the puſtules: And the eruption is perfectly compleat, and ſtill in leſs quantity, where there is no *fever at all:* — Whence it is evident, that the fever increaſes the diſeaſe, and that its aſſiſtance is not neceſſary to expel the morbific matter; and has not honeſt SYDENHAM (*a*), from practice obſerved, "*that the fitteſt degree of heat to* "*promote the expulſion of the variolous matter, is* "*the natural one, and ſuch as is ſuitable to the* "*temper of the fleſhy parts; and whatever ex-* "*ceeds, or falls ſhort of it, is dangerous on either* "*hand* (*b*)." — Perhaps it will be ſaid that, Sydenham was of opinion that a fever was an effort of nature for relief. — We know he adopted this *theory*, which had now exiſted ſeventeen hundred years. — But does not this make what he has above ſaid, the cleareſt evidence we can have, becauſe it ſhews, that he did not give this advice, in conſequence of the *theory* he had imbibed; but from being convinced by practice, that a fever, inſtead of relieving, is injurious: Otherwiſe, how can heat be dangerous, when it exceeds the natural heat of the fleſh? — But the misfortune is, that the *theory*, inſtead of the practice of this writer, has been chiefly attended to. — And is not here a full proof, how much ſooner people are led by a ſpecious *theory*, than by plain matter of fact? — It was therefore rea-

(*a*) De Variol. regular. cap. 2.

(*b*) It is no wonder, then, where people have been reduced too low by an improper preparation previous to inoculation, that the conſtitution ſhould ſometimes ſuffer.

ſonable to conclude, that, the matter is not thrown off by the fever (*a*).

M. If the fever is not an effort of nature, why ſhould it ceaſe upon eruption? You ſay, "by the wound in inoculation, we know that "the variolous matter is irritating; and as the "*fever ceaſes* upon its being *diſcharged* from the "blood, is it not plain, that the fever was only "a ſymptom in conſequence of the whole body "being irritated (*b*)?"

R. It ceaſes from the irritating matter being removed; for take away the cauſe, and the *effect* ceaſes; and tho' this proves the fever to be a ſymptom only, yet it does not prove, that this ſymptom removes the diſeaſe. — Pain, and a fever, the conſequence of an extraneous body lodged in the fleſh, ceaſe upon its being taken away by an operation, but it is the hand of the Surgeon that removes it, and not either the fever, or the pain.

M. Contrary to your aſſertion, common experience proves, that the greater number recover in fevers, unleſs in the plague, or when a fever of a *peculiar malignancy* has raged in the Army or Navy (*c*).

R. It cannot be imagined, that every ſlight fever was taken into the account, as nature, in this caſe, will over-balance the diſeaſe, in oppoſition to the fever; for we ſhall hereafter

(*a*) See caſe at the end. (*b*) Anſ. ſee note, p. 9.
(*c*) Anſ. p. 10. par. 2.

ſhew,

ſhew, that if the degree of heat does not exceed a certain point, the patient will recover with little or no aſſiſtance.—Violent, or epidemic fevers, muſt therefore be referred to; in which there is a *peculiar malignancy*, ſo that in this particular we both agree.

M. The expreſſions *materia morbi* — a powerful medicine, will be unintelligible to yourſelf upon reflection (*a*).

R. It is well known, that the putrid miaſmata, which give riſe to ſome fevers, frequently diſſolve the craſis of the blood, till it paſſes through veſſels, which before were only capable of carrying lymph; the ſalts in inflammatory fevers, often become equally active; and cannot you ſuppoſe theſe alike capable of diſſolving and removing obſtructions, with any deobſtruents you can produce? — Dr. Kirkpatrick (*b*) has mentioned a caſe, where a cough, in all probability, ariſing from a lentor in the juices, was apparently removed by inſertion of the variolous matter, before it brought on a fever; and I myſelf have ſeen an inſtance, where the lymph, in an indolent tumor, was attenuated in the proceſs of inoculation, where no fever came on.

M. The ſimile about oil and water being ſeparated, on which great ſtreſs is laid, is inconcluſive; as it may be aſked, whether in heterogeneous mixtures, quick agitation will not

(*a*) Anſ. p. 10. par. 2. (*b*) Analyſis of Inoculation.

ſooner paſs the intended parts, through the ſieve, by *more frequently preſenting them* (*a*)?

R. Heterogeneous mixtures cannot be *ſeparated* by *quick* agitation, though they may be *forced* unſeparated through a ſieve. But the ſeparation of oil and water by a *ſieve* was never thought on. If we dip a piece of linnen rag in oil or water, we ſhall have "*a ſtrainer ſuited to* "*the purpoſe.*" This common experiment (*b*), which it was imagined every body belonging to medicine was acquainted with, will at once evince, that the ſeparation can only be made in a ſtate of reſt. However, the preſſing heterogeneous mixtures, by quick agitation, through a ſieve, unſeparated, ſeems a very proper emblem, to convey a true idea of the tumultuous method, of removing the cauſe of fevers, which you ſupport.—You muſt confeſs, ours is a leſs boiſterous plan, and more conformable to the laws of nature.

M. I meant no further, than to mark the error of your reaſoning (*c*).

R. You miſſed your mark, then, like a random ſhooter.

M. From an inflamed eye, we are told, that if the fluids are thick, increaſed impulſe will increaſe the obſtruction: and if the blood has a putrid tendency, the fever will increaſe it.—But what does this prove?—*No perſon in an opthal-*

(*a*) Anſ. p. 11. par. 2. (*b*) Helvetius's Animal Oeconom.
(*c*) Anſ. p. 11. par. 2.

mia

mia wiſhes for febrile ſymptoms, nor is an increaſed heat in a putrid fever eligible (*a*).

R. You were told (*b*), that it might be proved *by* an inflamed eye, or any other external inflammation, that an increaſed heat, ſo far from removing, increaſes the viſcidity and obſtruction; and that if the blood has a putrid tendency, the putrefaction is alſo increaſed, during the fever; which proves, as far as poſſible, what it was intended to prove, that violent heat and motion, increaſe both inflammation, and what is called putrid acrimony; nor does your futile *prevarication* prove to the contrary.—Was there ever ſuch a paltry evaſion? — Beſides, you have ſpoiled all, by confeſſing the very thing you ought to have concealed; for though it is common to ſay, by way of diſtinction, "*putrid fever*," yet in fact, it is a putrid diſeaſe, accompanied with *preternatural heat*.—Therefore if increaſed (or preternatural) heat is not eligible in a putrid diſeaſe, you confeſs there ſhould be no fever at all, which does not agree with the ſcheme of its being an effort of nature. One would indeed imagine that you was at your laſt ſhift, in the beginning of your anſwer.

M. What is ſaid of the febrile matter being ſeparated by a ferment in the fluids (*c*), and the fever being againſt us, is an inſtance of falſe concluſion, from your imagination being ſtruck

(*a*) Anſ. p. 12. par. 2. and 3. (*b*) Eſſay, p. 3. (*c*) Anſ. p. 12.

with the favourite ſimile of oil and water: Indeed (*a*) —

R. Stay, you need go no farther; this is another random ſhot; reflect but a moment, and you will ſee it was impoſſible for our imagination to be ſtruck with this ſimile, becauſe recent oil and water do not ferment.—A tub full of good new wort was thought on, which, if of a proper degree of heat, and left to itſelf, will diſpumate, but if ſtirred about, a ſeparation of the heterogeneous particles cannot take place.—

M. It is indiſputably true, that when the ſecretions and excretions are not regularly performed, diſeaſe ariſes; or inverſely, when *that* is preſent, they cannot *all* be regularly performed; but does it really follow, that all offenſive matter is by theſe conſtantly expelled in a ſtate inſenſible to us? Were this the truth, there would be no diſeaſe. Now if the ſecretions, &c. are ineffectual, what muſt neceſſarily happen? let this writer ſhew; otherwiſe let him invalidate the reaſoning of thoſe, who look on the enſuing fever as nature's endeavour to relieve herſelf (*b*).

R. By the quotation you have juſt made (*c*) from the Eſſay, it appears, that it was not ſaid, that all offenſive matter was conſtantly expelled in a ſtate inſenſible to us; but that it was *more likely* to be carried out of the body, when the circulation of the blood is regular, &c. than

(*a*) Anſ. p. 11. par. 3. (*b*) Ib. p. 11. par. 3. (*c*) Ib. p. 10. par. 3.

when

when in violent commotion. And if a fever was to ariſe ſolely from the ſecretions being incapable of performing their office, yet it does not follow, that it is an effort of nature.

M. Whence comes the fever, if the ſecretions can always prove effectual? — or if ſome good end were not the intent of nature, why let it be excited (*a*)?

R. It was not ſaid, they could always prove effectual to prevent a fever; and it is obvious, when the ſalts, &c. which ought to have been diſcharged, are detained, they will become more acrid, and, by irritating, excite a fever, *contrary* to the will of nature.

M. Will it not then follow, from theſe principles of acridity and increaſed motion, thus acting in a circle, and making every thing worſe and worſe, that the fabrick muſt inevitably be deſtroyed? And is the deſtruction of the machine certain, where the fever is not *ſuppreſſed*, but left to take its courſe? — Thouſands of recoveries happily prove this to be erroneous (*b*).

R. It but too frequently happens, that increaſed acrimony, and increaſed motion, by making things worſe and worſe, deſtroy the patient; but it by no means follows, that this muſt *always inevitably* happen, when the fever is left to itſelf; for though the blood and juices, in a fever, often run their circular courſe, with

(*a*) Anſ. p. 27. (*b*) Ibid.

ſuch

ſuch rapidity, that any thing contained in the blood has not *proper* time to make its eſcape by the lateral lymphatics: yet ſometimes a ſmall quantity of the materia morbi may keep paſſing off by inſenſible perſpiration, or be accidentally diſcharged in the urine, ſo as to prevent deſtruction, where there is ſtrength of conſtitution, till the fibres are weakened (*a*), and a diarrhœa, or ſome other critical evacuation, by chance comes on: but if the fever is violent, and none of theſe diſcharges happen, is not death the conſequence? — So that notwithſtanding thouſands may have recovered, where the fever was left to take its own courſe; yet it is very probable, many more thouſands had been living, if their fever had been properly ſuppreſſed.—For after all this *buſtle*, if a metaſtaſis to a particular part does not happen, the materia morbi muſt at *laſt* be ſeparated by ſome of the ſecretions; and the queſtion is, whether they are moſt likely to do it, when diſturbed, or regular? — You have juſt confeſſed, they cannot *all* be regularly performed, when a diſeaſe is preſent; and further, when they are not *regularly performed*, diſeaſe will ariſe; whence, inſtead of relieving, the fever embarraſſes nature, and of courſe, upon your own principles, ought to be ſuppreſſed.—

Beſides, is not it common for many diſeaſes, to produce ſymptoms, which, inſtead of aſſiſting, make them worſe? — Acrid matter, irrita-

(*a*) See Eſſay, p. 23.

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ting the bowels of a man, of ſtrong, rigid fibres, may bring on an inflammation; this inflammation will cauſe a fever; this fever, if left to itſelf, inſtead of being a friendly aſſiſtant, will increaſe the inflammation; and it is ten to one, in ſuch a habit, by afterwards increaſing each other, they deſtroy the patient; and where is the difference betwixt this, and any other fever, that ariſes from irritation; except that where irritating matter gets into the blood, it muſt receive its ſhare of the injury. — You will ſay, that you have not any thoughts of leaving the fever to itſelf, but that you will bridle and curb its mettleſome fury, till the *end propoſed* is attained (*a*). — But if the fever is an effort of nature, is not this being *wiſer* than nature; and upon reflection, will not an attempt to *direct her*, appear vain? — All we can do, is to aſſiſt her, and if your account of a fever be true, can curbing, bridling, or reducing, be conſiſtent? —

M. You yourſelf enquired, whether *every fever* is not in conſequence of acrimony, irritating the medullary part of the nerves; and (*b*)

R. I made no ſuch enquiry — I aſked whether *every fever*, *ariſing from acrimony*, is not the conſequence of its irritating the medullary part of the nerves (*c*); bringing inſtances to confirm this opinion.

(*a*) See Anſ. p. 47. (*b*) Anſ. p. 35. par. 2. (*c*) Eſſay, p. 31.

M. Well,

M. Well, from theſe inſtances (*a*) you argue, that *every fever* is ſymptomatical; but the very ingenious Mr. Hume has proved, that cauſe and effect are not ſo eaſily intelligible, as generally imagined. — And indeed, tho' not ſtrictly philoſophical, the ſecondary, we frequently look upon as the primary. — For a caſe in point — Fever may have ſome remote reſemblance to fire: And fire, from the beſt theory, is but an effect of motion, and yet we never ſay, motion is deſtroying the blazing houſe (*b*).

R. We did not attempt to ſhew, that all fevers were ſymptomatical, from theſe inſtances alone (*c*); nor are we in this caſe to be beaten off with this reaſoning. We very well know, that the variolous matter we inſert in inoculation, is the cauſe, and the ſubſequent fever, the effect; and does not this hold good, in regard to the abſorption of putrid matter, &c.? — It is not an univerſally received opinion, that fire is only an effect of motion; many eminent men, beſides Boerhaave, thinking it elementary, and we can eaſily conceive this element to be put in motion by friction. — However, we will fight you with your own weapons. — The fever is an effect of irritation from morbific matter, and yet we do not ſay matter, but the fever, chiefly deſtroys the patient. —

M. Notwithſtanding the fever may be truly the effect of irritation from morbific matter; the

(*a*) Anſ. p. 35. (*b*) Ib. p. 35. par. 2 and 3. (*c*) Eſſay, p. 30.

alarm

alarm is not till diſeaſe is beginning; and till the effect is perceivable, we do not think of the cauſe. — Hippocrates ſays,

— " That which afflicts a man, is called a " diſeaſe." —

Therefore, as the fever afflicts the patient, it may be deemed the diſeaſe (*a*).

R. So you bring Hippocrates to prove, that cauſe and effect are both the ſame thing. — You have confeſſed that the fever is an *effect*, and whether we think of the cauſe or not, every effect muſt have a cauſe: And pray, Sir, if the fever is *truly* the *effect* of irritation, how can it be an effort of nature?

M. But, I tell you, morbific matter may be within the frame, and running through the circulation, yet the machine not be diſordered; witneſs the inſerted variolous matter; while nobody, till febrile ſymptoms ariſe, ſays the inoculated perſons are diſeaſed (*b*).

R. Becauſe, till the ſymptoms of its having taken place appear, nobody can ſay whether the patient is diſeaſed, or not. — But, as ſoon as the ſmall wound ſhews ſigns of the matter having taken effect, before any fever comes on, we ſay the patient is diſeaſed. — And tho' the ſmall pox afterwards appear without any fever, which is often the caſe, yet we ſay he has had the diſeaſe. —

(*a*) Anſ. p. 36. par. 2. (*b*) Ib. par. 3.

M. But

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cold water, and cold air in fevers, upon becoming very hot, ſhe, without heſitation, of her own accord, drank a large bowl of cold water, which inſtantly terminated the fit, and brought on a ſweat, ſeveral hours ſooner than would otherwiſe have happened.—But we have further evidence to prove, that this fever does not remove the cauſe of the diſorder: For how comes it to paſs, that the real cauſe ſtill exiſts, when the fever comes upon the patient, perhaps, every day for a month or two together; who, inſtead of getting well, becomes weaker every fit, and degenerates into an ill ſtate of health? And do not the effects attending the bark, *cold bath*, &c. in this caſe prove, that inſtead of the fever, which makes the cure more difficult, another kind of aſſiſtance is wanting to remove the cauſe.—

It has generally been imagined, that the morbific matter is expelled in the ſweat, which ſucceeds the hot fit of an intermitting fever; that every fit makes a compleat criſis, and that the returns of the paroxyſms are owing to a freſh accumulation of morbid matter: But this is by no means certain; becauſe ſimilar appearances ariſe, where we are ſure there is no morbid affection of the fluids.—A man is ſeized with an Ephemera from exceſſive heat, which runs on for a certain number of hours, and then a ſweat, &c. follows upon its declenſion.—Sudden cold, in the ſame manner, ſometimes inſtantly brings on a freſh fit of an intermittent, where the patient has long been cured of

of this diſeaſe, that goes thro' its courſe perfectly regular, but without any return after it has declined; — ſo that the only difference betwixt theſe two fevers, thus excited, ſeems to be, that rarefaction of the blood increaſes its velocity, &c. and cold air, by irritating the nerves, which perhaps are more irritable than ordinary, ſeems to bring on a ſtricture upon the leſſer veſſels; whence the blood being returned in a ſhorter ſpace to the heart than uſual, quickneſs of circulation, and increaſed heat of courſe follows. — And what is worth obſerving, tho' the cauſe is immediately removed, the progreſs of the fit is not ſhortned, but the heat raiſed in the blood, and irregularity in the circulation, take a certain time to ſubſide, unleſs the fever is ſuppreſſed in the manner AVICENNA (*a*) recommends. Theſe circumſtances, probably, have led ſome to imagine, that every intermitting fever is a diſeaſe of the ſolids; but they do not ſeem to ſet aſide the opinion of Dr. Mead, that "the fault in this diſtemper will be commonly found to be in the *viſcera*, and glands "of the abdomen;" as a variety of ſymptoms, and the methods of cure, evince the truth of this aſſertion.

It is well known that the *viſcera*, when diſeaſed, render the whole ſtate of the nerves extremely irritable, and liable to be affected with every blaſt of wind. — And ſuppoſing the morbid cauſe, whatever it is, to diſturb the nerves

(*a*) Vol. II. Tract 1. Fen. 1. cap. 38.

of

of the meſentery, &c. at certain periods, its effects will inſtantly be ſpread all over the body; and as a ſhivering is the firſt ſymptom we perceive, it is certainly the immediate effect of the offending cauſe; and a fever is probably produced in the manner already deſcribed.

M. The returns of fevers, when not *intermittent*, but properly relapſes, and which the ancients obſerved after ſeemingly perfect criſes, declare plainly a *materia morbi* lying dormant in the human frame, till rouſed on ſome particular occaſion. — Should the fever, *excited by this matter*, be always, by drinking cold water, ſuppreſſed, extinguiſhed, or ſtifled, will not the cauſe be ſtill remaining within? And, if then to be removed by the uſual ſecretions, why not paſs off, before an alarm from febrile motion is given?

R. Theſe relapſes do not declare *plainly* a *materia morbi* lying dormant in the habit; for if the criſis was ſeemingly perfect, in all probability it was perfect: and the relapſe was moſt likely owing to re-infection, taking cold, or the like; for where care is not taken to remove the patient from every thing that will harbour infectious particles, a freſh fever may be raiſed, when he acquires ſtrength enough to be ſuſceptible of infection. — When the laſt epidemic fever raged in this place, we never had any relapſes, where the patient was removed from every thing that might give a freſh infection; but amongſt thoſe, who remained in the ſame room, without the neceſſary alteration

in their linnen, &c. ſeveral were re-infected;—and if infectious matter lies dormant upon bed-cloaths, &c. you cannot well imagine it to be removed by the ſecretions, in this ſituation.

However, we will ſuppoſe ſome *materia morbi* to lie as dormant as poſſible in the human frame, after an incompleat criſis of a fever; but then it will be neceſſary for us to look out for a ſleeping place; for it will ſoon be *rouſed*, if it is mixed with the maſs of blood, otherwiſe it will certainly eſcape, if no impediment is in the way; as it is impoſſible for any thing to ſleep, or remain inactive, when ſtirred briſkly about. — Suppoſe, therefore, we imagine a putrid ſordes lying in the inteſtines, &c. to be the fomes of a new fever; or that ſome part of the materia morbi is left behind in the lymphatic glands, incompleat criſes having been obſerved to happen, where glands have remained ſwelled; and that afterwards accumulating, getting at liberty, and entering the blood, &c. excites a new fever.

Dr. Pringle (*a*) has given us an inſtance, where "the mate of an hoſpital had both the "parotid glands ſwelled, without any previous "indiſpoſition; when not ſuſpecting the cauſe, "and applying diſcutient cataplaſms, he was "immediately ſeized with the malignant fever," then prevailing in the hoſpital he attended.— In the ſame manner the variolous matter infuſed by inoculation, ſeems evidently to be confined

(*a*) Obſerv. 254.

to

to the lymphatic ſyſtem, till the time it produces a fever; and not having before entered the maſs of blood, was incapable of being ſecreted.—The fever now, as you have confeſſed, hinders its being ſecreted; therefore the practice of ſuppreſſing, or preventing the fever, muſt be right, for the reaſons already given: for it may be demonſtrated, beyond poſſibility of doubt, that, when the matter which is abſorbed from a large ulcer, is ſo mild, as to be incapable of irritating, and bringing on a fever, it is *immediately* ſecreted by the kidnies, or carried off by ſtool (*a*); whereas when it is very acrid, a fever inſtantly comes on, upon its entering the habit; and the ſecretions are thus rendered incapable of removing it out of the body.—If a fever were an effort of nature to ſeparate the impure, from the pure parts; how comes it to paſs, that no fever is raiſed, when the habit is oppreſſed, nay even overloaded with the venereal virus?—We ſay, becauſe this matter, when mixed with the lymph, is incapable of irritating the nerves, with any degree of violence (*b*); and that the reaſon it is not ſecreted, is, becauſe its chief ſeat is in the membranes, and lymphatics.—But that irritation and diſtenſion will produce a fever, cannot be denied, ſo many facts being ready to

(*a*) See Lond. Med. Inq. vol. 2. page 278. And we have not any doubt, but where the quantity of infectious matter received immediately into the blood, is very ſmall; it is often carried off by the ſecretions, without cauſing any diſturbance.

(*b*) The length of time the venereal node remains indolent, ſhews the ſmall degree of acrimony in this virus.

evince the truth of it: or if you ſuppoſe the preternatural heat to be owing to the mixing of different kinds of ſalts; yet it is ſtill raiſed in *oppoſition* to nature; and it remains for our adverſaries to prove, with equal certainty, in what manner *nature raiſes* a fever, without its being excited by the offending cauſe: for ſaying that a fever is an effort of nature, and ſupporting this theory by equivocal appearances only, without being able to ſhew, how this effort is brought about, is ſaying nothing to the purpoſe.—The reader then will judge, Sir, whether you have already ſaid any thing, which proves, that the fever is an œconomical proceſs of nature for relief.—Perhaps it may, in general, be difficult preciſely to aſcertain, the part that nature acts in the cure of diſeaſes; but in the caſe in hand, the matter ſeems pretty plain. — I imagine, the common method of quenching thirſt, will be allowed to be the deſire of nature; and is not it owing to the ſame principle, that, "whenever labouring under heat and thirſt, the "common accidents of a fever; *Ideas of cold* "*and moiſture* naturally occur (*a*)?" — Can *Dame Nature*, then, who is regular and conſiſtent in all her ways, "and ever watchful over "her patient's intereſt," raiſe a fever, to aſſiſt herſelf, and at the ſame time excite ſuch ideas to deſtroy it? — Nor does the deſire of cordials, ſuch as ſtrong ale, or ſalted meats, which ſometimes happens in the decline of fevers, contradict, but ſhews the rectitude of this impulſe

(*b*) Anſ. p. 43. par. 2.

of

of nature; as they are never wanted, but where the diſeaſe has run out to a great length, and the ſtrength and ſpirits are exhauſted.—GALEN has ſomething much to the purpoſe, with which we will cloſe this firſt diſpute.

Speaking of *cold* extinguiſhing heat, he proves, that this is effected by going into the bath, after being heated in the ſun, and ſays, "in the "country, having finiſhed their journey, where "there are not baths, the young men caſt "themſelves into ponds, or rivers, without the "advice of any Phyſician; being compelled by "nature herſelf, who governs the body, to that "which tends to its advantage. —Which (na-"ture) in animals void of reaſon, implants in-"ſtinct, *to uſe the reverſe of thoſe things which* "*offend them.*—For when they are offended "with heat, they waſh themſelves in cold "water; and, in the ſame manner, when they "are urged by cold, they find for themſelves "warm beds.—Alſo, from the ſame deſire of "contrarieties, when hungry they eat, and "when thirſty they drink; and they perform all "other things, from an impulſe of nature(*a*)."— "And if we had a certain knowledge of the "diſpoſition of thoſe labouring under fevers, I "do not think we ſhould be in any doubt about "waſhing ſome of them daily in cold water, "without the bath."

(*a*) Method. Medend. lib. 10. cap. 10.

DISPUTE the SECOND.

Concerning Concoction in Fevers.

WE now, Sir, come to the ſtumbling-block, which, in every age ſince GALEN, has perplexed the practice of thoſe, who have adviſed the uſe of cold water, &c. in the cure of fevers; and deterred others from giving it at all, in theſe complaints.—It was obſerved (*a*), that GALEN was fond of theory; and others have ſaid, "that he took a great deal of "pains to explain every thing into the "clouds(*b*)."—But he perhaps never did more miſchief in his *Theory*, than in his prohibiting the extinction of fevers, till ſigns of concoction appear.—For though he himſelf never obſerved this rule in practice, as we ſhall preſently make appear; yet his theory has been implicitly copied from one writer to another, till it was ſhewn to be falſe in the Eſſay we are defending.

M. There is reaſon to think that the doctrine of concoction in fevers, if rightly underſtood, is not fallacious (*c*).

(*a*) Eſſay, p. 16. (*b*) Boerh. Inſt. ſect. 15.
(*c*) Anſ. p. 56.

R. Is

R. Is it not proved, by plain matters of fact, that the morbific matter in fevers is never *corrected*, till it is ſeparated from the blood; and, therefore, cannot be concocted while circulating in the veſſels (*a*).

M. Will this reaſoning abſolutely overturn the doctrine of concoction?—For the ſecretions, when recent, are thin, by ſtagnation moſt become inſpiſſated, and ſome may remain without contracting any malignancy.—Their alteration of aſpect in the different ſtates, is eaſily accounted for, to thoſe who are the leaſt acquainted with the doctrine of colours (*b*).

R. Indeed, I am much pleaſed with this attempt to overturn *facts*, by endeavouring to perſuade a man, that he cannot believe his own eyes; and yet I muſt confeſs, that all this harangue appears to me, to have nothing to do with the ſubject; being no ways appoſite, ſeemingly calculated to perplex; and if you had deſcribed an eclipſe, it would have been as much to the purpoſe.—The plain queſtion is, whether febrile matter is, or is not expelled unconcocted?—Now every man in the profeſſion, if he has made any obſervation, knows, by ocular demonſtration, that wherever he has been able to diſcover the matter, which is thrown off in fevers; it is conſtantly expelled in a crude ſtate, and, therefore, cannot have been concocted.—Do you think it poſſible, Sir, to perſuade any man, by chattering about the doctrine of colours, that

(*a*) Eſſay, p. 18. (*b*) Anſ. p. 23.

matter, which is expelled from the blood, and immediately brings on a ſphacelus, was, in any degree, rendered mild, before its expulſion?

M. True concoction is, when nature, thro' her various proceſſes, reſolving, or correcting the offenſive matter, is ready to throw it out by her outlets, or to ſeparate it in form of abſceſſes (*a*).

R. This definition no ways comes up to the πεπασμος, or maturation, of the Greeks; and is different from what has been generally underſtood by concoction in fevers; ſo that you give up the doctrine you are defending, unleſs you think the words *correcting offenſive matter*, ſave your bacon.—

No body will deny, but nature does her work by various proceſſes; but certain it is, that ſhe never corrects offenſive matter; and the manner in which reſolution takes place, has been already ſhewn (*b*). — May we not therefore aſſert, as a ſelf-evident poſition, that the *natural heat of the body* will be ſufficient for any proceſs in the animal œconony? — Even your favourite doctrine of fermentation, might be better accompliſhed by natural, than violent heat. And remember, Sir, you have not ventured to deny, that increaſed impulſe both increaſes viſcidity, acrimony, and obſtruction; — ſo that the fever may do harm, and can no way ſerve you, according to your own *imaginary* account

(*a*) Anſ. p. 23. (*b*) Eſſay, p. 20.

of

of concoction. And let me juſt further obſerve to you, that nature never ſeparates matter in form of abſceſſes, but the abſceſſes are *formed after* the matter is ſeparated.

M. We would know, whether you cannot think an actual converſion of the matter, equally facile with your *materia morbi*, changing the nature of the humors to its own (*a*) ?

R. If you mean a converſion from an acrid to a mild ſtate — I anſwer, No ; — becauſe it is contrary to the proceſs of nature, which never renders matter mild, while mixed with the blood ; but diſcharges it, as was ſhewn (*b*), in an acrid ſtate. — And, indeed, if it was rendered mild, would not the fever ſubſide without any criſis, as there would be nothing then in the habit to give diſturbance ?

M. Though you make it certain, that the matter in inoculation repaſſes thus unaltered ; is the argument abſolutely *againſt* concoction (*c*) ?

R. Yes ; becauſe it is neither maturated, nor corrected. — Acrid matter cannot be rendered mild, unleſs the more volatile parts fly off, or by being mixed with a proper corrective ; neither of which can poſſibly be done, by nature alone, whilſt circulating in the veſſels.

M. Or will it make us inattentive to the operations of nature (*d*) ?

(*a*) Anſ. p. 23. (*b*) Eſſay, p. 16.
(*c*) Anſ. p. 23. (*d*) Ibid.

R. At-

R. Attend to nature, and you will ſee, inſtead of a *complex*, which is quite unneceſſary, ſhe always diſcharges whatever is unfit to continue in the circulation, by a *ſimple* proceſs, in its acrid ſtate.

M. To draw then, with ſubmiſſion, a compariſon, *ab extra*, from fermentation, in the proceſs of brewing. — No one inſiſts that the particles of the yeaſt are changed, though abundantly increaſed by additional ones from the wort (*a*).

R. We inſiſt, that the matter we inoculate with, is not changed, though abundantly increaſed by an addition from the blood. — And we further ſay, if the variolous miaſmata, or the miaſmata of a putrid fever, were corrected, or changed, they could no more give infection, than yeaſt could produce fermentation if its nature was altered — This we are certain of from experience: for if the variolous matter becomes ropy, and vapid, by being improperly kept, it will not give infection — Get over this, if you can, Sir.

M. We may ſuppoſe before this fermentation and deſpumation are effected, that the wort is crude; when finiſhed it may be compared to concoction (*b*); and concoction in eruptive fevers anſwers to the proceſs of brewing, reſpecting the *non-converſion of the offending particles* (*c*).

(*a*) Anſ. p. 23. (*b*) Anſ. p. 24. (*c*) Ibid.

R. Truth

R. Truth will prevail, as you ſay (*a*), Mr. Maxwell; for you ſee you are forced to confeſs, that it is not the *offenſive matter* that is changed in fevers, but that the blood is left pure, when this offenſive matter is diſcharged.—This comes exactly to our point, and gives us ſo compleat a victory, in what concerns concoction, that we might excuſe ourſelves any further trouble on this occaſion.—Nevertheleſs we will follow you through, to let the reader ſee the force of all your arguments.—

M. This compariſon in the meaſles and ſmall-pox, may poſſibly be extended farther than is at preſent imagined (*b*).

R. If real fermentation were to take place in the ſmall-pox and meaſles, the elaſtic air that would be at liberty, would, I believe, by diſtending the veſſels, be the cauſe of the patient being carried to the grave, which would be extending this matter as far as poſſible.

M. You tell us, the ſediment in the urine, which HIPPOCRATES, and other writers, looked for as the mark of concoction, is not to the purpoſe; for which you give your reaſons (*c*).—Now we know ſo little of the eſſence of things, or of groſs matter itſelf, that no one will po-

(*a*) See Eſſay, p. 21. or Anſ. p. 25. (*b*) Ibid. note.

(*c*) Mr. Maxwell not being able to diſcover, that extinction was only intended to ſubdue the fever; and that the cauſe of the fever was to be removed by proper remedies; upon ſeeing medicines recommended, imagines he has a victory, and roars out, *magna eſt veritas & prævalebit*; but he will perhaps ſee, that he has hallooed before he has got out of the wood.

ſitively

ſitively declare, *that* which is ſeen at the bottom of the urine to be the cauſe of the diſeaſe; but who, on the other hand, can prove it is not? — Yet whatever the cauſe, or wherever reſiding, fevers removing after ſuch appearances in copious urinary diſcharges, theſe diſcharges may be called critical, and thoſe appearances marks of concoction, even if they were merely concomitant (*a*).

R. After all, then, you cannot ſay or prove, whether the ſediment in the urine be a ſign of concoction, or not; or, indeed, *what it is.* — The arguments you oppoſe, (which, inſtead of being "vague reaſons, and a cloud of words," are deduced from *facts* and *experiments*,) remain therefore in their full force, for any thing you have ſaid to the contrary. — And if we reflect, that the ſediment in the urine appears *after* the fever is gone off, and not *before*, as you aſſert, and would have it believed, to ſerve your purpoſe; it can only be conſidered as a conſequence of a ſolution of the diſeaſe, and as a *ſign of the criſis*, which perfectly correſponds with the prognoſtic of the GREAT FATHER OF PHYSICK (*b*).

M. I ſay, the arguments in favour of increaſed acrimony not being rendered milder by any proceſs in nature (*c*), are obſcure, whether it is meant to aſk, if perſpirable matter, which excites a fever, can paſs through the pores, or

(*a*) Anſ. p. 25. (*b*) Ib. p. 26. (*c*) Eſſay, p. 23.

whether

whether the meaning is with reſpect to concoction.

R. You allow that it is ſaid, that acrimony, from ill health, will paſs off by *diaphoreſis* (*a*), therefore it could not be aſked, whether perſpirable matter which cauſes a fever, can paſs through the pores; and muſt mean with reſpect to concoction. — But you ſeem deſirous of not having this paſſage underſtood; becauſe it ſhews, as far as poſſible, that there is no neceſſity for acrid ſalts, &c. being maturated, to make them paſs off by perſpiration, but that they will readily enough be diſcharged in their acrid ſtate by the common natural proceſs: and is it not ſhewn by plain *matter of fact*, which you have acceded to, that they are always diſcharged in this ſtate? — For what purpoſe then, ſhould the patient undergo the hazardous attack of a fever?

M. We know that nature has been capable of abſorbing even abſolute pus, and carrying it away by ſtool, &c. (*b*).

R. This every body knows (*c*), but it is foreign to the preſent purpoſe (*d*). — Though pus is abſorbed and carried away by ſtool, &c. it is no proof that matter is ever formed, while circulating in the veſſels, or that nature more eaſily carries off pus than lymph. And does pus ever paſs off by the veſſels of the ſkin?

(*a*) Anſ. p. 26. (*b*) Anſ. p. 27.
(*c*) See Lond. Med. Inq. vol. 2.
(*d*) See Eſſay, p. 23.

M. Still

M. Still brooding over your evil ideas of a fever, you declare that a fever retards maturation. — *Though when maturation comes on, the fever commonly ceaſes* (*a*).

R. I have no favourable opinion of a fever, though you, for *various reaſons*, look upon it in an oppoſite light. — Remember, Sir, the words, above marked in *Italics*, are of your own cramming in, for there is no ſuch paſſage in the Eſſay; by which you would make it appear, that the going off of the fever, is the conſequence of maturation. — Whereas, pus is never formed in an ulcer, which immediately follows a wound (*b*), till *ſome days after* the fever is entirely gone.

M. This probably is an error of *non cauſa— pro cauſâ* (*c*).

R. Why?

M. Becauſe the fever in wounded perſons does not ariſe from morbific matter inſerted by the wounding weapon, but from the injury to part at leaſt of the nervous ſyſtem (*d*).

R. Who ſaid it did ariſe from inſerted morbific matter?—The fever was ſaid to be the conſequence of inflammation (*e*); for it has been elſewhere ſhewn, that it does not ariſe from *wounding* the nerves, but from obſtruction and diſtenſion (*f*).

(*a*) Anſ. p. 28.
(*b*) Every wound becomes an ulcer immediately upon its diſcharging either ichor or pus.
(*c*) Anſ. p. 28. (*d*) Ibid. (*e*) Eſſay, p. 25.
(*f*) Eſſay on Hæmorrhages from divided Arteries, p. 29. par. 2.

M. Pus

M. Pus cannot immediately appear, upon any theory of its formation, till the veſſels diſcharge themſelves. And when turgidneſs, tenſion, and pain are removed, the ſymptomatic fever ceaſes in conſequence;—hence the fallacy of the reaſoning (*a*).

R. It was ſaid,—The inflammation, and its *conſequence*, the *fever*, which keep up each other, being gone, and the veſſels being pervious, the juices are tranſmitted unaltered into the wound; and if mild, good matter is formed, by the more volatile parts flying off, and leaving a ſediment in the ſore (*b*):—So that you have confirmed, inſtead of ſhewing the fallacy of the reaſoning.

M. Then to this opinion, and your ſaying that a fever is not at all neceſſary, we would oppoſe that of VAN SWIETEN, who tells us, that a ſlight fever is rather ſerviceable, by forwarding the formation of pus, or matter in the wound, and when the *pus is formed the fever generally vaniſhes* (*c*).

R. We know this is a prevailing theory; but with ſubmiſſion to the learned BARON, we muſt obſerve, that *laudable pus*, is never formed, till new granulations of fleſh begin to riſe, which is *ſeveral days after* the fever is entirely gone.—But to what is already ſaid (*d*), and to put it beyond doubt, that a fever is not neceſſary to the formation of pus, and that it retards ma-

(*a*) Anſ. p. 28. (*b*) Eſſ. p. 29, note. (*c*) Anſ. p. 28, note. (*d*) Eſſay, p. 28.

turation;

turation; we ſhall obſerve, that in old local ulcers diſcharging a thin ichor, where neither fever, nor inflammation attend, good matter is formed, upon ſimply rendering the diſeaſed veſſels pervious. — And if a fever happens, by any accident, to come on, the diſcharge becomes acrid, and ill conditioned, till the fever has diſappeared.—And I am very certain, that I could convince the able writer you have mentioned, from my own practice, that he is miſtaken about this matter.

M. Among the various doctrines of the formation of *pus*, thoſe perſons, who believe the cellular membrane is abſolutely required; we would aſk; what they think of the variolous puſtule (*a*)?

R. It hath been ſhewn (*b*), that *pus* in a recent ulcer, and in the variolous puſtule, are both formed in the ſame manner; by the volatile parts of the lymph flying off. — Nor do we think membranes can be converted into pus; but in proportion as they are mixed with it, the pus degenerates; as may be learnt from what is ſaid in the Eſſay (*c*).—This queſtion, therefore, ſeems foreign to the ſubject; unleſs it be intended to take an opportunity of oppoſing, what is ſaid about the different manner, in which matter is formed, with the laboured, though, at laſt, unintelligible account of Monſ. FIZES, and the froth of FREKE (*d*).

(*a*) Anſ. p. 29. (*b*) Eſſay, p. 29, note. (*c*) Ib. p. 25. par. 1.

(*d*) Mr. FREKE, upon this occaſion, ſaid, "If any man "will ſhew me, that any part of the blood, put into a ſand-heat,

M. But to the arguments of fevers hindering maturation, we appeal to common obſervation, whether the puſtules, moſt replete with purulent matter, ſimilar to *pus laudabile*, have not their baſes more inflamed, than thoſe where the interſtices are pallid (*a*).

R. This, then, you take to be a deciſive argument; but upon review, you will ſee, it implies no more, than, —*whether the baſes of replete puſtules are not more inflamed, than where there is no inflammation at all.* — But if you ſuppoſe this inflammation is cauſed by a fever, and mean to aſk, whether the baſes of puſtules moſt replete with matter, are not moſt inflamed; and thence infer, that fever and inflammation are neceſſary to fill them: — We anſwer, that this inflammation is not cauſed by the fever, but is only the conſequence, or effect of irritation (*b*) by matter, after it is expelled

" heat, and digeſted there, ever produced any thing like " digeſted matter; or if they can ſhew, that decocting it " ever ſo long, produced any thing like concocted matter; " then I will ſuſpend my belief, and ſay, what I offer for " a fact, may not be ſo." (Art of Healing, p. 46.)— Now, ſince this, Dr. PRINGLE has ſhewn, that the ſerum of the blood, being ſet in a furnace a little time, becomes turbid; and gradually drops a ſediment reſembling well digeſted matter. (Ob. Exper. 45.)—So that there is an end of Mr. FREKE's Theory, which Mr. MAXWELL ought to have known.

(*a*) Anſ. p. 31.

(*b*) In the natural ſmall-pox, it is well known, that there are often three ſeparate fevers.—The firſt is the eruptive fever; and takes its riſe from the variolous matter irritating the nervous ſyſtem, while circulating within the veſſels. The ſecond fever ariſes from its irritating, and inflaming the ſkin, after it is expelled from the blood. The third is a putrid fever, ariſing from an abſorption of this matter, after it is become putrid, by lying upon the ſkin, &c.

from the blood; and will be in proportion to the quantity of matter, its degree of acrimony, and to the irritability of the patient; ſimilar to the effects of a bliſter.—And, though it is impoſſible that the interſtices in the ſmall-pox ſhould be otherwiſe than pallid, where the *vis vitæ* is weak, and the fleſh of the patient leſs warm, than in a ſtate of health, as is already explained (*a*); — Yet that a fever is not neceſſary in forming laudable pus in the variolous puſtule, will be evident, when we recollect, that they are equally well filled with good matter, where there is no fever at all.

M. Critical abſceſſes are brought to ſuppuration ſooner, where the ſymptoms run higher (*b*).

R. This proves, that heat increaſes acrimony, and if it becomes very violent, we know a mortification, inſtead of ſuppuration follows. — And has not experience taught, that a moderate degree of heat is ſufficient for the formation of *pus* in abſceſſes; or why do we apply cooling emollient poultices, where the inflammation, &c. is great?

M. You ſay, "that, inſtead of the common "adage, *Cocta non cruda ſunt movenda*, may "we not with more propriety ſay, *Cruda me-*"*dicamentis aggredi et movere oportet* (*c*)?"— But the opening a critical abſceſs with a lancet, while in a ſtate of crudity, has been moſt times followed with a tedious and difficult

(*a*) Eſſay, p. 29. par. 2. (*b*) Anſ. p. 33.
(*c*) Anſ. p. 21. par. 2. with note.

cure.

cure. — May not then a parallel argument be brought for the truth of the old maxim, and error of the new one ?

R. No. — Becauſe it is *impoſſible* that the *materia morbi* ſhould be converted into pus, till after it is ſeparated from the blood. And even after it is ſeparated, if you make it paſs off crude by perſpiration (which is the true way of removing every inflammation ariſing from a metaſtaſis of matter) before it injures the veſſels which contain it, the patient receives a ſafe, and a much ſpeedier cure.—And we only ſuffer a deſtruction of the fat and cellular membrane, or of the glands, to take place, when we cannot avoid it.

M. What is ſaid about concoction in fevers deſtroying the patient, is a remarkable *petitio principii.* —Shall we ſuppoſe nature ſo improvident, that one of her proceſſes would inevitably bring deſtruction, and this, too, when her deſign is the conſervation of the frame?— It is impoſſible for us to believe ſuch the true idea of concoction (*a*)!

R. The concluſion you refer to, (Eſſay, p. 25. par. 2.) is drawn from the *known laws* of the animal œconomy, which is proving it, as far as any thing of this kind can be proved— "And it may be pleaſant to obſerve" yourſelf immediately guilty of the fault you are condemning; for do not you take for granted, what you have not proved?—We ſay, nature

(*a*) Anſ. p. 31.

has no ſuch proceſs, as concoction, or maturation of matter, while circulating in the veſſels; and that ſhe does not even correct offenſive matter in fevers; to which you agree (*a*), and we then ſubmit to judgment, whether a tittle of what was ſaid againſt concoction in fevers, be diſproved.

DISPUTE the THIRD.

Concerning the Extinction of Fevers.

WE now enter upon the principal Diſpute; and as your whole intention is to make it believed, that the extinction of fevers by *cold* is prejudicial; ſo we find you have here been doubly diligent to gain your point.—You remember, Sir, in order to ſhew that an immediate extinction of the fever is the ſureſt, and moſt rational method of removing the diſorder by which it was cauſed, the evidence of the ancients, who extinguiſhed fevers by cold water, was produced.

M. We ought not *raſhly* to drink cold water, in hopes of ſuppreſſing fevers; the ancients were far from recommending it indiſcriminately (*b*).

(*a*) See page 19. (*b*) Anſ. p. 65.

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is changed (*a*): Or, if this is not the light you attempt to ſet this matter in, why ſhould you expect people, that have a fever, to be cured upon the plan adviſed, by drinking cold river water (*b*); or that reading Doctor HUXHAM ſhould be uſeleſs (*c*)?

Now, however ſtrange it may ſeem, certainly cold water is never recommended in the Eſſay, as a cure, but only as an aſſiſtant in the cure of *thoſe* who have a fever; for, as is obſerved, the fever, i. e. *preternatural heat* (*d*), was only conſidered as a ſymptom; and though cold air, or cold water, were adviſed to extin-

(*a*) Anſ. p. 40. (*b*) Ib. p. 43. (*c*) Ib. p. 64.
(*d*) HIPPOCRATES commonly uſed the word πυρετος, or fiery heat, to denote a fever (Lib. de Judic. cap. 24.) And GALEN expreſsly ſays, that a fever is *nothing* more than a fiery heat (Lib. de Art. Com. 3 Aph. 8 D.) or a converſion of the native, to a fiery heat, (in Aph. Hippoc. Com. 1.) and in this opinion all the ancient Phyſicians agreed.—It was with propriety, therefore, that GALEN, in treating of fevers, made a diſtinction betwixt the *fever* and its *cauſe*; for though he gave different medicines as the caſe required, to remove the cauſe, yet he ſays, *cold water is a perpetual remedy* againſt the fever itſelf, i. e. it will always extinguiſh preternatural heat.—Some, indeed, have derived the word fever, from *februo*, to purify, or cleanſe; but theſe have adapted their derivation to the prevailing theory concerning fevers, and not to its original meaning.—We have therefore joined GALEN, AVICENNA, MARINELLUS, FERNELIUS, and others, in defining a fever to be *preternatural heat*.—For though a quicker contraction of the heart, with an increaſed reſiſtance at the capillary veſſels, may bring on a fever, and every fever may be accompanied with an increaſed velocity of the pulſe, yet this ſymptom cannot, as ſome think, characterize the diſeaſe, becauſe it frequently exiſts for a long time without any fever at all. Even the cold fit of an intermittent, in which the pulſe is quick, makes no part of the fever, but the "fever comes on, as the rigor declines." Hip. de Morb. Popular. lib. 5.

guiſh *preternatural* heat, yet it was never imagined, that ſuppreſſing the fever removed the cauſe of the complaint: For, though it is ſaid, in the ſecond page of the Eſſay, that the extinction of the fever is the ſureſt and moſt rational method of removing the diſorder, by which it was cauſed; yet this is to be conſidered only as removing the moſt *violent impediment*, and thereby giving nature an opportunity of ſubduing the cauſe herſelf, or of being more readily aſſiſted by medicines; a variety of which are pointed out.—And is it not expreſly and fully explained in this manner, in the third, ninth, thirty-fourth, and thirty-fifth pages, and ſeveral other places? — In particular it is ſhewn, that obſtruction is not to be removed by water, but by other neceſſary ſteps.—Nor did we confine ourſelves to the uſe of cold water, as the only extinguiſher of heat, though we ſhewed that the ancients gave it for this purpoſe; but in moſt caſes we preferred cold air, where it could be procured, of which we ſhall have occaſion to take notice.

Again, am not I miſrepreſented, as to the method of extinguiſhing fevers, by only taking part of my meaning? For according to your account (p. 39.) it ſeems as if I had adviſed the inſpiration of cold air; expoſing the body to cold air, drinking cold water, and pouring cold water upon the head of the patient, at the ſame time, till the fever is ſubdued; and, to make this practice appear ſtill more ridiculous, you have only choſe to lay before the reader, one of

of the reaſons given for all this, viz. becauſe thoſe who, by miſtake, have been expoſed to cold air, have received manifeſt advantage.

Now the truth is, proper evacuations being made (*a*), if cold air was inſufficient to extinguiſh the fever, drinking cold water, if the *violence of the diſeaſe required*, was adviſed; adapting the proportion of cold to the degree of heat:—But where do you find directions given for pouring cold water upon the head? Or was any thing more ſaid about this matter, than offering to the *conſideration* of the Gentlemen of the Faculty, whether, if the method juſt mentioned failed of ſucceſs, pouring cold water upon the body, in imitation of the practice of other nations, till the fever was ſubdued, might not be proper; ſhewing, at the ſame time, the neceſſity of extreme caution in this reſpect, if the practice ſhould be thought eligible?—And would you have done more than the ſtricteſt juſtice, if you had ſtated it in this light, and if, inſtead of mentioning *only* what was intended as a corroborating circumſtance, you had ſaid, "beſides caſes in point (*b*), our Author has recommended this practice upon the concurring, and independent teſtimony both of the ancients and moderns."—It is impoſſible, Sir, that an attachment to truth ſhould be the motive for this groſs miſrepreſentation.

In other places (*c*), want of candour is laid to my charge; but how far this is true, will appear

(*a*) Eſſay, p. 37. par. 2. (*b*) Ib. p. 38.
(*c*) Anſ. p. 40 and 45.

from

from the following replies, to the objections brought againſt the arguments in favour of the extinction of fevers.

M. From thoſe expreſſions in the quotations, which I have marked in *Italics* (*a*), viz. *Sweat in the beginning — along with other medicines — makes him vomit* — it is clear that HIPPOCRATES had not his chief hope in cold water; and that an evacuation is expreſsly pointed out, namely *vomiting* (*b*).

R. You would make it appear, then, that HIPPOCRATES did not give cold water to extinguiſh the fever.—If vomiting was his intention, why did he not preſcribe an *emetic*, and what occaſion was there for his laying a ſtreſs upon the water being *extremely cold?*—But it ſeems plain, he thought, in order to cool the thirſty patient, it was neceſſary, in an acute fever, he ſhould drink more than his ſtomach could bear. — And could his gradually increaſing the degree of coldneſs in the water, in proportion to the degree of heat, in the bilious fever, be with an intent to make the patient vomit? Nor does he mention a word about vomiting in this chapter; but foretells, that a recovery will happen, if a ſweat comes on, and the fever leaves the patient.—In the caſe of the lying-in woman, he ſays, the coldeſt water did ſervice, without mentioning any thing about vomiting:— But this you overlooked, becauſe it made againſt your purpoſe. —

(*a*) Anſ. p. 13. (*b*) Ib. p. 16.

M. The

M. The words of CELSUS, "ought to vomit," are of the ſame tenor, and another evacuation follows it, which, he ſays, is of immediate relief,—a great ſweat breaks out (*a*).

R. CELSUS expreſsly lays his ſtreſs upon the patient being *ſufficiently cooled* (*b*); and not upon his vomiting; which, from his own account, is a matter of indifference. Nor does he ſay, the ſweat breaks out after vomiting, as you would artfully make us believe, but *after a remiſſion* of heat.—You talked juſt now of dealing in *Italics*; how came it to paſs that you omitted to let the reader ſee what words were marked in the Eſſay in *Italics* in this place (*c*)?—They certainly point out the true meaning of the Author, which you ſeem to have been aware of, or you would have copied them exactly; for where there was no end to ſerve, you have been ſo very exact, as to copy, unnoticed, in *Italics*, a typographical error of the word *quaquaverſum*, which is rather an unlucky circumſtance in a man, who ſo frequently ſhews away in ſpouting ſquibs of Latin.

M. I muſt confeſs HIPPOCRATES (*d*) gave cold water in fevers, when other methods failed: But the practice ſeems to be from *neceſſity*, when perhaps, he expected by its uſe to excite a *rigour*, that the ſucceeding ſweat might chance to remove the diſtemper, for he ſays—

(*a*) Anſ. p. 16. par. 3. (*b*) Eſſay, p. 5, and 6.
(*c*) Eſſay, p. 4, 5, and 6. (*d*) Anſ. p. 51. We purſue the arguments about HIPPOCRATES, &c. to keep up a regular connection.

A rigour

A rigour coming upon an ardent fever, cures the fever.

R. If I underſtand the meaning of your own words, you ſay, that cold water was uſed to excite *ſeverity*. And that *ſeverity*, coming upon an ardent fever, cures the fever: For as the word *rigour* occurs thrice in this place, and even once by miſ-copying in another (*a*); I cannot ſuppoſe it an error of the preſs, as it is not in the table of errata.—But if by *rigour* you mean a ſhivering, the ſenſe will be according to HIPPOCRATES, and it will only then appear, that you have copied the word ῥῖγος without underſtanding it (*b*).—But if HIPPOCRATES had any ſuch intention, would not he have talked of a *rigor*, and what he expected from it, when he adviſed the uſe of cold water in removing a fever? And is not the reaſon given from this writer, which is carefully omitted, more applicable to the point in queſtion (*c*)?—However, in the ſenſe you would have his practice underſtood, no man living could confeſs more in favour of cold water, as an extinguiſher of fevers, than yourſelf; as the ſweat happens in the *abſence of heat*, and HIPPOCRATES, you allow, was under the *neceſſity* of abating the heat, to promote this evacuation.—Nor could any one more effectually have given up all he had ſaid about its being adminiſtered as a vomit; but the truth of this circumſtance, probably, not hav-

(*a*) See Anſ. p. 49.

(*b*) We have deſignedly overlooked the many grammatical errors, which may be found in the Anſwer, in order to confine ourſelves ſtrictly to the ſubject.

(*c*) Eſſay, p. 9. part 2.

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ing made any great impreſſion upon your mind, eſcaped your memory at ſo great a diſtance of time, as is required to write thirty-five pages,—and HOFFMAN, in the mean while, falling in your way (*a*), gave a hint which you thought to your purpoſe.

Now in order to explain the above paſſage of HIPPOCRATES, we muſt obſerve, that it was ſpoken, to ſhew the manner, in which ardent fevers ſometimes terminate. And it is well known, that a rigor coming upon a fever, either a ſweat, or a metaſtaſis of matter, often immediately removes the diſorder—therefore HIPPOCRATES very properly ſaid, "Moreover if a rigor ſeizes a perſon in an ardent fever, he generally ſweats," whence, "a rigor, coming upon an ardent fever, cures the diſeaſe (*b*)."

M. HIPPOCRATES ſays, where the fever was ſlight on the touch externally, but internally great heat, tongue rough, and hot breath; if a *rigour* and vehement fever attack him, and the patient ſweats, he recovers on the ſeventh day; otherwiſe he dies on the ninth.

R. This quotation (*c*) is neither ſo exact, nor ſo full as it ought to have been; and you

(*a*) Anſ. p. 49. (*b*) Lib. de Judication. ſub finem.
(*c*) Foris ad contactum febris debilis eſt, intrinſecus autem ardet, et lingua ipſius aſpera eſt, et pernares, et per os ſpirat calidum. Quinta die præcordia dura ſunt, et dolor ineſt, et calor, qualis in morbo regio apparet, et craſſam ac bilioſam urinam ejicit. Hunc ſi ſeptima die rigor, et febris vehemens apprehenderit, et exſudarit, bene eſt; ſin minus moritur ſeptima aut nona. Lib. de morb. ſect. 2. febris a bile.

miſtake

miſtake the ſenſe of HIPPOCRATES, by conſidering this, which has a very different meaning, and the laſt paſſage quoted from him, in the ſame light; for this proves, that if a fever ſucceeds a rigor, it prevents evacuation; which confirms what we have juſt ſaid of the ſweat happening in the abſence of heat.—

It is well known, from every day's practice, that if a violent fever ſucceeds a rigor, evacuation by ſweat does not happen, if ever, till the fever declines, during which time the event is uncertain; — agreeable to which, when HIPPOCRATES talks of a vehement fever following a rigor, he ſpeaks of the ſweat as an uncertain event, in ſaying, "*If* a ſweat comes on, it is "well, *if* not, he dies on the ſeventh, or ninth "day:" And what hinders the ſweating, and kills the patient, but the vehement fever? — Whereas, we ſee, when he ſpeaks of a rigor, *without* mentioning any thing of a *fever*, he alſo ſpeaks of the ſweat happening with a degree of certainty: ſo that the increaſed diaſtole and ſyſtole, and rapid circulation (*a*), which ſuited your purpoſe, and which HOFFMAN has led you to adopt, inſtead of relieving, prevents a criſis, and rapidly removes the patient out of the land of the living.

M. It is certain the expreſſions of CELSUS, wherein he endeavours to excite a ſhivering, calling it the beginning of new motion, whence greater heat and remiſſion, countenance this opinion (*b*).

(*a*) Anſ. p. 49, and 50. (*b*) Ib. p. 52.

R. Cer-

R. Certainly not, HIPPOCRATES could not think of increaſing febrile motion in an ardent fever, where the circulation was already too rapid; and CELSUS was here ſpeaking, not of the cure of *ardent*, but of *ſlow* fevers, where the extremities were *cold* and *numbed*, the ſtrength of the patient manifeſtly below the ſtandard of health, and the circulation in the leſſer order of veſſels evidently languid, notwithſtanding there might be a fiery heat in the blood; — and he ſays, "the diſtemper ought "to be changed;" i. e. from a cold to a hotter ſtate; for this reaſon, "the body of the pa-"tient is often to be gently rubbed with cold "water and oil, becauſe it ſometimes ſo hap-"pens, that an horror may ariſe, and be the "beginning of new motion, and from this, "when the body has grown hotter, a remiſſion "may alſo follow. — In theſe fevers, friction "alſo, with oil and ſalt, ſeems to be an uſeful "method."—But if theſe were inſufficient to remove the coldneſs, torpor, &c. he gave "mulſe, or well diluted wine, together with "food."

— Now, in this fever, the pulſe is often much ſlower than in health; ſo that increaſing the circulation, in this caſe, ſeems as neceſſary as reducing it in an ardent fever, to bring the blood to its *accuſtomed motion*; and is not the practice and uſe of giving cordials in fevers, where the patient is weak, pointed out in ſeveral places of the Eſſay (*a*), along with the ſteps

(*a*) Eſſay, p. 27. 40, 41. 51. 53.

it may be neceſſary to take, to keep the heat within due bounds? — So that you may ſee, thoſe who are fond of the extinguiſhing practice, have no occaſion to be ſtarted at your *artificialem quaſi febrem et motum febrilem* (*a*); but if you can perſuade any body to be ſo foolhardy as to increaſe febrile motion, in an ardent fever, both the patient and his friends will have great reaſon to be ſtartled at ſuch procedure.

M. GALEN's words, "evident ſigns of concoction," *is* a demonſtration that the uſe of cold water was not in the beginning of the diſtemper; and the ſweat, and bilious ſtools, mentioned after cold immerſion, *is* ſtill with reference to evacuation (*b*).

R. Notwithſtanding the *theorizing* of GALEN, he certainly gave cold water, and uſed the cold bath, without waiting for, what he called ſigns of concoction. — Did ſigns of concoction ever appear, when an ardent fever was *moſt violent?* — And yet, this is the time he orders cold water, &c. to be drank, and immediately adds, "unleſs the putrid humors are ready to be diſ-"charged by ſtool, urine, or ſweat (*c*);" which, in other words, is, if ſigns of concoction appear, cold water is not to be given. — This is perfectly agreeable to right reaſon, as its uſe then becomes unneceſſary, and correſponds with the practice of HIPPOCRATES and CELSUS, who gave it to ſubdue the fever, and thereby to

(*a*) Anſ. p. 50. (*b*) Ib. p. 17.
(*c*) Method. Medendi, Lib. 11. cap. 9.

bring

bring on a criſis.—You yourſelf have brought the ſtrongeſt proof, that words can convey, to ſhew that GALEN uſed cold water for this purpoſe; "that he adviſed its being drank till "the patient turned pale, and trembled, and "was *ſufficiently* cooled in his body; for it "will extinguiſh the fiery heat, ſtrengthen the "ſolid parts, and diſcharge the uſeleſs humors, "by urine, ſtool, and ſweat (*a*)."

M. In ſtrong habits, with ſound viſcera, upon cold bathing, (not too long continued,) there is frequently, if not always, a glowing, or agreeable warmth and ſweat in the ſkin, the ſureſt ſigns, perhaps, of cold bathing being not improper.—Shall we wonder, then, if nature, *ever watchful over her patients intereſts*, ſeize the opportunity, and that the morbific particles

Qua data porta ruunt (*b*).

R. You acknowledge, then, that cold bathing gives the morbific particles an opportunity of eſcaping; we ſay, by ſubduing the fever, becauſe the ſame effect is produced by drinking cold water, or expoſing the patient to the cold air.

M. Your concluſion, — "Are not we to "conſider," &c. may probably appear too rapid: theſe ſweats and bilious ſtools acting as critical diſcharges of the morbific matter. Nature, after this, not wanting to relieve herſelf, it being already done (*c*).

(*a*) Anſ. p. 53. (*b*) Ib. p. 17.
(*c*) Anſ. p. 17.

R. View the intire paſſage over again (*a*), and you will ſee theſe were looked upon as critical diſcharges, in conſequence of the fever being ſubdued; and nature thereby being left at liberty to diſcharge them without oppoſition: and when the morbific matter was once diſcharged, it could not be imagined, that it could ever be neceſſary to diſcharge it over again.

M. PAULUS's words are not aſſertions, that this method of curing fevers is only right, — he ſaying that the fever is curable by *vomit*, *ſweat*, *ſtool*, and *urine*; or extinguiſhed by cold water (*b*).

R. He aſſerts that he has wholly cured burning fevers by extinction; and it hath been ſhewn (*c*), that this is the ſureſt and moſt rational method of rendering medicines capable of producing their proper effects, and of giving nature an opportunity of removing the cauſe of the fever by theſe evacuations.

M. Extinguiſhing intimates *without* any viſible ſecretion; and if you do not mean this by your *extinguiſhing*, you ſhould have uſed other words, and told us, that water will thus act as a diaphoretic, cathartic, emetic, or diuretic *critically* (*d*).

R. The extinction of the fever, and the *criſis* of the diſeaſe, are different things, as hath already been ſhewn. When the extinction of a

(*a*) Anſ. p. 16, or Eſſay, p. 9.
(*b*) Anſ. p. 18.
(*c*) Eſſay, p. 2.
(*d*) Anſ. p. 18.

fever

fever is mentioned, it implies no more, than that the preternatural heat is intirely ſubdued.—The critical evacuations, which carry off the cauſe, that gave riſe to this fever, are the work of nature, after the impediments to their diſcharge are removed.

M. Nor is RHAZES's authority, amounting to more than a prejudice in its favour, from its being ſucceſsful ſometimes (*a*).

R. This ſurely is miſrepreſenting the meaning of RHAZES; experience having led him to recommend cold water, in fevers, in the ſtrongeſt terms poſſible. And does not what he ſays (*b*) imply, — it was for the moſt part ſucceſsful? — He ſeems, indeed, to have been *prejudiced*, but it was very greatly in the favour of this practice, for he gave the patient water made cold in ſnow, to the higheſt degree, very plentifully and often; ſo that he might feel the coldneſs of it in his bowels. If after this, the fever and burning returned, he gave this water a ſecond time, to the quantity of two or three pints, or more, in the ſpace of half an hour.—If the heat ſtill returned, and the patient's belly was full of water, he made him vomit it up, and then gave him cold water again (*c*):— which ſteps he could not have taken, if experience had not given him confidence.

M. Suppoſe, then, we grant the greateſt latitude, ſtill the reaſonable concluſion, from their

(*a*) Anſ. p. 18. (*b*) Eſſay, p. 8. or Anſ. p. 15.
(*c*) See RHAZES's Treatiſe on the Small-pox and Meaſles.

words, is no more, than that, in inflammatory caſes, the antiphlogiſtic method is of great utility (*a*).

R. This is drawing a falſe inference, to make it appear, that antiphlogiſtic Bolus's and Draughts are of equal efficacy with cold water, &c. But notwithſtanding this may be a dreadful circumſtance to thoſe, who wiſh not to have a fever extinguiſhed; yet the true concluſion is, that the *fever* is at once extinguiſhed by cold.

M. After what has been obſerved above, it will not perhaps be ſo eaſy to prove this to be the general practice (*b*).

R. We believe it *is* not the general practice now, though it certainly has been formerly. — Do not the words of CELSUS, "Some, indeed, "do not inſiſt upon vomiting, &c." ſhew, in his time, the practice to have been general? And GALEN, PAULUS, RHAZES, and AVICENNA, copied the *general* practice.

M. The words "often uſed with ſucceſs," at leaſt give an equal probability of happy termination to the contrary treatment (*c*).

R. This is hanging upon every twig, like a man drowning in cold water; but it cannot poſſibly ſave your cauſe; for theſe words no way relate to the contrary treatment. — It could not be imagined that the ancients always gave cold water, &c. in fevers, with ſucceſs. — For though they might always ſubdue the

(*a*) Anſ. p. 19. (*b*) Ibid p. 29. (*c*) Anſ. p. 20.

fever,

fever, for a time; yet they might not always be able to remove the cauſe that gave riſe to the fever; which would ſometimes carry off the patient, in oppoſition to every effort to prevent it.

M. Might not you have reflected, that from the above paſſages, the concluſion, that the extinction ſhould always take place, is too rapid (*a*)?

R. For thoſe who ſet their heart upon the diſtribution of many medicines, it may.—But in regard to the intereſt of the patient, we anſwer, No.

M. You ſhould have known, that even the variolous eruption, where the cooling method of SYDENHAM is ſo juſtly preferable to the hot regimen of MORTON, requires the maxim *ne quid nimis.*—Inſtances not being wanting, where that has been carried too far (*b*).

R. The practice of Phyſic may, perhaps, afford too many inſtances of injudicious treatment: But, we imagine, if the preternatural heat only, as directed (*c*), is ſuppreſſed, we ſhall *not do too much:* As this will be "keeping the "blood in its due limits, ſo as to hinder it from "being either too active, or ſupine (*d*);" and if the veſſels have a proper degree of *ſtrength*, and *elaſticity*, the morbific matter will be expelled: For though there may be "*ſomething*

(*a*). Anſ. p. 20. (*b*) Ibid. (*c*) Eſſay, p. 28.
(*d*) We have the pleaſure of ſeeing Dr. GLASS join this opinion, (ſecond Letter to Dr. BAKER.)

"*more*" in the *ſeparation* of morbific matter, with which, both of us are unacquainted; yet, it is certain, this ſtate is abſolutely neceſſary to its expulſion; for when the fibres are greatly relaxed, or very tenſe, morbific matter is not diſcharged (*a*).

We ſee, SYDENHAM, after *much experience*, found, that the variolous matter was beſt expelled "when the patient was in his *natural* "degree of heat, and ſuch as is ſuitable to the "temper of the fleſhy parts:"—and we ſhall preſently ſhew, that his practice correſponded with this opinion.—Is it poſſible we can have the word of a man more to be depended upon? And if this is the beſt ſtate for the expulſion of the variolous matter, why not, for the expulſion of morbific matter, in every fever?

We would aſk, whether you do not intend, though you only *repreſs*, to reduce, in the end, your patient, to the ſtate recommended, by "the general uſe of nitrous medicines, cooling "apozems, clyſters, veneſections, and an &c. as long, probably, as my arm (*b*)."—Though you frequently overſhoot the mark, the patient often being brought into a much lower ſtate than he ought to be.—But you will ſay, in this there is an advantage; becauſe, if the patient happens to eſcape with life, he will require as many cordial medicines to reſtore him to his priſtine ſtrength, as he before took of the antiphlogiſtic kind to reduce him.

(*a*) See Anſ. p. 34. (*b*) Ib. p. 19.

Upon

Upon the whole, you ſee, the only difference betwixt us, is, that you effect, when you ſucceed, by a hazardous and round about method, what we compaſs in a very ſhort time.—If you ſay, by your practice, you aſſiſt nature in removing the cauſe of the fever, we anſwer, in this we excel you, by firſt removing the greateſt impediment. Nor do we omit medicines that may be further neceſſary for this purpoſe.

DISPUTE the FOURTH.

Concerning Reſtrictions in uſing Cold Water, &c.

YOU accuſe me of want of candour, in not permitting the Reſtrictions in the uſe of Cold Water, "from GALEN, CELSUS, and AVICENNA," to be ſo full, as they might have been (*a*).

M. Yes, as will, if compared, be ſhewn preſently.—And becauſe they are unluckily ill adapted to your plan, you repent bringing even theſe, through fear of your readers turning them againſt yourſelf, and therefore condemn the Venerables, by ſaying, that the ancients

(*a*) Anſ. p. 40.

ſuffered the fever to make a greater progreſs, than was conſiſtent with the welfare of the patient, before they endeavoured to ſuppreſs it by cold (*a*).

R. In what manner were they unluckily adapted to my plan? — Was there ever any powerful medicine given, in which reſtrictions were not neceſſary? — My plan was to diſcover truth, nor can there be aſſigned the leaſt ſhadow of reaſon for my having any other motive. I would not give a ſingle ſtraw to have the balance fall in favour of any opinion exiſting; but would eagerly purſue truth, on whatever ſide I could diſcover it.—Nor did I condemn the ancients, through fear of their reſtrictions being brought againſt me, as you have maliciouſly miſrepreſented. But, from finding the doctrine of concoction to be without foundation, and from comparing their practice in extinguiſhing fevers, with that of the moderns, I was led to ſay, there is "*reaſon* "to imagine," that the ancients did not extinguiſh fevers ſoon enough.

M. HIPPOCRATES himſelf is cenſured for not ſuppreſſing fevers ſooner; and charged with *leading poſterity out of the way!* — Is modeſty or raſhneſs, a proper epithet here (*b*)?

R. They are neither of them epithets! — I pay the greateſt regard to the *aſſertion* of HIPPOCRATES, in what relates to matter of fact; but do not believe him to have been

(*a*) Anſ. p. 40. (*b*) Ib. p. 41.

inſpired;

inſpired; I conſider him only as a man, and therefore liable, like many others of diſtinguiſhed merit, to have been led into error by *theory*.—He firſt ſtarted the doctrine of concoction; and if this is without foundation, did not he lead poſterity out of the way, as this theory has been the chief objection to the extinction of fevers? And is not this the reaſon aſſigned for his miſtake (*a*)?

M. Amongſt the moderns, we find HOFFMAN a ſtrenuous advocate for the uſe of cold water, not only in fevers, but in a variety of other complaints (*b*); but his candour would not permit him to neglect mentioning, that it brought on inflammations of the ſtomach, bowels, lungs, and other diſorders.

R. Can this be wondered at in the practice of HOFFMAN, who gave it in dyſenteries, the iliac paſſion, ſtoppage of the hæmorrhoides, and almoſt every other complaint? But he does not ſay, it produced theſe effects, when given in fevers.

M. He recites, too, a remarkable caſe of a young Phyſician, who, labouring under a ſcorbutic diſeaſe, by drinking cold water, inſtead of beer, brought on an *inextinguiſhable thirſt*, and complaints, that death alone could relieve him from (*c*).

R. This has nothing to do with cold water in fevers, where heat tends to prevent its pro-

(*a*) Eſſay, p. 17 and 44. (*b*) Anſ. p. 49 and 50.
(*c*) Ibid. p. 51.

ducing

ducing any miſchievous effects.—*Theory*, indeed, has led people to imagine its coldneſs would in this caſe conſtringe the intercoſtal and diaphragmatic veſſels, as it paſſes down the œſophagus; and that when it came into the ſtomach, it would congeal the blood in the vena cava, and venous ſinus. But matter of fact proves the contrary.—ARETÆUS very juſtly obſerved, "that "cold water eaſily grows warm in the belly." GALEN tells us, "that cold water, and the heat in "fevers counteract each other."—SENNERTUS ſays, "cold water being given when the fever "is acute, and the pulſation of the arteries ve-"hement, &c. does not offend the viſcera (*a*)." And LOMMIUS, who had much experience in this matter, does not only ſay, "that heat "ſtrongly guards the viſcera againſt the cold "water," but that "when the *heat* and *thirſt* "are violent, there is not the leaſt danger of "any internal injury from the violence of the "cold water, inaſmuch as the viſcera being in-"flamed with the *febrile heat*, meeting with a "contrary bulwark, entirely blunt the edge of "its attack (*b*);"—the truth of which we ſhall hereafter have occaſion to ſhew.

M. HIPPOCRATES ſays, cold water will bring on cramps, convulſions, &c. &c. and there are many ſcattered paſſages, where warm water is recommended in the cure of fevers (*c*).

R. What HIPPOCRATES has ſaid about cold water, and its bringing on convulſions, &c. in

(*a*) Lib. 2. cap. 9. (*b*) Lommius on fevers, cap. 3.
(*c*) Anſ. p. 51.

the

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were his ſentiments about this matter; there we ſhall find this affair in a quite different light.— For, after mentioning the circumſtances, which forbid the uſe of cold water, he ſays, "that "ſome, by an *unſeaſonable and immoderate* "*draught of it, without a proper time intervening*, "are immediately ſeized with a tremor, convul- "ſions, difficulty of breathing, and an injury "of the whole nervous ſyſtem."— And may not an injudicious application of any other powerful medicine be attended with equally bad conſequences? — Or does RIVERIUS's ſaying, it was laid aſide in his time, becauſe they were embarraſſed about the method of uſing it, and that a *prepoſterous* uſe was dangerous, prove, that the practice, with due caution, was wrong?— Experience has ſince proved what he ſaid about the water and ſpirit of vitriol to be falſe. And would not an indiſcriminate uſe of this medicine in fevers, be equally pernicious, with an injudicious uſe of cold water, or any other bad practice?— Though it muſt be obſerved, that he gave it with a deſign to *extinguiſh the fever* (*a*).

M. PAULUS ÆGINETA very conciſely ſays, "if you ſee *ſigns* of the humours being con- "cocted, and there is neither phlegmon, ſchir- "rus, nor œdema, nor any parts ſo cold, that "injury may ariſe, you may boldly give cold

(*a*) RIVERIUS probably had this practice from HORSTIUS, who, after copying what GALEN, PAULUS, and others ſaid about cold water in fevers, recommends ſpirit of vitriol along with it, to attenuate, remove obſtructions, quench thirſt, &c. and tells us the method of preparing it, (tom. 3. quæſt. 5. pag. 11.)

"water."—

" water." — Does the reader now think, that you have been quite ſo candid in your quotations (*a*).

R. You talked of comparing, and I imagine this paſſage is to be compared with the words of PAULUS, copied by you, from the Eſſay you oppoſe, in order to make it appear, that the cautions this Writer gives are omitted. — But if the quotations from PAULUS are compared with the 30th chapter in his 2d book, it will appear, that they are tranſcribed verbatim in the Eſſay, and that you have not laid the whole before the reader. — Nor have you only omitted to tranſcribe the cautions I had copied, but you have ſelected a different paſſage from the 28th chapter, that your charge might have the greater appearance of truth (*b*). It was only neceſſary for me, at that time, to take notice of the practice of PAULUS, as evidence, in ſupport of the uſe of extinguiſhing fevers. — The reſtrictions concerning the uſe of cold water, &c. are placed afterwards in their order, and thoſe which ſeemed moſt *material*, are taken notice of; but that nothing in this reſpect might be omitted, the ancients were referred to, for the whole of the cautions neceſſary to be obſerved in this practice. — In particular, the chapter, from which you have made your own quotation, was pointed out; and can it then be

(*a*) Anſ. p. 54.

(*b*) The reader is deſired to compare the 3d par. in the 7th page of the Eſſay, with the 2d par. in the 15th page of the Anſwer.

ſuppoſed,

ſuppoſed, that I had any intention of concealing any thing concerning this matter? — Or was it neceſſary to enlarge the Eſſay in queſtion, by tranſcribing what was to be found in every man's ſtudy? — Could any body but a perſon, who had ſome private end in view, have been guilty of ſuch unfair dealing?

M. Did not you know, that CELSUS recommends the uſe of *warm water*, as having a ſalutary effect, when exciting a univerſal ſweat; this either drank, or poured upon the head (*a*)?

R. This, I ſuppoſe, you intend as another inſtance of want of candour; for it is plain you would have it underſtood, that CELSUS gave warm water, as well as cold, to ſuppreſs a fever; and that I have omitted acquainting the reader with this circumſtance. — But let us ſee what CELSUS himſelf ſays, in the chapter you refer to, which treats "*about the proper times for giv-*
"*ing drink, &c. to perſons in fevers.*"

"Now (ſays he) where there *has been* a fever,
"and it *has decreaſed*, it is proper to take notice,
"whether the temples, or other parts of the
"body, grow a little moiſt, ſo as to portend an
"approaching *ſweat*; and if there is any prog-
"noſtic of it, *upon that* to give warm water
"to drink; the effect of which is ſalutary, *if* it
"diffuſes ſweat over the whole body." — But I cannot find he ſays any thing in this place, of pouring warm water upon the head — This, Mr. MAXWELL, as you ſay, was *ſhrewdly* done.

(*a*) Anſ. p. 54.

M. AVI-

M. AVICENNA teaches us, that in particular habits (ſee Anſ. p. 54 and 55.) cold water (*in a putrid fever,*) (*a*) is a moſt excellent remedy, yet, in oppoſite habits, it is equally pernicious. He is particularly attentive to a variety of circumſtances, as to the propriety of its being given; (ſee ib.) ſhews the danger of an *imprudent* uſe of it, ſays it is oftentimes in fevers the *cauſe* of an *additional fever:* "Therefore we ought to drink *only warm water* in a fever (*b*).

R. So AVICENNA ſays, cold water is a moſt excellent remedy in a fever; and yet he adviſes to drink, in this diſorder, only that which is warm!

AVICENNA never could be ſo inconſiſtent: He never was more ſtrenuous in adviſing the uſe of cold water in fevers, under proper reſtrictions, than in this chapter; and imputes the miſchief that ſometimes attends, to an *imprudent* uſe of it.—In the cure, too, of an Ephemera (*c*) from heat, he adviſes "embrocations made "cold upon the ſnow, to the head and breaſt," and orders cold river water to be drank without *ceaſing*, till the fever declines, when he uſes warm baths, &c. with the intention CELSUS gave warm water after the fever was gone.

(*a*) The words, "in a putrid fever," ought to have been added, becauſe in this chapter (lib. 4. cap. 7. Fen. 1ſt, tract. 2.) AVICENNA is treating of the cure in general of a putrid fever. But then you could not ſo well have attempted to deceive the reader, by quoting the laſt ſentence in this paragraph, which you was probably aware of.

(*b*) Anſ. p. 54. (*c*) Lib. 4. tract. 1ſt. cap. 38.

After

After all this, then, and what was before taken notice of in the Eſſay, &c. how ſhall we account for his having contradicted all he had ſaid, by informing us that warm water was *only to be drank in a fever*. — Truly, no other way, than by Mr. MAXWELL's old trick (*a*) of tacking to this part, in order to ſerve his purpoſe, what no ways belonged to the ſubject. — For in the chapter, from whence this laſt ſentence is tranſcribed, AVICENNA is treating of *indigeſtion and anxiety of the ſtomach* (*b*). And all that can fairly be gathered from the paſſage quoted is, that if cold water diſagrees with the ſtomach in this diſorder, we ought to give that which is warm (*c*). — "Indeed it is not ſo can- "did" as you ſay, Mr. MAXWELL, "thus to

(*a*) See page 42. par. 2d.

(*b*) Vol. I. lib. 3. Fen. 13. tract. 5. cap. 15.

(*c*) It is plain AVICENNA is here deſcribing a very common diſeaſe now amongſt us, which, from the white tongue, &c. that accompanies it, has often been called a fever of the viſcera.—*In febre*, ſhould therefore be read, *in hac febre*, as in this place it muſt either mean, in this fever, or, this diſorder; otherwiſe AVICENNA runs from his ſubject, and talks nonſenſe. — Does not this appear to be the ſenſe of this Author? "Every thing which ferments in the ſtomach, "made from fruit, (grapes,) and ſweet apples, gives diſ- "turbance. — Cold water, which is not drank ſeaſonably, "diſagrees — And oftentimes in fevers is the cauſe of an "increaſe of the fever; wherefore we ought not to drink "water in *this* fever unleſs it is warm." — "Et omne quod "fervet in ſtomacho ex fructibus, et ex malis dulcibus, con- "turbat. Et aqua frigida, quæ bibitur non in horâ, con- "turbat. Et multoties fit in febribus, cauſa additionis fe- "bris: Non ergo oportet, ut bibitur in febre, niſi aqua "calida." — But to ſhew that we have not miſconſtrued the ſenſe of this Writer, we will give a different tranſlation from FRANCISCUS DE PEDIMONTIUM, who copied and explained this very paſſage in his chapter, *De anxietate et conturbatione ſtomachi*, &c. "Exterior eſt omne quod fervet "in

" wreſt paſſages from Authors, in ſupport of " tenets contrary to their own; their true " ſpirit ſhould be conſulted, partial criticiſms " making even the ſacred volumes juſtify the " moſt heretical creed:" — For inſtance,

" *Judas went and hanged himſelf*;" " *Go and* " *do thou likewiſe.*" — " *For every man ſhall re-* " *ceive his own reward, according to his own* " *labour.*"

M. It is now clear, that GALEN and PAULUS, whoſe evidence ſeemed moſt ſtrong on your ſide, never intended to recommend the uſe of *cold water* in the *acceſſion* of a fever: But when *ſigns of concoction* appear, *i. e.* when the diſeaſe is known to be upon the turn (*a*).

" in ſtomacho, ex cibis, et fructibus, et ſuccis dulcibus, ut " eſt vinum novum ex uvis, et pomis, et quod corrumpitur " in ſtomacho, ut lac, et ſimilia; et aqua frigida bibita in " hora non conſueta, conturbat, et ſit cauſa additionis febris " in debili ſtomacho, quare currunt humores ad ipſum, ut " ad mineram putredinis, innovantes paroxyſmum, ut accidit " in phlegmaticis; quare non oportet, ut bibatur in FEBRE " TALI niſi aqua calida." (To be found along with MESUÆ's works.) — So that you ſee, Mr. MAXWELL, notwithſtanding you give us a ſcrap from HORACE and MILTON, and talk very freely of Logic, Rhetoric, Syllogiſms, the Doctrine of Colours, and Gravity in the Macrocoſm, to make it appear that you are a man of univerſal knowledge; yet with all your learning, you have not taken care to ſhun the SCYLLA and CHARYBDIS you talk of, having certainly jumped out of the frying-pan into the fire, by here ſhewing that you have not qualified yourſelf properly to handle the ſubject in diſpute. — Believe me, Sir, oſtentatious writing is always a ſure ſymptom of ſuperficial learning; vain ſhew ſupplying the place of ſound judgment. And remember, that " much reading is like much eating; both of them do hurt where there is not a good digeſtion."

(*a*) Anſ. p. 56.

R. We have already ſhewn, that this is the *theory* GALEN had formed about this matter, in order to make his practice, of uſing cold water in fevers, agree with his notions of concoction; and what was before ſaid of this Writer, holds equally good in regard to PAULUS, who only copied him. — What occaſion was there for uſing cold water, when the diſeaſe was known to be upon the turn? — Do you think PAULUS, or any man living, would have put his patient into the cold bath, who (for inſtance) upon the turn of the fever, was breaking out in a ſweat? — Immerſion, therefore, muſt either take place before the criſis, or not at all, in hopes that by extinguiſhing the fever, this would follow.

M. The effects, too, expected by them, were evacuations, by *vomit*, *urine*, *ſweat*, or *ſtool*, ſecretions moſt approved for *favourable criſes*; ſo that cold water was uſed for the purpoſe of diuretic, ſudorific, cathartic, and emetic (*a*).

R. I ſuppoſe you intend next to ſay, that medicines of this kind, much more certain in their effects, may be found in the ſhops. — But though the ancients might, with much reaſon, expect diſcharges by urine, ſweat, or ſtool, from the uſe of cold water; yet it was, as we have before obſerved, in conſequence of the fever being ſubdued: For the cold bath procured both ſweat, and bilious ſtools, without acting either in the manner of a common purge, or

(*a*) Anſ. p. 56.

ſudo-

ſudorific. Will not opium, which is not properly a diuretic, promote a diſcharge both of urine, and ſweat, by taking off ſpaſms, that obſtructed theſe evacuations? And as to vomiting, they did not expect it, unleſs the heat of the fever required more water to be drank, than the ſtomach could *at* once contain (*a*).

M. Perhaps, when we ſay, that the termination of the fever may be *inſenſible*, we may have diſcovered what is meant by the word of ÆGINETA (*b*), *extinguiſhing* (*c*).

R. It plainly appears, that an attempt is here made to give any ſenſe to the word *extinguiſh*, rather than its true one. — The *cauſe* of a fever, may, indeed, be inſenſibly (to us) removed; but *he* muſt be *inſenſible*, who cannot diſcover the decline and termination of the *fever itſelf*. — If we extinguiſh a candle, it is immediately evident to our ſenſes, that the heat and blaze are aboliſhed. — And is it not equally evident, that a fever is extinguiſhed, if the patient immediately becomes cool, upon going into the cold bath, or upon drinking cold water? — PAULUS had learnt from GALEN, to diſtinguiſh the fever from its cauſe, and what he ſays, implies no more, than that a cure followed his extinguiſhing, or aboliſhing with cold water, the preternatural heat of the body.

(*a*) See the practice of RHAZES.
(*b*) Probably Mr. M. takes ÆGINETA to be the ſurname of PAULUS.
(*c*) Anſ. p. 56 and 57.

Some further EFFORTS *of Mr.* MAXWELL, *to prove, that Cold Water, and Cold Air, are not required in every Fever, and that they do not extinguiſh a Fever otherwiſe than by cauſing evacuation, diſputed.*

M. GRAVITY in the macrocoſm, has, by the explication of a NEWTON, been productive of ſurprizing diſcoveries; ſtill ſhallow, indeed, muſt that Philoſopher be, who thinks all the *phænomena* of nature derived from it (*a*).

R. By this, you probably intend to diſcover, that you have either read, or heard of, Sir Iſaac Newton's *Principia*;—but thoſe would have little underſtanding, indeed, who, from this ſpecimen, could think you an adept in the Newtonian philoſophy,—for from whence does it appear, that the *phænomena* attending the extinction of fevers, by cold water, are derived from gravity in the macrocoſm?

M. Thus that fever is a fire, and cold water its antagoniſt, is eaſy to ſay, or influence ſome to believe;—but ſimplicity like this is real folly, as the ſtrangeſt things may be proved by this kind of ſyllogiſms (*b*).

(*a*) Anſ. p. 43. (*b*) Ibid.

R. An

R. An able explanation of the doctrine of gravity in the macrocoſm, indeed! — We imagine this is ſome of the *ſublime* you talk of, that requires painful inveſtigation; — however, we cannot admit it to be a ſyllogiſm. — For our part, we wiſhed to be underſtood, that the word *fever*, implies no more than *fiery or preternatural heat*; and that cold will ſubdue heat, is a *fact* that has been known ever ſince the creation; and you will pleaſe to remember, Sir, that truth is always found in ſimplicity.

M. By ſuch you may demonſtrate that a fever will always preſerve life, *e. g.* — Death is a ceſſation of motion in the heart — Fever is an increaſe of the heart's motion — Therefore excite a fever, and life is preſerved: Now what medical ſtudent can believe this? Who among the vulgar will aſſent to it (*a*)?

R. This ſophiſtical ſyllogiſm is not any ways appoſite; for, as you confeſs, it has not the leaſt appearance of proving that a fever preſerves life. — Whereas, if you was as hot as fire, by conducting you through a horſe-pond, I would engage to convince you, that cold water would extinguiſh heat, and then you might experimentally know, which of us is the ſhallow Philoſopher.

M. Neither is the maxim *contraria remediis*, &c. always right, for the application of heat to froſt-bitten people is frequently attended with pernicious effects (*b*).

(*a*) Anſ. p. 43. (*b*) Ibid.

R. Almoſt all axioms, excepting mathematical, require qualification; and I am much obliged to you, for proving this to be a general rule, by producing one exception only.

M. The *cauſes* of fevers are not always the ſame, the variety of ſymptoms evince; they may be as diſtinct as diſeaſes themſelves are different; hence the error, in thinking that cold water and cold air in every fever are required (*a*).

R. As to the cauſe of the fever, that muſt be removed, as we have already ſhewn, by ſuch particular medicines, as the caſe requires; but cold is a perpetual remedy againſt the fever itſelf; or, in other words, cold will always ſubdue heat.

M. What horrid conſequences muſt enſue in malignant petechial fevers, from extinction (*b*).

R. Cold air and cold water reſiſt putrefaction, and give vigor to the ſolids; therefore muſt, in this caſe, be proper. — And indeed this ſeems to be a fever, in which leſs caution is required in their uſe, than in any other; becauſe the fluids are thin enough to paſs the extremity of the veſſels: which you would have known, had you had that acquaintance with the writings of the Baron VAN SWIETEN you would make us believe. — His fear was, that cold water, in fevers, would coagulate the blood; but he ſays, "in "putrid fevers, where the blood tends to a pu-

(*a*) Anſ. p. 46. (*b*) Ibid.

"trid

" trid diſſolution, there is leſs reaſon to be afraid " of coagulating the blood, and perhaps in ſuch " a caſe, the drinking of cold liquors would not " be ſo injurious (*a*)."

M. Suppreſſion is wrong, and horrid conſequences muſt enſue in the ſlow nervous fever; becauſe bleeding muſt be particularly avoided, and cold water, by a parity of reaſoning, will be injurious; nature, in this caſe, muſt be ſupported by cordials, bliſters, &c. (*b*)

R. Your reaſoning does not hold good; becauſe cold water gives ſtrength and ſpirits, when properly uſed. — And it muſt be obſerved, that though in ſlow nervous fevers the pulſe is often ſlower than in a ſtate of health, yet there is a *fiery* heat, that ought to be extinguiſhed: And hath not the neceſſity of giving medicines, in ſuch a ſtate, already been ſhewn, to quicken the circulation, and to extinguiſh the fever by cold, at the ſame time, which will prevent a fever being cauſed by theſe *ſtimuli?* — And we would aſk, whether, when cordial attenuants and bliſters, as aſſiſtants, were mentioned, we muſt not have had this kind of fever in our view?

M. The exact manner in which febrile miaſmata act in malignant caſes, will ever be inexplicable by the utmoſt efforts of the moſt accurate enquirers, their effects alone falling under our cognizance; and we cannot prudently expect more, than to learn their ſymptoms, when,

(*a*) Baron VAN SWIETEN Com. BOERH. ſect. 640.
(*b*) Anſ. p. 46.

by analogy, we may purſue a rational method of cure (*a*).

R. Whatever be their action, they produce preternatural heat; which we have proved ought to be extinguiſhed by cold.

M. It cannot perhaps be diſproved, that ſome of the ſtimuli of fevers may have, in the ſtores of nature, their proper antagoniſts, as *acids* are to *alkalies*, yet to be diſcovered. — For, a few centuries back, who could foreſee the noble acquiſition to the *materia medica* in the moſt excellent febrifuge the bark, antimony, and mercury? While, if cold water is the univerſal febrile antidote, what a complication of knavery, jargon, and nonſenſe, Phyſic has ever been (*b*)!

R. Though we inſiſt that cold is the proper antidote to heat, yet we adviſe, you ſee, that the ſtimuli of fevers ſhould be removed (where nature is incapable of removing them) by their proper antidotes. — So that you could not, with any propriety, draw the above concluſion from any thing that was ſaid in the Eſſay.

We ſincerely wiſh futurity may be able to diſtinguiſh the different kinds of acrimony, and the ſpecifics that will correct them; as this would be bringing the practice of Phyſic to a greater degree of certainty than we can at preſent boaſt of.

M. Alas, cold water has been weighed in the balance and found wanting: in every age

(*a*) Anſ. p. 47. par. 2. (*b*) Ibid.

has

has the uſe of it been introduced, and every age, with its utility, has explored its inefficacy and miſchievous effects (*a*).

R. We ſuppoſe you mean it has been introduced in the cure of fevers; in which "its "inefficacy and miſchievous effects" have only been *imaginary*; the theory of the times, preventing its taking place. — And, indeed, we could produce in the practice of phyſic, too many inſtances of *pleaſing theories*, overbalancing even matter of fact. Beſides, for want of making a proper diſtinction, betwixt the fever and its cauſe, cold water was given by the moderns to remove both.—In the Eſſay, it is only conſidered as an antidote to the fever, and by giving medicines to remove the cauſe, when required, &c. we perſuade ourſelves, this practice is put upon a different, and more advantageous footing.

M. Moſt probably, the happy effects ariſing from cold water, are its being a fluid, and a kind of general ſolvent; a ſuppoſition that will account for many apparent contradictions, if not perfectly reconcile jarring authors (*b*).

R. You are forced to confeſs, then, that it produces *happy effects* in fevers; but you ſeem not willing to have it thought, that they are brought about by extinction. — Remember, Sir, you firſt aſſerted, that cold water produced its good effects in fevers, by *vomiting*, then by

(*a*) Anſ. p. 48. (*b*) Anſ. p. 57.

cauſing

cauſing a *rigor*, and now by acting as a *ſolvent*, which is certainly prevaricating; and where a witneſs is not conſiſtent in his evidence, the jury ſeldom pay any regard to him.— But what is extremely curious, after this, you ſay, "that "water alone, runs too ſoon through the paſ- "ſages, before the dry parts are ſufficiently "moiſtened, and therefore mealy ſubſtances "are prudently added, which give a mild "tenacity; and being naturally inclined to "*acrimony*, reſiſt putrefaction (*a*). — But neu- "tral ſalts, native ſoaps, &c. muſt be joined, "to make it a *diſſolvent*." Is this being conſiſtent, Mr. MAXWELL? — You ſay, theſe are Baron VAN SWIETEN's words: no matter, you have adopted them: but I muſt beg leave to tell you, that the Baron never was ſo ridiculous, as to ſay, that *acrimony reſiſts putrefaction.*

Certainly this paſſage is incapable of reconciling jarring authors; and we ſhall juſt obſerve, if water acted altogether as a ſolvent in the cure of fevers, warm water would be a better remedy than that which is cold. Whereas the truth is, as you have confeſſed, that cold water has inſtantly taken off the preternatural heat, and a ſweat, &c. has followed, when warm water had been tried, without anſwering any good end. — Cold water muſt, therefore, produce ſome other effect, beſides diſſolution. — And when we reflect, that cold bathing, or cold air, are productive of the ſame conſe-

(*a*) Anſ. p. 60.

quences,

quences, is it not reaſonable to conclude, that, like them, it extinguiſhes the febrile heat? — Dr. WHYTT has given us an experiment, that pretty clearly ſhews the effects of heat and cold, in increaſing and diminiſhing the motion of the heart.

" He took off the head of a frog, and de-
" ſtroyed the ſpinal marrow with a red hot
" wire, at nine minutes paſt eleven in the
" forenoon; and upon opening the thorax thirty
" five minutes after decollation, he obſerved its
" heart beating thirty times in a minute. At
" one o'clock the heart of this frog made
" twenty pulſations in a minute. At half an
" hour paſt two, when the room was become
" warmer by the ſhining of the ſun, it beat
" twenty-five times in a minute; and when
" placed in the ſun beams, it performed thirty-
" one contractions in that time. After this,
" he removed the frog to an eaſt window,
" where it was expoſed to a cool breeze; upon
" which the motion of its heart became ſlower,
" ſo that in a ſhort time it only made twenty-
" five pulſes in a minute. — He then expoſed
" it a-new to the ſun beams, by which its mo-
" tion was ſoon quickened, ſo that it beat
" thirty-times in a minute (*a*)."

M. A larger quantity of cold, than of warm water, is required to excite a *nauſea*; the containing parts by the property of cold, may be

(*a*) See WHYTT's Exper. made with Opium, Eſſ. and Ob. Edinb. p. 283.

ſtrength-

ſtrengthened: ſo that when the ſecretions, *vomit*, or *ſtool*, are begun, they may be carried on more powerfully; and as many fevers are owing to a diſeaſed ſtate of the bile, ſuch evacuations may then effect cures, without cauſing our amazement (*a*).

R. There is no doubt, but diſcharging diſeaſed bile, is of great uſe in the cure of fevers; and, according to your account, cold water ought to be given in large quantities for this purpoſe, as being the beſt emetic and cathartic; but whether the patient vomits, or not, if he is *ſufficiently cooled*, by drinking cold water, it often happens, that a criſis follows, and the diſeaſe is at an end; juſt in the ſame manner, as when the fever is extinguiſhed by cold air, which has no pretenſions to diſcharge diſeaſed bile, by either of thoſe evacuations.

M. But purging in the beginning of fevers, farther than cleanſing the *primæ viæ*, is juſtly rejected by the moderns, as being found prejudicial (*b*).

R. We do not believe cold water to be a violent purge, though you have endeavoured to perſuade us, it is ſo; and notwithſtanding you attribute ſuch good effects to it, from diſcharging diſeaſed bile, yet you here ſeem to diſſuade us from giving it; probably, becauſe if it is given in large quantities, to vomit and purge, it may happen to extinguiſh the fever, and give nature an opportunity of putting an end to the

(*a*) Anſ. p. 57. (*b*) Ib. p. 58.

diſeaſe.—

diſeaſe.—Nor do we imagine, if it operated farther as a purge, than cleanſing the *primæ viæ* in the beginning of fevers, it would be found prejudicial; as I am perſuaded many fevers have been ſhortened by *bleeding*, and giving antiphlogiſtic purges at the *onſet*.

M. Laſtly, ſhall we prefer the extinguiſhing ſcheme, to the rational ſyſtem of medicine now prevailing (*a*)?

R. If one of the ſchemes only was to be retained in practice, we would prefer the extinguiſhing one, as nature would, by this means, have an opportunity of relieving herſelf, which ſhe cannot have, while the fever exiſts; — but the uſe of both was recommended, for reaſons already given.—But then, *this* ſhortens the diſeaſe; and it ſeems owing to this conſideration, that you have uſed the ſame *art* to make it believed, that the ſoldiers did not die in Cariſbrook caſtle, for want of cold air, but that all the miſchief aroſe from a peculiar malignancy in *Damp* (*b*). — And yet after (*c*), you ſay, in the ſlovenly made hovels, the diſeaſe being a putrid fever, the great advantages of cold are not to be wondered at; as heat is one of the parents of putrefaction. — Was not the diſeaſe in the *Caſtle* of the ſame kind? — More recovered here than in cloſe rooms, where there were good fires and no *Damp*; which muſt be owing to a freer acceſſion of air. And if there had been the ſame currency of cold air in the *Caſtle*, as in

(*a*) Anſ. p. 59. (*b*) Ib. p. 20. (*c*) Ib. p. 37.

the

the *Shed*, would it not have been equally beneficial in ſuppreſſing the cauſe of the diſeaſe? — and the malignancy of *Damp*, if there was any? But though you confeſs, that the difference between ventilation and open air may be conſiderable, yet you chooſe to aſcribe the good effects of it, to a ſecret property, the *pabulum vitæ* (*a*); and thence conclude, that an extenſion of the argument to cold water, cannot be ſupported.

If you remember, Sir, it was ſaid (*b*), "that "there is in the air, a certain property neceſ- "ſary for the ſupport of life," which contributes much to a recovery, and the *viviſying ſpirit* of the air was talked of; ſo that we are glad to ſee you join us in the opinion of its having ſuch ſalutary effects.—And we will engage (as we did about cold water) to convince you, if we had a proper opportunity, that what was ſaid about its extinguiſhing a fiery heat, is true. — Indeed, cold water has not the ſame properties as cold air; but that it extinguiſhes preternatural heat, is a *plain matter of fact*; which is a better argument than all this chicanery you have advanced. — But who can ſay more in the praiſe of cold water, in the cure of fevers, than yourſelf? — For, after all, you *allow* that it cures fevers, by cauſing a *rigor*, which is an extinction of heat; by vomiting, purging, ſweating, and acting as a ſolvent; which is ſaying much more in its favour, than was ſaid in the Eſſay — You make it capable of

(*a*) Anſ. p. 37. (*b*) Eſſay, p. 13.

attack-

attacking the fever, and its cauſe, on all ſides; and if what you ſay, is true, inſtead of decrying it, you have ſhewn, that we need not look out for another remedy.

The CONCLUSION.

THOUGH the practice of the ancients, in ſuppreſſing fevers with cold water, was produced to ſhew, "that *an immediate extinction* "*of the fever, if poſſible, is the ſureſt and moſt* "*rational method of removing the diſorder by* "*which it was cauſed*," yet we did not reſt our evidence on their practice, but compared it with the *independent* teſtimony of the moderns (*a*), of which Mr. MAXWELL has not taken any notice, though he has pointed out that part of their practice, in which "ſuppreſſion was not "their view, and where a *multiplicity* of *medi*-"*cines* were neceſſary (*b*)."—If he had paid any regard to the matters of fact laid before him, he would have learned the utility of the extinction of fevers in theſe days (*c*).—In Dr. BAKER's inquiry, which was alſo referred to, he would have ſeen the extinguiſhing practice did prevail with SYDENHAM (*d*) himſelf, in the caſe of Dr. DOVER, in its full force; and it was

(*a*) Eſſay, p. 11. (*b*) Anſ. p. 19. par. 3.
(*c*) Eſſay, p. 11, and 12. (*d*) Anſ. p. 63. par. 2.

ſhewn

ſhewn too in another place, that he endeavoured to reduce his patients to their natural heat, in *inflammatory fevers*, by getting them out of bed ſeveral hours in a day (*a*).—There are ſeveral other caſes in the Inquiry juſt mentioned, which favour the extinguiſhing practice, and which, it is imagined, Mr. MAXWELL could not get over; in particular, we would aſk, whether the recovery of ſeveral of thoſe people who were ill of the natural ſmall pox, when the fire happened at Blandford, was not owing to an extinction of their fever (*b*)?

But many of the fevers in theſe inſtances were extinguiſhed with *cold air*; nor did we confine ourſelves to any particular mode of extinction.—Preference was given to cold air where it could be procured, unleſs particular circumſtances made cold water a more eligible medicine; but more frequently both theſe remedies were directed to be uſed together: by which management a very ardent fever will commonly be ſuppreſſed, without running any riſk from a violent uſe of either of them.—It is very obvious, that cold air and cold water will take place of each other, under different circumſtances: and by which treatment every kind of fever may be ſafely extinguiſhed.—We did not quote the practice of the ancients

(*a*) Eſſay, p. 34.

(*b*) Upwards of one hundred and fifty people, ill of the natural ſmall-pox, were, in June, inſtantly carried into the fields, where they remained ſeveral days and nights, lying upon beds under hedges, and arches of bridges; who all recovered, except one, who was almoſt expiring at the time ſhe was removed.

in

in ſuppreſſing fevers as patterns for ſervile imitation; but to ſhew that when this impediment to the cure was removed, the patient ſoon recovered. — Their intention ſeems to have been a *ſudden* extinction of the fever, by giving exceſſive large draughts of cold water alone, &c. — But though they gave it in the very height of the fever, when the viſcera would, on account of the intenſe heat, be leſs liable to receive injury; yet the want of ſucceſs, which ſometimes happened in their practice, was, for the moſt part, owing to the *prepoſterous* uſe of cold water, complained of by GALEN; for we may eaſily imagine, the gorging their patients, till the ſtomach was diſtended, and till they trembled and turned pale, would often be carrying this treatment too far. — Nor is there, in this climate, a neceſſity for this ſeverity to be put in practice; and indeed we ſhould think cold bathing a ſafer remedy, than ſuch kind of treatment. — When it is conſidered, then, that the fever may generally be ſuppreſſed by theſe different methods, as the caſe requires: — That removing the cauſe of the fever, by its proper medicines, was adviſed: — And, that waiting for concoction was never practiſed by the ancients; all the bug-bears brought by Mr. MAXWELL, to deter us from extinction, will not make any great impreſſion upon men of ſenſe.

CASES.

SCHENCKIUS tells us, "A country "fellow, having a very acute fever, was "brought to the hoſpital, but could not be "cured by any medicines. — Having been "accuſtomed to live upon onions, cheeſe, and "things of hard digeſtion, and to lie upon "ſtraw with his cloaths on; Dr. GISB, when "he thought him expiring, permitted him, "one night, to be taken out of bed, and to "*lie upon the ſtraw*; and that an onion and "*ſalt, with cold water*, might be carried him, "imagining, at the ſame time, it would haſten "his death; when, contrary to every one's ex-"pectation, he was found ſtanding by the fire, "the next day (*a*)."

SCHELHAMMER ſays, "that he had ſeen a "ſervant afflicted in an ardent fever, with the "moſt intenſe heat; who, not being well "looked after, greedily drank *above ten pounds* "*of cold water*; and by that means did what "no Phyſician could eaſily effect; namely, ſo "far extinguiſhed the fever, that he was per-"fectly well the next morning." — He even teſtifies, "that he had heard from the cele-"brated MEIBOMIUS, that the *greater part of* "*the inhabitants of a whole town*, being af-"flicted with an acute fever, and being deſti-

(*a*) Lib. vi. De febribus, pag. 730.

"tute

" tute both of Phyſicians and medicines, ex-
" tinguiſhed the febrile heat, by drinking cold
" water; and ſoon after, raiſing the oppreſſed
" native heat, which remained, by vinous ſpi-
" rits; by which means *they all* recovered (*a*)."

Dr. WILLIS tells us, " an illuſtrious young
" man, about twenty years of age, of an athle-
" tic habit of body, by immoderate drinking
" of ſtrong wine, fell into a feveriſh indiſpoſi-
" tion, with thirſt, heat, and a remarkable
" burning of the præcordia; being let blood,
" he drank a large quantity of cold water,
" whence a copious ſweat immediately follow-
" ing, he ſoon recovered (*b*)."

Similar to theſe, is the following caſe, which was told us by a very ingenious Surgeon. — " A patient of his father's, in the height of a " violent fever, called out for cold water, " which was denied him; the practice of " MORTON being at that time purſued. — " However, in the night, he found means to " eſcape from the nurſe, and filled his ſtomach " with cold water at the pump; after which, " he lay'd down in the yard, and fell aſleep; in " which ſituation he was diſcovered. Being

(*a*) Bar. VAN SWIETEN, ſect. 640. You ſee, the ſimplicity of this practice might have led to ſet its virtues in a true light, if theſe, and many other hints, which were accidentally diſcovered, had been attended to; but the *theory* of the times prevented their taking place; people's minds being from thence impreſſed with an opinion, that drinking cold water was wrong, in oppoſition to matter of fact. (See Anſ. p. 43. par. 2d.

(*b*) WILLIS, cap. viii. De febre ephemera.

" put into bed, a ſweat broke out, and he got " well."

Dr. DOVER relates a caſe of " one THOMAS HACKIT, a youth at Briſtol, who had a " *ſpotted fever*, attended with a violent hæmorrhage at the noſe, for which he was bled, and " took cooling medicines, without effect, inſomuch that there was no room to expect his " life. Dr. DOVER ordered a large veſſel to be " filled below ſtairs, with ſpring water. — " HACKIT was carried down in a ſheet, and put " into the water; he dipped his head ſeveral " times, upon which the bleeding ſtopped. — " After continuing in the water a quarter of an " hour, he was carried to bed, only covered " with a ſheet. — He ſlept well that night; the " ſpots all diſappeared; and he was very well, " only weak (*a*)."

Dr. CYRILLUS tells us, " that at Naples it " became a practice to cure fevers by the uſe of " water only, mixed with ſnow, and that in " large quantities, for ſeveral days together, " without any other medicine or food; by " which method, ſome, (contrary to all expectation,) were ſnatched from the very jaws " of death. — Cautious Phyſicians were at firſt " ſtartled at the practice: But encouraged by " *repeated* and *ſucceſsful* trials, they at length " became bolder; and what ſome people attempted at random, and without conſidering " either the nature or time of the diſtemper,

(*a*) Ancient Phyſ. Legacy, p. 108.

" they

" they reduced to a more cautious and ſafe " method (*a*)."

Mr. HOLLWELL (*b*) has, ſince the Eſſay was publiſhed, ſhewn, in the manner of inoculating for the ſmall-pox in the Eaſt Indies, the advantage of preventing and ſuppreſſing the eruptive fever, by throwing all over the patients, cold water, every morning; by expoſing them to every wind that blows; and allowing them, by way of indulgence, to be laid upon a mat at the door; which is ſeldom required, the ſymptomatic fever being generally ſo inconſiderable.

Are not alſo the advantages of ſubduing the fever, in the *natural* ſmall-pox, and the diſadvantages of heat, fully evident, in the caſes related by Mr. LEE PERKINS, and Dr. HUCK, in the third volume of the London Medical Inquiries? — In the ſame diſeaſe, Dr. WATSON has likewiſe given a remarkable caſe, where cold bathing, carried to an extreme indeed, cured both the fever, and its attendant, the delirium.—And where the like effects followed a man's expoſing himſelf in his ſhirt only, a conſiderable time in the ſtreet, in a cold froſty night, when the puſtules were near maturation (*c*). — And, ſurely, if ſuppreſſing a fever

(*a*) Philoſophic. Tranſact. No. 410. p. 142.
(*b*) On Inoculation in the Eaſt Indies.
(*c*) On Inoculation: We imagine, if Mr. MAXWELL had walked in his ſhirt only, in a cold froſty night, from the end of Conduit-ſtreet to Cavendiſh-ſquare, and afterwards ſtood ſome time expoſed, he would have been convinced, that cold air was capable of extinguiſhing heat.

is ſafe and advantageous, where the natural criſis is an eruption upon the ſkin, it will, of courſe, be more ſo, where the *materia morbi* is diſcharged by any of the outlets.

Dr. HEBERDEN ſays, "ſeveral patients, la-
"bouring under eruptive fevers, who have
"happened to keep out of bed a little time
"every day, for ſeveral days together, have
"conſtantly found, that the eruption was
"greater while they were up and cool, and
"that it began to fade as ſoon as they were hot
"in bed. Is it owing to experience or hypo-
"theſis, that eruptions are believed to be
"thrown out more vigorouſly by warmth, and
"lying a-bed (*a*)?"

We find, purging moderately, giving cold water with a toaſt in it, and admitting cold air very freely, has an equal happy effect in the meaſles.

The following Caſes, together with thoſe we before publiſhed, may ſerve to ſhew the different ſteps we uſually take under different circumſtances; and we may obſerve, once for all, that we never ſuffer the heat to be reduced below its natural degree: and when a ſweat begins to appear, liquids are given rather warm, unleſs the heat ſtill remains violent.

A woman, thirty years of age, in the ſeventh month of her pregnancy, was ſeized with a Pleuro-peripneumony. Her pulſe being hard,

(*a*) Med. Tranſ. Vol. 1. p. 469.

though

though oppreſſed, a troubleſome cough attending her, and ſhe breathing with inexpreſſible anxiety and pain; a large quantity of extremely ſizy blood was inſtantly taken away in the evening, on the ſecond day of the diſeaſe, which was the firſt time we ſaw her.

Pectoral apozems, antiphlogiſtics, repeated bleedings, keeping her bowels open, and afterwards a bliſter to the ſide, were the remedies employed.—She drank cold water with a toaſt, in moderate quantities.—And we followed the practice of SYDENHAM, in getting her out of bed, ſeveral hours in a day, in a large room filled with cool air, by the windows and doors being ſet open. And when ſhe was ſupported by pillows, &c. upon the bed, for ſhe could not lie down, ſhe had but little more than a ſheet to cover her.

Though, by this treatment, the violent heat was ſoon abated, and in a ſhort time reduced ſo much, as to put the patient in a ſtate more free from danger; yet we did not leſſen our attack againſt the cauſe of the complaint, which manifeſtly ſtill exiſted; but by repeated bleeding, and pouring in our cooling deobſtruents, we ſo far diſlodged the enemy, that the pain became greatly abated on the third day from our firſt ſeeing her; and, on the day following, a fetid matter was freely diſcharged from her lungs; when the liquids ſhe drank were ordered to be made rather warm, knowing that cold ſuppreſſes expectoration.

At eight days end ſhe was able to take the air out of doors, though ſtill very weak, and ſhe was troubled with a violent cough, that would only give way to opiates; the reaſon of which was ſoon obvious; for at the three weeks end from her going about, ſhe diſcharged, in a fit of coughing, a full half pint of good matter; — after which ſhe perfectly recovered, before the time of her lying-in, while ſhe was taking an electuary compoſed of Bark and Locatellus's balſam.

Is it not very probable that this patient would have died, if the fever had not, in a great meaſure, been ſuppreſſed, by the free admiſſion of cold air, &c. ? — I am fully perſuaded, the ſizy coat we meet with upon the blood, is often intirely the conſequence of increaſed heat, and an increaſed circulation; — and if ſo, immediately reducing the heat and velocity of the blood to its uſual ſtate, muſt of courſe prevent a great deal of miſchief; and render uſeleſs many ſteps that are at preſent taken.

A man in good health, at his own deſire, loſt twelve ounces of very good blood, and in two or three days afterwards had the misfortune to bruiſe his ſhin, to which he applied ſome ſpirit of wine and camphor.— Being of an irritable habit, this brought on a violent inflammation, which was followed by a ſmart fever, accompanied with a pain in his ſide, and a ſtrong pulſe; upon which twelve ounces more of blood were taken away, which was now *very ſizy*. — He aftewards loſt more ſizy blood, but by keeping him

him cool, &c. with proper applications to the affected part, he recovered.—— I have often ſeen people loſe good blood at the time of receiving accidents, and it has afterwards been found ſizy, when a ſucceeding fever has made a a ſecond bleeding neceſſary.—It is very well known, that though we frequently find the blood of people, in the beginning of fevers and pleuriſies, with little or no ſize, yet if the fever continues ſo violent, as to require a ſecond or third bleeding, it is then often become very ſizy.

Hence there is reaſon to doubt, whether the ſize in the blood is not ſometimes at leaſt the conſequence, inſtead of the cauſe of a pleuriſy. We have every reaſon to think, that pleuriſies in their beginning are often local; otherwiſe, if they were owing to a general lentor in the fluids, why not always an obſtruction on both ſides the thorax at the ſame time? or in ſimilar membranes in other parts of the body? or why does not a fever, or a pleuriſy, always come on, when the juices are ſizy?—The inflammation of the membrane has probably a prior cauſe, though aggravated by the inflammatory ſtate of the blood that follows.

Now, if increaſed heat and motion alone are capable of producing a ſizineſs in the blood, what is likely to be the conſequence, where this ſtate already exiſts from ſome other cauſe?—And is not the attendant guilty of omiſſion, in ſuffering it either to increaſe or take place, when he has it often in his power to prevent it?

A girl

A girl about ſixteen years of age, of a delicate and very irritable habit, was, in October, ſeized with a fever; her ſkin felt exceſſive hot, and ſhe complained of an inward burning heat, accompanied with a very quick, though not ſtrong pulſe, a violent pain in her head and reſtleſſneſs, nor could ſhe cloſe her eyes to ſleep.

Being coſtive, a gentle purge was given her, which had its proper effect; ſhe took ſaline draughts regularly, and on the third day of her diſeaſe ſhe began to drink frequently and freely of cold water with a toaſt in it. The window and door of her room, in which there was no fire, were ſet open in the day time; and the only curtains that were drawn were thoſe that faced the ſaſh, it being near the bed.

She ſoon found the advantage of this treatment, and we got quite clear of the fever in two days.—However, no ſweat, except a moiſture in the palm of the hands, nor ſediment in the urine, or any critical evacuation appeared; but her pulſe ſtill continued quick and vibrating, ſhe yet had no inclination to ſleep, and ſome hyſteric ſymptoms came on.

Her room was ſtill kept cool, to preſerve the advantage we had gained; but the window was only opened now and then, and cold water was thought no longer neceſſary, as the fever diſappeared;—but as the cauſe which gave riſe to the fever ſeemed ſtill to remain, we gave her nervous medicines along with Minderus's ſpirit; upon which a raſh broke out, when ſhe found herſelf

herſelf freer from complaints, and next day, her pulſe became perfectly regular, and every ſymptom of the diſeaſe diſappeared, after having a few looſe ſtools. — She was reſtored from the weak ſtate into which theſe few days illneſs had brought her, by a proper diet, and taking HUXHAM's alexipharmic tincture of the bark in chamomile tea.

In September 1766, a man, twenty-five years of age, was ſeized with the epidemic fever we have deſcribed, accompanied with a diarrhœa, the ſtools being extremely fetid. — On the eighth day of the diſeaſe we were called to him, and found him very weak, exceſſive hot, and delirious. — The neceſſary medicines were directed, but cold water was not thought proper, on account of his looſeneſs: — the windows on each ſide his room, and the door, were therefore ſet open, which let in a ſtream of air that ſufficiently cooled him; and when we ſaw him the next day, his fever was gone, he was quite ſenſible, and (dreadful, Mr. MAXWELL, to tell!) he recovered, without requiring a repetition of his medicines.

In September 1767, a woman, about twenty-four years of age, had lain ill of a putrid fever ſeveral days before we were deſired by the pariſh officers to ſee her. — She was now delirious, her eyes ſlightly inflamed, a quick, ſmall pulſe, exceſſive hot, and ſhe was covered all over with blue petechiæ, each as large as a ſixpence; but ſhe was not yet become very weak.

Being

Being coſtive, her bowels were firſt opened by a purging mixture, afterwards a decoction of the bark with ſpirit of nitre was given her; and ſhe was ordered to drink cold water with a toaſt in it; but as the windows could not be opened, the only air that came into the room was through the door.

Next day, except having had two or three ſtools, we found her *in ſtatu quo:* Upon enquiry it appeared, that ſhe had not drank above half a pint of water at a time, and this at long intervals; ſo that the fever had overbalanced its effects: and beſides, ſhe was covered with a larger quantity of bed-cloaths than we directed.

Upon this, the glaſs belonging to the ſmall windows, which directly faced the bed on each ſide this cloſe hut, was removed, and two doors belonging to the room were ſet open; ſhe was covered with a ſheet only, and directed to drink, in larger quantities, cold water, as often as ſhe had a mind.—By this means, her fever was ſoon ſuppreſſed; upon which, the delirium left her, the urine let fall a ſediment, and her blood recovered its proper tone, by perſevering in the uſe of the antiſeptics ſhe had already taken.

In April laſt, a boy, about ſix years old, was ſeized with an ardent fever, ſucceeded by a ſlight delirium, his pulſe being quick, but not ſtrong. He took a purge that worked very well, and a ſaline julep was given him; but though the room was kept tolerably cool by opening the ſaſh, yet his heat was exceſſive, and on the fourth day we

ſeemed

ſeemed to loſe ground. — Being very dry, he called out for cold water from the pump, in which he was indulged, and greedily drank a great part of a pint at his firſt draught, after which he lay ſtill, but quite uncovered, having kicked off the bed cloaths, and ſeemed inclinable to ſleep, but in a little time he called for more water, which was given him as often as he deſired. Soon after this, his heat abated greatly, he fell into a ſleep, and a light blanket being drawn over him, a ſweat, and a recovery followed; but it took ſome time to regain his uſual ſtrength, being very much reduced, in this ſhort ſpace of time.

A youth, ſixteen years of age, had been ill of an ardent fever, three or four days, and upon applying a common pocket thermometer to the præcordia, I found the degree of heat 100, with a dry ſkin, and a very quick though not ſtrong pulſe. — The proper remedies were given, along with as much cold water as the patient was deſirous of drinking; he was lightly covered with bed cloaths, and the window and door of his room were ſet open. — In two hours time, his heat was reduced to 93, when he began to ſweat, but afterwards, when it was ſunk to 90, he ſweated freely, without any diſagreeable ſenſation in the ſkin, and *recovered* with great eaſe.

The ulcerous ſore throat, attended with an *Eryſipelatous Efflorescence* all over the ſkin, has lately been very rife, in ſome parts of a neighbouring county. — The common method was,

along

along with the proper remedies, to keep the rooms full of cool air, by opening the windows and doors, ſuffering the patients, at the ſame time, only to be covered with a ſheet; and allowing them cold water for their drink; and this with the moſt deſirable ſucceſs.

The following Caſes we give by way of contraſt.

A Gentleman came to conſult me this ſpring, about his health, who, amongſt other things, told me, that two years ago he had been inoculated for the ſmall-pox, but not in the new method: His Apothecary, who was a man rather in years, telling him, it was nothing more than the puppy-like tricks of a parcel of young blockheads.

After preparing him, in the beginning of May, the operation took place; from which time, he was kept cloſe, in a ſmall room, with a good fire in it, and when the ſymptoms began to ſhew themſelves, he was confined to his bed, well covered with bed-cloaths; a large piece of thick flannel was tied all round his head, and the curtains, which were lined, were kept cloſe drawn.

In this roaſting ſituation the fever became very violent, and the patient was ſo reſtleſs, and full of pain, that he ſcarce knew what to do with himſelf:—He was told, this was owing to his uneaſy diſpoſition, which made him bear it as well as he could. But a prodigious large

crop

crop of puſtules followed, as his face ſtill teſtifies; and inſtead of the fever declining after the eruption, it became worſe; ſo that his aſſiſtant was under the neceſſity of bleeding, giving ſaline medicines, and the like. — But theſe had little or no effect; for as he ſtill kept him in the ſame ſtate of heat, a delirium followed; upon which bliſters were applied, and every thing elſe uſed that was thought proper; ſo that, while he raiſed the fever with one hand, he endeavoured to knock it down again with the other. But the patient had the happineſs of being inſenſible to the latter part of this ill-treatment; and at the end of fifteen days, found himſelf juſt beginning to recover from this long and dangerous illneſs.

A girl was prepared and inoculated for the ſmall-pox, and at the time of her ſickening, confined to a warm room, her mother lying with her, to keep her ſtill in bed; and an additional heat was alſo brought on, by her not having a ſtool in ſix or eight days.

By this treatment, a large quantity of the confluent ſmall-pox followed, and ſhe was really in imminent danger; but by giving her clyſters, and keeping her cooler, ſhe recovered with difficulty.

Compare this progreſs of the diſeaſe in theſe patients; with thoſe inoculated by Doctors DIMSDALE and WATSON; and we think there will not want further proof, that the fever protracts and increaſes the diſeaſe.

Perhaps,

Perhaps, on the other hand, it may be ſaid, that death has been the conſequence of expoſing people to the cold air, in the natural ſmall-pox.— And, indeed, we have read ſome inſtances of this ſort; but the heat of the body, in theſe caſes, probably did not want abating: And the ill effects might ariſe from the natural heat being reduced too low: And is not any other powerful medicine capable of producing miſchief; if injudiciouſly applied? — But if cold air, or cold water, or both, are uſed in fevers with the cautions we adviſed; we ſee, by daily experience, that all the apprehenſions of danger from their uſe, are only imaginary; and though it is impoſſible ſuddenly to alter long rivetted opinions, yet as we DEPEND NOT ON OPINIONS, BUT UPON MATTER OF FACT, we doubt not, from what we have ſeen of this matter, but that in time, the extinction of fevers will be practiſed with the ſame familiarity as we now give antimony, which formerly was proſcribed by law.

The indefatigable and ingenious Mr. ALEXANDER has aſſiſted much in giving light to this matter; for by his experiments it appears, that though two pounds of warm water gruel were inſufficient to raiſe a ſweat, when the heat of the body was by the thermometer (*a*) 113 degrees, and the pulſe about 97; yet in *ordinary health*, in bed, it will eaſily be procured by *half that quantity*.

(*a*) FARENHIT'S.

That

That a ſweat may alſo be brought on, till a perſon is 6, 8, or 10 degrees (*a*) above his natural heat; but the more the heat is increaſed beyond this, the farther is the ſweat from being procured; and when it riſes above 112 or 113 degrees, a ſweat has never been known to ariſe: even warm diluting drinks do not only prove generally ineffectual; but ſeem to prevent it, by augmenting the increaſed heat of the body: while a large draught of very cold water, haſtily drank, always leſſens the number of pulſations, three, four, or five, and ſometimes more, in a minute: and quickly produces this evacuation (*b*).

We know very well, that a proper doſe of the Terra foliata tartari, given in ſome diluting liquor at bed time, to a perſon in his natural ſtate of heat, will, if it does not paſs off by the kidnies, for the moſt part eaſily raiſe a ſweat; but if his degree of heat is con-

(*a*) The natural degree of heat in the human body, is different in different conſtitutions; and varies greatly in the ſame perſon, under different circumſtances. But in general, it is about 83 by a common pocket thermometer. — But though natural heat may be increaſed by exerciſe, wine, &c. ſeveral degrees above its uſual height; yet it is eaſily diſtinguiſhed from preternatural or febrile heat, which immediately conveys to the touch, a ſenſation ſimilar to fire, to which a pungency is added, when the fever ariſes from putrid acrimony; whereas, when natural heat is only increaſed, there is nothing more than an open glowing warmth, no ways diſagreeable to the hand which is applied to the ſkin.—Which diſtinctions muſt be carefully obſerved in practice; becauſe ſudden cold, when the natural heat only is increaſed, will do injury: Whereas in preternatural heat, it has a contrary effect.

(*b*) See ALEXANDER's Experiment. Eſſays.

ſiderably increaſed, it produces no ſuch effect, till this heat is reduced; as appears very plain from a caſe already given (*a*).—Whence it is evident, that he ought to be reduced as near to his natural ſtate of heat as poſſible; not only that this, but that all the other ſecretions and excretions may more eaſily be performed.—And does not this agree with the Eſſay oppoſed, which only taught to ſuppreſs *preternatural heat?*—Which rule muſt even be obſerved, if the patient continues unnaturally hot, though a ſweat is forced out; otherwiſe, as experience teaches, inſtead of being ſerviceable, it will be of diſſervice to the patient, the heat overbalancing the good effects of this evacuation.—Whereas, if a ſweat appears, when the fleſh has acquired its natural heat, cold air, and cold water would do injury, by ſuppreſſing the diſcharge they have procured. And if the pulſe, inſtead of becoming open and regular, ſhould ſtill continue quick, vibrating, or irregular, after the fever is ſuppreſſed, the cauſe that gave riſe to the fever is manifeſtly ſtill exiſting, and we muſt not deſiſt from uſing the proper remedies, till theſe ſymptoms are removed.

Mr. MAXWELL ſays, we are not to argue from inſtances of ſucceſs (*b*).—If not, what are we to argue from? Is not the ſame kind of ſucceſs attending this practice, in almoſt every quarter of the globe, the fulleſt teſtimony poſſible of its being right?—And is there any analogy,

(*a*) See Eſſay, p. 54. par. 2d. (*b*) See his Poſtſcript.

betwixt

betwixt this kind of evidence, and the vouchers daily procured for empirical remedies?—Surely, it cannot be ſaid, that the teſtimony in favor of the extinction of fevers, "is a few fortunate, or "fancied fortunate examples;" for we will venture to affirm, that there is no practice, which has had more writers of credit in its favor; who, according to Mr. MAXWELL, muſt have been a pack of fools; and that he, without any experience at all, can judge better of the matter, than thoſe, who were converſant in this practice.

Can it, therefore, be ſaid, after reflecting that this method of cure has been purſued more or leſs in every age ſince, and perhaps before Phyſic was formed into a ſcience, that "novelty in this "caſe effects conviction?"—Novelty was never aimed at, further than ſetting this matter in a *new light*, in ſhewing that this uſeful and rational practice, or that plain matter of fact, had been diſcarded only in conſequence of a falſe and injurious *theory*; which makes true the aſſertion of BAGLIVI, that "amongſt the ſources of innu-"merable and pernicious errors, this is not the "leaſt; that men give more credit to the uſe-"leſs comments of their own brains, than to "*obſervation*, and the *cautions* of nature."—However, ſomething in the Eſſay ſeems to have moderated Mr. MAXWELL's "ſanguine tem-"per," for, after having furiouſly attempted to prove the whole *abſolutely falſe*; he *mildly* concludes, that it is not *free* from objection; and that the principal poſitions are not *ſtrictly true*.

After all the evidence we have produced, and Mr. MAXWELL's not having ſaid any thing that can contradict the practice recommended, ought it not to have a cautious and impartial trial, by which alone, its propriety or impropriety can be aſcertained?—For *prating*, without experience, can never ſettle this matter. And it is happy, this nation abounds with men, who prefer the good of their patient, to their own emolument.—Theſe will never want employment, nor rewards that will ſatisfy them; "but there will always "be a ſet of deſigning, intereſted men, who would "rather ſee mankind perſiſt eternally in error, "and die of miſconduct, than be ſaved by the "truth; if it detracted a mite from their an-"nual profits."

POST-

POSTSCRIPT.

THE following APHORISMS are intended to ſhew, at one view, the practice recommended in the cure of Fevers.

APHORISMS.

I.

THE nearer the human body is to its natural degree of heat (*a*), the more readily will any matter be expelled from the blood. — Wherever, therefore, morbific matter is to be diſcharged from the habit, the heat of the body ſhould be reduced, or raiſed, according as it exceeds, or falls ſhort of, the ſtate preſcribed by nature.

II.

Preternatural heat ſhould be extinguiſhed by its proper antidote, *cold*, and *vice verſa*.

III.

In order to extinguiſh a fever with propriety, we ſhould firſt enquire into the ſtate of the

(*a*) See note at the bottom of page 97.

patient,

patient, previous to his preſent illneſs; that we may judge with greater certainty, whether the viſcera are ſound.

IV.

In the beginning of every fever, ſuch evacuations, and ſuch deobſtruents, muſt firſt be uſed, as the ſtrength of the patient will admit of, and the nature of the diſeaſe requires; with the free uſe of cool air.

V.

If, notwithſtanding proper evacuations, and the uſe of cool air, the fever ſhould increaſe without ſhewing any favourable ſymptom; a greater degree of cold, in *proportion to the degree of heat*, and the ſtrength of the pulſe, muſt be uſed to ſuppreſs it.

VI.

In general, the earlier a fever is ſuppreſſed, the leſs will be the degree of cold required for this purpoſe.

VII.

In ſuppreſſing fevers, cold air and cold water, under different circumſtances, will have preference to each other; but they may more frequently be joined with advantages that cannot ariſe from either alone; — the *viviſying ſpirit* of the air, and the diluting quality of the water, producing each, ſalutary, tho' different effects.

VIII.

VIII.

In ardent, or putrid fevers, where the fluids are thin enough to paſs the circulation, both cold water and cold air may be uſed as extinguiſhers.

IX.

Fevers accompanied with a ſizineſs in the juices, or ariſing from an inflammatory obſtruction in any part of the viſcera, may ſafely be ſubdued by cold air, and moderate draughts of water, which is not very cold (*a*).

X.

Cold water, in moderate draughts, may be given to ſubdue an inflammatory fever, ariſing from a dry and cold conſtitution of the air; but this kind of air ought to be frequenly renewed and corrected by fire, before it enters the patient's lungs.

XI.

In ſlow fevers, or when the patient's ſtrength has been reduced previous to his fever, or where the pulſe is weaker and ſlower than in a ſtate of health, cold air ought to have preference to cold water; and when cold water is given, it ſhould be mixt with wine, or other cordials,

(*a*) I have here paid regard to the general theory of cold water being injurious in inflammations of the viſcera; but it is a known *fact*, that very cold water being applied, abates external inflammation.

that

that the preternatural heat may be abated, and the ſtrength of the patient preſerved at the ſame time.

XII.

Cold air alone ſhould be uſed to ſuppreſs a fever accompanied with a diarrhœa; as cold water might, perhaps, haſtily ſtop this diſcharge, which is often ſalutary.

XIII.

If an eryſipelas is the criſis of a fever, the neceſſity of extinction is at an end. — The ſame may be ſaid of other external inflammations, which are produced in the ſame manner: chirurgical treatment being all the aſſiſtance that is neceſſary. — But where an eryſipelas *precedes* a fever, it is an original complaint (*a*), and after defending the affected part properly from cold air, the patient may be advantageouſly cooled by breathing cold air, and drinking cold water, if the violence of the fever requires.

XIV.

By experience, in the ſmall-pox and meaſles, it evidently appears, that cold air, under proper

(*a*) Seeing that an eryſipelas is the common conſequence of ſmall wounds of the membranes, or of large wounds in them, if the diſcharge is obſtructed by cold, or the like; it ſeems reaſonable to imagine that it is always a diſeaſe of theſe parts, owing probably, either to a fault in the fluids which paſs through them, or to ſome diſeaſe in the membranes themſelves. — Whatever, then, prevents a further obſtruction muſt be ſerviceable.

regu-

regulations, is not attended with that danger, in fevers accompanied with eruption, as has generally been thought.

XV.

Fevers, which come upon a perſon who has an œdema, are, for the moſt part, of the ſlow or putrid kind; and will be properly extinguiſhed with cold air.

XVI.

If a fever ſeizes a perſon, who has any chronical complaint in the viſcera, there is the greateſt neceſſity for its being extinguiſhed; as exceſſive heat, and increaſed motion, muſt be injurious to the parts affected. — And though cold water, in very large quantities, may not always be proper; yet the extinction with cold air always take place.

XVII.

A ſchirrous is not any objection to the uſe of cold water; for as certainly as heat increaſes its growth, ſo cold water preſerves it longer in a ſtate of indolence.

XVIII.

Whenever a fever is ſuppreſſed by cold air, the patient muſt be got out of bed, every day; or, if he cannot riſe, he muſt be covered very

lightly with bed-cloaths, a ſheet alone being often all the covering that is neceſſary. — The doors and windows alſo of his room muſt be ſet open, due regard being paid to the ſeaſon of the year, and the circumſtances of the caſe.

XIX.

After the fever is ſuppreſſed; if the temples, or other parts of the body become moiſt, it foretells an approaching ſweat; which ſhould be encouraged by diluting liquors, rather warm than cold, with ſuch other ſudorifics as the caſe requires. — But if there ſhould be no ſymptom of this evacuation, the morbific matter may be carried off by the kidnies: for which purpoſe, diuretics may take place; and purges may be given, if the patient is able to bear them, to carry off part of the offending matter by ſtool.

XX.

If the heat of the body is reduced below the natural degree, more bed-cloaths may be laid upon the patient, and warmer liquids may be drank, to raiſe a ſweat.

XXI.

When a ſweat is raiſed, and the body *continues* unnaturally hot, it muſt be cooled, or the ſweat will be of no ſervice.

XXII.

XXII.

When we ſuppreſs a fever, we only ſubdue a moſt dangerous ſymptom; the cauſe, therefore, of the fever muſt be removed by proper remedies.

FINIS.