On fever, as connected with inflammation : an exercise.

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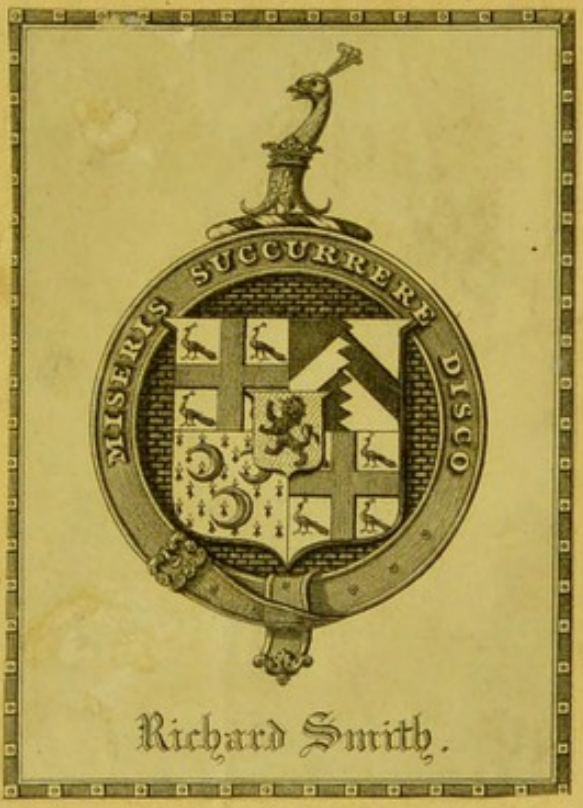

Presented by
Mr. RICHARD SMITH
to the
Bristol Infirmary
22nd. November 1826.

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Rystr. Med. 15

Mr. R. Smith
with the author's thanks for his assistance

ON

FEVER,

BRISTOL ROYAL INFIRMARY.

AS CONNECTED WITH

INFLAMMATION;

AN EXERCISE.

Μαλιστα δ'αν 'επαινεσαιμι 'ιηΐρον, 'οςΐις εν τοισιν οξεσι νουσημασιν, α τους πλειστους των ανθρωπων κΐεινει, εν τουτεοισι διαφερων τι των αλλων ειη επι το βελτιον.

ΙΠΠΟΚΡΑΤΗΣ.

CLIFTON,

1807.

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Tout auteur, qui ne veut pas s'exposer à mentir doit faire la preface de son livre aussi courte qu' il lui est possible.

D'ARGENS.

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ERRATA.—Page 15, l. 17, put *was* for *were*. p. 24, l. 25, *in* for *on*. p. 47, perhaps *paupieres* is right. p. 63, l. 15, read *at* before *this*. p. 69, l. 11, *in* for *In*. p. 88, l. 24, for *the lapses*, read *relapses*. p. 111, l. 23, read *succeeded*. p. 133, expunge full stop after tumere. p. 169, l. 16, read *issuing warm from*. p. 170, line 12, for *o*, read *ou*. p. 174, l. 18, read *storming*. p. 176, expunge *the doctrine*. p. 191, l. 8, read *in*. p. 167, l. 4, *that* for *his*. p. 168, l. 23, read *to promise wholly*. p. 174, l. 4, *from approach of*; p. 176, l. 17, expunge *by*, and p. 120, l. 23, *not*.—Errors of a single letter, or a comma, need not be pointed out.

RESEARCHES.

Difficillimum adgredior laborem, et exitum vix promitto, qui lectori satis faciat. HALLER.

I.—DOCTRINES CONCERNING FEVER.

IN an inquisitive age, opinions spring up, flourish, decay, and give place to others with a rapidity, to which we scarce find any thing equal, except among the processes of nature in tropical regions. Of modern medical opinions, a number have required scarcely more years to go through their destined periods, than those of antiquity did centuries. Succeeding authors imputed to spasm, to a contest between the capillary and the larger vessels, to debility, direct or indirect, an eminent share in the production of fever. But these hypotheses, if I do

not mistake their present condition, are so irrecoverably gone, that it remains only with the historian of our art to find them a place, where they may be deposited beside their deceased predecessors, and to erect a decent monument to their memory. A knowledge of the electrico-chemical operations of life, or of those processes (by whatever name they may be called) which produce the alterations of substance, incessantly going on throughout the animated machine, would doubtless throw light upon all, and particularly upon febrile, disorders. Nay, it is probably in vain to think of an arrangement of facts so copious as to deserve the name of theory, till we have made great advances in such knowledge. But what has hitherto been hazarded on the change of composition in the fluids and solids by fever, from the author's own conjectures inclusive, down to the recent formidable labours of Dr. Reich (*Fieber-lehre in* 2 *vast* 8*vos. Berlin*, 1805), appears destitute alike of useful application and of evidence. And if these systems have superseded the investigation of phenomena such as, when once ascertained, strike the senses too powerfully to leave the judgment in suspence; if they have prevented us from analysing the mutual relations of these phenomena; if they have tempted ingenuity to waste itself, upon the means of correcting imaginary deviations from the standard state of health; we may surely

surely pass them by, after giving a moment of regretful admiration to the talents, by which some of them were constructed.

Fatigue of mind, in the first place, induced by anxious examination of the pretentions of rival hypotheses, and afterwards disgust at finding that they yield no relief under the distressing emergencies of our profession, have frequently engendered absolute despair respecting this great branch, if not the whole, of medical science; and for fear of meeting none but false lights, we adopt the expedient of shutting our eyes close. But the proof of fallacy in speculations, that run astray merely from pushing too far, need not to be followed by consequences so disheartening. We may yet hope to gain essentially, by adhering strictly to the comparison of symptoms, not only with one another, and with the effect of medicines, but with the appearances after death. So that, without relaxing in zeal, we have only to limit our endeavours by our powers.

To the appearances after death, certain reasoners on fever seem not at all to have adverted; by the generality, they are but cursorily noted, and in the gross. Seldom, indeed, have they been sedulously examined, with a view to fix the alterations proper to this class of complaints, to invent methods for detecting such as are not immediately obvious, and to connect the

whole, as far as our proficiency in morbid anatomy will permit, with the successive conditions of the diseased system.

Nevertheless, in the multiplicity of medical records, there are actually to be traced vestiges, and more than vestiges, of a doctrine founded upon these considerations combined: partially, it appears in the writings of physicians of no very modern date. Nay, such a doctrine, both in particular and in general, has been laid out, with all its evidence, in form. Among ourselves, it has recently been advanced, as a new and fruitful conjunction of ideas; the author, by strong implication, laying claim to that distinction, so properly held out by the father of medicine, to the physician who shall produce something superior to his fellows on acute disorders, as being those, which cut off the majority of mankind. At length, therefore, the doctrine may, as it deserves, receive a full discussion; for although not quite unknown to the schools of physic, it never seems to have found its way to any of the more celebrated; in which, the professor has the obvious advantage of being able to prepossess a multitude of pupils, in favor of any system. And what comes abroad, with this sort of authority, is sure, we know, to find opponents as eager as its advocates, and so, by degrees, must be justly appreciated.

Meanwhile,

Meanwhile, to promote useful discussion, as far as may be in the power of a private individual, I shall undertake some enquiry into the progress and foundation of tenets, that have hitherto lain in unmerited obscurity. Whether or not I enter upon a task so arduous, hastily and unprepared, it is for the reader to judge from the following digest of facts. He may, and perhaps with justice, censure my profusion of authorities. But if he only consider that we owe our exemption from pestilence, to some great fire, or new fashion of life, rather than to skill; that, in one of our own European dependencies, we have just had to lament as great a mortality from fever, as was usual in ages of the deepest ignorance, not without destructive visitations at home; that caprice, skill and calamity together have proved insufficient to guard our colonists in America, against rendering their new cities, as much hot beds of the calenture, as our old ones had been of the plague; and that, far and wide through the civilized world, the fatal *kausos* of remote antiquity still carries on its exterminating warfare against the human species; he must feel how very few of the difficulties, which perplexed the earliest observers can be yet removed; nor will he require a very laboured excuse for some anxiety, in authenticating a statement, tending ever so remotely to their removal.

After

After all, it will perhaps be found that the grand question, on which I am about to enter, is not to be decided by such controversial weapons, as the armoury of medicine can, at present, supply. But granting, that upon a fair trial of their temper, they prove deficient, I know nothing more likely to induce persons, capable of feeling for their profession and their species, to bestir themselves to provide better.

II.—CONNECTION OF FEVER WITH INFLAMMATION.

BEFORE I engage in a more rigorous analysis, let me recapitulate some few, generally apprehended, circumstances. Inflammation and ulcers of extensive, important, or deep-seated parts, are attended with alteration in the pulse, in the heat of the body, in the sensations referred to the skin, and indeed in the feelings altogether. These alterations constitute the symptoms of hectic, or more largely speaking, symptomatic fever.

It would seem that fever and local inflammation may simultaneously arise, from a single impression. Sudden variations of temperature will produce universal shiverings, heats, and quickened

quickened pulse, together with a more intense effect in a part or parts, as we see in cases of catarrh and rheumatism. At other times, general affection shall arise, a considerable time before the appearance of symptoms of local inflammation. Of this, an immense variety of examples, particularly in pleurisy, might be adduced, from the disciples of different schools, and from independent observers. Of the fact, Brown eagerly availed himself, in proof of the unity and indivisibility of that property of the living system, which he calls excitability. The third is the most familiar case. Local inflammation shall occur by itself; and then, increasing by degrees, symptomatic fever shall follow. Thus we have quickened pulse, with shiverings and flushing, when the stomach is inflamed from poison,—the kidneys from a stone,—a bowel from strangulation,—or the gums from a carious tooth. So much are we accustomed to see general supervening upon local affection, that chills, succeeded by heats, are reckoned among the diagnostic signs of deep-seated inflammation. How the susceptibility of distant organs is changed, we are entirely ignorant.

III.—CONNECTION OF INFLAMMATION WITH FEVER.

AS fever, palpably arising from inflammation and terminating with it, has been named *symptomatic*, so typhus, synochus, low, nervous, spotted, malignant, yellow, jail, hospital, ship, putrid fever, has been called *idiopathic* or *independent*, because supposed not to arise from the disorder of a part. At all times, however, these varieties have been observed to be attended by inflammation, particularly when it is protracted or violent. The affirmation of Riverius (Prax. Med. xvii. 2. 1.) *febres acutas et malignas rarissimè sine visceris alicujus inflammatione incedere* has been confirmed in every single epidemic, where search has been made, and often without search. Whatever may be the explanation, the fact is acknowledged by the followers of every master, by the eclectics, and pure empirics. Taking the internal parts, along with the surface, into account, fever seems hardly ever exempt from inflammation. At some period, how familiar are external abscesses, in those of our own country? External inflammation is regarded as salutary; when internal, it sometimes causes groundless alarm, but at others

others, gives an unexpected and fatal turn to the complaint. To select one from a multitude of instances. In an account of the epidemic maladies of Lisle, for January 1758, it is related, that a young man, ill of a putrid malignant fever, *apres avoir trainè trente-cinq jours, et avoir donné les esperances les mieux fondées par des selles, et des urines critiques, mourut le trente septiéme, d'une inflammation dans le bas-ventre qui survint contre tout apparence, et qui ne dura que trente-six heures.—Vandermonde Journ. de Med.* viii. 381. May we not regard the small-pox, the cow-pock, and all exanthematous disorders, as fevers with inflammation? The plague has been even regarded as having for its characteristic, certain superficial inflammations of critical import.—Dissection after fever has, almost always, brought marks of inflammation to light.

IV.—DEPENDENCE OF FEVER (IDIOPATHIC FEVER, AS IT IS CALLED) ON INFLAMMATION OF ONE PARTICULAR ORGAN.

Εκ Διος αρχη ——

IN Hippocrates, the name of phrenzy (Φρενιτις) is perpetually given to fever, attended by delirium, especially to the kind more recently styled *malignant*. Let the student only refer to the cases related, in the third book, on Epidemics. From resembling circumstances, in the accounts of typhus (περι των ιλιος παθων. Ed. Foesii, Genev. p. 553) and of inflammation of the brain (περι νουσων. ibid. p. 487), the antients themselves are thought not to have overlooked the identity of these two affections. But the sketches, I confess, are to me too slight, and the strokes too much at random, to argue the existence of ideas, approaching to those, on which our classifications are founded. In the first passage we are told, "when the patient rises, "he immediately sinks again;" in the second, "if he be raised, he cannot maintain the erect "posture." Hence the author (who, according to the joint opinion of modern critics, is later than Hippocrates) had, it should seem, met with

with cases of the variety of typhus, called by some *febris syncopalis, fainting fever*, because at a very early stage, if the patient in his agitation place himself upright, complete syncope or great faintness shall come on. *Jam à solâ corporis erectione sine praegressis evacuationibus deliquia* (J. P. Frank Epitome, I. 101) The Greek observer certainly drops no hint, by which any one could be led to deny the existence of fever, as an idiopathic disease, or in other words, to expunge from the nosology of Cullen, the first order of his class *Pyrexiæ*, and to throw the genera (as consisting simply in original or secondary inflammation of the brain, or its appendages) all under the order *Phlegmasiæ*. This important transfer was reserved for an age, possessing deeper insight into organic affections, than could belong to the antients.

The idea does not, however, appear to lie deep. It is indicated by the disturbance of the sensorial functions; and, beyond doubt, it was early contemplated, but on enquiry rejected. Thus in the sixteenth century, Coiter or Koyterus, the able anatomist of Groningen, in speaking of brain fever, declares, *nullam nec in membranis, nec in cerebri substantiâ deprehendere quivi inflammationem.* Thomas Willis, almost a century later, thinks it more probable, that the disease should depend on inflammation

mation of the spirits *(spirituum phlogosis)* than of the brain or its membranes. Our celebrated contemporary, Dr. J. P. Frank, is more pointed still: *Nec tamen sibi quisquam a summis furiosisque hinc inde deliriis capitisque doloribus hac in febre—nervosâ nempe—pro latente in encephalo inflammatione imponi sinat; fallacitatis quam plurimum hìc latet.* L. c. I. 109.

If the result of dissection led some observers to discard inflammation in the head, as the cause of fever altogether, or, at least, of the accompanying delirium; others from a view to the symptoms, embraced the very specious affirmative opinion. Rhumelius (*Prophylace luis epidemicæ Nurembergae*, 1624) pronounced the particular fever he witnessed, a complaint of the parts within the skull, ἐγκεφαλονοῦσος. But of those who have clearly conceived, and consistently pursued this opinion, Dr. Marteau de Grandvilliers of Aumale, in France, is the first, on whom it can bring real profit to dwell. And in an age when, among the physicians of all nations, safe and decisive practical ideas have been nearly an equal desideratum, the brief, but pregnant memoir, of Grandvilliers deserves notice as much, perhaps, as any thing since produced. In an abstract I might have preserved all the ideas bearing on the present enquiry, but I prefer giving the narrative entire with its few obvious, but unessential blemishes.

V.—EPIDEMIC

V.—EPIDEMIC MALIGNANT FEVER, CONSISTING IN INFLAMMATION OF THE BRAIN.

'Tis surprising to me, that physicians can read so many authors, and overlook the most reasonable rules for the good and preservation of mankind, and imbibe principles, which, were it not for fear of giving offence, I should say, are contrary to common sense. DOVER.

"THIS malignant fever began with a sense of general indisposition. It insensibly increased; nor did patients take to their beds in less than three, or four days. At first, they sometimes had a slight chill on the loins, or between the shoulders, but the attack was never marked by shivering. For the first seven or eight days, the fever was as moderate, as during the remission;* and, but for a little too much heat on the skin, it might have been taken for intermittent. No nausea, no rising from the stomach or bad taste. Tongue moist and red, or at most whitish, but clean. Urine for the most part natural; sometimes of a slight orange with a little cloud. No change in the colour of the lips or cheeks. Nothing could be so insidious as a disease, coming on with such slight warning. Want of sleep, on account of the throbbing

* La fievre, les 7 ou 8 premiers jours, etoit aussi mediocre que dans les tems de la remission.

bing headache accompanying it, was the only symptom to alarm. This remitted with the fever, but did not go off. No anxiety attended. It was rather extreme depression (accablement.)"

"About the 8th or 10th day, the headache increased, and the patient was agitated by a most distressing sleeplessness. The pulse was rapid, small, hard and contracted (serré). The eyes grew more glossy and red. In this stage the urine, from time to time, shewed more signs of imperfect coction, and afterwards became variable again. A great bleeding at the nose succeeded. This often recurred. The patients looked bloated. Convulsions, delirium, tension of the belly, and sometimes diarrhœa closed the tragedy. Death occurred between the 14th and 21st days; sometimes with brown spots, always with a black, chopped, dry, shrunk, and trembling tongue, teeth dry, lips lead-coloured and puffy, face livid; and sometimes the bleeding at the nose continued till death; blood dissolved."

"Such was the state of those, whom the apparent mildness of their complaint lulled in false security. When called in at these last moments, every thing being desperate, I could only make vain efforts, and collect a history of the symptoms."

"Young

" Young women suffered most. The first disasters opened the eyes of patients and the surgeons. It was a latent (sourde) inflammation of the brain, occasioned solely by turgescence of the blood. This it was indispensable to detect. But by what sign? It was fitting that the unabated headache, the throbbing above all, should serve as pathognomic signs to those who, by virtue of their profession, ought not to be ignorant, that throbbing and pain are the inseparable attendants of phlegmonous inflammation. Here then were grounds for *at least conjecturing* inflammation of the brain. To this conjecture, ringing of the ears, and intolerance of too strong a light, gave all the force of certainty. The whole import of these symptoms were not at first seized, and they grew fatal, before they were suspected to be of the least consequence."

" The treatment was the most simple possible, and success certain, where recourse was had to it in time. The sole and single but urgent indication was, to diminish congestion in the brain, and especially in the pia mater, which the redness of the eyes justifies me in regarding, as the chief seat of inflammation here. It was for blood-letting to fulfil these views. From the arm, it was but of moderate utility. I preferred opening the vena saphena, and repeated it quickly (brusquement) to the fourth

fourth time—disregarding the presence of menstruation; which the force of the disease occasioned to anticipate, or to recur though soon after the regular period. Bleeding in the leg does not disturb this evacuation; or else suppresses it only in consequence of becoming its substitute. Practitioners are well aware, that these untoward circumstances just take place in diseases, to baffle us; that the menstrual discharge rarely relieves, and that in such cases inaction is often fatal."

"After four or five bleedings in the arm as well as the leg, if the obstinacy of the headache left me still any thing to dread, I opened the jugular, and repeated this operation when necessary. I took care to keep the bowels open by clysters from day to day. The beverage was a simple ptisan with some nitre. Every evening, I prescribed an emulsion, with some grains of sedative salt. After the first bleedings, I had the satisfaction to find the skin become soft and moist. The moisture continued to the 11th or 14th day, when an inconsiderable chrystalline miliary eruption arose on the arms, chest, and abdomen. This lasted five or six days, carrying off the residue of the symptoms. If any fever were left, it became intermittent, and yielded to purgatives. At the close I added diacodium, in small doses, to the emulsion.

sion. In the beginning and height this would have been hurtful."

EPIDEMIC OF WETZLAR.

An epidemic of later date than that of Aumale, apparently far more extensive in its range, and differing considerably in its manner of attack, found an observer equally decisive in his opinions and practice, and more comprehensive in his views. For he traces the appearances in the subsequent stages to that inflammation of the brain, which, according to him, constitutes the first stage. His reasoning is perfectly consistent in itself, and agreeable to the most firmly established doctrines of pathology. The following is a summary of the account of this epidemic.

During the first of the recent wars on the continent, a camp fever spread from the military hospitals to Wetzlar and the adjacent country. It continued to rage without intermission, from the winter of 1794-5 till the succeeding August. During this period, the author, Dr. Wendelstadt of Wetzlar, had at once from ten to thirty patients constantly under his care.

The earliest symptoms were shiverings, cold extremities, blue lips and nails, difficulty of swallowing, inflamed fauces, dreadful headache, and frequent change of colour. The chill was followed by excessive burning, by full,

quick, sometimes spasmodic, rather constricted pulse, anxious and quick respiration, extreme thirst, dry mouth, tongue with the roughness of a file and fiery red, strong smelling urine, want of appetite, desire of acids, delirium, oppression of the chest combined with pain and irritated cough, so that in many cases the whole complaint might have been taken for a most violent catarrhal fever; at times genuine inflammation of the lungs; added to all this, the most excessive determination of blood to the head; entire sleeplessness, bruised feel of the limbs. The second and third day, increase of all these symptoms; higher fever; such lassitude that patients could scarcely stand upon their legs. Thenceforward aggravation of the complaint from hour to hour. Deafness, or ringing in the ears; red, protruded, weeping, inflamed eyes; tossing about of the body. In patients left to nature alone, and whom she did not rescue by a favourable crisis, the most profound stupor followed; genuine inflammation of the brain; and on the 7th, 9th, or 10th day, death.

"How deceitful," exclaims the author, "the sudden failure of every power! How easy to imagine that we have before us a true putrid fever; but true putrid fever is rarely to be found in nature. And here there is nothing more than the consequence of the brain being strongly affected; which now, together with the whole nervous

nervous system, is thrown into a state of total incapacity for its functions, being oppressed by vehement congestion of blood, or inflamed."— "To give what are called *nervous* medicines, as bark, camphor, serpentaria, valerian, musk, is to pour oil into the flames, and to destroy the patient." "What may more easily seduce into this mistake, is the circumstance of the tongue growing foul and coated about the 6th or 8th day—a fact which many will oppose to me, I am aware, in consequence of the prevailing fashion of deriving fevers from bilious impurities." "But this is only a sign, not the thing itself. For since the brain suffers so much, must not the whole abdomen sympathize? What physician will deny this sympathy? Who is unacquainted with the consent between the brain and abdomen? Does not one see the bile break forth after a fall on the head? In such case who would even conjecture that there existed a bilious disease?"

"Firmly persuaded, therefore, that the phenomena, admitted only of the above interpretation, I adopted the antiphlogistic method: that is to say, I had recourse to the strictest regimen, copious bleedings during the first days, stimulating pediluvia and clysters; internally, whey, nitre, cream of tartar, tamarinds, oxymel, and nothing further; but these were attended with the most solid advantages. If

there occurred stupor, or lancinating pain, deafness, or other signs of suffering in the brain, leeches applied to the neck performed wonders. Frequently did I apply them three or four times."

"I never gave emetics, lest the blood should be driven to the head, and make the brain become again inflamed—which so easily happens here; nay, I remarked that those to whom emetics were given, died of inflammation of the brain."

"A diarrhoea was always an agreeable occurrence. It broke the force of the disorder, or cut it short, even when it seemed to continue too long: I left it free range. To stop it was to destroy the patient.———— When the primæ viæ were not evacuated, putrid fevers of the worst kind succeeded, beginning with apthæ through the whole œsophagus, and intestinal canal, and often passing to the lungs. Among thousands in whom the disorder was permitted to proceed to this crisis, there scarce escaped one. The disease, therefore, became putrid through neglect."

The author adds that he did not lose above six patients, of whom two were very old people. It is to be lamented that he does not give the exact number he attended. But from his having always had from 10 to 30 under treatment for several months, and from his assertion

tion in another passage that "he saw a great multitude of sick," we must conclude it to be nearly, if not altogether, the most successfully treated epidemic of its kind upon record. Naturally, and otherwise treated, it was very fatal. The first of these two narratives is given in the Journal of Vandermonde for 1758 (p. 275.); the second in that of Hufeland for 1795, (iv. p. 416)—at their respective periods, the medical publications of widest circulation, I presume, in Europe. The first author did not extend his ideas beyond the epidemic before him; he does not, we see, even attempt a rationale of the later stages of the disorder, as depending on the first. The second, though he points out the way in which the secondary affections arise out of the original inflammation of the brain, extends his principle no further than to say, "that unquestionably, a putrid fever, as it was called, prevalent at Wetzlar in 1770, and the years following, was this same fatal complaint; at which time," he adds, "it is too certain, that many a patient paid with his life for the error of his physician."

When once in such a train, the theory could not fail to be generalized. The wonder is, that its influence on books of general practice and nosology, should have been so tardy. Several years ago, I had learned by oral information, that

that it was taught by a Professor of Medicine in the university of Tubingen, and at length, with some difficulty, I procured for perusal two academical tracts, entitled, one, *Diss. sistens expositionem nosologicam typhi, Tubingæ,* 1800; the other, *Diss. sistens therapiam generaliorem typhi,* ibid. 1801. Both were defended under the presidency of Dr. Ploucquet, and derived, no doubt, from his instructions; the former being avowedly corrected by him, in order, as he says, "that it might agree more perfectly "with his nosological principles."

Compleatly to exhibit the progress of this doctrine, I should state that Dr. Rush describes the *brain* as principally affected by congestion in yellow fever, and that even in 1793, he took one of his strongest indications from this idea. And did I not foresee through what a labyrinth of quotations I am destined to lead my reader, I should likewise introduce passages from Bonetus, Lieutaud, Stoll, Tode and Dr. Pew. But their sentiments have been stated either by Burserius or later writers; nor do those sentiments stand so instructively connected with decisive practice. I shall, therefore, pass on to a very extensive "*Enquiry into the seat and nature of fever,*" which, preceded by an inaugural dissertation, was published a few weeks ago by H. Clutterbuck, M. D. and, in reality, contains the same opinion, supported by

by the same proofs as Dr. Ploucquet employs. The coincidence of exposition is such, that the English may often seem a diffuse translation from the Tubingen professor. Nevertheless from the motto of the "Enquiry,"

> Give to airy nothing
> A local habitation and a name;

and from the following passage in his preface, "physicians neither agree among themselves "as to what fever is, or in what it essentially "consists; *nor have they assigned to it any* "*certain and determinate seat;*" it is clear, that Dr. Clutterbuck imagines himself the first, to whom this opinion, in its comprehension and fulness of evidence, had occurred. A collation of passages will shew, how far this is is really the case. To discover an entire agreement in all material respects, will be an affair of considerable curiosity, should the discussion be but indirectly instrumental in throwing new light upon so obscure and important a subject. But this is not all. Such a parallel, necessarily involving a summary of the arguments in favour of the doctrine, will enable us fairly to judge of their force, under the advantage of two statements coinciding in sense, but somewhat diversified in terms. I shall give my quotations from Ploucquet translated, but annex the corresponding sentences of the original at the end.

1.—*However*

1. *However great the variety of appearances in fever, the fundamental affection is uniform.*

Ploucquet.—Typhus appears under the most variable aspects from difference in symptoms, type, course, the particular epidemic, state of patients, complication with other fevers and disorders. Hence diversity in description, and of course in denomination, *such as at first view might seem to imply some essential difference.* This, however, cannot have place, for mere diversity in the face of a disorder cannot change its nature. Dr. Frank, the elder, has properly referred the fevers, named by others ship, jail, hospital, camp fever, the plague itself, the pestilential ephemera, the sweating sickness, to his nervous fever.—p. 3. Diss. 1.

Clutterbuck.—With regard to fever, however numerous and diversified its symptoms are at times observed to be, it will be found, on attentive examination, that few of these are essential, or belong to it exclusively, but are, the greater part of them, *secondary* symptoms only, and common to various other diseases; or casual and of uncertain occurrence; depending not immediately upon the original and exciting cause, but arising out of some previous symptom; and many of them altogether the effect of adventitious circumstances, as climate, season, regimen, and the particular state and habit of the patient himself—p. 34.

2.—*The seat of fever is on the head, or rather in the brain.*

Ploucquet.—The symptoms in each of the stages of typhus nearly all agree in pointing out the head, or rather the brain, as the seat of the disease, whence the propriety of the vulgar German denomination kopf-fieber, hitzige kopf-krankheit. Among these symptoms, I reckon the heaviness and pain of the head, deafness, discharge from the ears, various disturbances of the mind, sleeplessness, lethargy, stupor, change in the powers of the eye, and the other organs of sense.—p. 6. 7.

Clutterbuck details these, with other indications, from p. 33 to 83. "It is in the animal functions, which are immediately

mediately in dependence upon the brain, namely, the external senses, the voluntary and the intellectual powers, that the proper diagnostic symptoms of fever are to be found."—p. 53. —heaviness of head is duly noticed elsewhere.—p. 42.

There will arise from circumstances a variation in the kind and seat of inflammation constituting fever.

PLOUCQUET.—The inflammatory states, thus formed, besides varying in intensity, in extent, and in the alterations they produce in the course of the disease, may be, from the very first, of two kinds, namely, sanguineous or lymphatic.—p. 15.

CLUTTERBUCK.—If it be admitted that the brain, like other organs, is susceptible of different degrees of inflammation, that the inflammation may be more or less diffused or circumscribed; in other words, that it may partake of the nature of erysipelas or of phlegmon, &c. —p. 234.

No other cause could produce such extensive disturbance in the system.

PLOUCQUET.—The affection of this most important organ, however varying in degree and extent, cannot but disturb and impair the whole powers of the system.—p. 17.

CLUTTERBUCK.—No affection of any organ or part of the body, other than the brain, could influence so materially the principles of action in the system, or excite so general a disturbance of its functions.—p. 200.—We can readily understand, upon this principle, why the action of remote parts, and indeed of every part of the system, should languish or be ill-performed, when the *great centre* of sensation and movement is itself rendered incapable of duly continuing its functions.—p. 291.

3.—*The*

3.—*The affection of the head in fever is inflammatory.*

PLOUCQUET.—How comes it to pass that authors in general, and among them the most esteemed, are so anxious to deny the inflammatory nature of typhus?—p. 7.

CLUTTERBUCK.—If we examine the phenomena of fever by the same tests that we judge of the presence of inflammation any where in the system, we shall be struck with the great analogy which subsists between the two affections.—p. 101.

4.—*The analogy between fever and inflammation is compleat.*

PLOUCQUET.—The resemblance between the appearances in fever—the act of *fevering*, so to speak—and the appearances in inflammation, is the closest possible. Hence nosologists justly consider fevers and inflammations as allied, and Stoll has presented them promiscuously.

CLUTTERBUCK.—In short, in whatever light we view the subject, we cannot but be struck with the great similarity that obtains between inflammation and fever.—p. 130.

5.—Both have a sort of saving clause.—*The affection of the brain, which in fever is primary, if not exactly at first inflammation, is something very much akin to it.*

PLOUCQUET.—I hesitate not to assert that, from the very onset of the disease, the whole, or some larger or smaller, portion of the brain, is in an irritated or feverish state. But it is not altogether evident in what that irritation consists; whether and how far it differs from the inflammatory state.—p. 15.

CLUTTERBUCK.—The disorder of the brain which takes place in fever, is either a state of actual inflammation, or at least a condition nearly allied to it.—p. 100.

6.—*Identity*

6.—*Identity of phrenitis and fever.*

PLOUCQUET.—The difference therefore between fever and phrenitis is either none or trifling. To phrenitis vehement and impetuous symptoms are usually referred. To typhus, sleepiness, stupor, and the indications of diminished muscular power. But there is nothing constant here. In epidemic typhus the phrenitic symptoms sometimes occur at the very first attack, and sometimes on the approach of death. After a quiet course, the utmost phrenitic fury shall come on with a return of muscular power.—p. 17.

CLUTTERBUCK.—The similarity of the symptoms in the two (phrenitis and fever) is, on many occasions, so great that it is scarcely possible to discriminate between them; an irresistible argument, in my opinion, is thus afforded of the identity of their nature, and of their being merely different modifications of the same topical affection.—p. 148.

7.—In the consideration of remote causes there is much general agreement, (Ploucquet p. 18. Clutterbuck p. 84). On a moment's reflection, great latitude, in this respect, appears the necessary result of their common principle, whereas Cullen allows but human effluvia and marsh miasmata. Ploucquet considers the exanthemata as only at times, and Clutterbuck as always being phlegmasiæ of the brain.

8.—*Injuries of the head, in proportion as they disorganize the brain, generate proper fever.*

PLOUCQUET.—Mechanical injuries of the brain not unfrequently generate fever with stupor, delirium, and the other symptoms of typhus. To these, patients, after some time, fall victims in proportion as the disorganization in the brain advances.—p. 20.

Clutterbuck.—The symptoms which succeed to injuries inflicted on the head, some days after the accident, and which are known to depend upon the coming on of inflammation in the brain, have often every character of idiopathic fever. p.152.

Of remarkable coincidence in the minutiæ of this part of the subject, let the following stand for an example.

Ploucquet, in reference to the remote cause, says, one species may be denominated typhus mephiticus, because it is produced by corrupted and decompounded air, as also by various gases generated in close places.—p. 25.

Clutterbuck.—A boy, being in perfect health at the time, went into the cellar of a brass-founder, where a quantity of charcoal was burning: he was seized at the moment of entering with severe headache, and sickened immediately with fever of the typhoid form, and which continued for fourteen days.—p. 86.

9.—*Affection of the blood.*

Ploucquet, has a little more leaning to the humoral pathology. Both, however, use similar expressions and illustrations:

There exist agents not to be resisted by the vital powers in their state of greatest integrity. They destroy, in the healthiest person, the composition of our very mutable fluids. By lightning and certain poisons, the whole mass of blood is instantly changed. It loses its power of coagulation and is decompounded.—p. 8.

Clutterbuck.—In animals killed by the laurel water and similar narcotic poisons, the red blood has been observed to pass into the serous vessels. And the bite of the serpent *hæmorrhous* is said to occasion such a dissolution of the blood (or, as I should prefer saying, such an atony or paralysis of the extreme vessels) that it flows from every pore. At the same time it is not improbable that the blood itself, admitting it to be possessed of the living principle, undergoes a change

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in its properties, in common with the living solids; though with the nature of this change we are unacquainted. It appears, however, to influence its power of coagulation, p. 81.

10.—*Evidence from dissections.*

Ploucquet.—But stronger and clearer conviction concerning the true seat of typhus is afforded by dissections, than by the most probable conjectures. The greater part of these exhibit morbid changes from idiopathic affection of the brain; others of other viscera, chiefly of the abdominal, p. 11. The brain is the primary seat of typhus, since it has so often been found, in part at least, inflamed, inundated, suppurated or sphacelated, *ibid.*

It is, however, to be considered that there exist irritations and other states of disease, which leave no traces after death. p. 14.

Clutterbuck.—Upon the whole, although visible lesion of structure in the brain from inflammation be neither a necessary nor a constant effect of fever, yet it is too frequent an occurrence to allow us to consider it as merely accidental. Disorganization has been repeatedly detected in the brain, where during life, none of the symptoms commonly supposed to denote the presence of phrenitis had manifested themselves, but merely those which characterise ordinary fever, pp. 176-8.—We are not to look for visible change of structure in every instance of fatal termination. - - - In an organ of such importance, it is easily conceivable that such a degree of derangement may take place, as even to prove fatal without leaving behind it any visible traces, p. 167-8.

Ploucquet.—In respect to difference of seat, the inflammation may sometimes occupy the investing membranes, sometimes the brain itself, p. 16.

Clutterbuck.—Appearances unequivocally indicative of preceding inflammation of the brain or its membranes, are exceedingly common after fevers, p. 168.

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11.—*The*

11. *The debility of typhus is to be considered as apparent and not real. It is suddenly removeable by means commonly regarded as debilitating.*

Ploucquet.—Of the subsisting strength of the patient, we are by no means to judge solely from the symptoms indicating debility. Since in typhus we do not always find a real exhaustion or defect, but rather a suppression, of power; or to express the fact more properly, an impediment to the functions of the brain. Hence it so frequently happens, that the extreme apparent debility is taken off by some counter-irritation.—Diss. 2. p. 18.

As debility or failure of the powers is the most striking symptom in typhus, insomuch that some place in this the essence of the disease, it is by no means to be overlooked in the treatment. But we are not undistinguishingly to give stimulants and tonics as soon as the name typhus is pronounced; which is manifest from the phrensy of strength observable in some on the onset, and in others during the last days of life after a long continuance of asthenia. This demonstrates the essential difference between suppression and destruction of power.—p. 29.—Diseases *from* debility should be carefully distinguished from those *with* debility.—p. 5.

Clutterbuck.—The debility which accompanies the attack of fever, is altogether different from ordinary weakness. In ordinary weakness, the person is unable to make the usual exertions of health; in the weakness, produced by fever, he is both unable and unwilling to do it. The former is permanent, the latter is temporary only, and ceases immediately with its cause. This state has been aptly termed depression of strength rather than weakness, and may be compared with a spring that is overcome by a superior force, but which still retains its power of acting, ready to exert itself as soon as the compressing force is withdrawn.—p. 55.—Debility is not a primary symptom in fever, but a consequence merely of the deranged

deranged state of the brain. Were it otherwise, blood-letting, which has so often put an immediate stop to the course of fever, must, in every instance, have proved fatal.—p. 436.

12.—*The cure is to be directed to the restoration of the brain to its healthy state.*

PLOUCQUET.—Typhus must have for its indication to relieve the brain.—p. 7.

CLUTTERBUCK.—Whatever is capable of relieving or diminishing the quantum of topical disease (in the brain) is the proper remedy.—p. 275.

13.—*Means of cure.*

PLOUCQUET.—The object of relieving the brain not being directly and immediately attainable in any stage of the complaint, we can only take indirect measures. In the first place, *depletion and counter-irritation* will contribute to our purpose; and secondly, the restoration of just action in the overpowered vessels and the parts connected with these,—p. 8.—cold affusion, nay, friction with ice.—p. 21.

CLUTTERBUCK.—Admitting the doctrine that fever is inflammation, the seat of which is in the brain, the principal remedies that suggest themselves from the analogy of other inflammations are the following: evacuations of various kinds, as blood-letting, purging, sweating, &c.; the application of cold, and irritation of neighbouring or distant parts, as by blisters, sinapisms, &c.—p. 282.

Blood-letting is not a *direct* and *absolute* remedy for inflammation, but is only useful under certain circumstances.—p. 242.—It is on the principle of *counter-irritation* alone, I apprehend, that their action (that of epispastics) can, in any case, be explained.—p. 321.

14.—*Occasional*

14.—*Occasional bad effects from the antiphlogistic plan, form no objection to the doctrine.*

PLOUCQUET.—Though the antiphlogistic plan, vigorously pursued, has often turned out ill, the reciprocal inference, that inflammation does not therefore exist, cannot be justly drawn. In other inflammations coming on with debility—in such as have been styled passive, that method will not succeed, nay, will injure—yet such inflammation does not, therefore, cease to be inflammation.—p. 7.

CLUTTERBUCK states, that in both inflammation and fever, there are numerous exceptions to the use of blood-letting. In some varieties of inflammation, and in certain states of the system, blood-letting cannot be employed with advantage. In many varieties of fever, this treatment appears to be inadmissible.—p. 129.—See p. 238-9, for what he says of passive inflammation.

Both, by references, establish, as far as authority can establish, the advantage of blood-letting in certain circumstances of fever.

The question is what these circumstances are, how to reconcile opposite testimonies, and above all, to point out marks, by which the practitioner may be safely guided. The following considerations are offered by Dr. Ploucquet. To most, the reader will find something similar in Dr. Clutterbuck. Others may recommend themselves by their good sense.

Did the whole difference consist in degree of intensity or relative strength, it would be impossible for an inflammatory disease ever to induce prostration of the powers, or terminate in mortification and death. For, must not the excessive

excessive excitement necessarily reach, before it fall below, the mean state? And why does it not rest here? Why is not health restored at that moment? And why does it not continue, when once restored?—Typhus does not usually go on long without putrid symptoms, though there are species of typhus, in which such change takes place only at a late period. The tendency to it is known from various circumstances, observable in the patient, as also from speedy putrefaction after death.

We cannot, with confidence, set about to fulfil either of our indications, least of all venture upon evacuations, except at the beginning of the disease. The distinction between cases, in which venæsection is serviceable and the contrary, must sometimes be taken from the internal state of the patient, (and this is commonly, but not always, determined by the stage of the complaint;) sometimes from a difference in the species of typhus. As long as we have a right to presume that the tone of the vessels is not debilitated, a proportional contraction will succeed loss of blood, and prepare the way for the restoration of the brain's functions. Besides these general presumptions, the individual case is to be studied, and the signs attended to which concur to render blood-letting adviseable or otherwise. [The author enumerates these.] Whence is it, he asks, that bleeding has so often

often proved injurious in typhus? not in consequence of mere diminution of the fluids: saying this, is but to repeat the fact in other words. Can we conceive the effect better from diminution of blood, in as far as that blood is a stimulus to the heart and vessels? Not in the least. For fever will often rise upon bleeding,—a proof that the irritated state of the vascular system goes on—and very minute venæsection will produce bad effects, though certainly not from mechanical subtraction of stimulus. Besides, upon bleeding the vessels contract in proportion; and the points of contact being lessened, the smaller mass of blood continues sufficient to stimulate each point in the vascular system. Do we not often observe considerable quantities of blood to be lost by the sick and the healthy without any remarkable debility ensuing; which would be impossible, were the mechanical relation of stimulus so important? And do not all the means of cure for fever centre in one point, *that the irritation in the brain be allayed?* Now this cannot be done without diminution of congestion, and therefore without diminution of the quantity of blood in that organ. From mere diminution of blood, therefore, no injury could arise. It must however be allowed, that *when the tone of the vessels is once broken*, loss of blood will increase the laxity and debility, or rather will render it more evident in its effects; since

due

due contraction of the vessels will not follow. Hence the circulation will be still more impeded; and stagnation either begin or increase, though it might have been prevented or removed by a stronger impetus; and hence the functions of the brain will be impaired or suspended.

Still, however, may not the aggravation of symptoms arise from some unobserved circumstance different from this? May it not arise from the unfavourable rapid progress of the case, independently of bleeding?

Mischief arising from the secretions being too powerfully excited, a fact which in general cannot be contested, is to be ascribed to the affection of the secretory organs; to too strong application of a stimulus to them; [as is shewn in the unrestrainable vomiting or flux, from ill-timed administration of emetics; see among many other authorities, the modest and instructive Dalmas *sur la fievre jaune*, Paris, 1805]; to an irritated or inflammatory state being thus produced, in short, to the vital power being improperly expended on the actions, rather than to any diminution of fluids, as merely changing the relative quantity.

The theurapeutic expedient of counter-irritation will the more certainly attain its end, the more susceptible the subject, and the greater the sum of remaining vital power. That no

mischief may arise under this practice, close attention must be paid to the individual patient; lest too strong irritation of the sensorial system should provoke pain, convulsions, and inordinate movements of all kinds; and beside the damage thence immediately to be apprehended, lest it impair the strength. We must moreover carefully consider, upon which organs we can safely act.

The author goes on to speak of the several means of counter-irritation, as epispastics, sudorifics, purgatives, emetics, diuretics, bathing, fomentation, affusion warm and cold, sialogogues.

It is not with the antients, in the expulsion of matter (either morbific or become morbid) by any of these, as for instance, by diaphoretics, nor with some of the moderns in the stimulus they produce, that the Tubingen professor places their salutary effect; but chiefly in that counter-irritation, or revulsion, by which the brain is relieved.—Of counter-irritation itself, he apprehends the prime benefit not to be derived from the subsequent congestion or excretion of humours, but from a change in the percipient system, which directs its attention to a new stimulus, and wholly or in part, neglects the former morbid irritation by which it was engaged. Hence, the tendency of the fluids (which on their part is passive, but on that

that of the vessels and co-operating organs active) towards the affected spot is lessened or ceases; and an artificial stimulus applied, where excitement can be safely produced. The perception of the stimulus is followed by re-action, varying according to the nature of the organ; being sometimes painful, sometimes not; sometimes joined with exertion, and sometimes not. Thus by help of the contraction of vessels and of more vigorous absorption, the organs first affected will obtain relief.

With the grand primary indication must be joined, as far as practicable, the symptomatic indications of restraining spasmodic motions, obviating debility, and preventing changes in the composition of the body. Though neither the very formidable universal debility nor any ominous affections of the nervous system, nor their malignant consequences will take place, should the physician early succeed in setting free that source of powers, the brain.

Moral means, as keeping up the spirits, diverting the thoughts, music, and whatever is attended with a less irregular expenditure of the vital power, are recommended for allaying undue exertions. Narcotics, acids, neutral salts come under consideration for this and the other last-mentioned purposes.—Analeptics and tonics are reserved for the dissertation on the particular species of typhus, which has never fallen into my hands. From

From the foregoing train of reasoning, the division of typhus into idiopathic and sympathic necessarily results; though as the author says, to illustrate the sympathic varieties, we may divide typhus into *cephalic* or *brain*,—*gastric* or *stomach*,—*splanchnic* or *bowel*, *typhus*. I do not however see why, upon this principle, he does not add the pulmonic (pneumonia typhodes) and others. His three species he subdivides into subspecies and varieties; premising that this further division appears useful, because, in some cases, the remote cause, by continuance of its operation, may influence the disease; and, in others, that cause seems to give a peculiar character to the irritation or inflammation, and ought therefore to modify the treatment. Under the ENCEPHALIC species, he plæces, 1, the *psychic*, that proceeding from mental operations; and this will be *(a)* entonic, as from intensity of of study or *(b)* pathetic from passion. 2. *agrypnic*, from too long watching. 3. *Orgastic*, arising out of a general inflammatory diathesis. 4. *metastatic*. 5. *apoplectic*, (persons seized by apoplexy sometimes die of a fever with the character of typhus; no wonder since apoplexy, the preceding disease, violently affects the brain! The affinity of the two disorders appears likewise from persons dying suddenly, or apoplectic, of the contagion of the plague) 6. *traumatic*, from external violence. 7. *toxic*, from

from poisons. 8. *dysaerodic*, from bad air—Malaria. 9. *miasmatic*, as (*a*) *exanthematic.* (*b*) *helodic*, from marshes. (*c*) *mephitic.* (*d*) *anthropophthoric*, or generated in the human system. (*e.*) *loemic* or the plague. (*f.*) *lyssic*, from the poison of rabies. 9. *septic.* 10. *cacotrophic*, from famine. 11. *sympathic.* 12. *asthenic*; possibly a torpor may arise, from debility, in the vessels of the brain, whence a subinflammatory state may be conceived to follow. But that the thing is not common, appears from the numbers who die extremely debilitated, without typhus ever supervening. B. GASTRIC 1. *acathartic*, from sordes, worms.—2. *phlegmonitic* from inflammation of stomach. Almost all the subspecies under A. recur here, particulatly 3, 4, 7, 8, 10, and in an inverted sense 11. C. SPLANCHNIC. The connection by nerves renders it probable, that a similar, but not so ready sympathy exists between the bowels, as between the stomach, and brain: though the inflammation may possibly arise in the course of the disorder.

Dr. Ploucquet thinks it can scarce be allowed, that all putrid fevers derive their origin from an affection of the organ, upon which the sensorial and moving systems depend. If manifest signs of a putrefactive tendency precede the symptoms, denoting injury to the sensorial system, the fever is to be called putrid;

putrid; and such tendency, he briefly says, is to be judged of as well from phænomena, observable in the patient, as from speedy putrefaction after death. This opinion, which will probably be thought to spoil the compactness of the doctrine, together with what was mentioned before concerning the exanthemata, constitutes the only material difference between our two authors, unless another should arise concerning ague. I shall only add that the foreigner takes barely sixty-five pages to deliver a doctrine, with which our countryman fills full four hundred and fifty.

Consideration of the preceding arguments.

In classing for my own use the facts which I had successively acquired concerning fever, I considered whether the ideas of De Grandvilliers and Wendelstadt could be generalized. For this purpose, I took the pains to reduce our most important observations upon epidemic and single cases of fever, as far as we have them connected with dissections, to the form of tables, in which the symptoms, treatment, and appearances after death were placed in face of each other. Thus prepared, I could not fail to be exceedingly struck with the masterly sketch

of

of Ploucquet; and the book of Dr. Clutterbuck I took up with a heart, by no means hardened against evidence. If fever can be reduced to topical inflammation (though in that case I soon found that in the different varieties, the focus of disease must be placed in different organs) it is clear that this reduction alone will exceed all other efforts, put together, in rendering practice simple and certain—the most valuable part of medical knowledge, that which regards inflammation, becoming precisely applicable to fever. On the same account, every illustration of the subsisting connection between fever and inflammation will be followed by correspondent improvement; reason sufficient for viewing the question in all its lights.

Now, by what test shall we try the opinion *that fever depends upon some inflammation within the cranium?* In a finished body of doctrine, the classes of phænomena with all their irregularities should fit into one another, like the members of a dissected map: each circumstance appearing at due distance and in due proportion. In examining such a performance, we must consider whether the objects are placed in the proper district, and whether the pieces meet without gap or exclusion. On finding the contrary, it would be the most desirable thing to survey the whole anew, and re-adjust the parts accurately. It might be of some inferior use to shew that the work requires to be taken in hand again.

The state of the functions as it results from that of the organs, is to medicine what trigonometry is to the art of surveying. To this we have seen our authors resorting for their rules. Dr. Clutterbuck (p. 200-17) transcribes at large, and Dr. Ploucquet quotes, a passage in which Dr. Home deduces it as a highly probable consequence, that "all low fevers arise from, or "are connected with, an obstruction of the "brain," because, during an indisposition of his own, he felt as if febrile symptoms were connected with inflammation of that organ; as also the dissection of a fever-patient by the same, in which purulent sinuses were detected in the brain, though no symptom of phrenitis had appeared.

Displaying a case or two so widely may seem, in effect, similar to a contrivance of certain nimble-fingered performers, who engage the eye of the spectator on some prominent object, that they may imperceptibly make the dispositions, out of which the surprize is to issue. Most certainly, nothing unfair is intended; and we often enough see the framer or advocate of an hypothesis practising upon himself as if spectator, only in perfect good faith, with a dexterity equal to that of the most expert professor of leger-de-main. But I seriously question whether settling with some exactness the value of post-obituary appearances would not

not have been a more suitable preliminary than those considerations *on the laws of the system in health, on the nature of disease, and on the locality of diseases,* which we find at the head of Dr. Clutterbuck's ingenious work. One may apprehend that both writers are somewhat too indulgent towards their own doctrine, when, after laying peculiar stress upon the evidence from wide-spreading devastations in the organ, supposed to be principally concerned, they subtilize fever-producing inflammation into a mere thickening of the arachnoid coat; and then join in commanding all traces of it whatever to vanish with life. Which seems pretty nearly saying that every sort of alteration indicates febrile inflammation or somewhat a-kin, while the absence of alteration affords no proof to the contrary. A rule deducible from such reasoning would be fairly entitled to enter into a receipt for the composition of an irrefragable hypothesis. It is true that Dr. Rush, a man whose acuteness of observation is no way inferior to his opportunities, long enough ago remarked "that in those cases, where congestion only takes place, it is as easy to conceive that all morbid appearances in the brain may cease after death, as that the suffusion of blood in the face should disappear after the retreat of the blood from the extremities of the vessels in the last moment of life. It is no new thing for

morbid

morbid affection (excitement) of the brain to leave either slender, or no marks of disease after death."——(*Account of yellow fever p.* 49—*Philad.* 1794.)

Changes for the greater and the less happen according to the season and the nature of the case, within a few hours after death, in a day, or not till later. These, if regarded by themselves, would sometimes denote too much and sometimes too little. The solution of the stomach is an instance on one part; on the other, the observation of Bichat, (amply confirmed by others, and nearly the most interesting in pathological anatomy, since the discovery of Mr. Hunter relative to the stomach) that *inflamed serous membranes soon lose their redness.*

The laws of such alterations should be investigated, and the average time in relation to circumstances, if possible, estimated. The necessity of recording symptoms along with dissections has been stated; and a remark so very obvious scarce requires to be repeated. But one may, without extravagance, go a step further. Not only the symptoms and treatment of the disorder immediately preceding, but the nature and degree of former disorders should be noted. Nor ought the temperament and habits of the deceased (and probably not those of the parents, for I have often noticed most manifest proofs of the transmission of moral and physical

physical dispositions) to be overlooked. Will it not be allowed as at least very possible that certain habits are capable, on long continuance (and especially if kept up through succeeding generations) of effecting visible changes in the brain, as is notoriously the case with regard to other parts? Or shall we at once decide without a scrutiny, that the sensorial follow a totally different law from the moving organs; and that while the limbs of the mechanic from exertion undergo changes, which are evident at the first glance, the head of the philosopher, though equally exerted in its kind, undergoes none that are discoverable by any possible examination? These subtleties I do not introduce to discourage such speculation on disease as we have before us, but partly to lead the way to the so much needed refinement of morbid anatomy, and partly to shew, in reference to the present enquiry, that preliminaries must be more accurately settled, or that speculatists on fever must almost renounce the evidence from dissection. Our countryman, we have seen, very properly lays less stress upon it than his predecessor in the same doctrine.

Something, even under this uncertainty, may perhaps be done towards settling or unsettling opinion. Among existing documents, our enquirers seem not to have known, or not considered, some of the more decisive. These indeed

deed occur in small number. But a selection, such as shall truly represent all that has yet been discovered in the gross by the curious observers of epidemics, will serve as a check upon hasty opinions. Some light may perhaps be drawn from analogies, to which neither the German nor the English writer have attended. And above all, their inferences from the state of the sensorial functions ought to be brought to a new hearing.

Two separate and well-authenticated accounts of a disorder that gave great alarm at Geneva, early in 1805, though perhaps it did not seize so many as 150 persons, nor destroy quite 40, may in some degree supply the want of dissections in Dr. Wendelstadte's account of the greater epidemic at Wetzlar. This disorder began with sudden, and frequently extreme prostration of strength; pulse weak, small and frequent, sometimes nearly obliterated; hard and full in a few cases; violent pain of the head, particularly in the forehead; afterwards sickness with green vomiting; rigidity of the spine; in children convulsions. In threatening cases, loss of consciousness succeeded. It ended both ways between 12 hours and 5 days. Sometimes it had the lengthened course of a common bilious fever. On dissection a congestion of blood was found in the brain without any particular alteration in the other viscera. In some,

the

the congestion was inconsiderable; and in others the brain was found in its natural state. This is the report of Dr. Vieusseux (Corvisart xi. 136.) who calls the disorder *fievre cerebale maligne non contagieuse.*

Dr. Matthey, the other reporter, gives an account very similar, and, but for the suddenness of attack, would refer the disease to the *fievre ataxique cerebrale* of Pinel. In 3 children, he says, that died in less than 24 hours, nothing particular was found but slight congestion of blood in the membranes of the brain. A person aged 52 had shiverings, headache, warm moist skin, frequent contracted pulse, loss of speech, moaning, pain in the wrists and forearm, contractions of the muscles of the arm, convulsions of the eyes, with dilatation of the pupils.* Slow depressed pulse succeeded, with fits of delirium, encreasing stupor, throbbing of the carotids, tremors, constant agitation of the head. Death early on the 6th day. The vessels of the meninges were found strongly infarcted, a bloody gelatinous fluid was spread over the whole brain; liquid in the ventricles, choroid plexus deep red. At the posterior part of the lobes and interiorly, puriform matter without alteration of the texture of the brain; the same at the thalamus nervorum opticorum, and ex-

* In the original *paupieres*, an uncorrected error for *pupilles*, I presume.

tending

tending along these nerves and an inch into the cavity of the spine, cerebellum very soft.—The other cavities not examined.—(ib. 247.)

In a tract, which bears every mark of faithful, close, and even laborious observation, Dr. Eisfield gives the following account of an *acute typhus*, as it prevailed at Leipsic in 1799, (*Leipsic*, 1800-1) and of the dissections which it furnished him with an opportunity of making. It was very difficult to distinguish at first, because it attacked in such various ways; sometimes assuming an inflammatory appearance, some times that of rheumatism, and sometimes that of the slow nervous fever, described by the elder Frank as not arising from contagion and but rarely occuring epidemically. This was evidently contagious. All its symptoms were joined with violence and fury; and there existed great propensity to internal inflammations, which is not the case with what is called slow nervous fever, though this sometimes originate from preceding inflammation. In our typhus a crisis occurred on the 21st, oftener on the 11th, sometimes on the 14th, and the 7th day. "I observed that all the functions were impaired, but chiefly the vital and animal, which almost always exhibited the same symptoms, so that from these the pathognomonic signs, if any such signs belong to this fever, are to be taken. From the pulse alone nothing certain could be concluded.

The

The respiration, difficult, anxious, and in the progress of the complaint, short, spasmodic and panting, proved how much the vital functions were affected. And what physiologist or pathologist could fail to perceive how much this was the case with the animal functions from the extreme irritation of the nerves and failure of strength, the great perturbation of the offices of the brain, the strain (intentio) upon all the organs, and the singular union of weakness and irritability? The perpetual tossing of the sick, their vain attempts to rise, or sinking back and fainting if they do, their tremors, convulsions, delirium, terrifying dreams, fancying they see spectres, abundantly declare that the brain and nerves are deeply affected." p. 23. - - -

"In very many careful dissections of the brain (though I only once detected an abscess, and this was in the right hemisphere, about half an inch in diameter), the vessels, particularly those in the vascular membranes, almost always appeared turgid with blood. The four ventricles abounded with water, and sometimes a good deal of extravasated blood was present. The cortical substance was inflamed, soft and flaccid; and the vessels of the brain were no longer firmly united with it. The lungs were often found destroyed, inflamed, ulcerated, gangrenous, covered with much exsuded lymph. The heart, and larger vessels

either empty, pale, collapsed, tender, or tinged with black blood and full of polypi, the lymphatics of the heart being particularly dilated and distended with lymph. The liver inflamed, (especially the concave surface) tender, flaccid, full of blood, or pale and bloodless. The same was observed in the spleen, but more rarely; indeed it was mostly sound. I did meet with inflammation and gangrene of the uterus, the urinary bladder, the prostrate and other glands (particularly the mesenteric,) of the colon and rectum. These changes in the uterus and bladder, chiefly occurred in people addicted to flagitious passions and immoderate venery," p. 38. " The pains in the head were sometimes so violent, and the delirium so furious, as to indicate inflammation of the encephalon, which however was discovered in the abdomen." p. 19.

A contagious disease prevailed at Plenée Jugon in Normandy, of which Dr. Moucet says " the essential symptoms were violent rigors, from first to last great head ache with throbbing, heat, prostration of strength as if the patients had been broken on the wheel, difficulty in moving, disgust for every thing except hot water and cyder, a pulse frequent, concentrated, hard, intermitting, and a cutaneous eruption which appeared from the first to the third day.—I consider" he observes, " this disorder in regard to its stages in three points of view;

view; either solely as disposition to inflammation in the viscera, or as compleat inflammation in some, or as degenerated into putrid fever from neglect or bad treatment."—In three dissections the appearances were as follow: 1. The vessels of the meninges gorged with blood, the cortical and medullary substances studded with an infinity of very red and much dilated blood vessels: the cerebellum less so.—The lower part of the left lung very black and very much gorged with blood; the right flabby and dried—all the ramifications of the mesenteric arteries full of black coagulated blood; the intestines a little livid and containing many worms. 2. the vessels of the meninges all full of black coagulated blood, a prodigious number of red varicous capillaries, diffused through all the substances of the brain and cerebellum; the right lung gangrenous and purulent, the left blacker and more gorged but less purulent; the omentum livid; part of the intestines inflamed; part putrid and gangrenous; all the mesentery gorged with blood and livid; the liver black and putrid over its whole concave surface; the gall-bladder full of thick black bile. 3. prodigious congestion in the small curvature of the stomach and in all the intestines, especially the small; the liver a little livid externally: the right lung flabby and livid; the left a little more livid, purulent, and much gorged with blood;

purulent effusion into the left cavity of the thorax, the substances of the brain and of the cerebellum full of red blood vessels; the superior longitudinal sinus much dilated by coagulated blood; a little more liquor than common in the ventricles of the brain."* *Vandermonde* xi. 57-77.

Of a malignant pestilential epidemic of lower Provence, it is stated by Darlue, "that, on opening different bodies, there was discovered in the principal viscera of the abdomen an inflammation that had partly terminated in abscesses, partly in gangrene. This chiefly attacked the liver, which we found enlarged, the gall-bladder greatly distended and full of green bile, the intestines mortified in divers spots, the vessels of the brain much gorged with blood and an ichorous matter effused into the thorax.

* It may be right to add, that "the accidental symptoms were bitter taste, nausea, vomiting, diarrhœa, worms, pain at the pit of the stomach or under the xiphoid cartilage, in the abdomen augmented on pressure, oppression, pain of chest, throat, internal heat, with thirst, tongue black, dry, rough; pain of the neck, side, back, loins, in all the joints and muscles of the extremities---more rarely bloody flux or vomiting, hæmorrhage from the nose, swellings in the arms or legs which suppurate or discharge without suppuration, furunculi, deafness, defluxions from the eyes or nose changing from side to side, and impared sight or blindness, cured by swelling and running of the legs; few parotids, I saw but two."

Convul-

Convulsions, loss of speech, rigidity of tendons preceding death, abscess in the brain was denoted: whereas tension in the abdomen and hiccup certainly portended suppuration of some abdominal viscus."—*Vandermonde*, viii. p 362 -373.

Of the (yellow) fever, which raged at Leghorn in the summer of 1804, Thiebault reports, that there were few of the viscera which it did not leave sometimes sound, sometimes gangrenous, or at least with black spots on the surface. This alteration was especially seen on the concave part of the liver, the inner surface of the stomach and intestines, often in the right side of the lungs and diaphragm: the abdominal viscera, and still more the abdominal muscles, were excessively flabby and tender. The cavities of the thorax and abdomen, the pericardium and the ventricles of the brain contained a yellow liquid, often foetid and of a dark bloody tinge. The superficial vessels of the viscera, especially those of the brain and intestines, appeared dilated, and their extremities filled with a black matter. "Nothing was found constant but the gangrenous nature of the alterations and their being more concentrated on the stomach and intestines than in the other viscera." *Recueil Period.* xxiii. 12—13. Palloni *(Osservaz. Med. Livorno,* 1804) gives a very similar account. In his disections, the force of disease

still more plainly appears to have been exerted upon the abdominal and contiguous viscera. The outer surface of the stomach, intestines and liver announcing, by their livid yellow colour, inflammation and gangrene—the liver sphacelated and, as it were, boiled. The brain and its meninges commonly injected: slight effusion in the ventricles.—During the similar epidemic of 1800, in Spain, Professors Ameller Sabater, and Ramos found in the abdominal viscera sanious and purulent effusion with gangrene. It is expressly said that, in the two other great cavities, the head and the thorax, essential changes were seldom found. In some subjects, however, black gangrenous points appeared upon the lungs, and in others, upon the brain. "The alterations in the abdominal viscera were the only ones that can be considered as the direct and immediate product of the essential morbific causes."—Berthe, *Precis de la Maladie d'Andalousie*, 1802.—p. 182—5.

Dr. St. Ffirth, one of the latest writers, (who as house surgeon to the Philadelphia dispensary, seems to have had great opportunities of dissection, and whose account implies that he used them) in his dissertation on malignant fever (Philadelphia, 1804) tells us, that the brain was *generally* found in a diseased state; the meninges being considerably inflamed, the

dura

dura mater being sometimes agglutinated to the pia mater, the blood-vessels turgid with blood, as if injected, the brain firmer than usual; water frequently in the ventricles; and sometimes blood effused between the meninges.

The stomach was *always* diseased; great inflammation observable throughout; erosions of the villous coat frequent, in a number of cases detached pieces as large as a dollar, floating in the black vomit—blood-vessels very much distended—inflammation extended to the intestines; bladder diseased; liver, spleen, pancreas, kidneys generally sound—lungs, pericardium, and heart inflamed.

Dr. Mitchell, (*Philad. Medical Museum* (p. 3—4) mentions three dissections after the yellow fever, in which the brain was not affected; and in other cases, where he left the head unopened, he saw much disease in the other viscera. In persons who had been affected with the disease in an extreme degree at the Bushhill hospital, Dr. Cathrall (on Synochus Maligna 1794) found the brain entirely "in a natural condition," but the stomach and intestines greatly diseased. It is strongly in favour of the accuracy of these dissections that they were made with the assistance of Dr. Physick. The blood-vessels of the brain were however found

found unusually turgid on the same occasion, in the same house (*Rush l. c. p.* 103.)

Contrary to what is suggested by Dr. Clutterbuck, (l. c. p. 91—3) I am led from the accounts of epizootic maladies to suppose, that brutes are in proportion as liable to fever as to other complaints. The *distemper* among horned cattle, whether the same individual be liable to a second attack or not, appears generally to have been a malignant fever. Dr. Vicq D'Azyr, who saw it often, declares its symptoms to bear a perfect analogy to those of the human plague. (En comparant les symptomes de la peste humaine avec ceux de l'epizootie, on trouvera une analogie parfaite. *Œuvres,* v. 146.)

Lancisi, Michelot, Mazini, Gazola, Wink, Biker, Schouten, Sagar, Paulet, Vitet, Wagner, Camper, Bourgelat, Cothenius, Opitz, Adaman, Jung, J. F. Ackermann, Von Schallern, and Von Hoven, agree in considering this as a putrid or pestilential fever: and if Ramazzini, Hermont, Drauin, Munchhausen, Layard, Engelmann regard it as an eruptive fever; Haller, Gleditsch, Scopoli as inflammation of the lungs; Druebana, Diefort, Erxleben as inflammation of the stomach; the varieties we see in the plague, malignant fever, and pneumonia typhodes of the human subject, will go near to reconcile all these opinions.

As

As cattle are slaughtered in numbers at all stages of the *distemper*, while others are left to live out their term, and as the body can be examined instantly after death, it might be expected that the morbid anatomy of this complaint would be exactly understood. Concerning the changes which the abdominal viscera undergo, a store of interesting information and such as might perhaps serve to illustrate certain effects of fever on mankind, and give an insight into the progress of decay between the termination of life and the earliest period at which human bodies are inspected, has actually been laid up. But the difficulty of opening the head properly and the time requisite for nice dissection has left our acquaintance with the comparative state of the organs less extensive than, for the sake of the present argument, could be wished. Dr. Camper after describing the symptoms as those of putrid fever with its characteristic sudden prostration of strength *(Leçon* iv*me sur l'epizootie)* represents the abdominal viscera, larynx and pharynx, as constantly inflamed, and the lungs as frequently so. He opened only one head, and found the brain quite sound (fort sain). It must however be stated, that he says—he did not look for any particular disorganization there, as the animals retain their senses to the last

last moment. Dr. Von Schallern, who was employed by the Prussian government, describes the chills, heats, debility, expressions of pain, convulsive struggles, and rapid course as of violent fever (*Anweisung, Bayreuth,* 1797. p. 17—32.) The abdominal viscera and the lungs were the parts chiefly disorganized. Of the brain he observes, that "he always found it "in its natural state." (p. 36.) Yet his account of the symptoms bears strong marks of sensorial affection. Dr. J. F. Ackermann, (*Rind-vieh-seuche, Frankfort am Mayn,* 1797) also employed by the government, found inflammation constantly in the abdominal viscera. The lungs were commonly in a natural state. In several subjects there appeared a yellowish effusion into the cavity of the thorax and pericardium. In some, the lungs had brown-red spots and purulent places. The head was opened only in a few, and then the pia mater was of a brown hue and there was effusion in the cells of the arachnoid.—In his account of symptoms, he agrees with the preceding observers.—Dr. G. C. Reich, the writer on fever, treats very minutely of the distemper. He remarked at first hollow cough, coldness of the extremities, and shivering succeeded by heat, debility, gnashing of the teeth, glassy look of the eyes, discharge at first watery, afterwards thick

thick and foetid from the nostrils and mouth, together with eager desire for cold water, crouching if the back or loins be stroaked, laborious respiration, constipation at first, and diarrhoea in the sequel, along with some other symptoms. Many discover by various movements severe pain in the belly. They lie down mostly with the head stretched out straight forward. At last, in some the extremities feel quite cold; borborygmi are heard, frequent tremors pass along the skin, a cadaverous stench breaks forth from the mouth, red or dark spots or blebs are seen in the fauces, the body swells greatly, and the animal expires with all the tokens of compleat exhaustion. Others, on the contrary, frequently spring from the ground, sink suddenly down and spring up again raving wild, butt at every thing, even striking their horns into the earth, rear upon their feet, and die bellowing, snuffing, stamping, gnashing their teeth and convulsed. Others again, after these symptoms have continued some time, grow at once calm; they even discover some appetite for food and are imagined to be out of danger; when they expire unawares and as it were in their sleep. The duration of the distemper was various. Some animals died on the first or second day, others held out twelve or even fourteen; from six to eight seems the average term.

When

When the beast is slaughtered after the illness of a day or two, the two first stomachs are generally found in their natural state. The third, from containing dry food, feels like a hard lump. It is sometimes however soft, containing a pultaceous mass as in health. If the animal have not lain long dead, the internal coat of this stomach adheres firmly and cannot be peeled off with the fingers, as in those that have died or been slaughtered after some continuance of the disease, or such as have lain only 24 hours after being killed in full health. In the fourth stomach, red, inflamed places occur, but here, as Camper also admonishes, care must be taken not to be misled by the natural darkish colour of this stomach. The internal coat of the small intestines already shews traces of inflammation. The liver is more brittle, the gall-bladder larger, the spleen darker than in the sound state; the lungs healthy, except only that the ramifications of the bronchia are full of a white, and now and then of a reddish foam. The flesh has the healthy appearance. The blood is now strongly coagulated; from which and the other signs the author concludes the disorder to be in the first stage inflammatory; and he designates it as a bilious inflammatory fever, arising from a peculiar contagion, and easily passing into putridity and gangrene.—In the head he adds, that

there

there is nothing unusual, except that the membranes of the brain are many times blood-shot.

After illness of several days the omentum is extremely lean, and in the whole beast, however fat beforehand, scarce half the quantity of tallow that would otherwise have been obtained. Inflammation up to gangrene, progressively increasing from the first to the fourth stomach. The same in the intestines. The liver more brittle. The gall-bladder four, or even six times as large as it should be and full of a foetid liquor, like grounds of beer: the pancreas enlarged, the spleen more livid and softer. The urinary bladder sometimes inflamed, and so is the uterus, if it be a cow in calf. The lungs rarely without hardnessess, inflammation, or gangrene. The trachea inflamed or gangrenous. The heart more flabby and paler than in the natural state, and full of dark dissolved fluid blood, and this is also found in the large vessels. The tongue inflamed at the root, and the fauces beset with blebs, and red or dark specks. "The brain in almost all cases I have found perfectly sound and natural; only sometimes it was softer than common, and the membranes turgid with thin blood." (p. 55.) Between the hide and the flesh there frequently occurred considerable effusion.

A destructive fever has for centuries been noticed among domestic animals of a different species

species and smaller size. Of late it has prevailed with prodigious mortality from Denmark to Italy. Nor have enquirers, studious of comparative pathology, disdained to take pains to check and ascertain its ravages ! The animal of which I speak is the cat. The substance of what has been observed may have its place in estimating the relation between fever and organic affections.—Frequency of pulse, shortness of breath, foulness of tongue, retchings, pungent heat, debility, stupor, violent convulsions and a yellow tinge on the approach of death, were symptoms observed by Buniva at Turin (*Rec. Period* viii. 269.) The disorder was contagious, as also communicable by inoculation with the slaver. It proved fatal in four or five days. He found gangrenous spots on all the viscera, but particularly on the stomach and intestines. Hallé in one cat observed a purulent collection at the base of the cranium and the gall-bladder greatly distended. The college of health at Pavia, in their report drawn up by Dr. Brera, (*Sull attualle epidemia de gatti*, 4to. 1798) exhibit a picture, if possible more exactly resembling typhus. In their numerous and careful dissections, they found the cavities of the head and thorax for the most part unaltered. The liver shewed black spots; the gall-bladder was distended with very dark bile, the small intestines greatly inflamed. Dr. Knebel,

at

at Goerlitz, found but in two among a number of cats, dissected by him, the vessels of the head turgid with dark-coloured blood.

To these specimens of our whole mass of information, derived from such investigation of dead bodies as has usually taken place during epidemic fevers, no objection, I apprehend, can be made, unless that the selection is too favourable to the hypothesis of Drs. Ploucquet and Clutterbuck. They, in concurrence with all that remain, appear to me to suggest the following gross inference, which alone I shall at this moment content myself with drawing: that *in idiophatic fever, the stomach and contiguous parts have been found more constantly and more deeply affected with inflammation than the brain and its membranes.*

There stand on record single cases, watched with more than common care during their progress, and more nicely investigated after death. These, to say the least, appear not unfavorable to my conclusion. To the observation of Dr. Home upon himself, I shall oppose another, in which the parties concerned must inspire the highest confidence, as to what regards both pathology and anatomy. An observation of this character is worth a host of such as are less particularly made, and by persons of inferior ability.

The

The case I have in view is that of Dr. I. F. G. Goldhagen, as related by the present professor Reil, in a small tract published at Halle in Saxony, in 1788. During the prevalence in that town of a fever, styled *nervous*, Dr. Goldhagen was seized, in consequence, as is believed, of contagion, received from some patient. Lassitude, rigor, biting heat, anxiety about the præcordia, prostration of strength, severe shooting pains in the head, stupor, delirium, tension without pain of the epigastric region, quickness of pulse, petechiae, were the chief among the symptoms that succeeded each other in 13 days. The patient treated himself with purgatives (so as to produce an American effect) and with emetics at first. He afterwards had vitriolic acid, valerian, serpentaria, camphor, musk, blisters, sinapisms, stimulant liniments, fomentations. The earliest lassitude and general state of uncomfortable feeling occurred after a night of unrefreshing sleep, on the morning of December 29th, 1787. It succeeded to an evening of unusually high spirits. During the night ensuing, he felt the febrile chill. In the morning, he procured many stools. In the evening occurred several irregular feverish accessions, beginning with chills, which were succeeded by more lassitude than heat. The pulse soft, full, and of the natural frequency. On the 10th of January, 1788, he died.

The

The body was next day opened by Dr. Meckel. The exterior exhibited strong marks of putrefaction. On opening the abdomen the small intestines burst out with force. They were so distended with wind as to have pushed the large intestines (also distended) back into the posterior parts of the abdomen and up to the diaphragm. The coats were transparent; thinner perhaps than in the most reduced consumptive subjects. In two or three places were found such contractions as lessened the area at least one half. In the descending colon, above its curvature in the left side, was a place that would scarcely admit the little finger. Hardly any vessels visible on the intestines, yet here and there on the small intestines and left curvature of the colon were large bluish spots. In cutting them up, the whole cavity contained two or three consistent though soft pieces of faeces, of the size of a wallnut. About a pint of brown offensive liquid flowed out. The large intestines were very wide and tender, on the inner surface appeared little reddish spots to which faeces adhered so firmly that they could scarce be abraded by the scalpel.

It was only when the bowels were removed that the stomach and liver came into sight. The liver was grey, tender and small; the gall-bladder not distended by bile: the stomach empty,

empty, and so collapsed that the spleen was perceived projecting at its bottom. On its anterior surface was a fissure two inches long with a tender, thin, white margin, looking and feeling as if dissolved by putrefaction. On cutting the stomach up, the coats near the fissure were soft and extremely thin; and at the fissure quite destroyed. At some distance, the vessels of the villous and nervous coats were turgid with dissolved, dark blood, which, in places, had become effused into the cellular substance.

The brain was very firm, the vessels moderately full of blood. Between the membranes and in the ventricles there was a little colourless liquid.

In the broad, well-formed chest, the lungs lay without adherences and expanded with air. In the cavity of the thorax, especially in the left, there was a considerable quantity of dark-red serum: and a strong smell of musk arose from this cavity. On turning back the heart, the oesophagus from the diaphragm to beyond the *atrium venarum pulm.* was so sphacelated in its whole circumference, that scarce did there exist the smallest coherence between the fibres.

Dr. Reil, the assiduous and acute friend of the deceased, thinks the contractions in the bowels were of long standing and the effect of posture.

Goldhagen, he says, rose in summer at four,

and

and in winter at five, and studied till near midnight. He did not interrupt his labours for supper. When reading, he sat upright. But in writing, and he wrote a great deal, he stooped; his head hanging forward and his abdomen compressed. He did neither standing. The strictures then arose from the bowels being frequently and long compressed.

Be this as it may, it appears evident where inflammation had and had not been active. I am not sure that the expression *very firm*, as applied to the consistence of the brain, is meant by the celebrated anatomist to convey the idea of disease. If it were, I can produce reasons for thinking that it might have had nothing to do with the fever. The pamphlet fortunately contains a history of the patient. He was a man of anxious mind, of indefatigable application, and addicted to profound meditation. "He took little exercise, except in visiting his patients; and this was of small service to his health, as his mental faculties were fully employed. His active spirit was so inured to constant exertion, that in his few and solitary walks, he pursued all sorts of deep and subtle speculations." This, in the present state of our knowledge concerning the causes of disorganization, might seem sufficient to account for a little deviation from the common structure in one, who must it should seem, have been advanced in life. But this is

not all. The narrative says, that "he became, probably in consequence of severe application, unable to stand long without growing pale and giddy, or actually fainting, unless he sate down or moved. All exertion in warm weather, attended by increase of perspiration, brought on such sudden debility, that he could scarce stir from the spot till the sweat ceased." He was for a time extremely hypochondriacal. "Frequently in the day he would be overtaken by faintness, accompanied by such an invincible drowsiness that he was obliged to break off in the midst of his occupations and sleep for a quarter of an hour. In situations where he could not do this, he felt relief from closing his eyes for a few minutes." (p. 5. 6.) After nervous affections, the brain's consistence has been so commonly, though not constantly, found altered, that nobody at all, I imagine, would have looked for any other reason for the change in this case, had not the patient died of fever; and very few probably will, as it happened. Though it be undoubtedly true, and I shall below refer to experiments which prove, that in the course of a very few days the nervous medulla will become more dense and much smoother on being cut. This must arise from quick interstitial deposition;—as in a case with symptoms of hydrocephalus internus I have known the brain become soft and almost pultaceous---from quick

inter-

insterstitial absorption probably. But we have no test for the time which the change may require. If the transparent cornea were a fair analogy for the arachnoid, for example, opacity may arise indifferently in a few hours or not under months. There may be native differences, and the appearance is very equivocal. If Chambon found the brain unusually hard after malignant fever, so did Morgagni (I ep. 8-18) in those, who died without fever or madness. Littre *(Paris. Mem.* 1705*)* In a young convict who killed himself to escape execution, and had no apparent disease, found the brain, cerebellum, and spinal marrow more than usually hard and dense. Morgagni concludes that "as the brain can be hard without "insanity, so can insanity exist without hard- "ness of the brain." In fact, Greding in 118 out of 216 lunatics, saw the brain much softer than common, and the same in 51 of 100 maniacs, so that allowing for imperceptible degrees of diminished consistency, he concludes that it is universally softer in these cases (Schriften. Greiz, 1790—1. I. p. 308); while the very able Dr. Lobstein, with all preceding observations before him, in five out of eight maniacs finds the brain as well as the cranium in the most perfectly natural state, and in the three others only such changes as take place after totally different affections *(Travaux executés a l'amphitheatre de Strasbourg,* 1806.*)* So little uniform-

uniformity of connection have various altered conditions of the brain with given symptoms. It is the same with the membranes.

In interpreting appearances, doubts occur on both sides. Original conformation, old complaints, habits, age, delay in dissection, hot weather may produce the changes attributed to recent disease. Again, an action, followed by a certain effect in a few days, may be fatal, whereas if that action be extended through months, it may but moderately affect the health. This will go some way towards solving the difficulty, with which Morgagni introduces the cases in his 49th epistle, *usque adeo id saepe latet per quod febres interficiunt !*—An epidemic of very varied character ravaged the department of Finisterre in 1804. Dr. Perusel describes the bilious or gastric state as universally predominant. This, he supposes, was indicated by headache, bitter taste, nausea, anxiety in the epigastric regions, and lassitude. Such symptoms sometimes were almost without fever (quick pulse, hot skin); at other times they were attended with fever, more or less intense. In the feverish cases, there occurred phrenzy, with subsultus tendinum, stupor, convulsions of the muscles of the face before death. Hemplegia, deafness, (external) gangrene, parotids where among the occasional consequences, when the form of the disease was that of gastric fever, and, in two cases, schirrus of the pylorus succeeded. In

In the general result of his dissections, there scarce appears disorganization enough to account for death.—Some yellowness of the skin and eye with emaciation—abdomen rarely swoln—no lesion of the brain or lungs—gall-bladder full, but little bile in the stomach. In those, who died of the fever in its malignant form, there was a white effusion (de matiéres blanches) in the cellular tissue under the mucous membrane of all the intestines. In some places the membrane was excoriated over the place of effusion and it had the appearance of aphthae (Corvisart ix. 271—8.)

Though scarce directly bearing on the subject of fever, I will venture to mention that Dr. Lordat of Montpellier, in his remarks on the *cardiac passion* of the ancients, relates the curious case of a patient troubled with intense pain of head and constant drowsiness without sleep, prostration of strength; heat natural with moist skin; pulse small, weak, a little quick; aversion from every thing but cold water, tongue moist, dull pain in the epigastric region; obstinate constipation; no convulsive movement or alienation of mind; no very decided fever—The disease lasted three weeks.

The contents of the three cavities perfectly natural—only the vessels on all the viscera completely empty—and no organic defect to account, in the author's opinion, for death. He had

had before said that four days before death, painful ulcers had rapidly spread from the gums over the mouth and become gangrenous.

The following instance is curious in another view:—A fever-patient, brought into the hospital at Lisle, the 5th day, had a phrenitic delirium—and refused all liquids—the 7th he began to recover his reason. An emetic brought away much green bile with worms—excessive thirst—blisters—diluents with nitre—pulse strong and intermitting, yet he got better till the 11th day—incessant desire for food—difficult to keep him to a proper regimen; died almost suddenly the 14th. Two hours before, he had drank without appearing worse. The blisters had dried suddenly in the night; lungs sound, though studded with black spots; stomach contained only bile—nothing remarkable in the bowels—liver soft and large; in the lateral ventricles a serous effusion, somewhat considerable—(*Dourlen ap. Corvisart*, iv. 152.) Here, unless the spots on the lungs were of more consequence than is represented, death must have arisen from some latent cause. The liquid in the ventricles was, I presume, too little to account for the effect; nor does death seem to happen in that sudden way from such effusion.

We have already upon record dissections that may, in some instances, guide us to the cause of the fatal event, when this cannot be accounted

counted for from the condition of the viscera. An oval tumour three inches and a half long, two thick, which had produced very severe pain, was cut out of one of the large nerves which form the brachial plexus. The patient did well till the 4th day, when he lost his appetite, and had unusual heat on his skin with some increase of pulse. On the 6th his pulse was quick and sharp; skin hotter; thirst; depression of spirits; died on the 7th. The cyst in the nerve was found much contracted and thickened. The cavity was lined with coagulated lymph from inflammation and almost filled with coagulated blood. Inflammation had extended some way round, and the contiguous parts were consolidated. The other parts of the body in a natural state. (*Trans. of a Society, London,* 1800, ii. 160.) Here we seem to have a clear proof of fatal consequences from considerable inflammation upon three and a half inches of a large nerve, extending in a degree to others of the plexus and lasting a little more than six days. Whereas the inflammation which generated the tumour, and lasted a year, producing insupportable sufferings and within five or six weeks enlarging the tumour from the size of a small pullet's egg to double that bulk, is not stated to have even impaired the constitution. It is a reflection of the operator, Mr. Everard Home, that " the inflammation of a nerve,' (meaning-

(meaning the subsequent inflammation) "like that of a tendon, affects the general system in a greater degree than would be expected by a person ignorant of pathology, from the little severity of the symptoms or sensation in the part affected." But to what rate, degree or species of inflammation does the remark apply? Is it not likely that such inflammation as fever brings along with it, will have the effect? As inflammation with fever is occasionally seen in every spot from the surface to the depths of the body, may not some habits be so disposed that large nerves, in situations seldom examined, shall become the parts inflamed? or, what may be equally fatal, extensive ramifications of small diameter?

The late Dr. G. Fordyce laid especial stress upon *symptoms* of *irritation*, as he called one effect of inflammation, (*Pr. of Physic*, p. 193.) May not these sometimes arise in susceptible habits from large nerves inflamed? As however, notwithstanding some of Bichat's experiments, one can scarce imagine parts inflamed without the nerves participating, every thing comes, in the result, to modifications of this action.

That the attack, in speedily-fatal and seemingly contagious febrile disorders, does sometimes fall upon the larger nerves appears directly proved by an observation of Hautesierck, (*Observ. dans les hopitaux milit.* 1766, p. 375.)

A woman about 50, had excruciating pains in the abdomen, excessive prostration of strength, faintishness, cold extremities and an almost obliterated pulse. She died in four hours after being brought into the hospital. The daughter who had accompanied her thither and returned home free from complaint, was seized at seven P. M. with the same symptoms. At three P. M. next day, she had signs of great suffering: she could only utter sounds denoting intolerable pain in the abdomen; the pulse and power of moving were lost; the extremities cold and livid. She died at four. At five the examination was made; and the stomach of the mother found moderately inflamed—among the villi were seen some prominent gangrenous pustules. But the whole tract of the superior mesenteric plexus for more than three inches was sphacelated and turgid with blood *(engorgé de sang)* The same plexus in the daughter too was diseased but not so much affected with gangrene. The great difference of time after death must have caused some difference in the appearances. The surmise respecting contagion arose from the mother having shortly before visited a neighbour, who died with just the same symptoms—Dr. Soemmering found the retina inflamed in consequence of being injured in the operation for the cataract, and this apparently the cause of death. Dr. Autenrieth,

who

who has perhaps made more experimental enquiries than any person living into the animal œconomy and as a physiologist may stand not very far below Mr. Hunter, cut the whole brachial plexus through in a cat. The general health of the animal did not appear to suffer in the least. In another cat, he separated the same brachial plexus from the neighbouring parts without exciting any expressions of pain. He then tied the nerves. The limb became palsied; but neither gangrene nor inflammation ensued. For six days the animal appeared quite well. On the 7th it became suddenly ill, making but little movement and uttering a plaintive cry, which did not arise from any accidental hurt. On the morning of the 8th day it was found dead. The plexus and thread were covered with purulent lymph. The artery was somewhat dilated above the place of ligature.

Changes observed by Dr. Arnemann in his numerous experiments on the regeneration of nerves (versuche I. p. 10. 12. 110. 197) deserve notice. After cutting the nerve, both ends grew red, tumid and hard. By the sixth day, the protruded medulla had grown much more solid and smooth in the section. The coat was thickened.—Death seems oftener to follow the ligature than the division of a nerve; and when ligature is fatal, is it not from having caused inflamma-

flammation? In dogs that had died after tying the brachial plexus, J. a Brunn too found the nerves purulent. Similar effects have followed the irritation of the sciatic in rabbits. Mr. Hunter perhaps laid too much stress upon inflammation of the veins after bleeding, whereas the subsequent accidents probably sometimes depend upon inflammation of wounded nerves. Pott, Monro, Bell, Abernethy, Sherwen, and some of the French surgeons have interesting observations in cases of irritation after blood-letting. Sherwen relates a case, in which a female patient having been harrassed several days with the severest pain, convulsions, and other alarming symptoms, was completely relieved by an incision made above, and so as to cut across any nervous fibre that could run towards the orifice. She fell asleep in ten minutes, though her sufferings had been before unremitting; the wound, previously swoln and ill-looking, healed kindly. No part, however, of morbid anatomy seems so utterly neglected as the condition of the nerves as to inflammation and tension in certain accidents and diseases. Dr. Arnemann had long since made some interesting observations on their tension; and confirmation has been added at home on occasion of the case of Mr. Meynell, jun. (*Phil. Trans.* XCII. 10.) Slight stretching of a nerve will excite stronger symptoms of pain in an animal than a wound, or hand-

handling it rather roughly or applying pretty acrid irritants.

How much we may expect from closer examination of the nerves in fatal cases of fever these facts may also serve to shew: When a nerve in its ordinary state is put into nitrous acid at the specific gravity of 1127, it assumes an agreeable light yellow hue. Dr. Reil *(de structura nervorum,* 1796, p. 20) on treating in this manner portions of nerve taken from a person that died of typhus with violent nervous symptoms, observed that they became of a dirty dark colour *(sordido-fuscus)*, for the blood had penetrated to the inmost medulla, the vessels having been so dilated as to allow of great accumulation of blood in the coats of the nerves.—In a nerve, left to inflame under ligature for several days, and carefully separated from the blood-vessels of its coats, strong nitrous acid, diluted with an equal quantity of water, will produce a deeper yellow tinge than in the corresponding piece of sound nerve. The inflamed specimen will give out sensibly more air-bubbles in the same acid liquor; and in a solution of caustic alkali, it will shew the denticulated structure sooner and more distinctly;—appearing at the same time less white. These dispositions extend some way from the injured spot, and further upwards than downwards. It may not be amiss to add that

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the brain itself has sometimes shewn a yellow colour after disease; as, for instance, in the following dissection, which also tends to prove that the effects of pre-existing disease, when they do not (as sometimes they do not) manifest themselves outwardly or by symptoms, may be easily mistaken for the effects of fever. In the hospital at Ville Franche a girl died of putrid fever, under the care of Dr. Gontard, the physician. A cyst of the size of a pigeon's egg was found in the right hemisphere of the brain, of which organ the substance was of a yellow colour and soft, though not fluid. Contiguous to the diseased part of the brain, there was caries of the temporal bone; and a way was traced, by which pus issued out of the right ear, as it did long before the attack of fever, *(Vandermonde,* iv. 132.) It is needless to point out to the pathologist the application of such facts. The darker colour of the nerve with the adhering blood-vessels, or the yellower colour of the cleansed medulla, will probably be found frequent in fevers, in the phlegmasiae, in some of the neuroses, in dropsy and other complaints. And when no striking disorganization of a part occurs to account for death, it may possibly arise from moderate but irrecoverable vascular distension or slighter inflammation along some considerable tract of nerve; the

greater

greater diffusion of diseased action compensating the intensity.

The anatomy of intermittent fevers frequently shews the head exempt from disorganization. Fizeau (*Fievres intermitt. Paris*, 1803, p. 134-8) found every thing either perfectly sound or only a little serum in the tissue of the pia mater, three scruples in each lateral ventricle, and about an ounce at the base of the cranium, whereas the spleen was five times its natural bulk and otherwise altered. So the other viscera.

During a fever at Toulon, in 1761, which often appeared in the same individual as tertian, then double-tertian, and lastly continued, and sometimes was what is called putrid or bilious, or bilious putrid, Dr. La Berthonaye opened three subjects: The brain and chest were found quite sound (*fort sains, parfaitement sains*) in all, though the head had been greatly affected. The stomach alone appeared to be the seat of disease, its sides being coated in the first and second with different laminae of a bilious effusion of the consistence of jelly, and of a deep mulberry color. In the third, the epiploon was nearly mortified—the gall bladder full of clotted bile of the colour of theriaca—the pylorus contracted, inflamed, and adherent to the pancreas, which was schirrous.

Dr. Casimir Medicus, in the large collection

of

of his observations (*Sammlung Zurich*, 1776, p. 243 270) relates a case where quotidian ague supervened upon epilepsy. Nothing could exceed the disturbance of the sensorial functions, p. 268. The patient died, says the author, " a " terrible example of the malignity which may " associate itself with intermittent fever." The abdominal viscera, the omentum, the stomach, intestines, and liver, were so compleatly gangrenous as to render an exact examination of them impracticable. " But this man had, to ' my astonihsment, a well preserved brain. I " examined it with the most scrupulous care. " Mr. Womrath dissected it minutely in the " presence of several surgeons. It would be " in vain to say that the changes of structure " are too minute to be detected. I have ex- " cellent eyes and am too well acquainted with " the state of the brain not to be able to per- " ceive alterations on looking after them care- " fully." The same result is offered by other dissections of patients, whose sensorium has repeatedly suffered from an acute supervening upon a chronic disorder. J. G. de S. Audrien became insane, as it is supposed, from the lead-cholic. He had a fever which left him still insane. Some months afterwards he was again seized with fever and died. Nothing uncommon in the brain. The whole colon was marked with black spots, internally and externally—

gall-bladder pale and having the same spots—Le Cat, who made the dissection, had it especially in view to discover whether the brain was affected. When intermittents are not curable by febrifuge medicines, but disappear on the removal of a stricture in the urethra, no body can doubt where the head-quarters of the complaint lie. Dr. Frank senior describes a quartan, which resisted all possible drugs for several months. The patient was cutting a *dens sapientiae.* The gum being lanced, the ague was seen no more. Sympathy may be called in here; of that hereafter. But with this aid, it might be difficult to account for partial or local fevers; a part becoming independently cold, hot, and then moist with sweat at regular periods. Having seen such phaenomena, I must consider the numerous accounts we have of them as generally true.*

Internal

* I have just attended, in the family of Mr. Yeo, apothecary at Clifton, a case which is briefly this. The patient had quotidian, then tertian ague in autumn 1805. I removed it by common treatment. Imprudent exposure brought on relapses. The habit fixed: ~~the~~ lapses and intervals occurred according to the weather, and so forth. Regular paroxysms took place during the bright sun and cool East winds in June 1807; and great pains were at times felt in the abdomen. I now saw the patient again. At the tertian periods I observed pains of six or seven hours' duration, which appeared to arise at the root of the mesentery, and to proceed in the course of

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Internal appearances in some other disorders.

Inflammation in fever how progressive.

After strong spasmodic, convulsive or vascular action, we shall occasionally find signs of inflam-

that membrane to the navel and up to the stomach, exciting a little cough and giving some false shew of pneumonia (as we see in puerperal fever when the inflammation reaches high up). The belly was as tender to the touch as in any case I ever saw of peritonitis. The pains went off in about the time the ague fit had usually done; of that nothing was felt when the pains took their turn; no single rigor occurred, and of general heat or sweat no trace was felt; nor was even the pulse affected! It was true intermittent peritonitis—locally defined, and occasioned, I believe, by substances unadvisedly taken into the stomach. Stoll I knew had cured peritonitis by exciting copious stools. Purging without bleeding appeared to me the best practice here; and being twice employed at the accession, it perfectly succeeded. The tertian ague returned. There never was the smallest appearance of disorganization in any viscus.—I do not apply this case to the question particularly. Such as the following are more applicable perhaps, and may assist the conception of the inexperienced. Mad. * *, 26, had for three weeks daily, at one o'clock P. M., rigors over all the parts between the navel, crest of the os ileum nates and the middle of the thighs. They did not extend beyond. The cold was felt internally for two hours, and then sharp pain came on in the region of the uterus; externally there was heat for four or five hours, followed by so

flammation in the head; tetanus comes on and goes off in fever. Spasms and convulsions seldom fail towards the fatal close. These are incidents of fever equally common with inflammation itself. Even without following the Americans in calling the febrile action of the arteries *convulsive*, we may assert that in fever there is as much tendency to convulsion as to inflammation. Convulsion or spasm is sometimes brought on by manifest impressions; and the occasional causes of this symptom may frequently be detected by a little attention. Nay, such is the disposition of the nerves in fever that these affections can actually be brought on and taken off with some latitude of choice as to the part where they shall appear. It should not be omitted that cases of mixed character occur. These might be called *febrile tetanos* or *tetanic fever*—so palpably arising from congestion in the brain that one feels assured, if such patients had a Dr. Rush by the side of their bed, they would not be transferred from it to the grave; as was the case with a young man, aged 17, sanguine, subject to hæmorrhage, who in April 1764 had an alarming bleeding at the nose

copious a sweat (limited to the parts) that she used many towels in drying it off. Leucorrhœa accompanied the sweats (*Auxiron ap Roux* xxiv. 60.)

hastily

hastily stopped by plugs—*same evening*, headache, sleeplessness—*next morning*, spasmodic stricture of the jaws, inability to speak or swallow, face red, pulse full quick; heat of skin considerably increased—no wound to be found about him—bleeding, emollient clysters, henbane cataplasms to the muscles of the jaws—*midday*, complete emprosthotonos; eyes projecting, pulse full, hard—bleeding from foot; clysters with nitre, tepid bath, temperant powder of Stahl with Hoffman's anodyne. Symptoms increase. 1 grain of opium every hour; laudanum by clyster. Spasms become quite horrible—Stupor intermixed with delirium, cold viscid sweats and syncope determine to give up the opiates. A little plug comes away with blood, and now only does the physician hear of the nasal hæmorhage—vain attempts to recal it by leeches and steam—stupor continues—in the interval of the spasms the jaw falls; countenance leaden—death early the third day in the midst of an attack of tetanus, with frightful convulsions of the cutaneous muscles. Muscles and heart flabby—skin sphacelated—abdomen sound—vessels of the face turgid—those of the brain as if injected; serous effusion in the ventricles; medullary substance appeared much softer than common.—The author, Dr. Carron, candidly points out the bad effect of opium in increasing the congestion and stupor—which did not

not happen in cases of tetanus from wounds, recorded in the same paper (*Rec. Period.* XX. 366.) De Haen (X. 116) relates a case without fever to the 7th day—then heat rose to 103—delirium began on the 15th day and became phrenitic—pulse hard, full, quick—death the 20th, pia mater turgid with blood, red serous effusion; the lungs much inflamed with effusion also. Colon prodigiously both enlarged and contracted. De Haen asks whether the inflammation in the chest or that in the head produced the tetanus. Neither probably: since no feverish symptoms existed before the 7th, and no delirium or much difficulty of respiration before the 15th day—and the patient had been most miserably afflicted by the lead cholic before.

In the former of these cases we seem to have somewhat of the same relation to ordinary convulsive or spasmodic maladies as we have in brain-fever to other fevers. Tetanus, it is certain, exists without alteration of the mental faculties or increased heat. Dr. Currie says, that notwithstanding violent symptoms and a vast quantity of stimulants, the heat in a patient of his did not exceed the natural standard. I have seen the same; and in a case of catalepsy so compleat, that the patient would stand balanced on one leg, and support a heavy book on her raised hands, another physician of this place

and

and myself then found the heat natural. Nor in close attendance for weeks, during which every form almost of *nervous* affection with strong head-ache occurred, did any sign of determination to the head manifest itself. Dr. Behrends (in 1800) tells us he found the pia mater somewhat loosely connected with the brain, after tetanus, in a woman, who to the last gasp was in her perfect senses. The lax adherence of the membrane might be a prior gradual change, or it might be subsequent. Dr. Coxe (Museum I. p.58) says he found the epiglottis and trachea highly inflamed in tetanus, but in 9 days the patient had taken 2000 drops of tincture of opium, 2400 of tincture of cantharides, besides other stimulants, and mercury enough slightly to affect his gums. The head was not examined, though the author presents the dissection under an idea that no previous one existed.—They have indeed been too infrequent; and still more so have examinations of the nerves, which probably become still oftener and more considerably bloodshot than the brain. Dr. Reil says (l. c. p. 22.) *inveni in hominibus ab epilepsia, tetano, trismo aliisque spasmis gravioribus peremptis plerumque cerebrum abundante sanguine obrutum.* Of fever, nervous-febrile and non-febrile disorders, he had just said, *justo majores processus chemico-animales in nervis peraguntur ipsique hi graviores processus jam per se majorem*

jorem sanguinis copiam desiderant.—In omnibus his morbis inflammatio et congestio sanguinis ad nervos non causa morbi *sed* socium morbi symptoma *ab ipso non separandum, esse videtur.* Two instances have already been adduced where under the most aggravated circumstances no inflammation or congestion could be traced in the brain after insanity and epilepsy. Many others might be added. In apoplexy, equal freedom from these traces has been very frequently noticed by the best observers both of our own and of other times and countries.

Where one important organ is long or violently inflamed, that the vessels of others should frequently dilate is just what we might expect; and it is proved by dissections. Dr. Laennec, an active disciple of that school, which has lately exerted unexampled industry and talent in strengthening the foundations of medical science, gives an accurate series of dissections in peritonitis, from which the organs within the cranium appear to be sometimes much affected with inflammation or congestion; sometimes in a state a little different from the natural; as for example, the arachnoid thickened and white towards the upper part of the hemispheres. Sometimes all is natural (*Corvisart*, iv. 499. v. 3.) At Paris, in autumn 1724, double-tertians succeeding to malignant fevers destroyed many women in child-bed. They

were

were delivered without accident, and the lochia flowed properly from the 3rd to the 18th day, when they were attacked with diarrhœa and pain in the bowels, and voided bloody mucus. Shooting pains in the head were felt. These increased by degrees; phrenzy came on and was followed by stupor. Quickly repeated bleedings *(coup sur coup)* with laxatives answered best—The uterus was constantly found natural—intestines slightly inflamed—blood-vessels of the head much distended *(Roux* xx. *273)*—In 1746, scarce were the women in the hotel Dieu delivered, when they were seized with ardent fever, lochia scanty—sharp cholicky pains—particularly in the region of the uterus—milk little or none—repeated bleedings successful—death from the 4th to the 10th day after delivery—omentum gangrenous—uterus much swoln and inflamed—all the parts near it more or less inflamed—ovaria full of pus—mammæ collapsed in all—in those who held out longest, chest inflamed, and containing pus—milk (lymph) effused in the abdomen and chest; the head of some being opened, slight inflammation was observed on the membranes of the brain. (*ib.* xxiii.) Dr. Clarke *(on pregnancy* p. 144*)* says, that in low child-bed fever, he always found the contents of the cranium in a natural state. In simple pleurisy where there

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can be no doubt concerning the " seat and throne" of disease, the vessels of the head have been found turgid and even coagulated lymph thrown out. Instances will occur below.

It would be a great acquisition if we knew the rate and manner, according to which inflammation passes from organ to organ. We should not only have a clearer rationale of symptoms, but the rationale would teach when there is urgent necessity for the decisive interposition of art, the patient having no hope in these sudden turns but from the enlightened pathologist; and the indications of cure with the means of fulfiling them being deducible from no other source than an insight into the internal movements of the disordered machine. The result of a most unfortunate practice in the Vienna hospital has the precision of an experiment planned on purpose to shew, how soon internal inflammation may communicate itself to a distance, and how unsafe it is to argue to the causes of disease from the most striking appearances after death. De Haen, influenced by authorities which he quotes at large, laid bare and touched with a red hot iron the scull of a robust boy, labouring under amaurosis with periodical vomiting preceded by head-ache, and attributed to contusion. At and after the operation great pain which soon declined; good appetite; usual vomiting once and slightly,—well the two next

days

days—fourth day, pulse healthy, appetite good, no pain of head, unless on shaking it—eight o'clock P. M. declared he had no pain whatever, and that he had greatly enjoyed his broth for supper—pulse carefully examined and quite natural—some time afterwards it was the same. At midnight he began to vomit.—This being usual, the attendant did not regard it, till he heard the patient rattle aloud in his breath—death at two A. M., near the close of the fourth day.—The wound in a good state—the cranium so slightly affected by the iron, that after abrading the burnt surface, scarce any of the bone seemed destroyed. Under the cauterized spot the dura mater suppurated; the arachnoid and pia mater corrugated; great inflammation of both membranes throughout the cranium (which was scarce half so thick as usual), no other defect (not even in the optic nerves), to which the amaurosis might be ascribed.—The stomach being examined on account of the periodical vomiting, the upper orifice was found much dilated; the vessels turgid; and two or even three lines in diameter; the bottom purple, in two places, gangrenous throughout—the lungs universally adherent so as to render it impossible to separate them without destroying one or other pleura. Yet there had been no defect in the pulse or respiration till an hour and half before death. Nor did the mother

remember

remember any complaint of the breath. De Haen now made experiments (which it was unfortunate he did not make before) with the cautery on fresh and dry sculls: all concurred to shew that it was the operation that had been fatal; and he refers those who may doubt, to the case of a girl, who was cauterized the very day after the boy, and at first felt as he had done—but scarce slept at night, and had pain in the neck—was better the second day—the third slight feverishness only--the fourth worse, bled—blood highly inflamed—voice began to sink; some stupor—fifth day died with a little convulsion of the face.—Cranium thick and slightly cauterized—dura mater suppurated—much pus on the right hemisphere—both membranes violently and extensively inflamed—the left lateral ventricle containing an ounce and half of lymph—Brain under the burnt spot yellow and almost liquid—it shewed some other, perhaps prior, changes—lungs as adherent as in the boy !—Upper orifice of the stomach also dilated—pylorus contracted so as not to admit a quill—next day, it was again free—(vi. 259-264) The secondary symptoms in these cases took a different course, as we see from the fever in the girl, its absence in the boy, and spasm only of the pylorus with relaxation of the cardia in the girl, instead of rapid inflammation. Whatever we may judge of the date of the universal

versal and close adhesion in the chest, the boy's stomach must, I think, have run its course to gangrene between his supper-time and two o'clock A. M., probably in a much shorter period. From the mere appearances after death, would it not have puzzled the most expert morbid anatomist, that ever wielded scalpel, to say, which was the organ originally diseased? Professor Roux (Corvisart. x. 411) gives a most interesting case, where two great foci of inflammation were discovered, and where if we may suppose it not to have been lighted up in both at once, there is a difficulty in saying whether it ascended or descended. *Sergier*, 48, sanguine and robust (who had had the ophthalmia in Egypt, coughed habitually and called himself asthmatic) dropped down suddenly without sense or motion in winter 1805. He lay thus for an hour, and did not quite recover till far on in the night. He felt no more of this attack till spring when it returned for an hour. On coming to himself he had violent head-ache and rigors. In four days he came into the hospital with severe headache, restlessness, mind clear, foul tongue, bitter taste, frequent cough, respiration short and very painful, expectoration viscid, sometimes bloody, generally tawny—fixed pain of right side aggravated by coughing and by pressure between the ribs; could lie on either side; sleep without frightful dreams

dreams or startings; no palpitations of heart; pulse full, moderately hard, somewhat frequent, regular.—Leeching, blister, pectorals—mild cathartics—slow amendment for a fortnight—sixteenth day, return of the pneumonic symptoms—remedies renewed—by the twenty-sixth day, so well that he proposed to leave the hospital immediately. But next day all the symptoms recurred with aggravation—tongue dry and brown—involuntary stools—*subsultus tendinum*—almost constant coma; in short, the symptoms of malignant putrid fever—diedin a week—vessels of the head turgid with blood—effusion between the membranes—pia mater reddish, inflamed (phlogosè)—lateral ventricles lined with pultaceous purulent matter and containing four oz. of turbid serum—septum destroyed—brain soft—indissoluble union between the right pleuras—on the left side, adhesions easily divided—effusion into the substance of the lungs—right lung a little inflamed and hardened—heart and parts connected so thoroughly diseased that the description takes up 4 8vo. pages—phaenomena referable to dilatation, thickening, effusion, ulceration and growth of the new parts.

That the ophthalmia might have left a disposition in the brain to inflame is probable. The fits of still senselessness which are styled *evanouissement* no medical man saw.—But the changes in the

the ventricles and other parts of the brain must have occurred in the last week and after the affection of the thorax: and if they had the acute character, no one could feel fit to leave an hospital while they were in progress; though slow disorganization and in less central parts of the brain, does not always bring on disability for loco-motion. The sudden rise of inflammation in one organ, at a late period of disease in another, may be perpetually observed in other complaints as well as in fever. Mr. Orlidge, wine-cooper in Bristol, died of hydrothorax. There was effusion and much of the lungs was dark-coloured and dense *(pulmo hepaticus.)* A few hours only before death he complained of intense pain in the left flank: and the intestine there I found violently inflamed.—Fautrier after leaving off a flannel cap had head-ache with rapid, contracted pulse, chills and daily febrile execerbations; entire freedom of mind—This went on for about twenty-three days—night of twenty-fourth, head-ache less, violent pains near the bladder—excessive micturition—pulse fuller; skin warmer, bleeding greatly weakened the pulse—pains a little relieved afterwards by fomentation—head clear--next day, after a singing in the ears, death—epiploon and bladder almost destroyed; abdomen and pelvis full of pus; intestines gangrenous *(Sumeire ap Vandermonde,* vi. 103)

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In inflammation, if I may observe it by the way, there seems to be a condition of parts, capable of throwing the system into consent before any local symptoms attract notice. The author was subject to troublesome pustules on the conjunctive of the eye. Many hours before he felt pain, a weeping took place; and he did not at first know what this portended. At last, when the weeping occurred, he could always see a red spot within the eyelid, where the pustule was beginning to form. Dumont, a man cook, had shivering and violent heat about midday, Aug. 4, 1757. Supposing this an attack of ague, he went to bed, and about midnight was awakened by excessive heat in the genitals. In the morning of Aug. 6, Dr. Varnier found the scrotum as hardas wood and as large as a child's head, though, on the 5th, M. Dufrainay had bled the patient copiously four times. After more bleedings and purging the patient recovered with some sphacelation.—Whether the paroxysm of the 4th arose from the incipient local disease; or, the paroxysm arising from some other cause, inflammation was projected to the parts in question, had this fallen internally, the bleedings, frequent as they were, would hardly have saved life, perhaps for want of being carried far enough at once. Numerous facts shew that early in high inflammation, the lancet can scarce be used too freely. With gangrene, in-

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farction or even abscess in prospect, transient syncope is a slight evil. The rule that *the constitution in such cases recovers more kindly from debility induced by blood-letting than by disease,* affords great encouragement. And if (what should always be held in mind) the injury from injudicious bleeding can never be repaired, neither can the fatal progress of inflammation be stopped, where bleeding is injudiciously omitted. The pleurisy, which, as I am informed, was lately so destructive among our soldiers and sailors till the lancet was used with a boldness almost totally abandoned in this country, proves that it is not only American diseases and American constitutions that require such treatment—Many other facts prove the same.* When in the accurate dissections of phrenitic patients in the Charité at Paris by Dr. Chardel, "all the convolutions of the brain and the furrows are found covered with puriform, partly coagulated matter" - - - "a similar effusion

* Æstate anni 1797, Faber ferrarius 26 annos natus, labori multo assuetus, habitu corporis robusto, pulmonitide gravi correptus, est in nosocomium Edinb. admissus. Pridie unciae circiter 8 sanguinis missae. Intra 3 ab admissione ejus dies, unciae 98, quorum una vice 32, sine animi deliquio, maximo cum levamine symtomatum detractae fuere. In toto unciæ cvi demptae, quo perfectam morbi solutionem intra dies paucos obtinuit---*Phelan Diss. de pulmonitide.* Edinb. 1798, p. 25.

between the arachnoid and pia mater of the cerebellum" - - - "all the nerves at the base of the cranium, quite to the optic nerves, choaked with coagulated lymph and this disposition descending, in a degree, down into the cavity of the spine" one cannot but lament that the freest bleeding had not been repeatedly practised.*

Stoll (R. M. 1. 181.) gives the history of a coachman who in winter 1777, had a severe pleurisy, but recovered by Easter. June 12, seized with rigors, sickness, aching in the loins, pungent pain in the chest with cough—bled, and vomited.—17*th*, severe pain from the left breast to the ileum—much cough, aggravated on inspiration and contact; lying on the affected side impossible; expectoration frothy, tinged with blood; respiration sonorous; pulse quick, strong, hard—much thirst—bled freely—blood inflamed—18th, no pain—can easily lie on either side—respiration quick, sonorous, performed by the abdomen alone—pulse very

* In a young man upon whom the causes of phrenitis had strongly acted and who had all the symptoms, I saw, not long since, the buff of the blood superficially coagulate into laminae; so that on inverting the clot, numerous thin layers of membrane hung down, like *deciduæ reflexæ*. Mr. Edwards, surgeon of Keynsham and that able anatomist, Mr. Alcock, witnessed the appearance, which I considered as strongly indicative of blood-letting.

weak,

weak, soft, much quicker, cough slight—small frothy expectoration—perfect presence of mind; recollection exact; vivacity, apt replies—great facility in turning any way, no oppression—"the brain being threatened" a large blister on the neck—pulse became very quick, hard and full—bled without relief—diarrhoea, which astringents did not restrain—some concocted expectoration—in the night, delirium—early next day death.—Right lung sound—left throughout inflamed—substance indurated; pieces sunk slowly in water or remained below the surface; bronchia full of concocted expectoration—some ounces of water in the cavity of the thorax—between the lung and diaphragm coagulated lymph an inch thick—mediastinum somewhat inflamed—coronary vessels distended and almost varicose—omentum and small intestines inflamed or gangrenous—dura mater turgid with blood—inflamed spots and thick parallel fibres (adhesions) where it passes between the brain and cerebellum—pia mater almost wholly inflamed—many large red spots in the sliced brain.—In De Haen (xv. 74) after pneumonia the thoracic viscera intensely inflamed—the pia mater equally so—the blood-vessels of the head generally turgid——shortly afterwards (p. 82) stands a case of most violent pneumonia where after ten bleedings the patient died on the 7th day—Besides answerable appearances in the

thorax, the pia mater was highly inflamed—In the two brief histories no mention is made of delirium. It was not therefore a prominent, at least, not an early symptom.—In the above abstracts I have generally given the principal points of treatment, saying nothing of its merit, as not belonging to the present head.

After surgical operations, the operation being equivalent to a spontaneous phegmasia, distant parts are found inflamed: hence probably sudden deaths.

The neuroses are known to exhibit the greatest and most sudden changes; a palsied part instantly becoming over-sensitive, and the reverse. In hysteria a palsied limb shall recover on the coming on of a fit of choaking. In rheumatic and gouty inflammation we have also quick shiftings of the seene. But this law of speedy transmission extends in a degree farther than is generally imagined to what is called common inflammation. By accidental impressions or by art, this is transferred with as much velocity as any change in nervous complaints can take place. A gentleman subject to opthalmia and treated with little success by our most celebrated oculists had lately (accompanied by head-ache) a most violent attack in the right eye, which was almost visibly rendering the cornea opake—after bleeding and some other means, which removed the head-ache and lessened the ophthal-

mia,

mia, I dropped water from a little height on the affected eye, to which it was grateful, but the very same instant pains arose in the opposite eye and side of the head. The sound eye even became red on the spot, and the trial was renewed some time after, with the same result. Instances, more or less analogous, will readily occur.

Those to whom the preceding facts shall convey a new or a more distinct conviction must excuse the tediousness of the induction. They may be assured that it can be greatly extended. And some self-denial is required to suppress evidence, bearing upon a grand point of practice.

In proportion as the system in fever is more disposed to inflammation, these metastases will be common. That it is so disposed, every circumstance demonstrates, as the frequent rapid gangrene from blisters—the sphacelation of the parts pressed in lying, particularly when the sick continue motionless*—the haste with which abscesses are ready to run into sinuses.†

* On remarqua dans les femmes une plus grande tendance á l'assoupissement qu'au delire. La posture uniforme qu'elles guardoient dans cet etat leur attiroit des gangrénes facheuses aux cuisses et aux fesses. (*Vandermonde,* viii. 864)

† Le plus leger retardement (à donner une issue au pus des parotides) surtout lorsqu' il y avoit sous la peau quelque apparence de fluctuation, en rendoit le pus si corrosif, qu' on n'etoit pas maitre de prevenir les fuseés et les sinus considerables qu' il causoit dans le pannicule adipeux (*Ibid.*p. 369.)

Nay, what is the miliary eruption but a proof of the general inflammatory diathesis, exerted in the skin? This eruption, I know, is most commonly a fruit of the hot regimen. But would this *prickly heat* appear in healthy people, under the same regimen? I presume, much less frequently. And it is not true that this *never* appears under the coolest regimen. I have oftener than once seen it. There never was a more steady follower of that treatment than the late Dr. Clark. He saw it in intermittents, in continued, and scarlet fever when the patients were kept cool *(On fevers p.* 188 *and elsewhere)* Dr. Reil in his masterly work *(fieber-lehre* I. 428) gives this decisive evidence: "I have successfully bathed a patient's hands and face, whose burning heat was scarce to be overcome, with cold vinegar and water, for hours together without repulsion of the miliary eruption."—I certainly do not refer to sweating in proof of inflammation; but does not the strong perspiration, so often occurring in miliary fever, shew an excited state of the skin?

How do these facts bear upon the doctrine of Ploucquet? Do they not greatly weaken that support which it seemed to receive from some dissections? Does not a more steady and comprehensive survey of phaenomena suggest an opinion altogether different from first partial appearances?—Since inflammation is in its

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own nature so communicable, since the disposition to it so prevails in fever (and probably the transmissibility increases in proportion), congestion, effusion, abscess in the head may often, in reality, prove nothing more or less concerning the cause of fever than results from that very miliary eruption which, at different times in the progress of the complaint, will arise upon the skin. In the following instance we see inflammation distinctly fixing on a predisposed organ—During a very malignant fever at Paris in 1708, a girl of the name of *Gontier*, 18, died—She had experienced much chagrin for three months, and the menses had been stopped by a sudden shock—From this time the symptoms of fever began forming—delirium on the third day—death the 5th,—right lung flabby—left inflamed—much effusion into the cavity of the thorax—heart, spleen, liver, mesentery, kidneys natural—intestines prodigiously distended and inflamed in spots—*Uterus throughout most highly inflamed*—head not opened. At any moment inflammation may be kindled in any part, and it seems to be frequently kindled, shortly before death, in consequence of previous disease—by perceptions or ideas with their attached feelings—by temperature—by medicines and outward applications—by some causes which we can distinguish

guish and by others of operation too subtile for our senses or our present methods of employing them—as perhaps by a thunder cloud passing over head.

Time of inflammation in fever further illustrated.

The fullest collection of dissections would be of very inferior use, speculative or practical, unless we should be enabled, by comparing the symptoms with the appearances brought to light, to judge of the moment, when great local changes are taking place, and of the necessity of a treatment adapted to this contingency. I cannot therefore be satisfied to quit this important topic without risking my reader's loss of patience by further illustration. I do not see how it can be better illustrated than by the particulars of an extensive and diversified epidemic, such as is not unusual in our latitudes. The example would be little to the purpose, if it were singular, or if the observer had been inattentive, or had taken either side in the question, in which we are engaged. The proper conditions seem to me united in the following account, by Dr. Boucher, of an epidemic fever which raged in the district of Lille during the year 1758.

This fever assumed three principal forms.

1. " The first began with great pain in the forehead or occiput, and very often by painful tension in the loins; each preceded by slight chills, which occurred irregularly on the following days. Tongue white, yellowish or brown, particularly at the base. Some have a bitter, clammy, unctuous taste, others nausea with weight at the epigastrium; depression at first not sufficient to confine patients to bed; some even go abroad and undertake some slight labour. Pulse scarce quicker or more forcible than in health: but more or less contracted or embarrassed. No sensible exacerbations or sweats: nothing remarkable in the urine; only in cases with the lumbar affection it passes with difficulty—blood of rather a deep colour—coagulum has little firmness; serum more or less yellow."

2. " Variety 2. Violent head-ache, flushed countenance, bloodshot eyes, great prostration, oppression and general lassitude; quick and sharp pulse; sweat at the going off of the exacerbations, high coloured urine; all preceded by strong rigors. Blood from vein, of a high crimson colour, little serum; white, firm buffy coat."

3. " V. 3rd. In autumn and winter it began in some cantons with symptoms of catarrhal fever, as cough, oppression of chest, pungent pain of side, flushed cheeks, hard pulse, together with the symptoms of var. 1st. blood thick, of a deep red—buff thin, marbled or greenish, pretty firm in the first bleedings: with little consistence in the succeeding."

4. " In var. 1st. great prostration of strength about the 4th day—eyes sunk, conjunctiva red, slight weeping in the corners; the embarrassment at the epigastrium increases; affects the chest, if that were previously free—load over the region of the heart—pulse more frequent, but little raised in force, easily compressed; skin dry, often burning; tongue brown, blackish and dry at the base; dryness becoming general

neral without complaint of thirst; worms dead and living, voided upwards and downwards spontaneously or from emetico-cathartics: some constipated, others harrassed by a fetid, serous, yellow diarrhœa—difficulty in making water frequent—urine high coloured and ardent in var. 2 and 3—natural in var. 1, Many have small bleedings at the nose—the menses at a wrong time—rambling of the head, at times syncope—pulse weaker, unequal, incipient subsultus of the tendons of the wrist."

5. "At this period there appeared within the fore-arm, wrist, and thighs, on the breast, neck, and belly, a red miliary eruption, continuing sometimes as long as the fever, and scaling off—In most instances it went off and returned, or quite disappeared in the acme. The same with regard to red spots—we seldom saw any purple or black spots. Miliary eruption white in some."

"6. This second stage was not so alarming in variety 2nd. The patients had exacerbations in the night terminating in sweat, and more severe the alternate days—body generally bound—tongue not dry as in var. 1,—pulse not oppressed nor unequal—redness of eyes and cheeks, and pain of loins augmented."

"7. In the acme, prostration great, pulse depressed, weak, frequent and irregular, at times scarce any pulsation, but a simple creeping—countenance livid or yellowish, sometimes bloated—the cheeks of a purple red, eyes tarnished or sparkling, lips dry, pale, foul; nostrils dilated, dry within, as also the teeth, gums, and the whole tongue; or else the tongue of a deep red; often with white patches upon it, like plaister of Paris, with apthous excoriations, extending to the fauces; the patients then complaining of sore throat with difficulty of swallowing."

"8. At this stage, more or less embarrassment at the chest, however the attack may have come on; respiration laborious; slight expectoration often tinged with blood: violent constriction,

striction, or rather an insupportable load at the heart and stomach; oppressive sweats which go no lower than the chest; urine natural, sometimes cloudy; in many quite suppressed; belly more or less raised; tension or simple meteorismus with sensibility to the touch or pain in some: delirium with convulsive movements, or coma and sometimes general tetanus—involuntary stools, fetid, of a light yellow, strongly staining the linen; gangrene about the nates; menses increasing to hæmorrhage—miscarriages."

"9. Last stage. Liquids refused, or an obstacle to deglutition; patients twist the bedclothes, catch as if at flies, continually aiming to get out of bed; pulse extremely feeble and unequal; sudden subsidence of abdomen; cadaverous stools with dead worms; rattling in the throat; dissolution."

"10. In the acme, some patients had large erysipelatous patches, sometimes covering the whole foot or leg; these occasionally were the prelude to mortal gangrene, whether associated with blebs or not. In a few the erysepelas was of a pale red, succeeded by large blisters, with yellow lymph (these appeared to be critical: the *rosa bullata* of authors). Dr. Chuffart and myself, had each a patient in this state, who both recovered.—At this stage, parotids appeared in some cantons without disposition to form abscesses. A woman of 60 sunk under two monstrous parotids, which, with a spasmodic constriction of the fauces, prevented swallowing.—These stages last a different time according to the violence of attack. A woman died the 7th day, in whom the disorder announced itself by a bubo-like tumour on the arm, which did not suppurate—she died with true purple spots. Those most violently attacked died the 9th or 11th days, whether it were from lymphatico-purulent depositions or gangrene of the lungs —most of those who passed the 17th day recovered."

"Dissection shewed marks of gangrenous inflammation, of gangrene and even of sphacelus in the different viscera;

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in the liver, especially in its concave parts, in the spleen, stomach, small intestines, the mesentery, and even the belly. The kidneys were also enlarged from inflammation, and the bladder contracted, and, as it were, crisped *(racornie)*; gall dark-coloured; all the small intestines sometimes tinged with this bile; and their intestinal tract dilated and containing clusters of worms; the heart externally shrivelled *(fletri)*; the lungs more or less gangrenous; the blood in the veins generally black and dissolved; also in the sinuses of the brain; the membranes there in a state of inflammation tending to gangrene; in some subjects, lymphatico-purulent depositions in the cavity of the thorax and in that of the abdomen."

Where the chest had been disposed to inflame by the cold of autumn or winter, we see symptoms of inflammation at the very onset—The account shews however that in some cases inflammation in the chest did not come on till the middle of the fever; as has been observed in other instances of pneumonia typhodes or malignant catarrhal fever.—Thus Dr. Pinot in his account of one of these epidemics at Bourbon-Lancy in Dec. 1754, tells us; that "it began with a violent chill of x or xii hours, followed by burning heat; on the second or third day there supervened pungent pain of the side with bloody expectoration and dyspnœa." (*Vandermonde*, iii. 123.) "I saw several patients," he subjoins "in whom these symptoms did not come on till the fourth day." (*ib. p.* 133.)

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In other situations, whether external or internal (leaving the head for a moment out of the question), we see no marks of inflammation arising until the height of the disorder or later still. It is then indicated by tension, tenderness or pain of the belly: by suppression of urine from the inflamed state of the secretory organs. The fact is manifest too in the swelling of the parotid glands; in the aphthae, erysipelas and gangrene of the parts, which suffer most pressure. It is visible in this account too how soon inflammation springs up and passes through its course. Nor will any one, I presume, contend that there was a long latent first stage of inflammation (abstracting from the head), coeval with the fever. I do not see why the painful tension in the loins, mentioned in variety 1st, should not be held equally indicative of local inflammation with that in the head.

There are instances enough shewing that in the late origin of local inflammation, the head exactly suffers as other parts: Thus in *diseases of Paris* from 1707 to 1747 (Roux xviii. 276) it is related, that a most malignant fever prevailed in the autumn of 1709, with frequent metastases, so that the patient appearing cured and free from the symptoms, whatever they were, that had tormented him most, the head or the chest would be seized, and death take place very quickly—Thus a man, 20, having cough, pain

of side and bloody expectoration with universal restlessness and violent fever, these symptoms were almost entirely removed by evacuations; when on the 10th day the head is seized; his pulse grows hard; he tries to throw himself out of bed—bleeding was not risqued on account of the exhausted state, to which he had been reduced; bark with an opiate prescribed—another *was* bled under exactly the same circumstances and died. In both after death, the blood was found dissolved; the brain and its membranes much gorged with blood—state of other parts not mentioned.

The system in fever is in that condition when *its actions*, according to Mr. Hunter's phraseology, *are greater than its powers.* It is easily excited and its processes hurry to a termination, as is equally evident in both kinds of crisis. In the fevers of hotter climates there is greater danger still of confounding original and secondary inflammation. Here we must resort to a medical rule of three, saying *as the average term in which fever proves fatal in the one country is to the same term in the other, so is the course of concomitant inflammation respectively.* From which rule it would result that, when the atmosphere is at 95° or upwards, a part, not before peculiarly diseased, might become gangrenous in a very few hours. We do not indeed at home want examples, nearly approaching,

ing, in some inflammatory complaints of the chest, bowels and throat.

From the comparison of symptoms and dissections, I now think myself entitled to draw a more precise conclusion, respecting the connection of inflammation with fever. *In whatever organ this process may be detected, its symptoms appear at all stages of the disease alike; nor does the head offer the smallest peculiarity in this respect.*

It is very true, as our authors agree in affirming, that fever, consequent upon injuries of the head, is not to be separated by any line of distinction from typhus or idiopathic fever. But does the opinion then, which they have conceived, hinder them from perceiving that this may likewise be asserted of injuries of other parts and of poisons?—Fevers of various type may be produced by poisons, perhaps by hurts. I saw a girl, previously healthy, who took for some purpose not avowed as much dry powder of laurel leaf as would stand upon a sixpence. Instant vomiting succeed, chill and heat. I ordered an emetico-cathartic. After some hours, she felt well; and walked a quarter of a mile to my house next morning. I advised bark. She, trusting to her feelings, neglected the advice. In the evening, about the time when she suffered from the poison the day before, she was seized with so violent a cold fit as

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to be supposed dying;—continued fever likewise follows ingesta.—But it may be more to the present purpose to say that surgical accidents of other parts as well as of the head are accompanied by symptoms so like those of continued malignant fever, that there are instances, in which it appears to have been attempted to shift off the disgrace of an unsuccessful operation upon such a fever, supervening by accident. Thus, colonel Vignoles, a distinguished officer, being wounded during the German wars of the middle of last century in the knee, the celebrated surgeon Louis amputated the limb. The patient died with fever in twenty days. The delirium and other symptoms so much resembled those of idiopathic fever, that this was said to have been the real cause of his death. Dr. Beaussier, who records the case, uses a form of expression, which plainly bespeaks the degree of confidence, to which he thought the assigned cause entitled. On attribua ce desordre á une *fievre maligne*, dont on assura que l' on decouvrît les symptômes. (*Roux*, xxx. 167.)—What is more curious still, Mr. Larrey, surgeon in chief to the French army in Egypt, relates that, after the battle of Heliopolis and the last siege of Cairo, the wounded soldiers were attacked with the genuine *yellow fever*. It was not epidemic nor simply the effect of climate on persons arriving from

from colder regions, being absolutely confined to the wounded men (*Relation histor: et chirur*: *Paris*, 1803.)—The general fact may be seen wherever there are persons lingering under mortal injuries wheresoever received.

Analogical Considerations.

By an acute writer on the mind it is laid down, that we never ought to rely upon the strictest-seeming inference, unless it have its independent evidence in observation. The medical philosopher cannot pretend to discover in experience greater encouragement to trust in his logic than the metaphysical. He may therefore deem it prudent to attend to the above rule; nor should he fail to hold in suspicion every doctrine which requires the support of auxiliary hypotheses; which obliges to shift or explain away the meaning of terms; or stands opposed to clear analogy. Both our authors on fever, I think, attenuate into nothing the import of the word *inflammation*, or require us to allow to an inadmissible extent the evanescence of all the traces of this process, altogether arbitarily presupposing (*Clutterbuck*, p. 117) that they

shall be supported by the result of future discoveries. Dr. Ploucquet openly makes it a postulate that the brain, in the great majority of cases, may be inflamed, as it were, by proxy. If the same neither is, nor is to be, a postulate on the part of Dr. Clutterbuck, is it from his asuming fatal inflammation of the head in the very cases, where gangrene of other vital organs stares the anatomist in the face?—This calm and well-informed speculatist has, no doubt, explanations in reserve for his future volume: and with these, I hope, he will duly favour us.

Meanwhile I shall put the opinion to the test of certain appearances in the history of hydrophobia; in hopes that whatever may be thought of my application of these facts, the facts themselves will be thought not undeserving of notice.

By *hydrophobia* I mean the disease which experience proves to be produced by the bite of a rabid animal or by inoculation with its saliva. The term is unfortunate enough, since the symptom occurs in other diseases of the human subject; since observers worthy of credit have seen a rabid wolf swim across a river; and I have myself observed a dog, of which the history, symptoms, death and dissection shewed him to be similarly affected, lap milk freely and perhaps swallow some of this liquid.

It has been a great object to ascertain the change

change of structure induced by this most terrible of acute diseases. The curiosity of observers, overcoming the just dread of inoculation, at length promises to put us in possession of dissections as full and as accurate as we have of the victims of any other disease. Boerhaave had characterized the complaint as most highly inflammatory; and the opinion has lately been started afresh and controverted in this country. I place my reliance upon examinations made by competent persons with a view to this question, or by the very ablest among modern anatomists, instigated by a desire of compleatly ascertaining the effects produced by the complaint.

A medical society in London collected "many cases and other valuable information" (*Transactions* 1793, *Johnson* I. 294). In their report it is stated (p. 310) that "many dissections of the bodies of those who have died of hydrophobia, have been communicated to them. An appearance has in general been seen on the inner coats of the stomach near the cardia, similar to what is found in the bodies of persons who have had slight inflammation, that is, a greater number of red vessels with small streaks of red blood. In some instances there has been an increased vascularity of the *pia mater*, or slight watery effusion on the surface of the brain. In some dogs that died of the

disease, the appearances in the inside of the stomach were similar to what have been described, but there was no constant fulness discovered in the vessels of the brain, or its membranes. "These appearances" subjoins the reporter "are no ways adequate to account for the symptoms of the disease." It is to be regretted that this respectable society has neither given the names of the contributors of facts, that of Dr. Garden excepted, though there would seem to be no good reason for withholding them, nor any extracts from the original contributions.

Dr. Hamilton, whose collection on hydrophobia, made as it was under the disadvantage of blindness, must be rated as a very meritorious performance, gives in his appendix cases enough to satisfy us pretty well that the appearances in the dead body are at least as various and uncertain in this disorder as they are in fever—the signs of inflammation in some part or other being equally common but by no means fixed, and sometimes absent. Sometimes *the head* shews nothing extraordinary, unless it be the "choroïd plexus rather full; veins on the surface distended with blood" (II. 365:) sometimes effusion distending the pia mater (381); no mark of disease (407)—the membranes more turgid than in health—brain sound (418);—dura mater seemingly contracted (424)—nothing

thing unusual (445)—vessels of the brain turgid with blood (488 and 501.)—It is with the *trachea* and *fauces* as with the head :—" epiglottis, larynx and spaces between the cartilages of the trachea so very little altered as to render it doubtful whether any thing redder than common: pharynx and submaxillary glands natural; parotid redder, but the redness perhaps from the blood of the divided vessels.—Again, pharynx without inflammation ; trachea and œsophagus covered with thicker mucus than usual ; and the patient not having swallowed for 56 hours. Again, mouth, pharynx, œsophagus sound; epiglottis and trachea triflingly inflamed.—Again, œsophagus slightly inflamed ; contiguous lymphatic glands larger than common.—Again, fauces, larynx and pharynx sound; membranous parts of the bronchial rings somewhat inflamed.—Again, no inflammation of larynx, pharynx or œsophagus. In some of these cases, mercurial ointment was used.—In like manner the intestines (as well as the stomach) either quite natural, or contracted, or containing much bile, shrunk, or with points of inflammation and abrasion, or as if macerated, or much inflamed, especially on the great curvature. A similar variety occurs in the condition of the lungs. The ingenious Dr. Physick having concluded *(N. Y. Med. Repository V.)* that death in hydrophobia arises from spasmodic

spasmodic constriction of the glottis and that bronchotomy may be advisable, Dr. Rush (*Ib.* for 1803, p. 105) gives the dissection of a patient five years old, which in his opinion confirms the idea. All the muscles of the neck had a livid colour, as sometimes in those who die of sore throat. The muscles of deglutition and speech suffused with blood. Epiglottis inflamed; glottis so thickened and contracted as barely to admit a common probe. Trachea thickened and inflamed in the manner now and then seen after cynanche trachealis: œsophagus healthy; inflamed spots in the stomach.

In a dog, carefully dissected the day after death, I have seen marks of the most intense inflammation, amounting to sphacelus in the salivary glands and about the fauces; which inflammation affected the stomach and had radiated upwards into the head and downwards into the intestines. Mr. King, surgeon at the Hotwells, who had the opportunity of dissecting several rabid animals of different families, found strong inflammation in all. He will give the public an account of the appearances and of some remarkable circumstances, belonging to the disorder, as it affected these animals.

Dr. Autenrieth (*de prætervisá nervorum lustratione in sect: hydrophoborum*, 1802) has given some dissections with the accuracy that might be expected from such an anatomist.

A female

A female at Stuttgard, above 70, five weeks after the bite of a mad dog, died of hydrophobia on the third day, having taken no medicine whatever. Next day, the tongue was found foul; the fauces foamy; the epiglottis, larynx, trachea, and all the neighbouring parts perfectly natural *(plané naturales, sine inflammatione.)* The salivary glands all free from tumors or redness. The thyroid gland strumous and abounding, as is usual under that sort of disorganization, with steatoms, and a subpellucid gelatinous matter was diffused through the ordinary red parenchyma. The upper part of the oesophagus within the posterior mediastinum had a pale red irritated appearance for two inches—the remainder quite natural. The stomach was seen closely contracted into a semi-circular canal, prominent here and there, as if from tuberosities. Neither stomach nor duodenum, when opened, shewed the least degree of inflammation, except a small spot on the posterior side low down near the cardia. This spot was red from exsudation of bloody mucus;—the vessels of the small intestines in places turgid with blood, the large intestines much distended with fœtid air—the liver and spleen only somewhat more dark, the pancreas redder, than usual—the right kidney sound, but containing much blood—no inflammation within the pelvis—diaphragm sound; the lungs also; only very full of blood and many red points intermixed

with dark livid streaks on the surface—much, partly coagulated, blood in the right side of the heart—in the arch of the aorta a tough white polypus passing into black soft clots of blood: head not opened.

In a child of five years old, the fauces and parts around are most pointedly described as totally free from inflammation, the uvula only a very little more red than common.* Where the villous coat of the stomach was elevated into longer rugae, it appeared reddish or very slightly inflamed. In one place a red spot had penetrated all the coats of the stomach to the peritonæum, which was not affected. These appearances would have been imputed to the medicines administered, had not some faint appearances of inflammation been observed in the former stomach also. In another boy, so much bitten by a mad dog about the face, as to have several superficial wounds on the right cheek, eyelid and chin, and a piece an inch long, and three quarters broad, clean torn away from the corner of the mouth, so as to make part of the cavity visible, Dr. Autenrieth attempted to ascertain the state of the injured part, and particularly that of its nerves. At the time of death, the bites were all healed, but the scars red. The frontal and infraorbital nerves of the right side were white and sound; as also those divisions of the left infraorbital nerve

* Omnis interna superficies tracheæ, omnis interna et externa facies œsophagi sine omni inflammatione erat.

nerve which ascend towards the eyelid and the back of the nose. But the cellular substance, which connects the twigs, shewed more red vessels than usual. And where the branches of the infraorbital nerve descend towards the cheek and upper lip, there appeared, under the infraorbital foramen, a remarkable dark red spot as if of blood, resting upon the bone; and beside this was another smaller spot, nearer the foramen, of a beautiful bright crimson. "You would have sworn that you beheld a black vein, much distended with blood and its accompanying artery, filled with vermilion injection." But on examination it appeared that the dark spot or pigment extended over the upper cheek bone, and its junction with the zygomatic process; but that the crimson spot was limited to the fine cellular texture near the lower margin of the infraorbital foramen, which lies between the descending branches of the nerve and the periosteum"—The positive refusal of the parents to have the face any more disfigured put an end to the farther investigation of these apparently important changes.

The dog, that had bit this child, died with progressively increasing convulsions and palsy of the hind legs, early on the 5th day after the symptoms appeared. The stomach, arch of the colon, lungs and liver were inflamed to gangrene. Nothing præternatural in the trachea or œsophagus.

I am

I am just favoured, through the good offices of Dr. Marcet, with the following observations by Mr. Wilson, assistant apothecary to Guy's hospital and a very zealous anatomist. Mr. Wilson's views do not altogether agree with the conclusion, which I had drawn from what I have seen and read. Nevertheless every one, who feels at once the importance and the imperfection of morbid anatomy in general and of this part of it in particular, must rejoice in new opportunities of comparing well observed facts with those which he had acquired before.

"It would seem that hydrophobia in the canine species is determinable after death by certain appearances which present themselves upon dissection; and which may be denominated characteristic of the complaint, in as much as they afford us pretty clear evidence whether the disease existed or not. In those dogs which I have inspected myself, or have been favoured with a view of the parts, after they had been removed, by some of my friends, these peculiar appearances have always been present whenever there existed little or no doubt but that the animal had been really mad.

"The number of dogs that I have seen opened, said to have been mad, amounts to five, three of which I have inspected myself.

"After dissecting out entire the parts concerned in deglutition, from the tongue to the stomach,

stomach, and after opening the pharynx and œsophagus, there are seen certain inflammatory blotches, distinct and circumscribed, situated about the fauces, glottis, sacculus laryngeus, and upon the surface of the œsophagus—in some instances the surface of the abdominal viscera appears to be affected.

" In the first three dogs which were examined these inflammatory blotches were more or less extensive; but they were confined to the fauces and œsophagus. The appearances in the fourth dog were equivocal and insufficient to give any determinate opinion upon the nature of the case—he had been destroyed immediately upon suspicion of his being mad, but had previously bitten his master and another person in the house. The three first had likewise all been destroyed before the termination of the complaint.—The last dog was sent to Guy's hospital by Mr. Howard to Dr. Marcet, in order to ascertain the morbid appearances. The dog after shewing signs of madness, had been carefully confined and suffered to die—he had been bitten two months before.

" *Appearances upon dissection*—The extremity of the tongue was much bitten, and there was a copious quantity of saliva about the fauces—there were some highly inflamed spots towards the basis of the tongue—the tonsils appeared swoln and turgid with blood—blotches of inflammation

flammation could be distinctly traced along the whole length of the œsophagus—the cardiac portion of the stomach was very highly discoloured, as were likewise several distinct portions of the duodenum and ilium. The surface of the liver spleen and pancreas, more particularly the last, appeared to have suffered in part, and the inflammation which was evident was of a much darker flush than what appeared upon the fauces and œsophagus. The lungs of this dog, throughout the whole of their surface, were occupied with a beautiful vermillion blush, representing highly oxygenated blood, but the surface of the trachea and bronchia, so far as I was capable of determining, exhibited nothing unusual. The head of the first and fourth dog was opened, but the brain did not appear to have suffered either in the one case or the other."

Dr. Currie saw two dissections after hydrophobia. In both there were slight appearances of congestion in the blood-vessels of the œsophagus and on the surface of the stomach, but such only, he thinks, as the convulsive motions might easily explain. We owe to this accomplished observer the important information, that of five cases of the disorder which fell under his cognizance, and which terminated fatally, "*in none was there any increase of animal heat*" (*Med. reports* I. 178). In the dog abovementioned, on the contrary, as also

in

in a cow (of which the saliva appeared to infect by inoculation an animal of a different class) the manner of breathing and the aspect altogether indicated great heat. This must of course be uncertain, as no one touched either animal, but the conjecture was confirmed by the intense inflammation, which was discovered on dissection in both cases.

Mr. R. Smith, surgeon in Bristol, informs me that his father, well remembered as a minute anatomist, examined the body of a female, who died of rabid hydrophobia. The trachea, as is also stated to me by another respectable authority, and the uterus were inflamed. This woman was received into the infirmary Dec. 2, and died Dec. 5th, 1790. We have seen (p. 61) that in the distemper, Dr. Reich, found the uterus inflamed, when the beast was a cow in calf. Of fevers and febrile diseases we know that they commonly cause abortion as also the unseasonable return and excessive flow of the menses. The French dissection (p. 103) shews the uterus inflamed when it was particularly circumstanced at the onset of fever. A late hydrophobic patient to whose case, by Mr. Baynton's permission, I shall presently advert, reported of herself that the catamenia (which occurred during her illness at their regular period) flowed in unusual quantity. Mr. Smith's patient was 48, an age at which it may be

be suspected that the uterus was previously disordered: facts all tending to shew that in these diseases alike, where the nervous system is so violently affected, the seat of inflammation is regulated by local predisposition, and of consequence, that it is incidental. If the stomach is most frequently inflamed, is it not also the organ whose conditions are most variable in the majority among mankind of all ages? next perhaps the brain.

Mr. Norman, surgeon at Bath, has favoured me with the following memorandum of a recent case of hydrophobia; the fact is particularly valuable on account of the short time that elapsed between death and the examination of the body.

"On the 17th January 1807, a healthy boy, 4 years old, was bitten in the right cheek by a strange dog, who exhibited to the persons present at the time no uncommon appearance, and was never heard of after.—There were two wounds in the cheek, which healed in three weeks, and the child remained in perfect health till the 11th of March, when he refused his dinner, complained of pain in the right side of his face, and would not suffer any one to touch it—during the evening he was pressed to take food, but refused, and appeared in great agony when it was offered him.—He passed a night without

without rest, frequently starting up in the bed, crying out in great anguish.—I saw him the morning of the 12th, when he refused to take any thing, and was much alarmed if you offered to touch him—He would not suffer any thing on his head or round his neck—He had a convulsive start very frequently, which was instantly brought on by any one attempting to touch his head or put any thing towards his mouth.—He was perfectly sensible, and answered questions correctly—his eyes and features exhibited a marked watchfulness and anxiety—in the night he talked incoherently to himself, repeatedly saying he could not drink wine, beer, tea, &c. but when any one of them was offered him, he screamed with alarm, and became instantly convulsed—on the following morning he was perfectly sensible, but the convulsions were more frequent and of longer duration. He was highly sensible to impressions, and did what he was desired with great quickness and agitation—when putting on a bed-gown he jumped through it, and his arm being entangled, tore it down apparently to disengage his head. He expressed a desire to wash his hands, but the instant he put them in the water, he cryed out, struck the bason out of the person's hand who held it, and became violently convulsed—soon after he asked for

water

water to drink. He snatched at the cup with eagerness but directly as he put it towards his mouth, threw it away and was extremely agitated—towards evening he was almost constantly convulsed and insensible to every thing that was done to him. The saliva flowed from his mouth in such quantity as to wet the sheets and bed—his strength decreased after each fit, and at half past one A. M. of the 14th, he died, being sixty hours from the time of his first refusing food, during which time he took nothing in his mouth, except a table-spoonful of water with emetic tartar which was forced into it when I first saw him. The doing it threw him into a state of insensibility which lasted for several minutes, but he swallowed the fluid—the cicatrix of the wound did not inflame or the face exhibit any unnatural appearance—I examined the body within twelve hours after death. There was no appearance of inflammation in the fauces, trachea, œsophagus or stomach. There was no morbid appearance in the head or chest."

Such is the diversity of internal changes wrought by this disease. *Whether it affect the sensorial functions*, will, I suppose, hardly be made a question, when it at once reverses the character of the physiognomy: when we recognize alienation of mind under every form of hurried manner, concentration of thought, terrifying dreams,

dreams, waking illusions, delirium of all degrees, short perhaps of violent phrenzy: when the eye at one time cannot bear the light, at another, grows dim or loses its power: when a breath of the softest air is intolerable and the skin shrinks even under the footsteps of a fly; when consciousness of this high susceptibility of suffering keeps the soul incessantly stretched upon the rack of panic apprehension; when the scene, opening with lassitude, restlessness, anxiety, dejection, is closed by tetanic spasms or by convulsions growing by degrees strong enough to toss the patient out of bed: these symptoms all succeeding each other with rapidity as great as in fever.* Let no one suspect

* In facie ipsius, quamvis, valetudine adhuc sana, satis phlegmatica ac stupida, nunc eloquentissimi varii gestus summae desperationis et horroris sese monstrabant—*Dis. cit.* p. 44.

Puer - - - - interno suo statu occupatus videbatur, in illis quoque temporis momentis, in quibus tranquillior erat (ib. 42.) Saepius ambas manus fronti admovebat, ac si lucem ab oculis arcere vellet: muscarum attactum nunc intolerabilem sentiebat, p. 44. subito ex lecto se prorupit, januam vehementer aperuit, subito iterum gradum stitit et, quasi immane quid vidisset, sagitta celerius in lectum iterum se conjecit, - - - faciem linteis tegens, p. 41.—Lindsay was alarmed to a degree of distraction at being left alone. He examined every object with a timid suspicious eye. Upon the least noise of a footstep in the gallery, he begged, in the most piteous accents, to be protected from harm. (*Manchester Memoirs*, iv.)

me of having it in contemplation to persuade him that the two complaints are identical. Neitheir do I wish to run the parallel closer. Certain general differences are obvious enough, of which we shall get at the source when the causes and effects of the various modifications of nervous influence are explored. But in opposition to the doctrine in view, it is sufficient to have shewn that similar symptoms and similar incidental appearances after death give hydrophobia as good a title as fever to be deduced from inflammation of the brain. Should any one be unwilling to give up the notion, there is undoubtedly an alternative. He may constitute an hydrophobic encephalitis and a febrile encephalitis. The one does not, *primâ facie*, exclude the other. But here comes the misfortune. Symptomatology and morbid anatomy, applied just in the same way, will oblige him to make an encephalitis also out of several others among the neuroses. And thus shall he be, by degrees, forced back to the old common-place notion,—which in fact is an avowal of profound ignorance scarcely disguised; namely, that in these disorders the condition of the sensorium differs from its condition in health. Indeed if we consider strictly, I scarce know the disorder, of which we may not say the same. For under

under what disorder, local or general, will the ideas and feelings remain unmodified? What are these but manifestations of the states of the sensorium, which must be different as they are different? "Were our means of observation" says Dr. Clutterbuck, "more accurate and our diligence greater, it is probable that in most, if not in all, fatal terminations of fever (where the patient is cut off by the fever itself, and not by supervening diseases) we should be able to detect some change in the colour, consistence, transparency, or other physical property of the organ (brain), indicating a corresponding change in the action of its vessels." (p. 177.)—A most capacious hypothetical casting net! and thrown abroad with a bold arm! but unluckily, like many others, constructed so as to catch facts not sought for, and to suffer others to escape through its meshes! For what, if any one chose to assume that other disorders would be equally seen to leave behind them changes in the brain, could it be microscopically enough examined? How are we to know whether a given slight change of the brain is the cause of death in fever? By what signs shall we distinguish a fatal termination from fever and from supervening disease? Do we understand vitality well enough to be sure that all disorders do not kill by bringing about a change in the brain: nay even who can prove that the man, who instantly drops

down dead from a cannon-ball passing close beside his stomach, has not his encephalon injured? And can there be any alteration of functions unaccompanied by some alteration of structure? Hitherto we have been obliged to content ourselves with a collective consideration of the grouping, the gradation, and succession of symptoms, together with probabilities derived from dissection, as the provisional substitute for deeper insight into causes. The evidence for the doctrine under examination has advanced us not a step further.

By a lively and ingenious writer, arguing against the essential inflammatory nature of hydrophobia, it is asked: Can any thing that has occurred in dissection "serve to determine whether that inflammation or dryness or whatever else may appear, were originally connected with the hydrophobia; or were only new symptoms generated in the course of the disorder? what, in general, can be more different than the *cause* of the distemper, and *that* of the death, of the patient? And yet are not these two causes frequently confounded together, and mistaken one for the other? Of this let one instance serve instead of a thousand. Stones, passing the ureters, bring on spasmodic strictures.—These, if not relieved in time, bring on an inflammation; this a mortification, and the mortification death. Here, on opening the body, the mortification presents itself and appears to have

have caused the death of the patient, and so it has, though in reality, it was neither the cause, nor any part of the cause of his distemper." (Nugent on Hydrophobia, 1753, p. 54.)*

* The mode, in which this disorder forms, is a question of great interest. Some think that the poison works a slow change in the part, before which it is incapable of being absorbed, so as to affect the constitution. A case is quoted of *double absorption!* the bite immediately festering and an axillary gland swelling on the fifth day, with considerable fever, —but no hydrophobic symptoms occurred till the usual period, after signs of a second absorption—which signs are said to be pains about the wound rising towards the head or body (*Trans. of a Soc.* i. 318—19). The fact seems to me to concur with others in rendering it probable that the lymphatics are *not* the agents in generating hydrophobia. We have here a strong shew of absorption but no disease whatever like hydrophobia in consequence. If the part must be first changed, why go further than such local change, when you have *no* evidence of any second absorption; for pains rising to the body or head are none. Do we not see in tetanus and epilepsy, that a *local* affection without absorption is sufficient to agitate the frame through all its fibres, and occasion death? Researches in the line which Dr. Autenrieth took in his last dissection, promise the most of all to elucidate the disease:—Multiplex experientia, quæ docet hydrophobiæ semper quandam titillationem vel dolorem cicatricis præire, quæ ex vulnere tantúm nec alio modo hydrophobiam oriri probat; et lymphatica vasa vel conglobatas glandulas non ut in alio contagio locali conspicué tumere —casus in quibus 2â, 3â demum die, quin 5tâ post vulnus acceptum amputatio adhuc cum felici successu instituebatur; omnia haec probant, etsi contagio, variolarum ad instar, tempus quoddam necesse sit ad producendam insignem mutationem e vulnere tali venenato, tamen nec vasa sanguifera nec lymphatica, nec cellulosam,

cellulosam, sed sine dubio nervos ipsos viam esse per quam letiferus effectus in universum agat corpus (*Diss. cit.* 21).—The local sensation has strong analogies. Scars, particularly if thick and clumsy, smart or itch upon excitement of the system. —We all know what happens to them in the sea-scurvy. Schirri too became painful and steatoms rapidly enlarge after mental emotion and febrile attacks. The exalted sensibility in hydrophobia would be most felt, I conceive, in a recently wounded place, if but a common wound; how much more if the wound were poisoned and the centre of disease?

It may be added that in hydrophobia, Sallin (*sur la nature et le siege de la rage* 1783) found the ganglions of the cervical nerves inflamed and their coats turgid with blood (dans un etat inflammatoire et d'engorgement sanguin): an observation among the most interesting that have been made and in the most satisfactory manner, coalescing with several facts previously stated.

From what has been said a very important practical conclusion results. *The wounded part ought to be cut out or destroyed at any time after the bite.* The sooner undoubtedly the better. But before the eruption of hydrophobia there will be hope, as well according to Dr. Autenrieth, as according to the idea of double absorption.

In 1794 the physicians of the Manchester lunatic hospital witnessed a decisively marked case of hydrophobia, which arose twelve years after the bite of a dog, pursued for mad. That the disease had no connection with the bite is the opinion of Dr. Bardsley (*Reports* 304); and he is supported by "several eminent practitioners." The idea of danger for life hanging over a person once bitten and not having the part cut out is horrible. But are we to believe just what we wish?—Hydrophobia is so ill understood and the opinion so arbitrary that I can by no means acquiesce in it. The above view of the subject tends to hold my judgment in

suspence

suspense. In the case of Mr. H. Meynell (*Phil. trans. vol,* xci. *not* xcii.) the accident, which palpably affected the median nerve low down, took place in winter 1796. The progress of local disease was evident in 1797-8. In Oct. 1799, and not before, the brain began to suffer—transient insensibility then coming on; and in about eight months afterwards the disorder proved fatal from a seizure, styled apoplexy. The patient, naturally eager, was chilled and apparently a good deal irritated, when his first fit was brought on. The following consideration has still more weight with me than even such an example. Of all those laws of the animal oeconomy, that lie a littte remote from vulgar apprehension, the one most capable of demonstration is this. *Moral and physical agents will suddenly impress upon any part of the system a character which may remain latent for an indefinite term—half a century, for example—but which circumstances shall distinctly call forth*—Of great permanency I have seen proofs enough. Of greater, proofs can be easily found. I may produce them, if necessary, on some future occasion. If this be true of hydrophia, dogs must be laid under repeated quarantines, before there could be a chance of drying up the sources of the poison.

The late case of Brothers in America, (*N. Y. repos.* viii. 15.); the increasing disposition in our medical men to return to the freer use of the lancet, and other considerations will lead to profuse bleeding in hydrophobia. The meagre narrative of the American case precludes a positive decision on its nature. But if I may whisper an opinion, the high fever, "pulse *synocha*," dull headache, watery eyes, necessity for four young men to confine the patient's struggles and other particulars induce me to suppose it an excellent case of *phrenitis* with difficult deglutition, and Thomas Brothers therefore all the better for bleeding like a stuck pig. If he refused any thing *aqueous*, he also required to be drenched with his calomel and jalap. Now adult sufferers under hydrophobia

drophobia do not at first usually require drenching: they readily make attempts to swallow; nor have they furious delirium, as this man had; whereas the phrenitic are frequently thrown into convulsive agitations by the sight of any thing solid or liquid, if they suspect that they are about to be dosed with it. Bleeding has been too frequently and too fully tried in vain, as well by the disciples of Boerhaave as by others, to allow us to hope that it will do much. Most benefit, it is manifest, may be expected, where, by increase of temperature or other signs, early supervening inflammation can be ascertained. In a disease, which has a course equally rapid with malignant fever, it would seem that this practice could hardly be advantageous beyond the first or the second day at farthest. A country girl near Bristol, very lately applied at Mr. Baynton's to be bled on account of headache and general indisposition. Mr. Hill, Mr. Baynton's assistant, judged the operation proper. Before it was over, she expressed, in the strongest terms, her sense of relief and positively refused further assistance. About the fifth day after, she died of hydrophobia, ascertained to have followed the bite of a dog, judged mad, nearly three months preceding. Application for help the second time was only made the day before death, when she refused the offered means. The fact gives some encouragement to early bleeding. Dr. Nugent's case, if one could feel assured that it was a case of rabid hydrophobia, would give more.

There was every reason to think that a brother of the above girl had died a month before of the same disorder from the bite of the same dog. This is an event, which I suspect happens not unfrequently among the poor without being noised abroad.

So far I had written some time since—when just as the sheet is about to be worked off, I find from Mr. King that yesterday (Aug. 26, 1807) two carpenters were bitten by a dog,

which

which the day before bit its master and two other persons, the first symptoms of madness having appeared three days ago—the dog was killed yesterday soon after 5 o'clock A. M. and dissected to-day (the 27th) very early. The salivary glands inflamed to a certain degree—they were intensely so in other instances—external coat of œsophagus and stomach very much; inner coat natural but loaded with a transparent fluid—epiglottis somewhat inflamed—lining of trachea not at all so, but the tube filled with a frothy fluid—lungs a good deal inflamed. But the whole costal pleura and whole diaphragm were the seat of the strongest inflammation. *The animal was in whelp—inflammation in the uterus.* Brain generally inflamed, which Mr. King thinks might have proceeded from the fatal blow.

Compare these appearances with those discovered by Mr. Norman, or with the case briefly stated by Stoll (Rat. Med. iii. 443) of a woman, who had hydrophobia from the bite of a mad dog, and in whose body, most carefully examined (accuratissime lustrato) no deviation from the ordinary structure could be detected.—I feel assured from what I have seen that it would be safely practicable to render animals rabid by inoculation, and then to try if bleeding would remove the disease. The trial ought to be made.

Evidence from the sensorial functions.

A reply to these objections may possibly be fabricated out of some supposition that might be set up respecting the first stage or approach of inflammation. Parts taken in this stage might certainly not exhibit sensible redness any considerable

considerable time after death. But as I am unable to make the reply out satisfactory, I resign the task to abler hands, and proceed very briefly, to consider how far such feelings about the head and such disturbances of the sensorial functions as are usual in idiopathic fever go towards proving the presence of inflammation of the brain or its membranes.

Without rendering the language of pathology still more confused, we cannot employ pain and inflammation as convertible terms.—Gastrodynia and the sensations occurring in torpid states observable in the different neuroses on the one hand, and innumerable dissections on the other, by which unsuspected disorganizations have been brought to light, shew clearly enough that they are reciprocally independent of each other. No one probably thinks otherwise, or if he does, it is impossible to engage with him in medical discussion, till he has translated almost all the facts of medicine into a new language. If there be a distinction to be made, the *typhoid* acute inflammation often partakes with scrophulous and some other chronic inflammations this remarkable character, that *it proceeds without pain or with very little in proportion to the devastations which it occasions.* This Dr. Fothergill notices in a case of *angina maligna* (Essay p. 47.) Dr. Huxham (*fevers* p. 281) and Dr. Johnstone (*Epid. of Kidderminster*)

Kidderminster) confirm the remark. Dr. Smith *observ. p.* 21.) distinguishes putrid from inflammatory sore-throat by absence of pain. Dr. Wall, formerly of Worcester, frequently found the parts greatly disorganized in the putrid sore-throat, while the patient swallowed nearly as well as in perfect health (*tracts* p. 80). When Marteau tells us of the pulsative or throbbing pain in his epidemic, adding other circumstances, particularly his great success from bleeding, I am disposed to think it probable that the fever set out with inflammation in the head. Those who generalize the idea will perhaps observe to me that it is not in pain alone but in a certain combination, that the evidence of their doctrine consists. But this constituent *pain*, like the complex term *inflammation* itself, vanishes on close inspection. Is it not from a few cases where pus was found in the head, that the whole speculation arose? though on a large comparison the process, by which that pus was generated, appears more probably incidental. Is it not the same faulty generalization that gives us the average pain of typhus as identical with the pain of inflammation? Were the other proofs more satisfactory, I should not urge exceptions, remembering how little of sharp pain sometimes attends the severest pneumonia. I have been this year able to trace an epidemic typhus, if epidemic

demic it may be called, of a character somewhat remarkable from Devonshire to Dumfrieshire. It attacked, in many instances, the junior part of opulent families. It frequently did not appear to arise from contagion; often attacking one in a family, and only one or two in a school; the majority of patients being under 25 years of age. The exciting causes, as moderate chagrin, were often such that, in other seasons, you might swear they could produce no such effect, though the peculiarities of the present were utterly unknown. The nature of the disorder could not be mistaken. Of near twenty practitioners, whose opinion I had opportunity to know, not one hesitated upon this point. It did not often spread by contagion even when the most imprudent hazards of cantracting it were run.* Now in this typhus, it was

* Mulier quædam juvenis, menses jam fere iii in utero gerens, ex animi angore in typhum incidit. Aderant rigores subsequente calore, virium prostratio summa, capitis et artuum dolores, lingua fusca. De frigidâ gravidae affundendâ ne cogitavi quidem. Attamen, urgente corporis æstu, tepidâ diligenter fota tantum levaminis sensit, ut intra dies paucos periculi expers esse videretur· Mane diei ix, inopinató pulsus celerior, caput gravius aliaque incommoda, recidivam minitantia. Mihi acrius inquirenti quid tandem esset quod novas turbas moliretur, fassus est maritus se nocte peractâ cum uxore rem habuisse, nihil inde mali passus. Ægra quoque brevi convaluit.—Nemini profectó mortalium auctor sum, ut tale quid auderet ne pœnas Veneri insolitas luat.

was occasionally impossible to detect any pain or heaviness in the head, even where a delirium of two or three days' continuance occurred in its course. This is however unusual. Nothing more properly belongs to fever than painful affection of the head. I only conceive that we have not grounds for ranking this affection, such as it exists, among the signs of inflammation. The proof is incumbent on the assertors. Of the delirium of fever I entertain the same belief with somewhat more confidence. Our physiology is as yet a vast deal too gross to enable us to deduce the changes, upon which delirium depends. That a disturbance in the order and force of ideas must depend upon a disorder in the organs, to which the production and association of ideas belong, is evident enough. But this by no means fixes the species of disorder. Let us take one example. In gastritis there is vomiting (and pain of the stomach). In phrenitis there is delirium (and pain of the head). But is delirium (with pain) any more a *general* proof of inflammation in the head, than vomiting (with pain) is of inflammation in the stomach?

The mode of action, in which delirium consists, lies hid in the unfathomed abyss of the nervous influence. To seek information respecting the nature of fever in that mode of action will be as much lost labour probably as

looking

looking for a mustard seed in the dark.—In its excitation and disappearance it often seems very unlike the process of inflammation. This is clearly exhibited in various examples. A girl, 7—another, 8, eat some of the morellus furiosus,—all the limbs became agitated by weak convulsive movements—the gestures were audacious, the look expressed fury; immoderate sardonic laughter succeeded bitter tears. They stammered out saucy expressions, and tried to bite and tear every thing that fell in their way—the sphincters were relaxed, the inferior extremities palsied;—this state of phrenzy lasted 24 hours—an emetic brought up the morel as fresh as when it was swallowed. Half an hour after the operation they were at play and felt no subsequent inconvenience.

A man, named Le Roux, reduced by an anomalous intermittent, walked in very short shoes from Pacy to Vernon. He had aferwards burning heat in each great toe. This in eight days mounted to his loins and arms, then fixed in the feet, particularly affecting the soles. On being bled and keeping his feet in a fowl, opened alive, for 7 hours, a most violent phrenzy came on. He afterwards fell into stupor with tremors and convulsions; and in his frequent paroxyms of heat in the feet, he committed a thousand extravagancies, as beating first his parents

parents, then himself, crying, swearing, forcing open the door and running through the fields—scratching the soles of his feet or rubbing them hard at the coming on of the heats, calmed the phrenzy (*Alliet ap. Vandermonde*, xiii. 211.)

The following is another example, still more unfavourable to the opinion that delirium is any indication of inflammation in the head. "An apprentice boy, between 13 and 14, on the morning of June 14, 1788, began on a sudden to talk in a very strange and wild way. The parents at first supposed him in jest. As however he not only went on, but grew worse and worse, they tried to stop him first by threats and afterwards by blows. But all was in vain. By noon he was in a compleat phrenzy and I was hastily called. On hearing my name, he rushed out of the hands of those who held him, with an intention to thrust me out at the door with much abusive language. He was soon seized again but would not bear me to be present; he cried, foamed, stamped and tore till I went away. As little could he endure his father in the room. I enquired to no purpose into the cause of this sudden seizure. There was no recollection of his having taken a poisonous herb or any thing suspicious—neither was he supposed to have been bitten by a mad dog or to have met with any particular shock. I therefore provisionally ordered an anodyne

and

and antispasmodic worm medicine, of which, at the instance of his sister, whom alone he could bear, he took several doses.

Upon this the attack appeared almost totally to leave him. Nor was it necessary to confine him in the arm-chair. He looked exhausted and it was therefore proposed to put him to bed. But hardly had he got upon his feet when he began to rave afresh. He was nevertheless forced into bed and more of the medicine administered. He now soon grew composed, spoke rationally and slept perfectly well the whole of the night.

In the morning scarce had he moved from the side of the bed, when it became necessary, on account of the recommencing phrenzy, to put him into it again. I arrived and he was now not violent against me. As the seizure, according to the account, seemed only to come on when he stood up, I asked, whether any thing had happened to his feet. They only knew that the day but one before he had complained of being pinched by tight shoes. Four years ago indeed he had trod a piece of glass into the right foot, but immediately took it out, and had never since complained of that foot. I mentioned it as very possible that some glass might have been left in the foot, and by receiving another position from the pinching of the shoe, it might have irritated a nerve and

produced

produced the seizure. I desired to see the foot: and there actually was, near the ball of the great toe, a small, reddish elevation. The moment I made pressure upon it, the seizure returned with violence, and to appease the phrenzy in some degree I was obliged to retire. Meanwhile I sent for a surgeon and put the patient into the hands of four stout men. An incision being made upon the elevated place, a very trifling portion of glass presented itself and was taken out with a small forceps. Much as the patient had raved during the operation, with equal suddenness did all the symptoms vanish: and he was surprized on being told of all the senseless things he had uttered and begged pardon." (*Dr. Joerdens ap. Hufeland. Journal.* iv. 227.) These facts and the speedy subsidence of symptomatic fever upon the removal of a diseased limb, as also of epilepsy and of irritations under a different form, upon cutting a partially divided nerve compleatly through above the injury, or taking out a little tumour that presses upon a nerve, are to me probable proofs that these symptoms all depend upon some more subtle, sudden and variable movements than are observed in inflammation. I would not say that inflammation may not depend upon a different exertion of the same influence. But certainly in a degree correspondent to the disorder of the sensorial functions,

it does not instantaneously come and go, as I have shewn phrenzy to do. I should, indeed, imagine that this whole cause, so far as depends on evidence from delirium, spasm, convulsions, stupor, and the like, might be dismissed in a single sentence or two. *In the bodies of patients who have suffered under the utmost violence of such symptoms for a long time, no sign of past or present inflammation in the head has on the most careful examination, been detected; they are therefore no indications of inflammation there.* Let me not, however, be misconceived as asserting that lunatics or epileptics never die with the brain inflamed.—The sudden rise of violent symptoms in fever has suggested to some of our observers the term *explosion.* Corresponding terms in other languages have been applied to the same phaenomena. Nervous diseases share, at least in an equal degree, this explosive disposition. And it has led to the use of a peculiar phraseology—from the poetic days, when gods or devils were imagined to take forcible possession of the frame, and to throw it into præternatural agitations, in defiance of its ordinary regulating inmate, the soul, down to our soberer times, in which patient physical investigation has caught sight of a natural power, whose rapid fluctuations and refluctuations, whose oppositions and conjunctions are altogether adequate to the violence and

sudden-

suddenness of the observed effects. The blood-vessels seem evidently sometimes to be seized and hurried along in the first gust of the whirl-wind; sometimes to escape it for a time only; and sometimes altogether. Hence the signs of synchronous or supervening inflammation in different organs in different cases; and the total absence of such signs in some.

I am indebted to Dr. Cox of Fish-ponds near Bristol, for two letters in answer to queries, principally respecting the temperature of the insane, which he has obligingly taken great pains to ascertain. July 1st, 1807, he says: "In unfortunate objects, whose mental indisposition has gradually sunk to a state of idiotism (of whom I have a group), a thermometer of very nice sensibility stood at the point very nearly to which my own heat raised it at the same time. In others in an opposite state, who where gay and animated, and in one, an irritable delicate female, who was never still, talking incessantly and making all kinds of pantomimic gesticulations, I could perceive no difference: but in a few, who were under strong coercion in the horizontal position, with the head much elevated, whose face was red and the vessels turgid, the difference of heat in the upper and lower parts of the body was very obvious, varying 10, 12, and even 15 degrees: and it is a curious fact that the degree of heat about the

head appeared in exact proportion to the very unequal pulsation of the carotid and temporal arteries, compared with that of the radial."—August 10th, this correspondent further tells me: "I have made repeated trials to ascertain if any thing peculiar takes place in the temperature of maniacs, and after very accurate observation, the result is, that the degree of heat is exactly similar to that of subjects in the highest health and sanity, when placed in the same circumstances and situations: in all, the range of the thermometer varies in different parts of the body, but is uniformly the same in others, such as the axilla, under the tongue, &c. In no trial have I noticed any unnatural temperature in melancholics, whose stomachs might be suspected loaded with viscid phlegm, though the bulb of the instrument was applied about the hypochondrium and scrobiculus cordis; and here I would observe that the stomach of maniacs of all descriptions and characters abounds with thick slime and indigested matter, which, very unaccountably, has much to do with the state of the intellect, and has a strange propensity to form afresh; hence the indispensible necessity for evacuating remedies and their frequent repetition in almost every species of mental indisposition, though no other symptom indicate their employment."—Dr. Prost has lately endeavoured to shew from dissection

section and other arguments that the seat of these disorders is abdominal.

Thus from thermometrical observations, made during the height of divers nervous disorders, it appears that the sensorial functions may be variously disturbed, even without increase of the animal heat, much more without compleat inflammation. On the other hand, during the hot stage of idiopathic fever it is remarkable that in parts, free from all suspicion of inflammation, the temperature will rise as high as it does in the very seat of local inflammation itself. Thus Dr. Brandis observes (*Versuch uber d. Lebenskraft* p. 126) that the heat will often be found increased more than 6 degrees beyond the natural in parts where there is pain and swelling with increased warmth. Mr. Hunter (*on inflammation p.* 294) found on repeated trials that the temperature of a part of the human subject, excited by an extraneous body thrust into a wound, rose only about six degrees and three-quarters. In animals the heat increased little or none. A heat of 6 or 7 degrees above the natural standard is common in idiopathic fever, when the parts, to which the thermometer is applied, are affected merely by the general disease without any tendency to inflammation.

Changes

Changes in the state of intellect.

The return of recollection for a short space—the breaking out of the perfect mind in the intervals of delirium, like that of the full sun amid a succession of thunder-storms, is a striking appearance in fever. If we take the attendant circumstances into consideration, it will not perhaps appear very favourable to the idea of inflammation in the brain. The argument is not offered as demonstrative. For it is often only by discovering what a process is, that you can incontrovertibly shew what it is not. But when any other organ runs through acute inflammation to death, it does not recover its functions by starts as is sometimes the case with the brain at the extremity of fever. Its modes of feeling vary; and so in proportion does the state of every sympathizing organ; and that of the brain among the rest. We have no instances where an inflamed stomach or intestine resume their digestive powers and peristaltic motion just before they sphacelate, as the brain here reproduces and connects ideas in just force and order. My reader will not confound the case of a different diseased organ (where the insensibility from supervening mortification gives the brain a short relief from its sympathetic

sympathetic suffering during the pain of inflammation) with the case of original encephalitis, terminating in death.

That he may the better decide on the present question and observe hereafter with more intelligence the fluctuations of sensorial power, I shall lay before him one or two facts. Dr. Brandis in the work before quoted (p. 158) relates that a friend of his lay ill of a lingering nervous fever. Insensibility as usual succeeded to a painful and irritated state of the nervous system. "I saw the patient about the 12th day. Me, heretofore his most confidential friend, he received without the smallest sign of joy or of sorrow, though he addressed me by my name. In the same manner, though a tender husband and father, he beheld his wife and children without the least token of affection: he desired nothing and eschewed nothing. He soon came not to know the names of those about him; and by the end of the third week lay in a continued fever, senseless, with the nervous system almost dead, muttering constantly to himself without the least reference to surrounding objects, the pupils of his eyes much enlarged, as if the light did not at all affect them; pulse exceedingly quick and small.—At the end of the third week, in the night, the disorder suddenly assumed another form. After a short apparent slumber, the

the patient awoke and spoke in his usual manner, a thing he had been several days unable to do, and with the feelings of the friend and husband exalted. He conversed with great good sense for above an hour with his wife about her future domestic arrangements for he looked forward without fear to his death as a certainty. To me he recommended his children with the customary reliance upon our friendship, and he had a long and lively conference with a clergyman. During this whole time his pulse and respiration were nearly natural. This unusual vivacity having lasted about three hours, he seemed to fall asleep again composedly. But the scene soon ended frightfully. Terrible convulsions, especially of the muscles of the face, came on. All sense seemed vanished and the worthy man departed, after this agony had continued for two days. I had neither firmness nor opportunity to open the body. But from what I have seen after this sort of fever in other subjects, I should not suppose that any mechanical cause whatever could excite this remarkable fluctuation in the exertions of the vital power in the different systems of the organization."

Here, had the lucid interval immediately succeeded the appearance of the friend, it might be said that the impression proved too strong a stimulant for the mental organs, calling forth

action

action at a fatal expence of power. Nor would it have been for me, who so often see different mental impressions exert all the force of drugs, and believe the fact of particular importance in the treatment of fever, to object to the explanation. That some sensation or medicine may not have operated in this way I can by no means affirm, for on such a subject who will venture to be positive?—It might likewise be conceived that part of the brain might recover for a short period from its inflammatory state. In truth, in bad cases of ophthalmia, who has not seen parts of the conjunctiva recover their natural hue, while the rest retained the suffusion, which had been general; and the recovered parts speedily inflame again and so on through many variations? And we have full evidence that different parts of the brain may be at the same moment in opposite states during one indisposition.

As dissection would have manifestly brought some aid to our judgment here, I feel satisfaction in being able, in some measure, to supply the omission. This I can most briefly accomplish by quoting part of Dr. Reil's account of the lucid interval of Dr. Goldhagen, the examination of whose body I have given above (p. 65). "In the night of Jan. 5th, the first exacerbation came on before midnight with a sleepiness, out of which he could be easily roused, and indeed awakened

awakened of himself, asking for something to drink. During the second exacerbation after midnight, he was more lethargic, and if roused with some difficulty, fell asleep again with variety of delirious fancies. Towards morning he was much occupied about a patient, whom he had to treat with in his own house, for which he desired my aid. At an early hour, he fell asleep while the blisters were dressed. When the remission began, he slept and rambled by turns. Several persons of his family with myself were sitting round his bed, when his only child, of whom he was particularly fond, came in to enquire how he found himself. "Why," said he, "my dear G. I am not what can be "called well, but I hope to be so soon, as I get "better from hour to hour." To see the great physician totally misapprehend his own danger, together with the idea of the speedy separation of an affectionate father from his favourite child, so much overpowered the bye-standers that they burst into tears, one after another leaving the bedside. This scene so strongly impressed the patient that he instantly recollected himself and became perfectly conscious of his situation. He immediately called me back and said, "My friend, you, I see, with my other medical attendants conceal from me my real situation,—I am labouring under an extremely dangerous nervous fever. The contrast

trast between the grief expressed in your countenances, and the hopes I uttered of a speedy amendment, roused me to a consideration of my state and brought me out of my confusion to perfect clearness." - - - - - He called for a book which he supposed contained a prescription applicable to his case; had various papers and letters laid upon his bed which he arranged; charged those about him with different commissions and conversed separately with each member of his family. Of his approaching dissolution he spoke with perfect composure. To one of his pupils, who lamented his illness, he replied, " Better die of a nervous fever than of consumption. I do not fear death, being persuaded of the eternal duration of every power in nature."—From this time forward there was little interval from torpor and delirium; and though Dr. Reil (p. 46) remarks that next day, there came on a dimness of the eyes with a red suffusion of the adnata and turgescence of its vessels, which increased after every exacerbation, we have seen how free the head proved from all traces of inflammation.

Fever-patients can often be roused out of their delirium for a time sufficient to give rational answers. If the brain had been acutely inflamed for a number of days, as it must have been in cases like those of Dr. Chardel, (p. 98) such momentary resuscitation of intellect could scarcely

scarcely take place. Nor is it likely that in so many cases unequivocal signs of inflammation would be absent. These phænomena therefore would seem to depend on processes more subtle and mutable, in which melastasis can take place as suddenly as the electric influence shifts on the juxtaposition and separation of negative and positive bodies.*

Hydrocephalus

* All this seems agreeable to Dr. Clutterbuck himself at times. P. 174 he says " the essential part of this, as of most other primary diseases, consists, not in the altered structure of parts, but in perverted actions—change of structure is a remote effect, a consequence merely of the morbid action. Hence if the disease prove fatal before such alteration of structure is induced (which may well be supposed to happen with respect to an organ, upon the state of which all the functions of the system more or less immediately depend) few or no traces of the disease can be expected to be seen after death." On meeting with passages like this the reflecting reader might believe that he had misapprehended his author, were there not so much about downright inflammation in the rest of the work, and were the doctrine not evidently suggested by those very rare cases, in which ravages from inflammation have actually been found in the head. The *essay* on *human understanding*, according to Mr. Tooke, is simply an essay on words. *The inquiry on fever* may turn out an attempt towards defining the single word *inflammation* and labour perchance not ill bestowed either.

The opinion of the respectable Dr. Whytt on brain-fever and its distinguishing symptoms, forms a curious contrast with the opinion under discussion. " In fevers where the substance of the brain is affected, and not its membranes, I have never

Hydrocephalus internus.

To identify hydrocephalus internus also with fever was the necessary result of the preceding doctrine. Dr. Whytt had long since remarked (l. c. p. 728) that the reason why this disorder should have been totally unknown to the ancients and so little attended to by most of the moderns may be, " that those patients who were carried off by it have been generally supposed to die of a fever ending in a coma, and in such cases, the head is seldom opened."—In the series of writers from Dr. Macbride downwards, common candour obliges me to state that a *febris hydrocephalica*, often without effusion, is mentioned in such a manner as to give strong countenance to the opinion of identity.† I have myself been called in, where hydrocephalus

never found any sensible benefit from blisters: and I always suspect the brain itself affected when a fever and delirium come on *without any preceding headache or redness in the tunica albuginea of the eyes*" (*Works* p. 722).—Dr. Harles, in a late work has referred fever to electricity, but without going further than the general probability.

† Huc pertinet ille infantum dirissimus morbus - - - *febris hydrocephalica* e scrofulosâ cachexiâ orta—ita a me appellata propterea quod saepius serum vel lympha ultimo in stadio extra vasa in ventriculis cerebri vel in plexu choroideo reperitur. Sed et absente illâ aquosâ accumulatione, ita morbum vocare non

phalus had been fatally mistaken, as dissection proved, for typhus; and the means neglected, which prove certainly successful in early hydrocephalus internus. To me, however, the general course of the two disorders in subjects of the same tender age has appeared distinguishable, chiefly by attending to the affection of the head. I lately saw a child, six years old, whose complaint was previously announced to me as typhus by two practitioners. Soon after he began to droop; he had received a violent contusion at the root of the nose. This particular led me to conjecture at the moment that it would turn out hydrocephalus. However nothing in the pulsation of the arteries about the head or in the character of the pain confirmed the surmise; and wetting the body, when heated, with cold water, gave an immediate favourable turn to the complaint, which could not have taken place without stronger measures, I apprehend, if at all, on the 6th or 7th day of hydrocephalus. Dr. Hopfengaertner, an experienced, acute, and not generally fanciful author, attempts on the faith of observation and dissection, to distinguish between inflammation of the pia mater and dropsy of the ventricles (ueb. d. *Gehirnwassersucht,*

non dubitavi hanc ob causam, quod cerebrum semper ita se habet, uti reperitur in hydrocephalo chronico—mollioris nempe texturæ et decoloris substantiæ. (*Braune Topog. med. Lipsiæ,* 1798, p. 26).

wassersucht, 1802, *p.* ix.) He says, he saw the latter mistaken for a disguised intermittent and the bark given in vain. I have seen something similar; and Dr. Wichmann, in his admired *ideas on diagnosis* contrasts the malignant intermittent (in near 100 cases of which Dr. Cleghorn, *Dis. of Minorca* p. 180, found great disorganization in the abdomen but no accumulation of liquid in the ventricles of the brain, no inflammation there) with hydrocephalus internus.

Till we acquire some kind of scale for measuring both susceptibility and symptoms, it will be impossible to establish the distinctions, necessary to prove the negative against certain hypotheses. I do not myself pretend to know how to draw lines, which shall mark an absolute separation between inflammation of the intestinal canal and fever (typhus), yet is it not clear that intestinal inflammation sometimes comes on after typhus has continued a number of days, and that enteritis, on the other hand, will continue for days without becoming typhoid in the sense of Dr. Ploucquet? These then must be regarded as originally different diseases, though continually approximating and becoming identical perhaps towards their close—certainly undistinguishable on dissection, by any criterion yet proposed. Thus, I lately heard an excellent anatomist observe that he had been opening a body and found reason to

suppose

suppose the fatal disorder enteritis, though he knew it had been treated, even by cold affusion, as typhus. Yet it might very justly have been considered as typhus for any thing which the scalpel could distinguish. Much more undistinguishable will be many cases, where a primary affection of the brain, terminating in effusion into the ventricles, gives rise to fever, and where fever having existed first, the disposition to effusion follows. All analogy however is in favour of the existence of such distinction. I have pretty directly proved that it takes place with regard to other modifications of inflammation in the brain: and in numerous instances, effusion comes on at the close of disorders, widely different during their early periods. I am in possession of observations, which prove with all the distinctness attainable in regard to any internal process, that effusion into the lateral ventricles, to the amount of five ounces at least, will supervene within a few hours, after an acute disease of the head, having the symptoms of hydrocephalus, has subsisted for several days.—In cases denominated hydrocephalus internus, but without effusion, dilatation of vessels or other marks of inflammation, may one not suspect that sufficient attention has not been paid to the distinction of symptoms? (Are all the symptoms, as depending on the subtle

influence

influence, precisely alike, whether dilatation of vessels arise or not?) Or why should I be deprived, in my hour of distress for facts, of the privilege of appealing, like those whom I oppose, to the discoveries which the future has in reserve for me?—At present, I most sensibly feel that no conclusive—no silencing reasons against (or for) the hypothesis can be drawn from the contemplation of hydrocephalus. All the facts I could give or collect would serve for nothing better than an ill-compacted piece of argumentative mosaic work. At all stages of this disease in its acute state, I think it certain from observation, that bleeding ought to be practised even to the very last. Bleeding from about the head not only removes the complaint in its early stage, but sometimes will save the patient, after general convulsions have come on. And where it is too late to produce this happy effect, it at least prevents the horrors of the closing spectacle and most probably lessens suffering. For it is not by any means the pressure of effused liquid but that of distended vessels, that occasions the convulsions and spasmodic symptoms of the last stage, as numerous observations and not a few dissections have convinced me. But these I may state hereafter. The same treatment, if one may believe almost universal testimony, would not answer in typhus. But

the consideration of degrees of disease would be very justly brought in here by the advocates for the similarity of diseased action in the two complaints. Nor can the consideration of graduated effect be overlooked in any of the processes of nature.

With regard to practice, however, degree is kind. A difference in degree of force in an exciting cause, or in the susceptibility of the recipient, will call for a difference of kind in the healing process.

Fluctuations of opinions and practice in fever.

Supervening diseases, we see, are held up as the sevenfold shield by which the doctrine is to be defended againt all anatomical objections. If they be sufficient for its defence, it is important to have shewn that fever is as dangerous from the disposition which it gives to these disorders as from its attack on the brain, nay perhaps exceptions are more numerous than examples in favour of the rule. Whatever opinion be adopted, too much can hardly be done to recal attention, so long led astray by the fallacious efforts of ingenuity, to that accumulation of evidence which the senses have afforded of the frequency of these supervening diseases. The

The inhabitants in general of our European countries (for the orientals are more modest) easily persuade themselves that their own physicians are the best existing. Nay, I have heard the people belonging to a small town and petty sect lament the lot of the rest of mankind, because they could not be attended by the apothecary of their borough or their meeting. Without narrowness, one may assert that no country, that alone which produced the incomparable Hippocrates excepted, can boast a name in medicine equal to Harvey, Sydenham, Hunter, or Jenner, though Bichat seems to have been prevented only by the shortness of his life from attaining equal pre-eminence. We are justified by more than Swift's rule for estimating excellence in believing that our own medical chiefs—our *principes medicinae*—are the universal chiefs of medicine. For no other nation ventures to rank their own higher; and by every neutral ours are preferred. But since Sydenham emancipated the sufferers under fever from heat and alexipharmics, no mind of the highest order has been intently fixed upon this class of diseases. Pringle, Huxham, Cleghorn, Clark and Fordyce, who have done so much and left so much to do on this subject, have been at least equalled by Werlhoff, Torti, De Haen, Stoll, Sarcone, Cera, Passolongo, Marteau, Rush. For the useful labourers in medicine—men of

patient fidelity in observing, ready in imitating, and dexterous in modifying the analogies and methods of their masters,—have been scattered with a pretty equal hand over the scientific portion of the globe. Among *professors of the practice of medicine,* who are generally the most wholesale dealers in speculation, and with whom the subject of fever must occupy so vast a space, every equitable man may be well content, if those, who have become most renowned in our schools, shall be allowed by any but their own disciples to vie in learning, comprehension, and originality with the masters of the Dutch, French, or German shools.

From the accounts of epidemic fevers of the last century, observers on the continent appear to have practised dissections more constantly. Indeed we have Dr. Clutterbuck's authority for doubting whether half a dozen fever-patients have been opened in all London, for examination into the effects of the disorder, in the course of half a dozen years (p.). Whatever may have been the motives by which free bloodletting was introduced; it was strongly confirmed to foreign practitioners by ocular proof of attendant inflammation and of the consequences of inflammation. I could fill pages with extracts, from which the lancet would appear to have been used several times a day, a dozen times perhaps or more in all, and to the tenth

tenth day or later still. More cautious physicians, who are perpetually exclaiming against the abuse of this instrument by inferior practitioners, frequently recommend it three or four times themselves; and but a small proportion give warning against the practice, except in rarer cases.

In our own country, observation was more confined to external appearances; and these scarcely ever afford so strong a temptation to blood-letting; and they often prohibit it from the first. Our standard writers held out the terrors of putridity. The tract of Dr. Forthergill on the putrid sore throat had a vast influence in determining the public mind in favour of the stimulating treatment; and the doctors of the Scotch school, whether professsors or private teachers, whether friendly or hostile to one another, whether they founded spasm upon debility, or freed their doctrine from spasm as a vile encumbrance, co-operated most strenuously in compleating the work, which had so far been prepared for their hands. Putting *debility* in the place of putrescence, they rendered it almost the universal watchword of medicine, and annihilated for a time great part of the benefits of experience.

In this progress how wonderfully did we pride ourselves! How did these discoveries sooth our national jealousy with the idea of

of superiority over France in the widest department—in the whole—of medical practice. It is, I am afraid, too true that we had a right to reproach our rivals with their indiscrimate profusion of blood, but not quite so certain that our confidence in an opposite process was well founded. If we can yet rely upon what large and miserable experience seems to have evinced, we might venture to conjecture that a person ill of fever was fortunate or otherwise, according to the variety and stage of his complaint, as he fell into French or British hands. If early, if in a hot season or climate, if affected by strong inflammation, French practice was calculated to save, and British to destroy. But the Frenchman forgot that neither fever nor inflammation continues—qualis ab incepto processerit—to be what it is at first, and by mechanically going on, he lost his advantage of setting out right. Nevertheless, in fevers that really put the healing art to the test—in comparison with which much of the fever we see at home is but trifling indisposition—an idea grew very current that the French were more successful. And if the opinion that at present most obtains be right, Deveze, a cautious follower of the medical fashion of his country, had the honour of being first to tame the monster of the Delaware—of pointing out

to

to our times the method of treating the yellow fever the least imperfect of all hitherto pursued.

It was narrowness of information, or neglect of past observers, whose authority never ought to be deemed inferior to that of present speculatists, that heightened the terrible calamities, produced by this disease. In referring to testimonies expressly in point, and delivered in our own as well as other languages, one is astonished that the mere acident of Dr. Franklin having in his possession a medical manuscript, and putting it into the hands of a leading practioner at Philadelphia should have been among the earliest means of staying the great pestilence of the present age. If European experience was unsatisfactory, there might have been easily found precedents for the treatment of the worst fevers of America on the plan most generally adopted after various trials, carried on at a dreadful cost of lives. Such a precedent is to be found in a book so little rare as the *Antient Physician's Legacy*. Dover, the author, was buccaneer and physician, and he seems to have practiced both professions pretty much in the same spirit. His simple narrative is as follows:

The plague, he says, begins as all other fevers do, with intermissions of heat and cold; the symptoms are higher that in any other fever; intense thirst, violent vomiting, pains in the head, back, joints, and all over the muscles; a total failure and prostration of all strength and ability. The

The appearances, which come on in a few hours, are what we call *Petechiæ*, or black spots, with a buboe or inflammatory swelling in the groin, or some other of the emunctories.

This disease is very soon at a crisis, in three or four days at farthest, but generally sooner.

When I took by storm the two cities of Guaiquil, under the Line, in the South Seas, it happened, that not long before, the plague had raged amonst them. For our better security, therefore, and keeping our people together, we lay in their churches, and likewise brought thither the plunder of the cities: We were very much annoyed with the smell of dead bodies. These bodies could hardly be said to be buried: for the Spaniards abroad use no coffins, but throw several dead bodies one upon another, with only a draw-board over them; so that it is no wonder we received the infection.

In a very few days after we got on board, one of the surgeons came to me, to acquaint me, that several of my men were taken after a violent manner, with that languor of spirits, that they were not able to move. I immediately went among them, and, to my great surprise, soon discerned what was the matter. In less than forty-eight hours we had in our several ships, one hundred and eighty men in this miserable condition.

I ordered the surgeons to bleed them in both arms, and to go round to them all, with command to leave them bleeding till all were blooded, and then come and tie them up in their turns. Thus they lay bleeding, and fainting so long, that I could not conceive they could lose less than an hundred ounces each man.

If we had lost so great a number of our people, the poor remains must infallibly have perished. We had on board oil and spirit of vitriol sufficient, which I caused to be mixed with water to the acidity of a lemon, and made them drink very freely of it; so that notwithstanding we had one hundred and

eighty

eighty odd down in this most fatal distemper, yet we lost no more than seven or eight; and even these owed their deaths to the strong liquors which their mess-mates procured for them.

They had all spots, which in the great plague they call tokens; few or none of the Spaniards escaped death that had them; but my people had them, and buboes too.

Now if we had had recourse to Alexipharmicks, such as Venice treacle, diascordium; mithridate, and such-like good-for-nothing compositions, or the most celebrated Gascoin's powder, or Bezoar, I make no question at all, considering the heat of the climate, but we had lost every man.

If this simple narrative, in spite of its somewhat ludicrous air, carry not its own evidence, the following passage from Dr. Rush (*med. inquiries* iv. p. 36) may teach the student issuing out of the lecture-room, that he ought not to reject it as out of nature, on the strength of what he may have heard there.

"In the bilious yellow fever of 1797 I cured many by a single bleeding. A few required the loss of upwards of 100 ounces of blood to cure them. The persons from whom that large quantity of blood was taken were Messieurs Andrew Brown, Horace Hall, George Cummins, J. Ramsay, and George Eyre.—The following physicians drew the quantities of blood, annexed to their respective names from the following persons:

Dr. Dewes	drew ounces	176 from Dr. Physick
Dr. Griffiths		110 from Mr. S. Thompson
Dr. Stewart		106 from Mrs. M'Phail
Dr. Cooper		150 from David Evans
Dr. Gillespie		103 from himself."

Accounts

Accounts from the continent of Europe will perhaps not be so well received as from the northern part of the continent of America, partly because we speak in a different tongue, but chiefly because our imaginations are respectively occupied by a different set of professional phantoms. In realities, we shall be found, taken in the mass and one thing set against another, much more nearly on a level than people on this side of the water, who have not looked closely into particulars, will easily believe. But, in all faculties, the hearts of men attract and repel each other chiefly in virtue of ideas purely imaginative, as if the vacuity of these required to be filled up by a common effort of feeling.—Nevertheless I shall risk another example in corroboration of Dover from a French observer. For in our own temperate climate extreme cases will occur, even in civil practice among opulent families, at least sporadically, and who but must tremble for the patient, when false or imperfect instruction has kept extreme means of cure out of the contemplation of his physician? In medicine, general rules are dreadfully apt to murder their exceptions; the general rules long current among us for the treatment of fever as apt as any other.

Dr. Audouin de Chainebrun has left us the account of a phrenitic fever, prevalent in spring and summer at Beaumont sur Oise and 29 other villages,

villages, about the middle of last century. This practitioner was deputed by the government to take measures for alleviating the calamity. He appeals by name to another physician, to two surgeons, and various other persons as witnesses of the facts. He also names several of the sick. —The attack was furious—a convulsive rigor, violent enough to shake the bed, was succeeded by a transport of delirium so strong, as to require several persons to hold the patient. The fatal termination was speedy; sometimes (as we have seen in the late epidemic at Geneva) it took place within a very few hours. A daughter of M. Bignon, the mayor of Beaumont, 21, sanguine, strong, was bled 21 times; almost always to syncope. "The symptoms were not calmed and dissipated till after the last bleeding; scarce any fever on the 22nd day after seizure." A strong lad, 20, within five days bled 13 times to syncope—was able to go out on the 12th day.—M. Petaut, 30, of a bilious sanguine temperament, had been bound down on account of his fury. He was, he said, "*burning in hell!*" His cries could be heard 100 paces from his apartment. After being bled eight times, he was regarded as past hope. It was now, says the author, that "the bishop of Beauvais and "Dr. Boyer desired me to visit him. I bled "him twice in both feet at the same time with- "out diminishing his frenzy. This led me to "bleed

" bleed him a 3rd time in the same way, all in " less than two hours. His symptoms abated " and he was untied. He was bled four times " more—15 times in all."—" A stout artisan " had a paroxysm so furious as to require seve- " ral people to hold him—his countenance was " inflamed; the eyes starting out of the head— " the neck and the hands swelled under the " eye of the spectator. He was bled thrice in " an hour and a half—the last time in both feet " at once, the blood rushing out with impetuo- " sity. This scarcely repressed his violence. " The bleeding was repeated four times more " within 24 hours from his first attack; the ope- " ration was repeated three times within six days, " when he was out of danger." If the mention of syncope do not give a sufficiently precise idea of the bleedings here mentioned, it may be observed that in one instance 2lb. is stated as the quantity drawn. The reader may suspect this Dr. Audouin of being, in common with his countrymen, an indiscriminate shedder of blood. He however gives an account of other epidemic fevers, in which he found from one to four bleedings sufficient.

Such statements, together with the reports of the ablest among the observers of the yellow fever, extort a fearful assent to the doctrine of Sydenham and Rush, that the " half-way prac- " tice of moderate bleeding has kept up the

" mortality

" mortality of pestilential fevers in all ages and " in all countries—that it is much better not " to bleed at all than to draw blood dispor- " tioned in quantity to the violence of the fever " —that bleeding must not be discontinued as " long as the symptoms, which first denoted its " necessity continue, as in inflammation of the " bowels no one leaves off purging medicines till " they have operated."—It is almost impossible that you should contemplate such positions, delivered as they are in still stronger terms (*Rush* iv. 335), without trembling for your discrimination; lest you should employ the measure recommended where it is unsuitable, or omit it where it is required.

It has been supposed that in consequence of some unknown revolution in the human system, the genius of epidemic fevers has of late years become inflammatory again in place of nervous or putrid. But an unbroken series of observations, if the nature of the thing do not speak plainly enough, proves that these disorders, however they may differ, like all other epidemics, in frequency at different periods, preserve one uniform character, or, if they vary, do not fluctuate in the supposed manner. And if we were destitute of positive testimony, it would be more simple to suppose that medical and civil history present only the same phænomenon: the idea attached to reigning diseases

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and to sovereigns depending, the one upon the prejudices of physicians, the other upon those of historians.—In fact fever will *naturally* always end more putrid, as it has begun more inflammatory, and frequently will be more nervous at the same time.

Our milder variety of fever—typhus mitior—is scarcely ever dangerous but from mischievous interference.—Only keep the sick cool and they will recover. But a deep feeling of the difficulties, still surrounding the treatment of the more malignant forms, tempts me to hazard a few remarks on a difference of opinion, amounting, as nearly as possible, to a controversy between the two most celebrated writers on fever of our time and country.—I have not forgotten that, according to Mr. Hume, on the storm of Jerusalem the first crusaders pursued the Saracens with great slaughter till they approached the holy sepulchre, at sight of which they immediately dropped their arms and burst into tears;—that Voltaire wholly questions the sudden tenderness of the captors;—and that Mr. Gibbon, having to choose between the opinions of his illustrious predecessors, will not believe that those who slaughtered and those who wept were the same individuals; though the mutability of feeling in children and barbarians, vouches for the fidelity of the first narrative. The ill success

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of so acute an umpire as Mr. Gibbon, together with the difficulty of the subject would dissuade me from an attempt to arbitrate between two persons, so much my superiors, if I did not hope that the renewal of the question might at least forward its solution: for I do not flatter myself with the most distant hope of solving it wholly. Dr. Jackson, who from his experience in so many climates may be styled the Ulysses of medicine, had pursued in certain varieties of fever, and those the most malignant of all, that practice of profuse bloodletting, by which Galen extorted from the astonished spectators, the gratifying exclamation εσφαξας, ανθρωπε, τον πυρετον. *Oh man, thou hast cut the throat of the fever!*— and which, *seasonably employed*, has been attended with the same instantaneous success in the hands of the ablest physicians of every age. In an instance which he particularizes (*Med. department of the army*, p. 145), by at once drawing 56 ounces of blood, he relieved the patient, as he himself expressed it, "*from chains and horrors;*" so that by the addition of a blister and emetic tartar with opium, the danger, observed also by another physician, was past in four hours. He had sometimes used bloodletting, as a preliminary to warm and cold bathing. Of the "very important differences between Dr. Jackson and himself,"

Dr.

Dr. Currie speaks in a tone as nearly approaching to censure as the unaffected benevolence of his nature would allow. He is not "surprized at the imperfect success of the cold affusion in the hands of Dr. Jackson," (II. 197) who requires a high state of excitement or of sensibility on the surface in its application.—For inferiority of success, if the fact were allowed, the far greater virulence of disease in the patients which the army physician has to treat whether at home or abroad, will I think, go no inconsiderable way towards accounting. But Dr. Jackson (p. 130—133) makes an attempt, by no means unsuccessful, to shew that the mortality in his hands was actually less than of the same military hospitals under other treatment and less than in London; less even than in the workhouse at Liverpool, as reported in Dr. Currie's own first publication.—And in extensive malignant epidemics, bloodletting under a proper application seems to have been just as successful as cold affusion in the most favourable examples: a fact which shews the relative excellence of both methods.

Dr. Jackson observes (l. c. 240) "that where there are marks of bloated stagnation and inability—torpor, sluggish, languid and oppressed circulation, countenance dull, difficulty in expanding the chest, bleeding will restore the susceptibility of impression," the doctrine

The doctrine seems not only intelligible but salutary. For in the varieties of common fever of this country these affections exist not unfrequently in a degree, and are removed by free bleeding about the head and cold applications to it.—Afterwards spring water may be more generally applied with advantage;--whether by spunging, as was much practiced a considerable time before Dr. Currie gave precision and authority to the method of Dr. Wright, or by affusion. Likewise when the pulses are "hard, quick, irritated, labouring to overcome a resistance; respiration hurried, breath hot; head-ache rending, with great heat of the forehead," bleeding succeeds according to numerous and good authorities. In the one case, sensibility appears beneficially increased and in the other diminished. For it can by no means be maintained as a general proposition that loss of blood increases sensibility. One often sees indeed—as in delicate women who sustain profuse hæmorrhage in child-bed—such exaltation of this faculty, that scarce can the patient drop asleep without awaking flurried or with startings of the limbs like those excited by electric shocks. But in a variety of inflammatory and nervous diseases, local or general bleeding reduces sensibility to its natural standard, unless we are unaccountably using the same sounds in a different sense. As in in-

flammation, so in fever, I apprehend that bleeding is often useful by lowering the power of sensation.—I shall add this apparent parodox, that it will be often useful in the same patient at the same time by raising and depressing the sensibility of different organs, nay even of different parts of the same organ. I lately, with Dr. Stock of Bristol, attended a gentleman who slowly sunk under lethargy or chronic apoplexy, his functions of all kinds declining without pain or struggle. Only in the beginning of his general torpor, the eye had an excessive sensibility to light; which was permanently removed by leeches. Such phaenomena had been familiar to me. The late Mrs. Clayfield, when affected by hemiplegia, was observed by myself and another physician to have the knee of the palsied side raised in bed. When moderate pressure was made upon it, she discovered much pain. The circumstance exciting notice, I ventured at the moment to say, that on examination there would be found something like cords on the stretch, under the knee; believing that some of the muscles were spasmodically contracted, while the rest suffered from paralytic resolution.—And so the fact proved. In a gentleman, who had loss of feeling and motion in one lower extremity, by pricking the limb from the great trochanter downwards I found on the top of the

the foot an island of skin, having at least common sensibility.—I mentioned the observation to Mr. Davy at the time; but am not sure whether he verified it.—The twitching of particular fibres in a muscle is a similar affection. In fever I imagine that these extremes familiarly co-exist in the sensitive and moving systems; that some mode of bleeding will occasionally remove both; and hence serve as an useful preliminary to the cold application.—The reader, who thinks it worth his while to refer, will easily discover how far these ideas agree with those of Dr. Currie and Dr. Jackson respectively.

Above every indication in clearness and in importance, we may reckon bleeding under violent organic inflammation, which perhaps occurs more uniformly, more early and violently, as the fever is more rapid, excepting perhaps in almost sudden (apoplectic) deaths from the common exciting cause. Here too, if it do not supersede the affusion, it becomes necessary by way of preparation. In apoplexy itself it may sometimes deserve to be considered whether a practice in this order would not be serviceable.—Dr. Currie indeed (1. 297, 1805) observes "that the application of cold under any form, where fever is combined with local inflammation, is a subject of much difficulty:" and he suggests with some diffidence a mode different from cold

affusion Yet in various passages, he presses with earnestness the cold affusion in the fever of America and the West-Indies. This, in my view, is rather inconsistent. For he is quite aware of the probable need of the application of continued cold.

I have compared all the facts which I have been able to procure from British and foreign (European as well as American) sources. Dr. Currie himself waves the description of our common fever, because it had been already exactly given. There is no reason to suppose that fever of a nature, generally more dangerous, has been delineated with less accuracy. It would take a greater number of pages than I shall venture to add to the present tract to discuss particulars; and we have not a sufficiency of observations, made according to Dr. Currie's mind, to decide the question. But after weighing the conjoined testimony of description, dissection, and experience, so far as the latter goes, I shall be most agreeably surprised: if the *affusion of cold water, such as it is taught by Dr. Wright and his able commentator, shall ever establish itself as the common remedy for that fever, which has lately ravaged America and the warmer regions of Europe.* It may do very early and in the slighter cases. In some of those fevers of our own climate, which put the healing art to the test, it will scarcely be effectual,

tual, unless perhaps employed before any one can pretend certainly to say what the case is. Now a bad case on its approach may be regarded as equivalent to a slighter fever fully formed. In the *medical reports* themselves, one infrequent variety is pointed out as an exception to the cold affusion.—A young gentleman (whom Dr. Currie would have lamented from his long intimacy with members of his family), at a time and in a condition of life, in which typhus is commonly least dangerous, died last spring, though his method was employed under the direction of two very able physicians. Among persons, ill of typhus, whose cases have been stated to me, or whom I have seen during the present year, he was the only one, who perished (as I suspect from organic disease) and the only one so treated. For in the rest, local inflammation, diarrhœa, suppression of bile, pregnancy, or the late period of the complaint, excluded this capital remedy. He appears to have received the complaint by contagion. Dr. Clutterbuck states from his own observations in 1803, that pulmonic and rheumatic inflammation had been so frequently excited by the cold affusion in the Glasgow infirmary as to bring the remedy into some degree of disrepute; though the situation of the patient was never rendered materially worse by this accession of disease. Dr. Jos. Frank, who conversed much

with

with Dr. Currie at Liverpool, and saw the practice successfully employed in the house of recovery in London, introduced washing with cold water into his department of the Vienna hospital (for he was apprehensive lest the affusion should excite alarm). He gives an account of various successful cases, in one of which, however, he doubted if the cold did not produce pain of the chest and cough—adding that in a similar fever he had twice seen iced water, applied to the head, produce a fatal pneumonia (*Reise* II. 288—96). Since the departure of Dr. Frank for Wilna, cold applications appear to have been discontinued. His pupils represented the practice as little successful (*Rec. Period.* xxvii. 412); probably on account of some occasional inconveniences.—The Germans seem peculiarly subject to certain rheumatic affections. I am told their soldiers proved so in England. This would deserve consideration in typhus.* From these accounts something may be apprehended for the cold affusion, as there was once reason for

* Accounts of the Edinburgh clinical practice, in that most important case of fever-patients affected with pneumonia, do not quite agree. Frequent trials, according to Dr. Reeve, afforded most satisfactory results on this subject. "Not one of the patients who had symptoms of catarrh or inflammation of the lungs, suffered the least inconvenience from the cold or tepid affusion." Currie II. 96. Of the same patients with some more, Dr. Keith, clerk to Dr. James Home, says that

for vaccination, to the utility of which the new practice in fever among us approaches. No decisive method can ever be considered as securely established, till its limits are pretty well determined. Careless of consequences, the large and formidable gossiping division of the community stands ever on the watch for an occasion to cry up one of us physicians, and to cry another down. Hence the fate of new practices is involved in the reputation of the individual practitioner. They have sometimes sunk together; and though revived at successive periods, not always become established, however meritorious.

The cautious and unassuming tone of Dr. Currie disarms opposition; and I know not who would

that sometimes cold affusion could not be freely employed on account of vehement catarrhal symptoms (*de aquae usu ext.* 1804, *p.* 38); in paucis exemplis affusio frigida nullam vel in pulsum vel in calorem vim habebat. In adhuc paucioribus *hos augebat* et in his exemplis solummodo, *ubi symptomata catarrhalia admodum valebant.*" ib. p. 39. This last account appears to be confirmed in Dr. Lampert's thesis, written at the same time p. 21. Dr. Reeve himself tells us that blistering and bleeding were practiced; qu. if before the cold dashing? and that where the catarrhal symptoms were strong, tepid affusion was preferred. It appears therefore that the cold disagreed with some, and that its disagreement with others was feared. I have never dared to recur to it in such cases without leeching at least and blistering. All this tends to confirm Dr. Jackson's practice, in which too inflammation probably ran still higher.

would have presumed to censure him, had he been less conciliatory. It might, however, have been in some respects better, if he had still more comprehensively considered the subject of fever. He cannot be said to have neglected that view, which the public is likely to be so much indebted to Dr. Clutterbuck for holding up, namely, its connection with inflammation. He should, however, perhaps have more strongly impressed the necessity of *purposely searching, at least in all graver cases, for local signs of too great force in the blood vessels or accumulation of blood.* The perceptions of fever-patients are doubtless indistinct. But the pulsation of the arteries about the head can always be felt. When the patient is roused, the condition of the chest can be ascertained; and pressure upon the viscera, not fenced round by bone, may bring to light latent inflammation, when it is not betrayed by spontaneous pain.—In a patient who, after about a fortnight's convalescence with a pulse still feverish, had a violent relapse from the fatigue of travelling, and of whom I was informed that on the attack, his stools had shewn defect of bile, accompanied by slight pain about the liver, these very symptoms punctually recurred with the rest. Relapse is far from an absolute objection to the cold affusion. But a relapse during very great weakness seems equivalent to a far advanced first attack:

tack: and at all events, I should have thought it right to restore the flow of bile before risking that sudden application of cold to the surface, by which the internal organs are so profoundly *searched.* Fourteen affusions from large (and generally double) buckets, full of water at 100° or a little above, in about three days had the happiest effects; scarce any other medicine being given than calomel enough to act on the biliary system; and the patient recovered far more rapidly than from the first attack, in which no affusion or spunging was employed.

Having shewn by superfluity of evidence, though much might be added, that in violent fever, whether foreign or domestic, whether yellow or of a different hue, we have a right to assume inflammatory disposition in the abdominal viscera, I propose the earliest application of leeches to that region. They should be laid on by relays of dozens; and intermediate subtepid fomentation will at once encourage the bleeding and subdue the fever of the subjacent organs. Some years since, I had written a letter to America, containing this proposal, but suppressed it from a feeling that I could have no pretensions to advise the very enlightened physicians of the United States in a case under their own inspection. I am led to mention the suggestion by my present plan. And I do so in the belief that it will be found useful, although a

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late respectable writer, who has rather confirmed a revived principle than improved its application, enjoins us to abstain from applying leeches in peritonitis, till by general bleeding some diminution of pain shall have been effected (*Pemberton. abdominal viscera*, p. 5). I have no comparative series of cases, treated in both ways, nor does he produce any such. But in the worst possible cases of peritonitis (of which I apprehend all the varieties may be understood on the principles discussed in the preceding pages), I see this method succeed perfectly. And in many inflammations, drawing blood from the seat of disease so much expedites the cure, that I apprehend this should be universally done, and as early as possible; when the affection is deep seated, blood should be drawn from the nearest skin. On applying leeches to the chest I have noticed the disappearance of suffusion in the eyes. We know that the effect goes deep. It will extend a foot perhaps.

In the variety of fever occurring independenly of contagion in the sensitive and studious during winter, with catarrhal spmptoms, strong rigors, intense headache, oppression of the præcordia, quickness, impatience, heat 107° at the end of the first week, and much sensibility to cold, in which Dr. Currie found venesection, cold affusion and other remedies unsuccessful,

we shall, I apprehend, find benefit from leeches put at once to the head, chest, and stomach. If a dozen and half give relief they should be repeated when the skin is warm and the arterial pulsations about the head strong. The tepid bath from 93° to 95° should afterwards be used for 15 minutes or for as long as the patient feels comfortable; but at any moment if the ascending arteries throb or the face flush, he should be raised to his middle out of the bath, and after a bucket of water at 65° has been poured upon him, he should be taken out. The cold affusion however, whether flushed or not—In general, this method of applying cold water is superior to simple cold bathing; and chronic invalids who are weakened by the simple cold bath are benefited by this, as I could exemplify in numerous instances, and indeed as the cold affusion in the heat of common typhus confirms by its analogy. On the first mention, the very persons, who calmly witness their friends in other circumstances dying in perpetual succession under the stale and stupid experiment of saline draughts and Hotwell water, will frequently object to this as a hazardous measure. But reference to the habitual practice of foreigners allays their terror, and the result never fails to prove that the method is not essentially hurtful.—I have no wish however to recommend it in the cases of fever determined by Dr. Currie.

If

If the symptoms above-mentioned be not mitigated by blood-letting, the jugular vein should be opened at the period of heat in the skin and of strong pulsation about the head.—In fever from contagion, this sensitive state likewise appears to be approximated, if fatigue or mental commotion intervene between the application of the exciting cause and seizure. The young gentleman, of whom I have spoken as dying, tired himself greatly just before he fell ill. In old writers and in new, particularly in those on the yellow fever, it may be seen how greatly fatigue will quicken and aggravate the febrile explosion. It will, I apprehend, often render it proper that bleeding in some way should be the first step in our own fevers.

A practice, the reverse of local bleeding, should be noticed here. This is the copious use of heated liquids, by which the affection of the abdomen will be aggravated. From the habits of life simply, treatment in regard to this point has been less pernicious here than in other countries. What soup abroad is to the healthy, ptisan is to the sick. The friends generally tremble unless sick people take nourishment plentifully. Solids they loathe; and warm diluents are poison to the fevering stomach. Distension even with cool liquids ought to be avoided; and the practitioner should feel whether the stomach be too full. The only rational

purposes

purposes of swallowing any thing of the nature of food early in fever seem the allaying of thirst and the dilution of the secreted liquids, lest they should be irritating. Nutrition is quite out of the question. Water is best.

One of the most important and obscure questions relates to the sudden rise of high inflammation in the after stages of fever. This is chief among the unfavourable crises. In putrid fever, a furious fit of mania has been seen to arise on various occasions, upon which the fever has ceased and the patient finally regained his health. Honest Brunonians have of late minutely recorded cases, to them incomprehensible, where immense discharges have suddenly stopped a protracted fever and left the patient improved in strength. Thus oppressive accumulations of blood are sometimes drained off. When spontaneous relief does not take place, it becomes a question how far art may interpose to procure it. It is a question, on which the so neglected anatomy of fever might be expected to shed great light. The want of rules, such as we owe to Dr. Currie, is deeply to be lamented. They can here be but slowly established. That general bleeding will often succeed under very unpromising constitutional appearances, we have full reason to be satisfied. In opposition to certain intermediate, too general, inferences from debility, antient conspires with modern

experience

experience to evince that on the onset of inflammation, not erysipelatous, scarcely any prostration of strength or weakness with frequency of pulse, precludes the lancet. Even where it shall be used without success, we can be by no means sure that it ought to bear the blame of the fatal event. The uncertain issue every prudent practioner will declare to the parties interested, as also that it is the only chance he knows. In case of failure dissection should be pressed.—I believe that to improve the disposition to contract, which the vessels may acquire under the operation, cordials ought to be given during the very flow of blood as well as afterwards. Local bleeding should be conjoined. In congestion about the fauces, blood-letting sometimes becomes urgent in the last stage of fever.* Where an internal phlegmasia arises in the midst of fever with newly kindled

* In a fever, in which Darlue expressly says that venæsection did not generally succeed (*Vandermonde* viii. 365), he subjoins that subsequent inflammations always required it, and that it succeeded—"When the swoln parotid glands did not suppurate and the patients were threatened with suffocation from rapid swelling of the face and distension of the muscles about the throat, I was forced to recur to bleeding without delay, and sometimes to repeat it the same day. It was not without dread. The pulse was so miserable and the patients so reduced that you would have thought them at the last gasp. The practice succeeded. Riverius employed it in similar circumstances" p. 369.

kindled strength of pulse, it ought to be treated, without much consideration of the preceding disease, according to its own symptoms.

A case already mentioned belongs here. When from the bed on which he is laid, the invalid suddenly beholds spread out before him, in luminous prospect, the scenes of his early years up almost to the very cradle, on which he was rocked as an infant; when he recovers forgotten languages; when he suddenly converses with rational vivacity, the heat and pulsations about the head should be examined with a view to cutaneous bleeding, cooling the part, and darkening the room. For an action has probably commenced, which unless checked will reduce the brain to a fatal state of exhaustion.

Dr. Ploucquet justly argues against the merely mechanical view of blood-letting. The time, within which a given quantity of blood flows out, every one now understands to be almost of as much importance as the quantity itself. But in respect to *place*, we still keep too strongly in view the common undivided circulating mass of fluid. Had the human animal been constructed with several hearts and independent sets of vessels, it would, I dare say, have been delivered as a precept from physiology to medicine, that blood should be drawn from the vascular system most irritated. The case is in reality now nearly the same. For

different

different sets of vessels exist during disease in opposite states of activity and fullness; a point which should be always examined, when we have blood-letting in contemplation. Every person of experience must have met with some proofs of the advantage of opening a vessel in one situation rather than in another. There exist proofs, which one may venture to call demonstrative; and as, in medicine, we are seldom indulged with this sort of evidence, it is desirable that the particulars should be collected in a treatise on blood-letting. The following is one of the most apposite examples. In 1777, Dr. Vogel (*med prakt. Beobachtungen* 1. 25) relates the following history:

"***, 20, very lively, was stunned by a fall. In a few days he recovered but complained of heaviness of head. He was shortly able to ride 45 miles. Ten days after the accident, however, he became suddenly raving—countenance red, full; eyes suffused, sparkling; pulse strong, full, delirium incessant. After a rigid antiphlogistic course, he became more composed, regained his sleep and resumed his occupations. But in a month he falls into profound melancholy, and in a fortnight more into a deep sleep, in which he remained full 15 weeks, awaking mornings and evenings only, when he feels sad and longs to be asleep again. At length he is only to be roused by strong shaking and required that the food should be put into his mouth. During a journey of 80 miles, he scarcely awakes—convulsions and opisthotonos succeed—endless medicines tried in vain.—At last the left temporal artery was opened, and scarce had 10 ounces of blood flowed out, when the patient opened his eyes, looked freely around, and

and being asked if his head did not feel clearer, replied with an expressive *yes.* The death of his father rendered him again melancholy and then lethargic. A copious bleeding from the foot having availed nothing, arteriotomy was repeated with an effect as astonishing as at first—the complaint ceased while the blood was running—his original vivacity by degrees returned."

So far Dr. Vogel. Dr. Behrends informs us, that for the next 23 years he continued free from these symptoms, though he had illnesses and even fever repeatedly. In 1796, he was severely maltreated by marauders; after which he grew despondent, complaining of pain with heaviness of head and slight stupor. In 1797, his headache was aggravated after reading letters, relative to an appointment which he had obtained. Mania succeeded and then the lethargy. Copious bleeding from the foot gave short relief on several repetitions. So did bleedings from the nose, leeches, cold applications to the head. In the tenth week when he could scarce be roused from his lethargy, the temporal artery was again opened with the same astonishing effect as 24 years before. During the flow of blood, of which 36 ounces were drawn, he opened his eyes. He slept only at proper hours and enjoyed life for ten days, when after a long and violent chill, a fit of general tetanus came on.—Three months afterwards the temporal artery being opened, scarce had two ounces of blood flowed out, when the patient awoke, declaring that his head was clearer.---He lived with some fluctuations of intellect till February, 1800.---Dr. Behrends made a most minute dissection of the body in the presence of Dr. Soemmerring; and the observation altogether is perhaps the most compleat in the anatomy of disease. Amongst other things the medulla of the brain was tougher and harder than common, especially on the left side; the *corpus striatum* disorganized---the

membranes

membranes also. There was reason to conclude that part of the mischief had continued since the first accident.

Other examples might be adduced, equally striking. From these and from what I have myself seen, I must infer that in serious diseases, affecting the head, when bleeding is determined upon and the action of the temporal artery such as to promise a free flow of blood, the lancet should be applied there. The objections are such that one must wonder how they could have been raised by men of information. The effect on the opened artery sometimes spreads instantly to the whole of the similarly affected vascular system; and when this communication of altered action is not so sudden, it is probably more certain than after piercing a distant vein; though from this too, I am well aware that we have instances of great and sudden changes.—The jugular vein, in the circumstances specified, appears the next proper vessel to open.

For those various circumstances in the ordinary fevers of hot climates and in the most malignant of our own, which render bleeding requisite, I refer to the most able original observers. They will be perused with anxious attention by all, who have the chance of taking upon themselves the responsibility of principal actor in those tremendous scenes.—

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The symptoms, singly considered at least, which call for and prohibit the lancet, are sometimes distressingly similar. For in the early stage the pulse may be almost abolished, the actual heat of the body greatly lowered, and yet free bleeding succeed, as indubitable examples attest, nay, perhaps free bleeding is essential to recovery.* Accurate practical acquaintance

* A person had successively chills, heats, stupor, phrenitic delirium, pulse, by turns quick and slow, almost insensible, body cold, spasms, convulsions, and bilious vomiting. He rejected every thing offered to him---a clyster could not be administered with the help of six robust men. On the second day, Dr.Sumeire, who had been before deterred from bleeding by the pulse, was encouraged to open the jugular vein by considering the attack as arising from exposure to the sun. The flow of blood had an instantaneous effect. The patient became calm at the very moment, but remained oppressed (assoupi). In two hours he took broth; skin became a little warm, signs of recollection in the evening, night pretty tranquil---next day, his former state returned. In the evening, when he was oppressed, cold and affected with tremor, the bleeding was repeated---scarce was the vein opened when he became sensible, smiled and spoke---the pulse grew free and regular, and he recovered--Mr. Hunter, we know, observed fits of actual heat and coldness in apoplexy. In a case like the above, it does not seem so difficult to perceive that the brain is oppressed; and probably similar symptoms always, and the period of the disease generally but not always, will afford grounds for decision. No one can need to be warned against mistaking the coldness at the close of fever

quaintance with the relation of the nervous influence to the movements of the arterial system and to the production of heat is a desideratum, which demands more knowledge, perspicacity and genius than have hitherto perhaps been combined in any mortal. And from what sufferings yet in other men must his science spring!

Other means against inflammation?

It is always in some measure disagreeable and sometimes hazardous to act the part of the butcher in the sick chamber: and one cannot help looking anxiously round among the prospects of medicine for a resource more eligible as less debilitating than blood-letting. I think it indeed perfectly just that he who, *from the love of experiment*, quits an approved for an uncertain practice, should suffer the full penalty of the Egyptian law against medical innovation; as I would consign to the pillory the wretch, who out of regard to his character, that is, to

for a state that requires the lancet. Nor, though this instrument should again become generally fashionable, let the practitioner in any case lay aside his circumspection.

his

his fees, should follow the routine, when from constant experience he is sure that his patient will die under it, provided any, not inhuman, deviation would give his patient a chance.

Two things may be held in contemplation as likely to become substitutes for bleeding in doubtful cases. And under the authority of slowly progressive experience it may be nearly superseded by one or the other.—The first is the *circular swing*, as proposed by Dr. Darwin, which has been found to have such prodigious power in lowering the excitation of mania, and which would probably subdue many other inordinate actions of the system; whether appearing as ferocious delirium—or as violent action of the hollow or solid muscles. Nor would its regulation be difficult. Gestation may possibly act in some cases as an infinitely lower degree of the same power. The objections founded by Dr. Currie upon a case or two, I can by no means consider as decisive. Dr. Jackson would condemn gestation with heat and fatigue. But a fever-patient may always be cool and will often feel recruited instead of fatigued while in movement, as many observations testify. The bad effects of exhaustion from heat or effort, are beyond controversy. A near relation of my printer having been over-persuaded to quite her bed, while weak after fever, had an epilepsy in consequence

quence. I have lately been informed of fatal syncope from the same imprudence. Though long journeys are well performed by some convalescents, they do occasion relapse; and as soon as the weak traveller feels any decline of appetite or the least chill, he should rest at his peril. But though the general rule is to avoid fatigue, striking exceptions will occur and they should not be unknown to the physician.

Dr. Corvisart mentions a patient at Paris who had been ill about ten days, of a very intense sort of ardent fever with delirium when the crisis of August 10, 1792, arrived.—Struck by the first sounds of the tumult, he enquires the cause, and notwithstanding his situation, he makes the utmost efforts, rises and repairs to his post, where he continues *on permanent duty*, giving himself up to the agitation and enthusiasm, which those events created. When the whole was over, he found himself quit of his fever.

The continued application of cold seems to me wholly to supersede blood-letting in many cases where this is beneficial, and, what is better than a choice between two necessary evils, it bids fair to serve where blood-letting is a doubtful measure. I shall presently explain myself under the head of *temperature*.

The want of a medicine which shall second the effect of blood-letting appears upon the face

face of innumerable observations on fever.—Such a medicine exists in the digitalis, and it was proposed about 14 years ago by Dr. Reil. I have every reason to speak favourably of its operation, and I believe it is coming much into use. Indeed no article is now more universally employed with analogous views. In this country, we can generally afford to wait. But in some others it ought to be administered with the utmost boldness, consistent with prudence.

Lastly, let me advert to the necessity of soothing attentions *even to prevent inflammation.* The operation of the passions upon the viscera is a common-place theme. A blow on the mind will produce contusion as much as a blow on the body. In fever, where sense is often so acute and the tendency to inflammation always so strong, there is more than double danger from unwelcome impressions.—A variety of medical patients have reported, after recovery, their horrible sufferings from particular sights, tastes, and ideas. I have elsewhere given the substance of what Dr. Marcus Herz relates of his own delirium, which was kept up by his desire to be removed into another room and subsided on gratification.—Where physicians, determined to prevent the flesh from putrifying on the bones, order *bark, bark,* night and day, through thick and thin,

observant

observant friends have remarked the sick to grow worse after every dose from the loathsome impression upon the tongue through a thick coat of fur.—The lesson to be drawn from these facts is obvious.

Temperature of the body.

Je ne m'arrêterai pas - - - aux consequences utiles qu' on peut tirer (de cet accident heureux) pour l'usage du bain froid, non-seulement dans le delire febrile et dans la frenesie, mais dans toutes les maladies convulsives et spasmodiques - - - - - Il faudroit que quelque grand mâitre, apres avoir apprecié l'etat, où se trouvent les parties du corps dans le delire febrile, la maniére d'agir du bain froid pour le calmer ou pour le faire cesser, les cas oú il peut être avantageux comme ceux oú il peut être nuisible, nous donnât de preceptes que nous puissions prendre pour guides pour combattre ce terrible accident dans une maladie dangereuse, oú le moment de l'application d'un tel remede parôit, dans certains cas, difficile á saisir. GOIRAND, 1766.

It is not either my design or inclination to introduce an abstract of the rules laid down by Dr. Currie, as they stand illustrated by what he has given of his own or collected.—Let the reader who would be informed consult his book. His praises I leave to those who can estimate what it is to have a method precisely determined

determined for numerous cases in fever. Why has the idea of crowning *his* labours also by a national remuneration never gone abroad?—Is there one among us who, when he is discharging the exacted share of the produce of his ingenuity, labour, or inheritance into the public purse, would feel regret, if the guardians of that purse had frequently to reward a Jenner or a Currie? Is it feared lest claimants like these should multiply too fast for our resources? Perhaps I may be influenced by a professional partiality. But I confess myself unable to discover how the great medical preservers of mankind deserve less from society, than those retainers of law and diplomacy, those court parasites, buffoons and ballad-makers to a minister, who gather, like plant-lice upon the spreading branches of national industry, and suck the sweets at their ease.

Let the happy combinations of genius be honoured by admiration—the tribute of spirit be paid to spirit, the highest acknowledgement to the highest desert. In the name of Hunter and of Darwin, who however they may occasionally be mistaken or absurd, have poured light upon every class of facts belonging to their science, I should for this reason reject all other reward; and likewise because the less tangible merit of just generalizations may be claimed in behalf of the specious

and

and the seductive. But for every immediately practical and extensive improvement in medicine there should be a proportionate levy on the public. Of these the common sense of mankind readily conceives as marketable commodities. What family, in fact, but will own that deliverance from the small-pox is a privilege to be valued in specie; and if collectors had gone round from house to house as with a brief, I fancy there are few, who would have refused their mite in return for a protection against the danger of typhus and scarlet fever.

The very example of fever furnishes a precedent. For when the first vote passed in favour of Dr. Jenner, the occasion was seized to introduce the claims of another physician to a premium of half the amount for having *by great study* devised the means of destroying febrile contagion. Should Parliament think proper to appeal to the profession at large, the extinguisher of contagion, I am confident, will not obtain a majority over Dr. Currie—even among those who fully allow the power of acid fumes. I do not forget Dr. Wright, but the sum total being once fixed, it might be left to that deserving veteran to allot his own proportion. No one can be at a loss to assign the proper destination of the remainder.

In fever, no purpose ought to be held more steadily in view than to *regulate the calorific animal*

animal fermentations, or, in plainer terms, *to prevent the heat of the body from sinking too low or rising too high.* In intermittents, the advantage of checking the cold stage by cordials is undisputed. In hectic, the principle ought not to be neglected. Continued fever even *in its beginning* sometimes fairly presents an opportunity to put it in practice. It is when there is great faintness, soft, weak pulse, tangible coldness (often clammy) extending to the head and neck, breath cold, and absence of all irritation. In this state I have seen as signal relief from aromatics with some drops of laudanum, as from cold in the dry heat. Last spring, a patient had felt so relieved by a draught of this kind, that once while his attendants were away, he crawled out of bed and in the most improper state, drank three in succession, by which his fever was heightened and protracted.*

A case

* To prevent misapplication of heating medicines, I subjoin the following observation from the very intelligent Dr. Vandermonde. July, 1757, highest temperature at Paris from 73° to 99, ardent fever became epidemic; heat and thirst intolerable, breath burning; extreme dyspnoea, bowels bound, urine red and thick. Death, preceded by delirium, convulsions, syncope, took place in two days. Repeated bleedings with cool regimen succeeded. *As the seizure is attended with faintness and sweating, care must be taken to avoid being misled*

A case occurs in the decline of fever where the most decided use of cordials and tonics can alone rescue from depending destruction. It is where from internal gangrene or general exhaustion, the temperature and powers sink together. The usual fault in practice here is the too great interval between doses. We have all the evidence we can have that the grateful and restorative virtue of wine, though perfectly sensible, sometimes hardly lasts beyond a single second.* How necessary then to be watchful in repeating and varying the stimulant! Life may thus be often preserved, as appears from the following relation of Dr. Clark (*fevers* p. 45); than which I do not know any one that places the art and the artist in a more amiable and useful light.

led into the use of cordials, diaphoratics and heavy coverings to force perspiration---measures that prove very speedily destructive (Journal vii. 232).—At the same time, women in child-bed had purple miliary fever; and in those that died, the body was universally covered with gangrenous spots—a proof of inflammatory disposition accompanying the miliary eruption.

* Ipse equidem, says Dr. Eisfeld, camphoram, mihi semper molestam, acuto typho gravissimé decumbens respui; contra ea acida vinumque, etiam mei haud conscious, optavi. Quilibet vini haustus me mihi reddebat et quanquam hæc secunda rerum conversio ultra 3600mam horae partem vix perdurabat, vini tamen efficacia in nervos corpusque universum inde luculentissimé elucet (l. c. 14).

15th day. Mr. D. now took his medicine with reluctance. As his relations refused to continue the bark, I left them, with directions, to give him strawberries, and oranges; and to keep the room well aired.

On the 10th of July, I was again desired to visit him. It was now the twenty-third day of his disease, reckoning from the time he was first confined. He was reduced to the greatest pitch of weakness, lay in a stupid, senseless state, and had constant tremors of the hands. From the time I last visited him, he had never been out of bed; neither had he taken any medicines. Being persuaded that there was still some chance of recovery, I insisted upon his being taken up; and after having a couch brought into the room, I placed him upon it with my own hands, as I could get no assistance from his relations, who imagining his death inevitable, did not chuse to have him disturbed: After this I staid with him some hours, kept the windows open, as the weather was very hot, and gave him two dozes of the bark, containing one drachm each; and from time to time supported him with a little wine. Before I left him he became sensible, and his eyes had a more lively appearance. The alteration for the better, indeed, was so visible, that his relations now joyfully promised to comply with every direction. A drachm of the bark was ordered to be given every two hours; and I advised them to take him out of bed every morning, and lay him upon the couch.

On the day following, his skin was moist; his urine turbid; his pulse 108; and he took his medicines freely: next day his pulse was only 90; he had no symptom of fever; but was so weak, that when he lifted his hands, they shaked. From this time he gradually recovered; but it was several weeks before his strength returned, notwithstanding a nourishing diet, and exercise on horseback, as soon as his strength would permit.

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The reduction of heat is the point of most consequence in continued fever. The full accomplishment of this purpose nearly involves the prevention of local inflammations. Mr. Hunter has shewn how much the system is weakened, under certain circumstances, by the production of heat. We all feel weak from being overheated. One cause of death in fever may be the exhausting production of heat; and here no disorganization, adequate to the fatal event, will be sensible. Bleeding is known by experiment to lower the temperature many degrees. The same effect follows vomits, cathartics (especially such as have been used in America or those still more violent, which in the hands of a practitioner in the British navy went under the name of *thunderbolts)* and by sudorifics. It may be a question if any medicines directly affect the calorific process, whether this arise from an affection of the perspiratory vessels, as was first, I think, distinctly taught in the modern school of Halle, or from more rapid combinations through the system. The continued application of cool or cold air seems to keep the heat down so effectually that it would seem from some observations, where the experiment was conducted on a much grander scale than any mortal perhaps would have had the genius to conceive or the power to execute, that the cold state may be almost neglected and that

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our fever-patients would mostly recover, if but sufficiently aired. Such an observation from Dr. Brocklesly (*med. obs.* p. 66) is well worth quoting.

"In October, 1758, a greater number of sick soldiers being landed out of the transports on the Isle of Wight, than the houses, barns, and cottages, that could be provided for them about Newport, were capable of containing, a temporary shed was erected with deal boards on the Forest, and thatched over with straw, capacious enough to hold 120 patients. But being executed in a very slovenly manner by the undertaker, who was a country workman, it appeared inadequate to answer the end proposed; for the sick, lodged in it, were exposed to so much extraordinary cold, as well as moisture: yet, notwithstanding all the damage and inconvenience they suffered from these accidents, remarkably fewer died of the same diseases, though treated with the same medicines, than died any where else. And all the convalescents recovered much sooner than they did in any of the warmer and closer houses and barns, where fires, and apparently better accommodations of every sort, could be provided for them. This fact, so remarkable to all the people the least conversant about the sick, did not escape the notice of Mr. Adair, inspector of the regimental infirmaries, who remarking, that this currency of air had such amazing salutary effects upon the men hutted on the Forest, procured an order to convert Carisbrook Castle itself, which is situated upon the extremity of a very high ridge of land, into an hospital; where near 400 sick might be lodged together, and regulated by the hospital-guard according to the directions of the physican. At first it was expected the sick brought there would have done better than their comrades; yet the event verified our conjectures only in part; for though the castle was more prosperous to their recovery than the small

small rooms in low-roofed houses; yet more proportionally of the Foresters were recovered, and that much sooner than any of the rest."

Two army physicians, Dr. Sinnot and Dr. Sutton, have severally attested a similar fact, respecting the recovery of British fever-patients, hastily driven along day and night in open waggons during that terrible winter when the French forced us out of Holland. Our airy apartments and lighter bed-clothes, in the same manner as our comparative abstinence from a profusion of hot liquids (for the tea we drink is hardly to be set in competition with the plentiful use of soups in foreign countries) seem very favourable to the sick of fever. And our practitioners in general have more attended to ventilation.

The salutary effect of cold affusion appears simply to consist in putting an end to the heat-producing process of fever. Warm affusion will sometimes lower the temperature as speedily; but the heat returns. In weak persons who unadvisedly use the cold bath, extreme coldness is frequently produced. I have attended a near relation of the late Dr. Seward of Worcester, in whom washing the hands in spring water before breakfast has repeatedly produced universal coldness to the touch (I never had an opportunity of applying the thermometer) and even syncope. The knowledge of extreme cases often makes the

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mean more readily understood. For my own part, I see no occasion to refer to the effect of sudden cold on sensation or in producing counter-irritation as of leading importance in conceiving its good effects in fever, convulsion, syncope, and constipation; or its bad ones in local inflammation, as I shall soon explain. It is impossible perhaps to separate the share which sensation bears whenever it is strongly affected. Nor do I deem cold an absolute sedative. But Dr. Currie has advanced nothing to render his idea probable, and I prefer the simple explanation as such and as more conformable to analogy. The secondary or propagated operation is by no means to be overlooked. It seems in the most favourable cases to be an extension of the lowered processes on the surface to the interior. But in a system so variable and so complicated as the human frame, the general condition at the time, that of particular organs, and the manner of application, will produce the greatest variations.

The principle of reducing (calorific) action I have applied to variety of local ailments. Considering that water is always at hand, I think cold affusion the best way of treating scalds and burns. It is perfectly effectual. The method is easy: continue pouring till the pain subside. Cover the part with wetted clothes. If pain return, repeat the affusion and so on. Persons stung by venomous insects are saved from suffering by the

same proceeding. In erysipelas I have experienced immediate ease and rapid recovery from cold water so employed. But I have not yet happened to use it in erysipelas of the face. It has been said that aqueous applications have proved hurtful in erysipelas; I suppose because they have not been used effectually to destroy the tendency to generate excessive heat. They must greatly increase the evil if reaction be permitted.—To prevent metastasis, in burns, stings, and erysipelas alike I give some cordial while the application of cold is in use. I have done this even in sprains for the patient's comfort. I generally find a little ginger sufficient, but in erysipelas I have used the bark according to the excellent plan of Dr. G. Fordyce. Thus suffering ceases when treatment begins. I have never dared to employ cold freely in gout, because several patients, very capable of self-observation, have given me accounts, which I could not disbelieve, of permanent injury sustained from the practice. And some were in the flower of life; one labouring under his first fit. Nor has any satisfactory criterion yet been offered by which we may distinguish when it is safe. I should think however that the danger would be less, if the stomach were kept in moderate activity all the time.

Chance, the good genius of the healing art, has frequently exhibited the effects of the *continued*

tinued application of cold. Since the *Psychrolusia*, we have enough of authentic cures in circumstances almost desperate to fill a volume. Dr. Currie speaks of one, who in his delirium jumped into the sea—continued there 20 minutes, was taken up calm, and speedily recovered. In hot countries, he observes that fevers should be combated not merely by cold affusion, but by immersion. I have not met with a stronger confirmation than in the paper from which the interesting passage at the head of this section is taken.

During the prevalence of a malignant fever, Dominique, a peasant, 42, had chills, biting heat, sickness, anxiety, prostration of strength, headache, eyes red, drowsiness interrupted by frightful dreams and inward cold—fever (pulse) not corresponding in violence to the other symptoms. Apprehensive of congestion in the head, M. Goirand bled him, but syncope obliged him to close the vein—on the 8th day, an alarm that he was dying—as after delirium, he had fainted and lain some moments without sign of life. His friends grew intractable—the delirium increased to violent phrenzy. 21st day, locked jaw with general convulsions of the limbs, pulse tense, intermitting—next day, some remission. 23d, stupor followed by furious delirium—two women being unable to resist him, the patient jumps out at the window, makes for water, 100

paces distant, plunges in up to his shoulders, remains for a quarter of an hour, and then escapes across the fields. Here M. Goirand met him, when he attempted to fly, but in a moment dropped down like a corpse—conveyed home (during which the bowels were much purged) icy-cold, and without any sign of life but respiration barely sensible. Jaw fast locked—hot things applied externally—gradual recovery—next day, tranquil—pulse pretty good—slight delirium in the night—progressive amendment. In the numerous relations of this kind one cannot help being struck by the propensity of the sick to plunge into water.

Art has already availed itself in some rare instances of these lessons from accident. A stout Dutch sea captain, in travelling from Holland to Marseilles, drank immoderately of wine and spirits. Nov. 14, 1761, had burning heat, violent headache, unextinguishable thirst, strong throbbing at the temples, pulse like a cord, convulsions, hiccup, bilious vomiting. 18th, convulsions, requiring four sailors to hold him in bed—pulse very tense: he howled aloud but amid his delirium answered rationally, complaining of sharp pain in the centre of his head. Dr. Debaux, now called in, ordered bleeding from the jugular to lbiss., eight clysters of cold water in succession, and a bladder with cold water to his head—Some relief, but the symptoms not giving way

way, the patient on the 22d was thrown into a cold bath, and kept there for *an hour and a half*, the bladder still on his head—he had actually broken the chill of the water, and afterwards shivered in bed for half an hour, then grew warm, fell asleep, which he had not done for eight days—his sleep lasted thirteen hours, with profuse sweating—he took broth, slept again for ten hours, sweating still more profusely, and awoke free from pain, delirium, or convulsion. In ten days he took the command of his vessel, (Vandermonde xiv.) Treatment like this recedes as far from our prevailing practices, as the drawing of fifty ounces of blood and upwards at one time. But the case recedes, perhaps, as far from our habitual experience. We have accumulated evidence of the good effects of cold immersion for a quarter of an hour, or twice as long, late in fever. An accidental instance occurred to myself. Nor is any one bound to keep a patient in cold water, if he put him into it, till he is likely to shiver for half an hour on coming out. The facts altogether shew that in the strongly irritated state of fever, we may make very free with cold. The two French cases are the more encouraging to a circumspect adoption of the principle, inasmuch as the effect was carried too far with ultimate impunity. I would, however, guard against untoward consequences by enveloping the extremities in flannel, feeling the pulse and taking the heat of the body.

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The effect of continued cold affords to me the strongest probability that "the solution of fever does *not* depend chiefly on the *sudden*, general, and powerful impression on the sensations" (*Currie* I. 68.) Unless we suppose that in a fever, requiring for its cure immersion for some time, and in one where affusion suffices, cold operates differently, its effect must chiefly consist in extinguishing the conflagration of the system, beginning at the surface. Shocks, doubtless, work great changes, but cold water can hardly be said to give shocks for a whole half hour together. Does blood-letting then, " a still more refrigerating remedy, and only useful in fever, when it produces this effect" (II. 245), operate by a sudden impression on the sensations?

The use of cordials, as in external inflammation, while cold is applied, would, I suppose, be inadmissible. Blisters, perhaps, might prevent the *transfer of susceptibility* to vital parts. For it is this, according to its degree, I believe, and not any effect on sensation, that makes cold applications hurtful or beneficial, when they do not reduce general heat. I have noted down numerous facts in illustration of this important principle.—In Miss Geale, consumptive, the rigors, which were excessive, had ceased under the use of digitalis—a blister applied—June 18th 1805, said she had no chills at all but on and near the blistered spot. If she drank cold liquor

or

or went against the wind, which was cold for the season, she felt chilly on the blister. 24th June, the first blister dried and another opened—the chill now confined to the new blister. It occurred when the wind blew on the face only.—I have sometimes thought of assembling a party of inveterate snuff-takers in order to try whether sneezing would not be produced in some by the application of snuff to the callous lining of the nostrils, while they were partly or totally immersed in cold water.

Of blisters, I shall observe that *when the occasion for counter-irritation is urgent*, it is not the best plan to raise them by cantharides. Boiling water is much better, and I suppose its superior efficacy somewhat in proportion to its quicker action. The effect is easily confined by a cloth, that rather more than fills a cup of any size, wetted with boiling water. No such blister needs to be large. It is raised by a momentary application. If the cloth be held on for half a minute or more the skin is destroyed. The objection is intense pain. This ceases however in less than a minute, when the purpose is to produce an eschar; and it is still by far, I believe, the most merciful sort of caustic. I suspect, but without experience, that extreme cold would be yet more beneficial in this way. A blister is speedily

produced

produced by frozen mercury. The cause is, I suppose, increase of susceptibility, acted upon by the ordinary stimuli, whereas acrid substances act from excessive stimulation on ordinary susceptibility. Thus great heat and great cold cure burns equally, but on opposite principles. In fever or deep-seated inflammation, or in both combined, would not a blister, that should concentrate susceptibility on an indifferent external part, be very advisable? Muriate of lime dissolved in acid, I suppose, would act sufficiently through thin glass.—This idea of blistering by cold may turn out a mere whim.—Of cold, as produced by the melting of ice and the evaporation of ether, I have had successful experience in the most dangerous phlegmasiæ and in convulsive diseases. Either method is more convenient sometimes than immersion, and either is applicable to fever. Evaporation may be kept up by diluted alcohol. With a view to the terrible irritability of the stomach in some fevers, it is worth while to mention, that to a patient, insensible, violently convulsed, and retching dreadfully, Dr. Jos. Frank gave strong emetics on a suspicion of poison,—for the origin of the symptoms was quite unknown. The case growing more desperate, the body was wrapped in flannel, and this wetted with æther for a day and half. The pa ient was

restored

restored to life, but he remained a valetudinarian. It was afterwards known that he had swallowed an excessive dose of opium. Cold ought always to be kept *applied to the head*, when it is hot and the vascular action strong. To suppose this an indifferent measure, because the scalp from habit is less sensible than other parts, I take to be an ingenious mistake. In nervous headache, blood-letting though strongly indicated, has sometimes disappointed me; cold scarcely ever, except when there was a transfer of susceptibility to the body. Of two sisters, free bleeding for hot head-ache was repeatedly practised on one without relief, which cold immediately afforded. The other also applied spring water to her hot and throbbing head. Universal chill. The same on several trials. I suggested cold to the head during the tepid bath. The bath felt agreeable, but an immediate chill of the immersed body followed the first touch of the cold: and this, when the bath was raised to 100°. Such chill is sometimes an impediment to the immersion of the hands in cold water during the hot period of hectic. But in idiopathic fever I have always seen present and continued benefit from cooling the hot head. Nor has it required above a fiftieth part of the eyes of Argus to perceive, when to suspend the application.

Dr. Wright and Dr. Currie have been candidly anxious to do justice to their predeces-

sors

sors. Of Dr. de Hahn of Breslau, they make particular mention; and Dr. Currie was able at length to procure his dissertation from the appendix to the *Act. nat. Curios.* x. But the most interesting documents escaped his diligence. J. G. de Hahn indeed wrote only that paper upon the subject. But J. Sigmund Hahn published at Breslau, in 1743, *Instructions concerning the power and use of cold water.* The latter communicated also his papers to the upright and intelligent Mr. Theden, third Prussian surgeon general, of whose *new observations in surgery* the first edition was published at Berlin in 1771, and the last in 1782. These documents prove that in applying cold water a rule was steadily held in view, though a rule very different from that of Dr. Currie.

Dr. J. S. Hahn, who daily took the cold bath himself when near 80, successfully treated many maniacs by throwing them into cold water and keeping a cap of ice upon the head, after bleeding and vomiting. To this treatment only opium was added. I think too that various striking cures, recorded by Prussian observers, may be traced to De Hahn: though the tracts of Schwertner and Bergius were popular also. "In malignant fever, "says Theden, (l. c. 1. p. 134) "when the pulse was sinking, and death, so to speak, sate upon the

the tongue, I have applied compresses wetted with cold water upon the abdomen and scrotum, washed the breast, arms, feet, and face with it, dried the parts and covered the patient well. Warm liquids, a glass of wine from time to time, and a cordial draught with volatile alkali were then administered. A full pulse succeeded, afterwards sweat and the patient was recruited. In this way I have saved numbers." He says that many, who in such desperate circumstances employed the means, all but the cold application, died, whereas most of those recovered, who used that also. On applying the cold compress to the scrotum and abdomen, the patient, according to Mr. Theden, shrinks, shudders, and becomes, as it were, re-animated. Now cordials have effect, and blisters, before inactive, draw. The treatment was useful in the small-pox, in incarcerated hernia and many other emergencies. "To avoid malicious rumours," says Theden, "I have not hazarded this proceeding so boldly and so generally as Hahn did. But in cases where every one was at a loss for a resource, I have ventured upon it—and sometimes without success. But it has rescued many from the most desperate situation." Of two West-India patients, apparently at the last gasp, one is mentioned in Dr. Currie (II. 213) as saved by nearly the Silesian

Silesian method. Dr. H. Maclean expressly testifies to the same purport in frequent instances.

Mr. Theden appeals to various persons, as witnesses of his practice; and I believe, no man has existed, upon whose good faith we may more securely rely. The remedy was applied with increasing confidence for fifty years by men of wide experience and much authority. Neither the want of a regulating principle, nor any bad consequences from its improper application, as Dr. Currie believes, appear to have limited its use, but the same impediment that prevented the reception of his own method at Vienna: namely, the maxim on which it seems that practice is also conducted abroad; *that it is better (for the practitioner) that the sick should die under a method unfailingly ineffectual, than that any attempt should be made in their favour, which might give rise to evil rumours.* I doubt whether this maxim of medical prudence would not have stood just as much in the way of the cold affusion, had it been then proposed on the same grounds as now.

The practice seems in itself highly rational. The analogical effect of cold in syncope and constipation will occur to every reader. We have indubitable instances, in which water, dropped on the pit of the stomach, has immediately caused pulsation in the heart of an infant

fant, in whom animation has been suspended.—A fever-patient is not equally susceptible. But excitability may be transferred even to his torpid interior by superficial cold; and excitement then produced by stimulation. If sphacelation, which must often prevent success, have taken place, nothing will be gained. But what evil can ensue? We shall hardly err mischievously if we make this last effort, when the powers are sinking and inflammation passing into its cold stage. In two such instances I have adopted the momentary but repeated application of a cloth wet with ice-cold water to the pit of the stomach, and to the head, administering stimulants betweenwhiles. In both I was successful. If my experience increase, I shall relate it at large.

Volatile alkali is probably one of the stimuli, best adapted to such cases. I have thought of the alternate exhibition of oxygenated acids. The oxymuriatic acid in malignant sore-throat needs not my recommendation. In situations, where that was not to be had, I have used [redacted]ro-muriatic acid properly diluted, and have reason to think this simpler preparation just as good. The best of all would possibly be sulphuric acid saturated with oxymuriate of pot-ash, and then diluted. This is not bulky and will keep.

Artificial

Artificial and accidental phlegmasiæ.

I had observed, in surgical cases, an increase of temperature, nearly equal to that of typhus. Thinking a regular series of observations on the subject desirable, I requested Mr. Richard Smith, Surgeon to the Bristol Infirmary, to undertake this tedious task. The following communication from him appears to give the fluctuations under a sufficient variety of moderate cases. In bad and mortal cases, further observations would be desirable. The bulb of the thermometer was always placed under the tongue, except where it is otherwise specified.

June 16, 1807.—Thomas Oxland, 34, compound fracture of ankle: half an inch of bone removed within about two hours after the accident—not so bad a case as the next—immediately after operation at 2 P. M. pulse 74, full—heat 91. At 20 minutes past 6 P. M. heat 96. At 8 P. M. in great pain, pulse 80, heat 102.

June 17.—Restless night, pulse 78, heat 99.

18th,—Good night—at midday, pulse 86,—heat 100. 8 P. M. pulse 84—heat 100.

19th.—At midday, pulse 80—heat 99.

20th.—From this day was easy and well. Midday, pulse 80—heat 98. Evening pulse 80—heat 100.

21st—Midday pulse 80—heat 101. Evening pulse 98—heat 102.

22d.—Midday, pulse 104—heat 102. Evening, pulse 108—heat 100.

23d.—Midday, pulse 100—heat 99½—nearly recovered, Sept. 19th.

June 16th, 1807.—Thomas Wiltshire, 55, compound dislocation of ankle—came in 12 hours after the accident—an inch

inch of bone removed without loss of blood—Temperature of the open well ventilated ward 67°. At 6 P. M. immediately after operation, heat 100—the same at ¼ before 7.

17th.—Bad night, lost xii ounces of blood. Midday pulse 112, very full—heat 102.

18th.—Bad night. Midday pulse 130—heat 104½ At 8 P. M. pulse 116—heat 103.

19th.—Very bad night—body bound. Midday pulse 129—heat 102. ½ past 7 P. M. pulse 134—heat 93—heat between great and next toe of wounded limb 65—in same place of other foot 73—wound gangrenous—thigh tense—abdomen and thorax emphysematous—fermenting poultice to wound—spirits to thigh—takes cordial medicines, port wine and brandy, ad libitum=great dyspnœa—no pain—air let out from cellular membrane by puncture—died in 2 hours.

June 16, 1807.—David Lewis, 52, timid and debilitated—case of spina ventosa of 8 years standing—amputation of leg at half past 1.—Before operation, when on the table, heat 96—immediately after dressing heat 100—took cordial. In three quarters of an hour (in bed) pulse 72—heat 100. At 3 minutes past 6, when there had been hæmorrhage to about 6 oz., heat from 99 to 100. At 8 o'clock pulse 58, full, labouring—heat 102—in the groin of amputated limb heat 101½.—had taken an anodyne, but in great pain.

17th,—Tolerable night. Midday pulse 71, still full—heat 101.

18th,—Slept well, pulse 88—at Midday heat 101. Evening pulse 88—heat 100.

19th—Easy, pulse 80—heat 98, takes saline mixture. Henceforward very well, in but little pain.

20th,—Midday pulse 78—heat 100. Evening pulse 82—heat 101.

21st,—Midday pulse 72—heat 99. Evening pulse 88—heat 97.

22nd.—Midday pulse 80—heat 99. Evening pulse 80—heat 101.

23rd.—Midday pulse 72—heat 96---recovered perfectly, Sept. 19th. Benjamin

Benjamin Hartley, 30, seaman, robust make, debilitated—extensive fistulæ in ano et perinæo—30 minutes on the operation table at one o'clock—lost no blood—before operation heat 98—immediately after heat 100, drank no cordial— in three quarters of an hour pulse 92—heat 102. At a quarter before 7, heat 99—At 8, pulse 106—heat 101 in no pain.

17th June.—Good night—diarrhœa. Midday pulse 88—heat 98.

18th.—Midday pulse 90—heat 101. At 8 P. M. pulse 88—heat 102.

19th.—Midday pulse 70—heat 98.

20th.—Midday pulse 64—heat 100. Evening pulse 64—heat 99.

21st—Midday pulse 72—heat 100. Evening pulse 84—heat 100—diarrhœa these three days—no pain.

22nd.—Midday pulse 76—heat 100. Evening pulse 88—heat 101.

23rd.—Midday pulse 80—heat 66---recovered, Sept. 19th.

Elizabeth Oag, 30, looks older, feeble, a tumour of the liver pointing near the right lobe opened—near a gallon and half of limpid fluid with hydatids—wound drawn together by adhesive plaister to heal it by the first intention.

July 19.—Pulse 88—heat 96.

20th.—Bad night, pulse 120—heat 97¾.

21st.—Bad night—very languid, at 2 P. M. pulse 112—heat 100.

22nd.—Good night, pulse 120—heat 101.

23rd.—Bad night. Midday pulse 108—heat 99¾—¼ past 9 P. M. pulse 102—heat 99½; skin felt hot, but more comfortable than heretofore.

24th.—At 3 P. M. pulse 96—heat 98, thirsty but easy.

25th.—Easy midday, pulse 100—heat 99½.

26th.—Good night, midday pulse 92—heat 95.

27th.—Midday pulse 100—heat 95½.

28th.—Pulse 96—heat 100.

29th.—Pulse 100—heat 100.

30th.—Pulse 100— heat 100½.

31st.—Pulse 100—heat 99½---likely to do well, Sept. 19th.

Jane

Jane Thomas, 15.—Old scrophulous disease of ankle—elbow also affected—excessive pain within these few days from exfoliation of the whole os calcis—rather emaciated—amputation below the knee—took at first saline mixture, antimonials, and occasional opiates, latterly no medicine, but had beer and meat half an hour before operation. Pulse 122—heat 97—during operation heat varied from 99 to 94, cold and faint—took cordials—complained a good deal, lost little blood, and was but a short time on the table. Half-an-hour after the operation, pulse 154—heat 98—half past 7 P. M. pulse 116—heat 102, took 3 opiates during the evening—3 hours sleep.

July 22nd.—Rather restless night, half past 9 A. M. pulse 132—heat 102—3 P. M. pulse 144—heat 105. 8 P. M. pulse 148—heat 105.

July 23d—Good night. 3 P. M. pulse 140—heat 101½—9 P. M. pulse 136—heat 100½— not much pain.

24th.—Good night, easy. 3 P. M. pulse 136—heat 100.

25th,—Good night, easy. Pulse 124—heat 96.

26th,—Good night, easy. Midday pulse 108—heat 97.

27th.—Bandage taken off for the first time to-day—adhesive dressings remain—good pus—pulse 104—heat 97.

28th.—Pulse 100—heat 97.

29th.—Pulse 80—*no mistake in this number*—heat 97½

30th.—Pulse 108—heat 98.

31—Pulse 84—heat 97—all the dressings removed first time to-day—recovered Sept. 19th.

Thomas Sparkes, aged 21, a dull contented country lad.—Stone in the bladder—operated upon Sept. 15, 1807—calculus weighed nearly two ounces, and was covered with spiculæ, which occasioned some pain and delay in extraction—very little blood lost. The day before the operation heat 97—pulse 100.

15th.—Immediately after operation (half past one) heat 96¼—5 P. M. heat 97—pulse 84. 8 P. M. heat 99—pulse 98—in very little pain, and took xx drop[illegible] Opii—good night.

16th at 10 o'clock A. M.—Heat 99½—pulse 106. 2 P. M. heat

heat 100—pulse 112. Half past nine, P. M. heat 101—pulse 120—good night—takes mist. salin.

17th at eight A. M.—Heat 97½—pulse 120. 3 P. M. heat 101—pulse 112. 8 P. M. heat 101—pulse 124—good night—wound looks well.

18th at two P. M.—Heat 97½—pulse 126. 8 P. M. heat 98—pulse 136—night rather uneasy—diarrhœa.

19th at three P. M.—Heat 91½—pulse 120. 8 ditto, ditto—good deal of debility—takes aromatic powder and an opiate.

20th at three o'clock P. M.—Heat 100—pulse 124—allowed meat and porter—altogether better.

21st at three P. M.—Heat 98—pulse 118—quite free from pain—doing very well.

Anne Cotton, aged 9.—Very much burnt over the shoulders and face—sloughs deep—lies quite composed; will probably die. Fourth day after the accident heat 96—next day 96½. The parts kept constantly wet with aq. veget min.—takes syr. papav. alb. frequently.

Formerly, when I was concerned for patients who suffered amputation in summer, I have had a window taken out, the space filled up with wicker-work, and this interlaced with furze. The furze was kept perpetually wet. A grateful coolness is thus produced, when the wind sets into the room. I have since in a few cases directed the heated body of the patient to be spunged with warm water, which produced a beneficial effect, as in idiopathic fever, and in the natural phlegmasiæ. It would be waste of words to shew how comfortable this must be in moderate cases, and how likely in dangerous ones to turn the balance in favour of the patient. Nothing can so much forward exhaustion,

haustion, irritation and gangrene, as excess of heat.—But while the body is cooled by tepid fomentation, the injured part, if it grow very hot, should have compresses wet with cold water kept applied to it, till the temperature be reduced.

Fifteen years ago, I communicated to a medical friend thermometrical observations on young people of a consumptive habit, some of whom have since died of consumption; as also a few upon individuals, affected with passion. My correspondent thought the results curious, but lost the paper. Some of Mr. Smith's observations direct the thoughts to the effect of emotion and of pain on temperature; and the subject is deserving of attention.

THUS have I examined the connection between fever and inflammation; depending only on the most fully authenticated facts without any admixture of supposition. My own opinion I have placed beside the opinion of others, along with practical inferences relative to such cases, as most severely task medicine. It remains for the well-informed and the impartial to decide whose is the sounder doctrine.

At the close, I presume to offer a few ideas tending to the furtherance of our imperfect art. To these, the consideration of the same subject had given rise. Reconsideration has served only to corroborate them. The general history of useful plans shews that they must for some time *lie upon the table.* They are discussed. Imaginary difficulties vanish. The living force of reason overcomes the vis inertiae of habit. And the measure is executed, just as if it were the original instinctive dictate of common sense.—The following instance is so nearly, though not precisely, in point, that the author will venture to quote it. He had, a few years ago, ventured to propose a periodical change in the medical attendants of hospitals in large cities as a thing equally advantageous to the sick and to the healing art. Bristol was certainly not the place, where he flattered himself that the idea would be entertained. Nevertheless, had people fully understood that the big book of a certain professor (styled by himself a *memorial*) failed to persuade his townsmen to elect surgeons to the Edinburgh Hospital for life, it might have been realized here. For the measure was actually carried at one meeting, and lost but by an inconsiderable majority at another. Let but a few efforts be made, and the corporation-spirit of the medical attendants, every where the chief source of opposition to the improvement, will find itself defeated.

Scotch

Scotch authority, an article rated so high, is strongly in favour of the measure. At Glasgow, the physicians and surgeons go out in rotation. At Edinburgh, the surgeons; and in winter, the clinical physicians every three months; of which mutable appointment that same Dr. Gregory, who now rages with his pen against all periodical succession in hospitals as inexorably as Achilles of yore raged with his lance, for many years enjoyed the emoluments. What then? Will any one assert or believe that the clinical patients are sacrificed to the medical school?

PIA VOTA.

1. *Relative to morbid anatomy.*

Of the steady progress of the healing art by far the largest share is owing to our advancing knowledge of the changes, wrought by disease. To the same are we chiefly to look for future improvements. Unless the practitioner be aware to what a disorder is tending, how can the patient expect preservative measures to be planted in the exact place between himself and danger? Is it not too absurd that enquiry into the state of dead bodies should be carried on almost always

always in haste, and often by chance or stealth; and that mankind should absolutely not suffer an art, which concerns all alike, to acquire a juster title to their confidence? When any process is to be repeated for profit, full time and opportunity never fail to be allowed for ascertaining its principles. The enquirer would indeed be disgraced or ruined, if he did not take full time. What a contrast in regard to those processes, where life itself is at stake? I know and respect the feelings that have stood in the way. But where real humanity has fair play, it will suppress these feelings.

At the dawn of science upon the states of Italy, the anatomist, in common with the artist, appears to have enjoyed, as he deserved, the favour of the great. The rulers of modern France have contrived, amid all their excesses, to promote physiological and pathological science beyond all past example. Its cultivators are going on at so quick, yet so sure, a pace, that if they but appropriate a few British and American ideas, the very thing must happen in medicine which happened in chemistry, when Lavoisier and his associates, availing themselves of the ideas of Black and Priestly, went more methodically to work. The event would be highly desirable, because all improvements in medicine are an universal and unmixed good. Emulation would likewise be rekindled among

among us; and, as has lately happened in chemistry, we should again outstrip those, by whom our predecessors had been undertaken.

There is no reason however why we should not maintain our present precedence. It is only necessary that some individual or union of individuals, extending their views of society still more largely, should take up the cause of that science, than which none bears more directly upon their own species, with the spirit, which the Duke of Bedford and Sir Joseph Banks have exerted in behalf of agriculture and natural history. An *institution* for the minute examination of dead bodies and for inventing superior methods of examination might be so conducted in the metropolis as possibly to double the number of facts, useful to medicine, in twenty years.

Let me add that no well-appointed school of medicine ought to be without a separate teacher of morbid anatomy. In ordinary anatomical lectures, deviations of structure are shewn, and a teacher of medical jurisprudence must introduce more of the subject. But morbid anatomy surely requires to be taken up in its own order and to be unfolded to its natural dimensions. It requires this the more, as we possess no work but what is so scanty, so jejune and so stiff that it hides from the learner—that which most requires to be taught—the free

play

play of nature, and, as far as its authority extends, is an hindrance to improvement.—One reflection will readily occur, that it never can be improper to give separate lectures upon any physical subject, on which it is proper to write a separate treatise.

2. *Pocket-book.*

J'aime à ne prendre que l'experience pour guide. Elle n' a pas encore suffisamment portée son flambeau dans ces routes ténébreuses.

I wish for two works on fever, different from each other and different from any which we have—the one much smaller—the other much larger—each *as far as possible* rigidly practical. My projected pocket-book can be kept strictly to this idea—I would have it drawn up nearly after the manner of another well-known pocket volume.—I beg pardon of the profession for not being able to find a more dignified illustration of my idea—but I mean *Mr. Hoyle on the game of whist.* See that able performance and lament that we have nothing approaching to it in medicine.

In this book I would have the various sets of symptoms, incident to fever-patients, concisely stated like the various modifications of hands of cards, and the manner of proceeding in consequence, laid down simply and disencumbered of all the *stuffing* (that is, I think, the term with

with our newspaper brethren of the quill), which so unprofitably swells out the common treatises on febrile disorders. The little work would act upon the larger, which I am going to describe, somewhat like a sliding scale upon a mathematical instrument. It would receive perpetual additions and corrections, like Mr. Hoyle himself, from experience. It would purify experience so much that we should, possibly, at last acquire accounts of fever, unalloyed by a single hypothetical phrase. And of these the place would be occupied by facts, that have hitherto escaped our prepossessed eyes.

3. *Pyreticus.*

In the title *pyreticus* I imitate *aphrodisiacus.* But I am in no pain about titles, wishing only to procure for society a collection of far more consequence than the *aphrodisiacus,* promoted by Boerhaave—namely, *a collection of original observers of fever.*

That it is well to preserve and disseminate facts, every philosophical parrot will fluently repeat. But it may be imagined that the demand in medicine must have secured a ready supply of all useful facts; and that old works must be to new nearly as ore thrice picked to the refined metal.

Such is the obvious supposition. What is the reality?—Sydenham points out the misfortune

tune of those, who are first to be seized by an epidemic. Their whole chance for escape lies in their constitution; and that must be peculiarly happy, if it save them from the complication of the doctor with the disease. The remark of Sydenham has literally held to the present day. It is at the expence of life to those who have suffered on the appearance of modern fevers, that succeeding sufferers have been some times preserved. When the yellow fever shewed itself in America, the physicians found themselves in the same condition as the inhabitants of a city, which is stormed at midnight by an unexpected enemy. Their individual squabbles, their contradictions in bodies, their conversions and confessions, singly and collectively, prove that they were not only unacquainted with a remedy, but confounded by the very form of the evil. Dr. Rush, the pupil of the so celebrated Cullen and the most eminent physician of the new world, found himself, in his distress, reduced to beg alms of information from a physician of the West Indies accidentally present in Philadelphia. The condescension does the highest honour to Dr. Rush. But where he hoped for medicine, there he found poison: and this he came to know not from any thing which his instructors had taught him; but from the wholesale destruction of his patients. I have already noticed the accident which led him into

what

what he thought a better path; the communication of a manuscript by Dr. Franklin.

We shall all be willing, I dare say, to believe as much as any one may choose to say in disparagement of the American faculty; *but our own! the first existing!*—Well then our own—Some of our own, scandalized at the disgrace of the common art, did begin to give lessons amain across the Atlantic. The lessons indeed were received as the irrelevant effusions of men, who set themselves to harangue against facts. And American pride was destined ere long to have a fearful revenge. The deadly feud, excited by a mortality from fever on our own shores, between the physician-general to the army and its most celebrated physician particular, came just apropos to be set against the medical squabbles in America. Gibraltar, Gibraltar is pitted against Philadelphia. An American writer has the assurance to say, "that after all British reproaches against the American government and American physicians for *permitting* the yellow fever to commit such ravages, this yellow fever made incomparably greater proportional ravages in a British garrison, where the authority of medical police was unlimited" (*N. Y. Med. Repos.* viii).—In the West Indies, on the continent of Europe, at home, wherever the British army was posted during the last war, its history of health has offered not only pretexts to a challenged

challenged rival to laugh to scorn the arrogated superiority of British modern medical practice, but also reasons for an impartial man to pause upon the claim. "In the late war," says Dr. Jackson, "hospital expence occupies a conspicuous column in the statements of public expenditure. Hospital mortality accounts principally for the diminution of the army. In these two points, the late war is held to be unexampled" (*med. department of the army*, 1803, p. 159).—What is the death-list of the pleurisy of last spring among the military and in our naval stations from Yarmouth to Plymouth?

How do these facts bear upon the foregoing proposal?—In this way. The office of teacher, whether assumed or conferred, can never compensate for the living lessons of experience. A common-place professor follows, a professor of any ingenuity makes, a sect. Now in medicine also, the different sects proscribe one another. Brown alone was frantic enough openly to fly in the face of all past observation. But the tendency is universally the same. That is effected indirectly, which is not directly avowed. To the herd that follows every master, just observations and salutary practices, delivered in a language different from his, are lost. They are obscured to all who have not an uncommon spirit or uncommon opportunities of enquiry.

It

It might be plausibly, perhaps convincingly, argued that the tens of thousands of sufferers from the pestilential fevers of our times were almost all the worse for the lessons, which their medical attendants had received in our *schools of medical practice.* That they received many mischievous impressions will be thought probable.—*But perhaps these were compensated*—I dare not affirm it, when I perceive how long we must search without finding a single hint in the professors, which can be shewn, by any consent of good authorities, to have been useful. Of two equal individuals, if I might suppose one, after preparatory studies and hospital-visiting, to hear his professor of the practice diligently; the other to be familiar with the series of original observers; I have no hesitation which I should prefer as my own attendant in malignant fever. However bad medical observers may have been, medical reasoners have always been a great deal worse.

Had I to fit up a hall for practical lectures in medicine, opposite the chair I would place a group of the faithful observers of our nature in conflict with sickness, fresh in their evergreen honors; and Sydenham in the midst—I would also introduce a group of those medical pedagogues, the most vain-glorious of mortals, who have abused their professional authority to dazzle the boys around them, and whose

vanity

vanity has stimulated them to exertions of a bastard ingenuity, till their faculties have become too weak to burst through the hypothetical cobwebs, which themselves had spun.—These men should be seen with emblems of a tarnished reputation, and stealing away from observation, but on that account the more conspicuous; as, according to Tacitus, in the days of imperial slavery the statues of the Roman patriots were only more present to the spectators for not being borne along in funeral procession.

But I can dispense with all such considerations. Let a professor ever so fairly give a general abstract of facts, instead of filling the hours with his own partial ideas of their relations, what can he furnish beyond a faint outline? Nor can this be properly filled up but from the source which I point out. The student—the young man going forth to scatter life and death—requires full and free access to the least polluted sources of knowlege. Images and emblems may fail to infuse into the preceptor due reverence of original observers: but may not the original observations themselves guard the pupil against credulity? And is not the oldest practitioner, from the appearance of unseen modes of disease, often in the very situation of a raw student? In this difficulty, no oral instruction, no compendium, no ingenuity of the individual

individual can supply what is often to be found among the faithful copyists from nature.—It is a difficulty, which arises most frequently from fever, and no man can see many cases of fever without feeling it, unless he be one of those that take diseases in the gross.

If we consider all schools as on a level in regard to what they have *supposed*, it will become but the more interesting to inquire into what each has *seen*. On so impartial a survey, later speculation will miserably sink in value. But older observation will rise in higher proportion: so that the public, on taking its stock of real knowledge, will find itself richer upon the whole.

Such a collection, I have imagined, would be acceptable to all of our profession, who do not find it enough to make a graceful bow, a grave face, or a speech of hollow condolence—who are anxious about the essence as well as about forms. I have supposed too that an administration in earnest about those *brave defenders*, of whom we talk so tenderly, might make it a library for ships and regiments. I have conceived that many opulent persons, if they understood the object, would find it worthy of support. Among these, country gentlemen in remote situations, who are sometimes dependent upon practitioners, not over-

burthened

burthened with literature, might think it no unwise plan to put such a work, in self-defence, into the hands of their medical attendants.

The work, though published with the most rigid œconomy, must still be costly. No bookseller, I believe, will engage in it, unless satisfied that the sale would form an exception to that of medical books in general.

The undertaking would require many subornate hands, but these should be subject to one controul. The editor, however, would be unworthy of his office, if he did not invite contributions and counsel from all quarters. For myself, were the office proposed to me, I might yield a reluctant assent—not to the nature of the employment but to the utility of the object. I may know where the materials, in great measure, are to be found. As facts are not to be had pure and as it will be often impossible to separate them from suppositions, it must be of use to explain what was the philosophy of the time and to what school the observer belonged. This office, if any, I would undertake—with the selection (for we cannot comprehend all) and the general disposition. But indolent approbation would not satisfy me. I should require, and so certainly would the booksellers, a spirit of cordiality in the public. For myself, I can dispense with the collection as well many of my brethren.

Meanwhile,

Meanwhile, it will be some satisfaction to have given a plan for stifling, in their birth, some of those epidemic errors, which issue from the schools and become more destructive, more inveterate and extensive in their range than any epidemic diseases, the chance of being considered in other countries and other ages. Wherever it is executed, it will furnish a work for the whole earth, which we mortals inhabit; and he who should execute it well, would entitle himself to a civic crown from the growth of all its zones.

APPENDIX.

ILLUSTRATIONS.

Page 13. Marteau was no common man. Least of all was he a boaster. The strongest proof that credit may be given to his asserted successes arises from his readiness to own his failures. Thus, in speaking of an epidemic pneumonia typhodes, he says, *Je n'ecris pas pour vanter mes succès. Je ne puis faire ici que l'histoire de mes malheurs. Mes successeurs - - - profiteront des fautes que j'ai pu faire.*—Of all the contributors to his journal, he is the only one, I think, whom Vandermonde expressly compliments for the excellence of his communications in the name of the whole medical public. His account of the putrid sore-throat seems by far the best among those which appeared towards the middle of the last century. It even contains some important results of observation and dissection, which have hitherto escaped notice among us. He represents the putrid and scarlet varieties of this disorder as arising from the same infection. At the distance of near 60 years, the opposite error can but be just said to be generally eradicated from the minds of medical men in Great-Britain, though so superior an observer as Dr. Clark of Newcastle opposed the doctrine of Cullen thirty years ago, that is, as soon as it was broached in his *first lines*.—Marteau forbade bloodletting, except in rare cases; he prescribes vomits, and then cordials and stimulants. The ulcers are to be pencilled with dilute marine acid.—His occasional contributions to morbid anatomy have much value from his apparent accuracy with regard to symptoms and appearances.

As to Wendelstadt; he is a very fair authority. Various productions speak in favour of his probity and good sense.

P. 29. Proucquet.—Præmittens facies typhi esse diversissimas quoad symptomata, typum, decursum, epidemiam, clima, individualitatem subjectorum, compositionem et complicationem cum aliis febribus et morbis. Hinc etiam descriptiones variorum haud parum inter se differebant, et variis ansa data est denominationibus, *quae primo intuitu essentiales differentias innuere videbantur ; etsi talis, sub diversa quamvis facie, utpote indolem morbi non mutante, locum habere nequit.* Bene ea propter ill. Frank febres, aliis dictas navalem, carceralem, castrensem, nosocomialem ipsamque pestem, febrem pestilentialem, ephemeram sudatoriam febri suae nervosae (melius neuricae) subordinavit, Diss. I. p. 3.

2. Quodsi typhi symptomata per omnia ac singula morbi stadia persequimur, ea tantum non omnia eó colludunt ut sedem morbi in capite seu potius in encephalo indigitent, unde inter vulgus germanico idiomate morbus haud male Kopffieber, hitzige Kopf-krankheit audit. Inter ea symptomata numeramus καρηβαρειαν cephalæam, dysœcœam, otorrhoeam, perturbationes mentis varias, agrypniam vel et lethargum, stuporem, oculorum reliquorumque organorum sensoriorum mutationes. ibid p. 6, 7.

3. Formati sic inflammatorii status præter differentiam intensionis et extensionis et secuturarum mutationum in decursu, jam in principio duplicis generis esse potuerunt, scilicet aut sanguinei aut lymphatici p. 15.

4. Quænam causa esse potest cur plerique et æstumatissimi auctores naturam typhi inflammatoriam tam anxie negent? ib. p. 7.

5. Affinitas inter formam febris, actum febricitationis ut ita loquamur, et inter formam inflammationis maxima est. Hinc et nosologi febres et inflammationes suo jure ut affines consi-

derant, et Stollius eas (Aphorism. de febr.) promiscue proposuit. p. 16.

6. Cerebrum ipsum modo integrum, modo ejus provinciam majorem, minorem, *jam ab initio morbi* in statu erethistico esse, febricitare, non dubitamus asseverare : - - - - In quonam vero ille erethismus consistat, an a statu inflammatorio differat, quantum ab eo distat, ea quidem haud plane evidentia sunt. ib. p. 15.

7. Differentia ergo inter typhum et phrenitidem erit aut parva aut nulla. Solent quidem huic vehementia illa et impetuosa symptomata adscribere; illi magis somnolentiam, stuporem et similia, robur musculorum fractum indicantia, verum et horum symptomatum constantia non observatur, dum in typhis epidemicis nonnumquam phrenitica illa symptomata in primis morbi stadiis ingruunt quandoque et, morbo ad mortem vergente ; post sat quietum decursum in ultimo morbi stadio demum furor phreniticus vehementissimus cum robore musculorum redeunte se manifestat ib. p, 17.

8. Videmus potentias nocentes dari, quarum influxus tam potens est ut integerrimae vires vitales iis resistere nequeant, ut sanissimus homo exinde *mutabilium adeo humorum* crasin bonam subito perdat - - - - nonne a fulmine, a venenis quibusdam integra sanguinis massa subito alteratur, coagulabilitatem perdit, decomponitur ? D II. p. 8.

9. Magis autem, et distinctius ac verisimillimae conjecturæ, de verâ sede typhi nos certiores faciunt sectiones cadaverum, quarum major pars cerebri ipsius, idiopathice affecti, mutationes morbosas ; alia pars aliorum viscerum, maxime abdominalium, præcipue ventriculi affectiones oculis exhibuere p. 11. sedem typhi primariam, esse encephalon utpote quod saltem ex parte toties inflammatum, inundatum, suppuratum, sphacelosum post typhos repertum fuit—ib.

Dein sunt et status erethistici aliique morbosi, qui post mortem evidentia sui signa non exhibent p. 14. 10. Quod

10. Quod denique differentiam sedis specialem attinet, inflammatio jam membranas cerebrum investientes, jam ipsam cerebri substantiam occupare potest p. 16.

11. Virium summa non ex solis symptomatibus, debilitatem nunciantibus dijudicari debet, cum præcise in hoc typho non semper vera exhaustio, verus defectus virium praesto sit, sed potius suppressio, vel ut rem propius designemus, impedita cerebri functio. Hinc toties accidit ut summa apparenter debilitas anterethismo aliquo amoveatur.—Diss. II. p. 18.

Cum autem debilitas, lapsus virium, eminentissimum typhi symptoma sit—adeo quidem ut multi essentiam harum febrium in eâ ponant, omnino etiam therapentice ad eam respiciendum erit. Veruntamen haud nude et crude incitandum et roborandum esse, audito modo nomine typhi, vel ex eo apparet, quod in multis non modo in initio morbi robur phreniticum observetur, sed et plures post longam universalem astheniam ultimis vitæ diebus robur recuperent - - - - - Docet hoc insignem illam differentiam inter virium suppressionem, impeditionem et inter earum absentiam p. 29.

12. Typhus indicationem liberationis cerebri exposcet. ib. p. 7.

13. Cum haec cerebri liberatio directe et immediate, nec in primis nec in posterioribus morbi stadiis institui et impetrari possit, non nisi indirecte et mediate procedere poterimus. Facient ad id generaliter 1. depletio et antherethismus 2. restitutio justae actionis vasorum obrutorum et cum his connexarum partium. p. 8. lotiones frigidae, quin frictiones glaciales p. 28.

P. 44. *Transmission of dispositions.* As inferior animals are distinguished from one another by strongly marked differences of instinct, so are human individuals by differences less glaring perhaps, but perfectly apparent, which may be called *instinctive*, and are certainly often hereditary. Thus I know a child,

a child, that has the habit of sleeping on its face with the arm particularly disposed about the head. The mother has just the same habit. This appears to be a transmitted and not an imitative peculiarity, because the child was nursed by the mother only for the first two or three weeks: and then they never slept together; and after this, the child for a considerable period, during which the habit was gradually formed, lay in the same room with nurses who slept in a different posture. So that the disposition was counteracted. Moral resemblances are observable where a parent has died before or soon after the birth of the child. Both dispositions, however, are easily, in most cases, superseded, and particularly the moral, in the human species.

P. 84. *Febrile tetanus.* Cases stand recorded on authority, difficult to resist, where tetanus, not occurring as a symptom of idiopathic fever, has been accompanied by increase of heat, as distinct to the touch as fever itself. Great thirst, high-coloured urine, and the whole state usually expressed by the term *feverish* were at the same time observed. The patients recovered on ample and repeated blood letting.—It would therefore be a conclusion not less vicious with regard to tetanus than to fever that the large exhibition of wine, as practiced by Dr. Rush and confirmed by Dr. Currie, is *universally* expedient.

I see that Portal (*Anatomie Med.* 1803, iv. 269) mentions a young man, who died of tetanus on the 4th day after a very slight wound in the back. Much bloody liquid in the lateral ventricles of the brain. No lesion in the cavity of the spine. —Mr. R. Smith has communicated the following farther observation:

John Doring, aged 13, labouring under tetanus from a wound of the foot.—Sept. 17th, midday, heat 91. 18th, ditto, ditto.—19th, ditto, ditto.—20th, heat 97, rather better. —21st,

—21st, heat 98, rather better—Pulse 85. 22nd, heat 97½. pulse 90—has sweated profusely these five days—that is since the 18th inclusive.

He takes tinct. opii gutt. xx. cum granis v. pulv. antim. quartis horis. Subsists entirely upon broths and gruel—From the 22d to this day (the 29th) inclusive, the sweating gradually lessened—pulse varied from 74 to 86—the heat continuing with trifling variation at about 95—he is now considerably better, can open his mouth full half an inch, and most probably will recover.

P. 84. *Convulsions artificially excited in fever.* Dr. Stuart of Philadelphia after bleeding a robust young woman to 70 or 80 ounces, giving 100 grains of calome', and rubbing in 12 oz. of mercurial ointment, found his patient extremely feeble. Her pulse scarcely sensible in the arm, though the strokes of the heart and carotid arteries were visible under the bed-clothes. Fearful of drawing more blood, he tied a ligature on both fore-arms, just tight enough to compress the veins but not the arteries. The veins took fifteen minutes to become turgid. Then the fingers became " violently contracted by convulsive spasms. The wrists were soon drawn into consent and the patient complained that they were much affected with pain."---The ligatures being relaxed, in ten minutes the spasms were relaxed also---" In ten minutes I could now with the greatest ease and certainty relax and convulse the fingers at pleasure. This was continued for nearly two hours." *(Coxe. Museum,* 1. 44.)—A debilitated person was vainly treated for tremors and palsy of his hands with tonics. The turgid blood-vessels, which lay like cords on both the arms and hands, led Dr. Solbrig to the idea of drawing off some blood, as it seemed that the vessels could not propel it. " Scarce," says he, " had three ounces flowed out, when the hand grew steady, while the other went on trembling---I had a vein in the other arm opened; and now the

the hand grew steady---my patient recovered the full use of both"---(*Horn's Archiv. Berlin*, 1805. viii. p. 333.) I hope that the reader will not quarrel with me for putting him in possession of the last fact, because it is not just an experiment on the production of convulsion in fever.

P. 133. *It would be easy to make various proposals for the treatment of hydrophobia,* on bare speculation. *But as profuse bleeding alone has the shadow of a sanction in experience and anatomy, I give the American case entire, lest a mistaken judgment of mine should prevent the rescue of any mortal from so dire a disease. It may be thought that the antecedent irritation of the wound outweighs all the opposite probabilities; for even the strong desire to worry has actually, as the respective cases testify, more of phrenzy than of hydrophobia. The symptom is of the greatest weight. But I know that recent scars will become troublesome under far different kinds of indisposition; and I venture to propose the state of such scars, as a mark for observation on the onset of fever, when opportunity offers. We should not be over hasty in constituting this or that sign as diagnostic.* T. B.

An ACCOUNT *of a* CASE *of* HYDROPHOBIA *successfully treated by copious* BLEEDING *and* MERCURY: *In two Letters from Dr.* ROBERT BURTON, *of Bent, in the State of Virginia, to Dr.* BENJAMIN RUSH, *of Philadelphia.*

Bent-Creek (Virgina) August 21, 1803.

SIR,

Believing that you are always disposed to encourage any thing which may throw light upon the treatment of diseases, I take the liberty of addressing to you the following case of hydrophobia, requesting a line or two, if you think it deserving your attention.

On the 4th of July, 1803, at nine o'clock in the evening, I was desired to visit Thomas Brothers, aged twenty-eight years

years. I was informed by the person who came for me, that he had been bitten by a dog, which his friends suspected to be mad. I found him in the hands of four young men, who were endeavouring to confine him, and thereby prevent him from injuring himself or friends. He recognized me, and requested me to give him my hand, which he made a violent effort to draw within his mouth. Conscious of his inclination to bite, he advised his friends to keep at a distance, mentioning that a mad dog had bitten him.

His symptoms were as follow, viz. a dull pain in his head, watery eyes, dull aspect, stricture and heaviness at the breast, and a high fever.

Believing, as you do, that there is but one fever, I determined to treat this case as an inflammatory fever. I therefore drew 20 ounces of blood; and, as he refused to take any thing aqueous, I had him drenched with a large dose of calomel and jalap.

July 5th, four A. M. Finding the symptoms worse, I took away 16 ounces of blood, and applied two large epispastic plasters to his legs, hoping thereby to relieve the oppression of the præcordia and other symptoms.

Twelve M. Was informed that one of his friends had permitted him to take a stick in his mouth; which he bit so as to loosen several of his teeth. As he craved something to bite, I desired his friend to give him a piece of lead, which he bit until he almost exhausted his strength.

One P. M. Finding but little alteration, I drew 18 ounces of blood, and had him drenched with antimonial powders.

Two P. M. He slept until half after three, when he awoke, with the disposition to bite, oppression, &c. but not so violent.

July 6th, eight A. M. Found him biting the bed-clothes; his countenance maniacal, his pulse synocha, with a stricture of the breast, difficult deglutition, laborious breathing, and a

dischage

discharge of saliva. I took away 24 ounces of blood, gave him a dose of calomel and jalap, and continued the powders.

Twelve M. Drew 16 ounces of blood, and gave him laudanum.

Five P. M. Found him in a slumber; his skin moist, and his fever and other symptoms much abated.

July 7th, eight A. M. Was informed that he had only two paroxysms during my absence, and that he had lost 16 ounces of blood, agreeably to directions. Notwithstanding the favourable aspect which the disease wore, I resolved to bleed him twice more, and then to induce an artificial fever by mercury, which would predominate over the hydrophobic. I therefore drew 10 ounces of blood, and requested his friend to take 18 ounces at night; to rub in a small quantity of mercurial ointment; and to give a mercurial pill every four hours.

July 8th, nine A. M. Found him convalescent, but continued the mercurial unction and pills.

July 9th, ten A. M. Found his gums sore, and discontinued the mercury.

July 15th, one P. M. Found him well, but with a considerable degree of debility.

It would be doing injustice to you not to mention that I was indebted to your lectures for the successful treatment of this disease.

DEAR SIR, *Philadelphia, August* 29, 1803.

Accept of my congratulations upon your rare triumph over a case of hydrophobia. I give you great credit for the boldness of your practice. You have deserved well of the profession of medicine.

In order to render your communication more satisfactory, permit me to request your answer to the following questions.

1. On what part of the body of your patient was the wound inflicted? and how long was the interval between the time of his being bitten and the attack of his fever? 2. Did

2. Did he discover any aversion from the sight of water; and did he refuse to swallow liquids of all kinds?

3. What were the appearances of the blood drawn? Did it differ in the different stages of the disease?

Your answer to the above questions will much oblige your sincere friend, BENJAMIN RUSH.

Dr. BURTON.

Bent-Creek (Virginia), Sept. 18, 1803.

SIR,

I regret that business of an indispensable nature prevented me from being more particular in my communication. I drew it up in a hurry, intending to transcribe it, and insert such other notes as would throw light on the case; but being called out a few hours before the post set out from this place, I was obliged to forward the communication in the manner in which you received it.

The part of the body of my patient on which the wound was inflicted was a little above the union of the solæus and gastrocnemius muscles, which form the tendo-achillis. The interval between the time of his being bitten and the attack of the fever was twenty-four days.

He was, I was told, dull and solitary a few days previous to the attack. A few minutes before it his friends found him two hundred yards from the house, apparently in a deep study. He has informed me, since his recovery, that he had a slight pain in the wound, attended with itching, and an uneasiness in the inguinal gland, several days before the fever.

He refused to swallow liquids; and the sight of water threw him into a convulsive agitation.

With regard to the appearances of the blood drawn, I am sorry to inform you that after it came cold I did not examine it.

I am, Sir, yours,

ROBERT BURTON.

Dr. BENJAMIN RUSH.

P. 163. *Passolongo* is misprinted for *Pratolongo*. Pratolongo was a celebrated physician at Genoa. He lived to a great old age, and saw, with an eye perhaps more unclouded by prejudice than any other individual whatever, the fluctuations of medical practice from near the beginning to near the close of the last century. He lived much among the epidemics of his country, and from 1740 to 1743, in quality of assistant physician, had to take down and read aloud the history of cases in the hospital (*Delle febre, che si dicono putride Genova*, 1786). He continued to think and observe strenuously on the subject. He strongly represents the experienced necessity for the use of the lancet; which however he considers as only preventing, or checking certain effects of the disease. He asserts that we are totally destitute of any *direct* specific against fever, of which the nature is unknown, and that the life of man ought not to be sported with in compliment to any hypothesis, which may have been formed upon the subject. He says that in 1740, these fevers were commonly called *malignant*; but afterwards when the doctrines of Boerhaave, Pringle, and Huxham obtained the ascendant, the title of *putrid* was substituted. This change of name he laments; for though *malignant* be not appropriate, yet it indicates danger; whereas the denomination of *putrid* is not only equivocal, but it perverted practice. For the same fever about 1740, did not prove so destructive (7 dying in 100) as afterwards, when the fear of putrefaction alarmed practioners into a contrary treatment. Though by the bark and blisters, had their use been better understood at the first period, more would have been saved. There were four physicians to the hospital, who differed as to bleeding; but all resorted to it, when malignant fever was in question; *provided the symptoms required it*. Petechiae he by no means considers as an absolute counter-indication.

Dr. Cera, of Milan, may be better known. Though less

free

free from prepossessions, he was a diligent and discerning practitioner, and strongly favoured bloodletting in fever *under certain conditions*; as when the pulse was full, hard, not very frequent, urine high-coloured and scanty, body bound, respiration slow with oppressive drowniness, and a buffy coat on the blood. Neither old age, nor penury, nor preceding disease should then, he thinks, stand in the way (*De febre nosocomiali* § 43—48). He bled as late as the 14th day with success, and repeated the operation when the above symptoms existed. If an external phlegmon arose and was accompanied with a vehement suppuratory fever, this he restrained by venæsection. "Neque quis regerat hic agi de febre putridâ, de morbo jam adulto, de viribus imbecillibus: febrem enim, quamvis putridae indolis natalitia sortita sit, in hâc tamen periodo degenerare atque inflammatoriam indolem induere; morbum vero, licet adultum, novum veluti morbum acutum phlogisticum esse;—vires demum citiús ac pejús a violentiâ febris quam a sanguinis missione, moderatâ tamen, prosterni."—How probable upon the whole that the treatment of fever degenerated among us in many respects, till of late!

P. 166. Dr. Deveze, a fugitive from St. Domingo, practised most largely at Philadelphia, in 1793, and the year following published a tract on the yellow fever, and another in 1804.—The committee of superintendance or whatever title it bore, having understood that he had met with some success, desired his attendance. He explained, in opposition to the college of physicians, his opinion that the disease was not contagious, and represented it as essentially less fatal than was generally apprehended. He was in consequence desired to visit the hospital at Bush-hill; and being unable to coincide with the physicians there, was charged with the sole management of the establishment. His practice was widely different from that of the British-bred physicians, though he did not carry bleeding nearly so far as his own countrymen formerly, or as Dr. Rush came to do. It would appear to have been sometimes useful,

useful, never destructive. The success ascribed to his measures, his calmness and the good order he introduced, seem first to have dissipated a little of the nearly universal dismay among the professional and unprofessional. To the name of Deveze, I cannot refrain from joining that of his associate, Mr. Stephen Gerard, an opulent American merchant, the equal of the good bishop of Marseilles, and of our Howard, whom no form of danger could appal and no form of misery disgust. Instead of flying to the security of his country seat he became the self-devoted slave of humanity. Scarcely would he allow himself time to take necessary support. He flew from one house of indigence and distress to another, distributing money and advice. In the hospital, he not only attended to the management, but traversed the wards; went from bed to bed, administering services and consolation; and it is said by an eye-witness, that no parent could have shewn more tenderness to his own children. It cannot be indifferent to any reader to hear that Gerard moved unhurt amid the pestilence.

P. I have asserted, without adding any authority, that after dropsy signs of inflammation or redness from dilated vessels would be found in the brain. In that very common sort of dropsy, which requires bleeding, a little knowledge of pathology will persuade any one that the fact cannot well be otherwise; and as some have named it *hydrops plethoricus*, so Dr. Ploucquet may, if he pleases, reconcile his system to the fact by calling it *hydrops typhodes*. Stoll, to give one example in acquittal of my faith, has cases of fatal dropy, where the vessels of the brain were found turgid. (*l. c.* III. 303 *et s.*) In this disorder, when it exhibits the *pulsus pleni, duri, vibrantissimi*, appearances of inflammation are discovered in seats as various as in the disorders so often mentioned.

P. 213. Dr. Currie has taught us that the cold affusion, employed in the hot stage of intermittents cuts the paroxysm short. It returns however, at the usual time. Most of us may have ascertained the truth of this lesson. But in bad cases of ague, the protracted application of cold will probably turn out as much

much superior to cold affusion as in bad cases of continued fever. It has been tried, not in consequence of a sudden delirious impulse, but from a resolution deliberately formed. Rey, game-keeper to M. de Ramaticelle, had suffered since autumn from the attacks of a quartan ague. They yielded neither to febrifuge medicines nor to spring. In summer, he went during the hot stage into cold water and continued in it, till he felt no more of the feverish heat. The ague never afterwards appeared.—Dr. Olivier, who saw the patient, and in 1771 related his case, argues away as fluently as a person who might have published only last month, upon the effects of the sudden shock (*ebranlement subit*) in driving back the contents of the capillaries into the large vessels and so on. As patients may be alarmed by the method of Rey, he proposes that medical men should first practice it on themselves.

P. 171. *Hunter and Darwin.* Hunter is well known to have been as superior in practice as he was in reasoning. No one will shove him aside as a pure speculatist, to make way for self-called exclusively *practical* men, the most arrant of pretenders in medicine. Could the cases, in which others failed and Darwin invented adequate resources, be collected, I have reason to believe that they would make as valuable a volume as any one which we possess. In his attempt to lay down the fundamental laws of organic life he has failed with all others. But how many observations of the most rare and estimable species, at once just and subtle, is he perpetually throwing out! How rich is his work in practical matter, and with what unostentatious conciseness is it delivered! He has single paragraphs, sufficient to found the fortune of a more than ordinary man's reputation, and his own would have risen much earlier and have continued to be more respected, had he developed separate ideas in separate treatises, and styled these *practical.* His application of digitalis to consumption, and his suggestion of the circular swing might easily have been followed up so as to yield materials each for a valuable work.---His use of splints to give tone to the debilitated extensor muscles of the upper

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upper extremities furnished abundance of suppressed successful cases; and so did his thirty years' employment of the plaister bandage in sores of the lower extremities. By his versatile talents, in short, he saved lives enough to deserve to be decried by the gossips in ten counties round, as an experimenter on the sick.

These and other examples demonstrate that the only chance of acting with success in medicine as in all other difficult departments of human conduct, is to be able to think. The dull in our profession, or those least capable of thinking, have always tried, and not ineffectually, to persuade the public that they are the *safest* practitioners, because, in compensation for this defect, they have received *judgment* or an instinctive substitute for it; as certain favoured mortals, to make up for loss of sight, are said to have been inspired with the talent for poesy. But genius and judgment are either synonymous or indivisible. It is by superior judgment that the ingenious superiorly adapt means to ends. Judgment always bears the better part in invention. Nay, when the flame is kindled in the bosom of the poet, even he must keep himself collected enough to apply the thermometer, that it may not blaze too wildly.

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