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OBSERVATIONS

ON

Yellow Fever,

Read before the Medical Society of the District of Columbia,

BY

B. WASHINGTON, M. D.

OBSERVATIONS, etc.

TO the younger part of the profession, who may not be aware of the importance of applying in season the powers of the healing art in subduing acute diseases, we offer some observations on the treatment of yellow fever. Our remarks contain nothing novel, and we hope they will excuse us for refreshing their memories, by reverting to the most simple and familiar principles, or facts, on which the science of medicine has been founded. The position, that the diseases of the United States are becoming daily more fatal, cannot, we think, be denied: that these diseases are of a more malignant or intractable character than formerly, we have, in our opinion, no just grounds for admitting: the cause then of this progressive mortality must be sought for elsewhere, and we are irresistibly led to the conclusion, that it will be found mainly in the treatment; though the effects of habit and customs, together with the results from agricultural changes on the face of the country, may exert some, possibly considerable, influence. On the nature and treatment of yellow fever, to which we shall more especially refer, all the talents and industry of the profession have been unremittingly directed, and as we shall be guided by the lights others have placed in our way, and use only a part of the materials with which they have so abundantly supplied us, we hope to escape the charge of arrogance, or an unjustifiable attempt towards innovation. But we must repeat, that those just setting out in

the profession only, may find some useful hint, whilst to the experienced physician, we have nothing to offer in the few desultory observations that follow.

The yellow fever for the most part makes its attack very suddenly. The patient may have eaten on the day, or the preceding day, heartily, perhaps, more so than usual. This he has been disposed to do from a sense of languor or debility, which he erroneously imagined to be a genuine appetite, from an increase of power in the digestive functions. In the course of the evening the fever makes its appearance, sometimes preceded by rigours, in other instances, without any chilly sensation. All the symptoms of yellow fever are too well known to require to be minutely detailed here. The patient frequently presents the appearance of a person suddenly overcome by some intoxicating draught. The eyes are red, dull, suffused with more or less of a muddy or yellow tinge. There is a dryness of the mouth, together with a faultering of the speech, and a degree of indifference to surrounding objects. The patient not unfrequently appears quite contented, often requesting to be left to himself, and becomes wearied and impatient if much importuned. The parallel may be extended further: when the pulse is felt it is found slow and labouring, more or less obstructed. The tongue is florid on the edges, with some whiteness of the papillæ, like the effect of flashing gunpowder in contact with a metal. Respiration is more or less affected, generally indicating some uneasiness. These are a part of the train of symptoms, constituting the most important stage of the disease, that of oppression, in which medicine will afford the most certain relief if promptly administered: but if

it be delayed, or not used in a bold efficient manner, the critical period may pass by in a moment, and the opportunity of relieving the patient be irretrievably lost. To this stage of the disease our inquiries will be mostly directed.

Before the food is reduced to chyme by its solvent powers, the stomach remains closed at its lower orifice, as we have been informed by Bichat and other physiologists. It is well known, that its healthy functions are suspended on the first invasion of acute disease, or when any strong impression whatever is made on the system. Violent exercise, excessive stimulation, pain, either from mental or physical causes, all the passions, will produce this effect in a manner susceptible of the plainest illustration. However keen the appetite, sudden joy, anger, fear, grief, will destroy it with the quickness of thought; in an instant it is gone. From these interruptions, the digestive apparatus becomes variously affected. Sometimes the stomach will remain passive for a long period: the food is not materially changed for many days; while in other instances, the greatest commotion is immediately manifested, and sickness, pain, and vomiting ensue. This conservative law of the animal economy, for such it may be deemed, it is curious to trace through many different species of animated beings. There really appears something like intelligence in the stomach, for whenever a shock is sustained, or an alarm given, it immediately suspends its operations, and when the general impression is considerable, and the powers of nature are not too much paralyzed, it makes efforts to get rid of its contents, as if aware of the mischief they might produce in the struggle that is to follow.

The first indication then in the treatment of yellow fever, must be to evacuate the stomach, and there could be no hesitation in proceeding to effect this, did we not know by long experience, that the stomach, after a vomit has been administered, becomes every moment more excited and disordered, until fatal symptoms, either arising from, or evidently hastened on by the remedy, take place. Witnessing so generally this result from emetics, they have been very universally condemned. But the reason why so much mischief has followed their use we will endeavour to point out, whilst we at the same time confidently recommend them, as by far the most salutary means that can be adopted in yellow fever. Administered in the ordinary manner, emetics are followed by large draughts of fluids, alternately distending and emptying the stomach, and keeping up the vomiting until vitiated bile, or some other irritating matter, finds its way through the pylorus. What we propose then, is to exhibit one of the oldest compounds in medicine, an emetic conjoined with a cathartic, which will, after ejecting the immediate contents of the stomach, cease to excite further that viscus, and exert its purgative property. But before proceeding further, we must make some remarks on the pathology of yellow fever.

The disease has been variously located by authors: the stomach, the liver, the blood, the nerves, etc. have all been assigned as its principal seat. Where the disease may have its origin we cannot pretend to determine accurately, nor is it a matter of much moment in prosecuting our present practical inquiries, though there appears much reason to conclude that the duodenum becomes early involved in a state of extreme disorder.

When the patient is asked if he have any pain or soreness about the viscera, he will probably answer in the negative, while passing the hand rudely over the abdomen. But by gradual and steady pressure over the epigastrium, he will suddenly shrink, and a spot may be found, frequently very circumscribed, which is exquisitely tender. This deep seated part appears evidently to sympathise with the pain in the lumbar region, for inquiry will inform us that this symptom, if present, is augmented by such pressure. The pain then of the back appears to depend on the duodenum, as that of the head does so generally on a disorder of the stomach. The next evidence for supposing the disease to exist in the duodenum, is the great sense of heat and thirst which is referred to this part. When cold water is swallowed, there is a momentary relief; but the thirst soon returns, even before the fluid has changed materially its temperature. This we ascertain when the stomach is so extremely irritable that it will not suffer distention, and on the ejection of the water, we find it still to be cold. In certain stages of dysentery this kind of association is well known to occur. The patient scarcely swallows a mouthful before a sensation is experienced as if it were rapidly traversing the whole track of the intestines, and a dejection is almost simultaneous. Thus it appears, that an extraordinary degree of sympathy is established between the seat of this intense heat, which we conclude to be the duodenum, or upper portion of the intestines, and the fauces, or œsophagus; for it is suspended only whilst the cold is in contact with these parts during deglutition. Certainly, if the heat were in the stomach, which it undoubtedly often is, the relief from cold drinks

would continue at least until they had been deprived of their heat. The first time we observed this phenomenon was in the paroxysm of an intermittent, during the cold stage. The water appeased the thirst only as it passed down the throat, and when we felt it cold to the hand after coming up, we concluded that the burning sensation was owing to an actual deficiency of animal heat, and that consequently some hot drink might be found a means of relief.

After saying thus much on the pathology of the disease, to which we shall again recur, we continue to explain the modus operandi of our remedy, and endeavour to point out the signal benefit attending it. When the emetico-cathartic is received into the stomach, it remains quietly until sickness and a general relaxation of the whole system come on, when vomiting ensues, and the food, with whatever else may be contained in the viscus, is discharged, which will be after a few efforts; because the cardiac orifice dilates sufficiently, and the operation of emesis is more perfectly carried on than when the muscles are thrown into violent and irregular action, by mechanical distension of the stomach, or the application of an irritant, such as we consider the contents of the intestines often prove to be, if regurgitated in sufficient quantity. These ill directed efforts of the stomach may be known by the force with which it acts in propelling its fluids, sometimes throwing them to the distance of several feet. After freeing the stomach, the medicine soon finds its way through the intestines, and acting at the time when this universal relaxation exists, the most complete alvine evacuations follow. By the gentle pressure of the abdominal muscles during vomiting, the contents

of the gall bladder, together with those of the pori of the liver, biliary ducts, and pancreas, may have been emptied into the intestines, and thus have contributed towards facilitating their depletion. At the same time that our remedy frees the primæ viæ, it tends to divert the blood from the viscera, determining it to the surface, and allowing it to be more equally distributed throughout the vascular system. This revulsion is attended with more or less discharge from the emunctories on the surface. Whilst we view emetics in so favourable a light in yellow fever, when judiciously administered, we do not know what can become more destructive when empirically directed. As we have seen them but too often used, the muscles have been so violently convulsed, as to force the stomach against the heart, producing the most alarming commotion in that sensitive organ, and a torrent of highly acrid matter is pressed into the stomach, which thereby becomes every instant more and more excited, until, like some dreadful vortex, it appears to draw in all the fluids of the body, and casting them out, as long as strength remains, undergoes disorganization, or finally sinks into a state of exhaustion, from which it can never recover. When the emetico-cathartic is properly given, all which is above the pylorus is thrown up, and that which is below passes down ; and we contend that purgatives alone cannot, with any degree of certainty, produce this thorough cleansing of the bowels. On the contrary, we find them, after the manner of the stomach, irritated to spasmodic action, perhaps contracting and grasping more firmly the fæcula in the superior portion, while they expel their aqueous contents with great energy. This is ascer-

tained to be the fact, by the dark offensive dejections which follow so immediately the emetico-cathartic, but which are delayed when simply purgatives are given, until that unlocking takes place, which evinces that the powers of life are fast declining, connected with a change of structure, and consequently denoting approaching dissolution.

Resuming the history of the disease: One of the earliest symptoms we hear complained of in yellow fever, is a general soreness of the surface, more especially of the limbs, attended with an aching sensation, as if fixed in the muscles or bones. This symptom, so common to most diseases at their commencement, we were once disposed to explain by the laws of sympathy, supposing it to be associated with disorder of the stomach, or of other viscera; but we now think it can be more satisfactorily accounted for by attributing it to mechanical obstruction. We know that the dermoid system is liable to an infinite variety of secretions, and that in the forming state of fever the exhalants throw out a viscid matter, which, drying on the surface, agglutinates the lamellæ of the epidermis so firmly, as to prevent a further escape of moisture, giving the peculiar dry, harsh feel to the skin. The tubes being thus firmly closed, become distended with their fluids, and until some vent be given, either by way of their natural apertures between the layers of the epidermis, or their contents be removed by absorption, they remain exceedingly tender and painful. To these minutiæ it may be thought we have attached an unnecessary degree of importance, but when we consider the nature of the disease under examination, surely no attempt, however feeble, designed to elucidate its character, can be uninteresting.

In selecting the duodenum, or upper part of the small intestines, as the seat of yellow fever, we do not contend that the disease commences there, or invariably falls upon that part. We admit that the disease may have its origin any where else, perhaps in the liver or pancreas, and the morbid secretions being received in the canal, give rise to that indescribable pain and deadly sickness, so often observed in the class of diseases termed bilious. This we dwell on, because it forms an important consideration in our rule of practice. That dissections may frequently fail to sustain our position, will form no objection to its validity, as post mortem examinations, though ardently prosecuted, have hitherto cast so little light on yellow fever, which, like the gout, flies about the system, seizing as a vulture, and yet, when death ensues, we seek in vain with the knife for the traces of its violence.

Proceeding with the treatment, we next notice the other indications demanding our attention. If after the primæ viæ have been duly cleansed by the means pointed out, we find pain continuing in the head, or back, or the viscera, we conclude that the vascular system is oppressed, and then the abstraction of blood is called for. Now we are about to take an important step, and we should reflect well before we proceed. In most diseases it may not be very material whether we bleed or not, and this remark may apply to many cases of yellow fever. But in the latter, generally speaking, life may depend on many contingencies, and on none, perhaps, so often as on that of blood-letting. We lay it down as a maxim, that blood cannot with propriety be taken away before the evacuation of the alimentary canal: for every

symptom demanding the lancet may previously exist, yet when this source of excitement is removed, they vanish, and so immediate a prostration ensues, that we feel satisfied a recovery could not have been looked for had blood been detracted. When, then, the symptoms enumerated are present, after a thorough purgation, blood should be drawn according to the rules so perspicuously laid down in the valuable writings of Dr. Armstrong. If the patient can stand without fatigue, he should be bled in the erect posture; otherwise he should be seated; and, in either situation, the blood made to flow in a large stream until syncope, or that state of the pulse and countenance is observed, indicating unequivocally deliquium to be on the point of taking place. He should then be gently replaced in bed, and kept quiet, all attempts to hasten his revival to be forbidden, as it is during this state of partial collapse or relaxation that the engorged vessels empty themselves, and the most decided advantage is gained by the practice. The quantum of blood necessary to be thus drawn we wholly disregard. It may amount to ten ounces, or to fifty ounces; for we waste the vital fluid in vain, unless positive proof be obtained, that the vascular system, being relieved of its load, has recovered its elasticity, and that a powerful impression is thereby made on the disease.

In citing Dr. Armstrong, we do not pretend to determine whether he be justly entitled to the claim of any originality in his opinions or practice. The precepts, however, which we find in his writings, are the very best we have met with on the subject of blood-letting. The following transcript from Sydenham will show the practice of suddenly drawing off blood was not unknown in

his day. "Amongst the other calamities of the civil war that severely afflicted this nation, the plague also raged in several places, and was brought by accident from another place to Dunstar Castle, in Somersetshire, where some of the soldiers dying suddenly, with an eruption of spots, it likewise seized several others. It happened at that time that a surgeon, who had travelled much in foreign parts, was in the service there, and applied to the governor for leave to assist his fellow soldiers who were afflicted with this dreadful disease, in the best manner he was able, which being granted, he took away so large a quantity of blood from every one at the beginning of the disease, and before any swelling was perceived, that they were ready to faint and drop down: for he bled them all standing, and in the open air, and had no vessels to measure the blood, which falling on the ground, the quantity each person lost could not of course be known. The operation being over, he ordered them to lie in their tents; and though he gave no kind of remedy after bleeding, yet of the numbers who were thus treated not a single person died, which is surprising." To this Dr. Rush subjoins the following note: "The quickest effect is produced from bleeding in a standing posture of the body. The loss of twelve ounces of blood will induce fainting in this posture, sooner than three times that quantity when a patient lies in bed. It should be resorted to when we wish to produce a sudden and general change in the actions of the system." Hundreds of such remarks may be found in writers for the last two or three centuries.

Next our attention is turned to the skin, and having by proper ablution dissolved and removed the glutinous

matter with which it is incrusted, we would propose a remedy with no small degree of confidence, although we possess no experience of its efficacy in yellow fever. We have reference to oil. It would be useless in us to attempt furnishing a laboured detail of all the facts which might be adduced, to prove the importance of the operations carried on by the skin as connected with yellow fever, particularly those relating to temperature. The associations between the surface and viscera have formed the ground-work, on which some of the most ingenious theories have been erected. The publication of Dr. Johnson on Tropical Climates, a work of no ordinary merit, has presented the world with some interesting hypotheses founded on this connexion; and were we to indulge in speculation, we must confess we should endeavour to build on this basis. But waiving all unprofitable discussion, we find, as we before stated, the mouths of the capillaries rendered impervious by a morbid condition of the secretions. After washing off this viscid matter, it becomes a desideratum to prevent its re-exsiccation. Were the patient to remain in a bath, or water to be continually applied to the surface, the end might be answered: but as neither mode can be adopted, we recommend the application of olive, or some other oil, which will insinuate itself into the interstices of, and incorporate itself with the cuticle, preserve it in a soft pliable condition, and thus prevent the gluing down of the epidermis.

At first it might be thought oil would prevent the escape of perspiration, by shutting up the mouths of the cuticular canals; that such however is not the fact, will appear by the following experiment: A person suffered

excruciating pain from extensive inflammation of the thigh, and a cold saturnine lotion was used with perfect relief. This remedy having been consumed during the night, and the pain returning with its previous violence, he had recourse to cold water, which answered equally well. Being thus satisfied no credit was due to the lead, he was ordered to continue the water. At the next visit he assured us that warm water was just as effectual in relieving him. Not feeling disposed to commit ourselves by further proof of the fallibility of our opinions, we instituted some humble inquiries, which conducted us to the conclusion, that the inflamed skin was relieved by restoring the insensible perspiration, or by softening the strata of the skin already so far detached as to be out of the pale of vitality, constituting, strictly speaking, the epidermis. When the water was removed by evaporation, the heat and pain became intense : by inverting a cold glass cup no moisture was perceptible. By rubbing on olive oil relief was again obtained, and when the glass was turned down a dew soon condensed on the bottom of the vessel. The truth of this experiment has been since fully confirmed. The most striking property in some of the oils is the facility with which they change the disposition of their particles, in consequence of their feeble cohesion. They in fact appear devoid of tenacity, observing simply the laws of gravitation and capillary attraction. They do not unite with water, because the latter fluid has so considerable an integrant attraction as to deny them admission between its globules. When filtering paper is saturated with oil, and water is affused, it soon finds its way through the unresisting medium, and percolation goes on uninterruptedly : this is identically

what takes place when the exhalants have conveyed their fluid to the sinuosities of the epidermis; if the least force propel, the passive oil is displaced, and transudation ensues. In health the sebaceous glands of the cutaneous system continually furnish an oleaginous matter, producing that condition of the surface its functions require, and which, when absent or deficient in quantity, we would remedy by artificial means.

We have been assured from respectable authorities that olive oil, externally applied, is fully competent to subdue the frightful plague of the Nile, and this assertion we surely are not prepared to deny, when we take into view the chronic form of the disease with the adynamic state of the system so often marking the plague, which may not require more active depletion.* It is well known the African can better resist the causes of acute diseases in tropical climates than the white man: he emits an extraordinary quantity of perspiration, and in him a proportionate degree of oil is found on the surface. No custom prevails more universally among those barbarous people, in whom nature does not amply supply this defence against fevers in unhealthful countries, than the use of unctuous substances. To change the actions of the skin when viscid matter is secreted, and too small a discharge is supplied by the sebaceous glands to preserve apertures for the exit of perspiration, a remedy has been offered to the public in the "sulphur fumigations," which by suddenly rousing the torpid exhalants, and removing the obstruction from their mouths,

* When there is a great torpor of the surface, Dr. Purlee has lately advised alcohol to be united with olive oil, which may be much preferable in such cases to oil alone.

may prove an important adjuvant in treating an infinite variety of diseases.

In laying down our rules of practice the pulse has not been alluded to. In the outset of yellow fever, though our hands are applied often to the wrist, yet we can learn but little from its pulsations. We concur with those who say, when the pulse is weak or strong, slow or frequent, regular or irregular, perceptible or imperceptible, bleed; plainly amounting to an acknowledgment that other criteria govern them. Thus far, however, we go with confidence, when the pulse continues steadily tense after the evacuations we have premised, though there may be no pain, still we would take away blood to the extent already proposed.

These steps having been taken to meet the primary or oppressed stage, we pursue the practice by further general directions for what may be called secondary symptoms. Should not the colluvies of the bowels be carried off effectually, of which we determine by the appearance of the dejections, small portions of calomel may be ordered at short intervals until the cleansing be completed. If the intestines be so sluggish as to require something more stimulating, the sulphate of magnesia alone, or united with magnesia, or senna, may be given in small doses alternately with the sub-muriate of mercury.

Of calomel as a remedy in fever, so much has been said, that we feel reluctant to offer a single comment. Yet as we would not encourage the introduction of any remedy empirically, we will endeavour to express our ideas of its modus operandi so far as may concern the subject of our observations. No article in the whole range of the materia medica appears possessed of so many

peculiar and valuable properties as calomel, more especially in bilious disorders, or those complaints in which the chylopoietic viscera are immediately concerned. It not unfrequently appears to exert counter-stimulant or sedative power,* removing spasm, and enabling the vessels to relieve themselves, according to the same rationale by which opium brings about a solution of stricture, and thereby facilitates the excretions. This sedative property manifests itself as unequivocally, on some occasions, in calomel, as it does in the oxydes of lead, an example of which is offered by the following case. A person during a sickly autumn experienced some of the symptoms, such as headach, furred tongue, feverishness, etc. the forerunners of a bilious attack. At night he took ten grains of calomel, which commenced a gentle operation in the morning. When this was going on steadily, he received ten grains more; instantly the purging ceased. After the lapse of three hours, a third dose, similar to the preceding, was taken. Now the remarkable property attributable to mercury, that of destroying or suspending the susceptibility of the intestines to the action of purgatives, discovered itself. For several days unremitting attempts to procure an alvine evacuation were continued to no purpose. At the end of that period a small discharge took place; and very gradually the natural functions were re-established. This effect of calomel we must very often have observed more or less in those disorders in which the actions are easily controlled: diseases of higher action may be more refrac-

* Some very ingenious observations relating to this subject, may be found in a paper by Dr. Bell, in one of the numbers of the Philadelphia Journal, in an exposition of the new Italian doctrine of counter-stimulants.

tory, and this influence may be wholly lost in them, or not be sufficient in degree to become evident. In attempting to lay down a few practical rules, it might be considered unnecessary to entangle ourselves in the discussion of the question, whether there be a sedative, nor do we wish to engage in a controversy touching any subject abstracted from the avowed object of our inquiries: but what shall regulate the practice, unless some definite idea exist of the nature of the medicines employed. Either nosology and specifics must be restored to us, or we must analyze diseases, and be equally minute and indefatigable in investigating the properties of our remedies. When calomel is introduced, its first tendency is to suspend action. The solids may submit more or less according to circumstances, and when it is removed, or the parts will no longer be restrained by it in their operations, action returns in a greater or less degree. However simple this hypothesis may be viewed, yet it embraces the substance of the arguments advanced by those who contend for the existence of sedatives, and to this remnant of a corps now insignificant in number, but a few years ago predominant, we should feel strongly inclined to enlist ourselves, were we not decidedly opposed to parties or sects in medicine: though we do admit, that such a subtile definition of the term sedative may be given, as to preclude most effectually this and every other substance in nature. Comparing mercury with the narcotics, they appear to differ in this, the former, as we have said, acts as a counter-stimulant or sedative until absorbed, when it becomes an excitant: the contrary of this holds in regard to the latter; they first irritate, and subsequently, as they are absorbed, become sedative;

while, if neither be taken up, and act at all on the moving fibre, the one is a sedative, the other is a stimulant.

Viewing mercury as a sedative, it admits of as extensive application in diseases as its most zealous friends could desire. In the ardent bilious fevers, for instance, it tranquillizes the excessive action of the chylopoietic viscera, in which the disease is supposed to be primarily seated, tending to bring about that state of relaxation which we thought requisite to admit of due depletion, and in proportion as this state is increased, by so much is the disease actually subdued. In the cachexiæ, or chronic affections of the digestive organs, when universal atony and depravity appear to prevail, our theory of the modus operandi of mercury offers no objection to its administration: on the contrary, it here meets with those feeble states of morbid action which it will, with the greatest certainty, suspend or subdue, and when duly aided by proper auxiliaries, becomes an invaluable remedy. Under these circumstances, it relaxes the excretories, and enables them to free themselves at once of their stagnant and corrupt humours, effecting as salutary a change as we observe in inflamed ulcers, where emollients have soothed the vessels to the point of free suppuration. That there is over excitement in this class of diseases somewhere, we see clearly pointed out by the slow but incessantly consuming fever, which invariably accompanies them, the source of which is readily traced to the chylopoietic viscera. After the emunctories have been unloaded, the mercury is then gradually taken up, exciting gently, and producing that deobstruent and alterant effect of such infinite importance in the depraved condition of the digestive apparatus, as well as in all

chronic disorders of the constitution, to most of which it will sooner or later extend its influence. If the functions of the absorbents be maintained, constituting the susceptibility of the constitution to take on the mercurial action, and the remedy be persisted in, the system becomes more and more acted upon, until the unequivocal symptoms of the mercurial disease present themselves. But there do appear exceptions, in which partial absorption of the medicine has taken place, and yet the system does not appear disposed to receive more, or to assume the specific action. In such cases the symptoms become exceedingly irregular, denoting much derangement in the vital and natural functions, and such as will baffle the skill of the best practitioner. That this state is the effect of the partial absorption of the medicine, we infer from its being removed when an evident salivation comes on, therein much resembling the phenomena observed in some of the exanthemata on the appearance of the eruption.

Hitherto mercury has been considered as a sedative or antispasmodic, and by consequence as an evacuant. We now view this Proteus wholly metamorphosed. When mercury has been continued to a certain extent it becomes universally stimulant. This exciting quality is not merely a reaction from accumulated sensorial power, but the effect of its being carried into the circulation. When the absorbents are no longer interrupted in their functions by disease, and are not too much enfeebled, they give a proof of their activity by taking up the mercury and conveying it through the system, creating a salivation, or what has been denominated the mercurial action, or constitutional effect of the medicine. In this dilemma,

the system struggles to rid itself of the mercury by every outlet, and these efforts constitute a series of symptoms, liable to endless modifications. Sometimes they are mild, and soon pass away with the secretions so abundantly poured out, leaving the patient in perfect health. But in too many instances, we notice that inordinate degree of excitement, which every one acquainted with the animal economy must know, cannot continue long, without falling on some exposed organ with the most destructive consequences. Much, however, is left to the power of medicine to avert these evils, by favouring the secretions during this tumultuous action of the system, and by giving tone to the organs liable to suffer from indirect debility, when the stimulus of the mercury is about to be withdrawn. In yellow fever as well as in many other diseases, we feel at a loss to determine whether a salivation should be courted or avoided, as the issue will be decided before this effect is induced, without ascertaining whether it be salutary or not, and therefore give the medicine without reference to this contingent. But when it has occurred, we are ever mindful of the sequelæ, which often undermine irremediably the most vigorous constitutions. During this mercurial state, a shock given to the system, which, under any other circumstances, would be harmless, may here prove fatal. The imprudent exposure to cold, strong stimuli, etc. furnish examples confirming the truth of this remark. One of the immediate and striking evils of mercury is occasionally experienced, when simply a glass of cold water succeeds its use. The stomach or bowels being reduced to a state of extreme atony from the disease and the medicine, cannot bear the further sedative effect of the cold. The

effects are similar to those produced in the habitual inebriate, who, when exhausted by fatigue in the heat of summer, suddenly swallows a large portion of cold water. In the latter case, sudden death takes place, because the vital functions are in a more debilitated state than in the former; but in neither may the natural functions ever revive.

Viewing the whole catalogue of diseases, certain stages of nearly every one will be found imperiously demanding mercury, though at the same time, there are periods in every disease when it evinces the most deleterious properties. When given in over doses, or too frequently repeated, like the operation of lead, it weakens the natural functions to such a degree, that reaction cannot take place, and those identical visceral obstructions ensue, for which it is subsequently so perseveringly administered. If there be a remedy requiring nice discrimination in its employment, it certainly is mercury, and yet we see this powerful article administered with as little ceremony, by those incapable of appreciating its properties, as the most inert herb, though every dose, however minute, may break down the soundest constitution.

We find mercury alternately lauded as a panacea or condemned as a poison, and this we predict will ever be the fate of its reputation among the ignorant and unreflecting. It would be a difficult question to decide, whether the people at large of this country, into whose hands it has so generally fallen, would be benefitted by being wholly deprived of mercury. In violent diseases we witness daily many lives rescued from immediate death by this popular remedy; but at the same

time, we meet with innumerable instances of those with shattered constitutions, whose atrophic limbs and sallow complexions are hurried to the grave, with all the marks of early decay and premature old age; "a melancholy group," the victims of mercury.

An opinion prevails, that mercury, unrestricted in quantity, may be taken at all times, under all circumstances, regardless of contra-indications, with the most perfect safety: but certainly this idea cannot be entertained by physicians of the least intelligence, or by the reflecting part of the community. A very few grains of this medicine, judiciously administered, may be found fully sufficient to subdue the most destructive maladies: the fraction of a grain will sometimes manifest as much, and as immediate, febrifuge power as could be found in all the extended catalogue of the materia medica beside: an equally minute portion is, at times, sufficient to create as great a state of constitutional excitement as any larger quantity: whilst a half ounce dose may operate as mildly as an equal weight of castor oil. Who then, reasoning from such facts alone, without the aid of experience, which daily furnishes proofs of the evils from an abuse of this medicine, will say that the greatest caution is not necessary in its exhibition: reason must tell them, that an agent so active must be productive of good or evil in a ratio proportioned to its power.

Enough has been said of mercury to direct the thoughts of the inexperienced to sober reflection on its modus operandi, and to guard them against falling into the fashion of the day, which degrades medicine from the rank of a liberal science, to the mere trade of vending mercury. We do not feel assured that our language is sufficiently

perspicuous to express the ideas we wish to convey on this subject, nor that our theories, if understood, will be approved of; but evidence is offered of our sincere desire to rescue so invaluable a remedy from the hands of the empiric.

Again we return to the practice in yellow fever, to which we shall add a few more brief remarks. In directing the treatment, we have supposed the patient to be in the oppressed or incipient stage of the disease. Beyond this period we advance with increasing diffidence, because in proportion as remedies are delayed, must our confidence in their efficacy be diminished, whilst a corresponding degree of discernment becomes requisite in their application. First we resume the subject of emetics, which were so strenuously advocated in the beginning of yellow fever. How late in the disease they can be prescribed with advantage or safety, we know of no certain criteria for determining. The following case, however, may serve to show that the emetico-cathartic may be used with propriety after spontaneous vomiting has taken place. A person of temperate habits and good constitution, was attacked in the afternoon with an incessant vomiting, together with all the usual symptoms of yellow fever in a malignant form. In the morning he took a dose of calomel and jalap, which had not operated when we visited him at noon. We found him with a hot, dry skin, pulse somewhat oppressed; the tongue covered in the centre with a thin white film; eyes injected, dull, and floating in tears; respiration hurried; the general appearance lethargic, and in fine, all the symptoms indicated the most violent grade of the disease. He was ordered an emetico-cathar-

tic consisting of ipecacuanha, emetic tartar, and calomel, the combination to which we usually give the preference. After the lapse of half an hour, without appearing to make any considerable effort, he threw up a large fragment of food imbedded in some tenacious matter : in a few minutes more a similar ejection was observed. The vomiting then ceased, and he lay quiet for an hour, apparently much relieved, when an evacuation per anum took place, nearly as dark as ink, astonishingly large in quantity, and excessively fetid. Like the discharges from the stomach, this evacuation also was unattended with any effort, passing out as if acted on by the power of gravity alone. Now the condition of the patient was surprisingly changed, the breathing became slow and easy, the eyes lost much of their dull inflamed appearance, the heat and dryness of the surface were diminished, and the headach and pain of the loins were no longer complained of. Though previously indifferent to surrounding objects, he now surveyed the apartment with an inquisitive countenance, as one just awoke from profound sleep. By continuing the catharsis a few hours longer, and sponging the surface with tepid water, the immediate cause of the symptoms, the ingesta and offensive deposit, constituting the pabulum of the fever, were removed, and the disease thus cut short or perished.

In this instance we at first doubted the propriety of ordering an emetic, fearful of producing that reflux from below, so much to be dreaded : but taking into consideration the circumstance, that no alvine evacuation had yet taken place, and the necessity of an immediate and free evacuation of the intestines, we concluded this could not be so certainly effected in time, if at all, without the

aid of the emetic. Since this case presented itself we have set a still higher value on the emetico-cathartic, and would venture to give it, under similar circumstances, at a much later period, as we have subsequently practised with the best success. The undigested portions of food remaining in the stomach, after vomiting throughout the night, proved that the dilatation of the cardia was not previously sufficient to allow them to pass, while the water the patient then swallowed was immediately spirted out to a considerable distance. But it must be remembered, the patient's entreaties for something to assuage his thirst were resisted, or perhaps the distention from a single glass of water might have induced that state of irritability which could never have been quieted. It is not the ungovernable action of the stomach alone which should prevent our giving fluids with emetics, but a degree of debility in the organ is thereby induced, for which we can advance no satisfactory rationale. In some instances, where the stomach has been washed out for a length of time with warm water, in the case of poisons having been received, the organ has become so debilitated, that death has taken place from this cause, after the poison has been drawn out.* Doubtless, from a knowledge of similar facts, the dry vomit was first employed, which proves so highly beneficial in some chronic disorders, by giving tone to the enfeebled stomach.

We would never propose the repetition of an emetic in yellow fever, provided emesis have been once fairly induced, as we consider it injurious to exercise the stomach further than is necessary to answer the indication of which we have already spoken, as claiming our

* Cases of this kind have been related in the lectures of Dr. Parish.

first attention. Nor would we hazard an emetic even for this purpose in some later periods of the disease, when we may suppose the ingesta to have been dissolved and passed down, and such relaxation to have taken place, as to admit of the expulsion of the contents of the digestive viscera by cathartics. Our apprehensions from the emetic process are, although we may use the dry emetico-cathartic, the regurgitation of acrid matter, which has for the most part become pungent in proportion to the duration of its confinement; and also a determination of blood to the stomach or its neighbourhood, which we know is so apt to be deposited there just before the appearance of black vomit: now, unless some important end is to be answered, such as has been pointed out more than once, we do not conceive it prudent to run the risk of creating so much mischief. No one, we think, will deny the acrimony of the fluids in disease: they show this pungency by excoriating the lower intestines and verge, when they descend; and when they are thrown up, we can discover similar effects as they are forced through the stomach, cardia, œsophagus, and fauces, giving rise to that erisipelatous and eroded appearance, which has been seized on as the idiopathicus, or essence of the disease. Where vomiting has taken place, the upper orifice of the stomach will be more acted upon than the pyloric, being less accustomed to come in contact with bile, or other secretions from below. But sometimes there may be a regurgitation of the matter, unattended by vomiting, in which event, marks of the irritant may be found at that sphincter of the stomach only. The acrimony of bile is further attested by its having excoriated the fingers of dissectors. This corro-

sive property of the bile and other secretions, however, we need not expect to meet with often, except in malignant diseases, as in our ordinary bilious complaints we see persons vomiting for days or weeks, with as little danger as need be apprehended from nausea marina, or the irritation of the fœtus.

We next pass to cathartics. Here our rules may be sufficiently concise. We would, in the first instance, continue the cathartics until all the fecula, or corrupted secretions come off, which we may convince ourselves of by examining the evacuations, and then suspend them until a re-accumulation is likely again to aggravate the disease.

Equally laconic are our precepts on the subject of blood-letting. After blood has been drawn in the commencement of the treatment, as already advised, if pain be seated in any of the viscera, or head, or along the spinal cord, we should again resort to general bleeding, provided there is sufficient tension of the pulse to warrant this mode of depletion. But when the arterial action is not preternaturally great, we should trust to topical bleeding, which has the happiest effect in relieving local inflammation or congestion. This mode, indeed, of taking away blood will often answer every good purpose, even when the pulse denotes a considerable degree of general inflammation, and rarely, it may be added, will a severe case of yellow fever offer, in which this method of blood-letting may not be practiced with the most signal advantage. The writings of Dr. Armstrong on this head are so able and satisfactory, that we have only to add our feeble testimony in confirmation of the truth of his doctrines. But before we dismiss this part of our

subject, we would wish to point out what we conceive to be a capital errour, committed by those who have advocated bleeding as the first in the routine of remedies, on account of its rendering more certain the operation of cathartics. It should, we conceive, be deferred for a while after the exhibition of the cathartic, which then would be ready to act before the state of relaxation is recovered from. Now it must be recollected, we have protested against bleeding before we are convinced of its necessity, which can only be known when certain causes of pain, increased action in the pulse, etc. have been obviated. The ill effects of permitting excessive action to continue in the vascular system, we conceive, will not be experienced, when the emetico-cathartic is previously employed, as that compound diminishes arterial action, at least until it operate, by reason of its antispasmodic or relaxing virtue. We conclude the subject of blood-letting with a caution against resorting to this remedy, on account of an inflamed appearance of the eyes in yellow fever. This symptom, so often deceptive, instead of denoting a sthenic diathesis, shows in fact, nothing more than want of tone in the extreme vessels, such as often warns us of the approach of hemorrhage. We have known venesection proposed to meet this symptom, when it was evident, that the inner or outer part of the conjunctiva was injected, as the internal or external canthus happened to be next the pillow ; the blood simply settling down from gravity.

By the proposed plan for preserving moisture, the heat may be sufficiently lessened, provided there be a free accession of fresh air, to answer the indications with regard to temperature in many instances, though not

universally. How far the cold affusion might be beneficially employed in yellow fever, or other acute diseases, we are not prepared to answer, as our experience on this subject is limited to a few trials, awkwardly conducted, without much acquaintance with the pathology of the diseases for which they were directed. These trials, or experiments, at the time, gave rise to strong prejudices against the remedy, but we cannot suppose that all those who have borne such ample and positive testimony in favour of cold affusion, could have been deceived; and we have no doubt, that when the rationale is well understood, it will be classed among the most esteemed remedies. Changing instantly the action of the whole surface by the sudden shock of cold water, must have a serious influence in the issue of acute diseases, and therefore we would give a warning here, which will apply to all active remedies; that unless we are supported by fixed and undeniable principles, we had better abandon all pretension towards aiding our patients by the employment of powerful agents.

To prevent the suspicion of suffering our patients to famish from thirst, we would remark, that when the stomach can bear the distension, and the fluids are absorbed, or descend, the patient may be indulged, as we would in gastritis, where it is well known, that often not more than a teaspoonful of fluid can be swallowed at a time, without injury, during certain stages of that affection.

We do not know that any advantage might result from continuing the routine of practice, nor have we the inclination or ability to go further, where the varying symptoms will require nearly the whole list of medicines to be brought to our aid. We rest firmly impressed with

the truth, that when the great indications, such as we have endeavoured to point out, and such as cannot be mistaken, are properly met, health will most generally prevail over disease, although we may afterwards blunder at every step, although every subsequent prescription may be justly classed among the ledentia: yet we must endeavour to console ourselves with the belief, that we preserve many of those submitted to our charge, aware that "the scales in which life and death are placed, are sometimes so exactly balanced, that a single grain may cause either to preponderate," and not having the necessary discernment to throw this grain on the right side of the beam, we cannot save all.

We found the primæ viæ overloaded with the ingesta and excretions; the liver with its appendages clogged from accumulated matter; the vascular system in a state of suffocation; the exhalants obstructed; and the sensorium commune rendered lethargic, from sympathy or undue pressure: these symptoms, marking the beginning or oppressed stage of yellow fever, to which we invited the attention of young practitioners, we hope we have treated according to the most approved methodica medicina. Let them be met with boldness and determination, and we feel fully persuaded that there will be great cause to exult in the efficacy of medicine over this most formidable disease, which is cut short in its career, and happily terminates, like the ephemeræ, in a few hours. Contemplating a patient on whom the yellow fever has fastened, we must acknowledge, that here unassisted nature is impotent. However much we may admire the wisdom of the animal economy in other exigencies, here the recourses of the vis medicatrix are pa-

ralyzed; shake off this incubus, and she may awaken with all her recuperative energies. At the same time it must be confessed, that in many instances all our efforts will prove unavailing. When the appearances might point out to us only some slight disorder of their function, organs essential to life may have suffered lesion or change of structure; already the silver cord may be loosed, and the golden bowl be broken. Let then our prognosis be guarded. We must not be surprised to meet with a storm against which no human wisdom can provide, and a momentary calm often precedes its overwhelming fury.

There is a leading propensity with many to discover or invent some specific, or unicum remedium, which may prove a sovereign antidote for diseases; it is scarcely necessary to notice how idle it is to indulge in such vain expectations. Let us examine a few attempts of this kind in yellow fever. Will blood-letting, alone, immediately remove the contents of the primæ viæ, when they are pent up and poisonous? Can emetics and cathartics, alone, immediately relieve the vascular system, when it is unable to carry on the vital functions from excess of blood? Can mercury, alone, immediately force the stomach to dissolve its food, so as to pass the pylorus, remove the excretions, empty the blood-vessels, open the pores on the surface, and in an instant penetrate the absorbents? What are we to expect from epsom salt, opium, bark, sugar of lead, turpentine, or charcoal, when all the emunctories of the body require to be opened? Some practitioners, in combating disease, from indolence or other causes, are ever anxious to abandon all regular tactics, which the collected wisdom of ages has sanctioned as the surest mode of subduing their enemy, and resort-

ing to some stratagem, or deceit, which may take him by surprise. In a moment of enthusiasm they imagine they have succeeded, but failing afterwards when the experiment is impartially tested by others, they suppose the disease, like some instinctive animal, has become more wary, and not to be ensnared by the same ruse again. To say that certain remedies are efficacious in one country, or with one set of people, or on one day, and not on others, is not the language of philosophy; for whenever the indications call for certain remedies, they must answer, or the laws of nature cease to be immutable.

To prevent disappointment among the over sanguine, who might suppose that some of the many articles recommended for black vomit might be found successful, we will add a word explanatory of this symptom, to know how far they may be relied on. We find no opinion of the present day so much at variance with our own views, as that which considers the appearance of melæna as a secretion, instead of a hæmorrhagy. The morbid blood being accumulated in the minute vessels of the stomach, liver, intestines, etc. from a deficiency of the *vis a tergo*, or *vis vitæ*, and remaining there in a state of stagnation until its vitality is altogether lost, is suffered to escape, when a relaxation or lesion of the vessels succeed, as the cystic bile exudes after the death of the sac. It is difficult to conceive that the stomach, or any other viscus, could elaborate such a prodigious quantity, when in part, if not wholly, deprived of the property of living matter, as we know the stomach and intestines usually are when hæmatemesis occurs. One proof, perhaps, that the stomach has long been in a passive state, nearly allied to death, is the circumstance, that animalculæ are detected

in the black vomit, the ova of which are taken with the ordinary aliment, but which cannot be brought into active life, provided its functions be continued sufficiently to prevent those chymical changes common to dead matter from taking place. It would be as near the truth to consider the hæmorrhagy in scurvy as a secretion: for if dissections are to have their weight, the latter will present the same pallid, flaccid condition of the vessels as noticed in yellow fever. We cannot imagine that the system, when evidently failing in all its functions, and rapidly dissolving into one chaotic mass, should at that moment engage with so much energy in eliminating the matter of black vomit. Sometimes the appearance of melæna, like a juandice, portends no material derangement in the animal machinery. But often it evinces the death of the blood, wherever it becomes languid in circulating, as in the extreme vessels, and is as fatal as gangrene of the parietes of the abdomen.

Concerning the origin or cause of yellow fever we do not mean to express an opinion, further than to state our impression, that all the speculations on this subject have hitherto proved exceedingly unsatisfactory when critically examined. Nor are we disposed to declare in regard to the controversy whether the disease be contagious.* If conceded that it is contagious, or infectious, physicians should remember that they are bound by an implied compact with the community, as well as by all the ties of humanity, like faithful and well disciplined soldiers, to stand firmly at their posts in the hour of danger.

* Some sensible and appropriate remarks were published last fall on this subject, by the surgeon of the national ship Hornet, then at Norfolk.

To conclude. It will be perceived that we are governed by those liberal principles which should ever direct our steps. Long since admonished of the danger, we follow not blindly the system of any one man or set of men, but respect all, and collate from all, reserving to ourselves the liberty to adopt, reject, or modify, the doctrines of others as our reason and judgment may determine. We have endeavoured as far as practicable to reconcile conflicting opinions, and to avoid extremes; aware of the truth of the aphorism that, "While generalities are barren, and the multiplicity of single facts presents nothing but confusion, the middle principles alone are solid, orderly, and fruitful."—*Lord Bacon's Novum Organum.*