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Communications

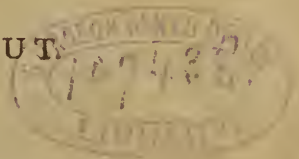
OF THE

MEDICAL SOCIETY

OF

CONNECTICUT

NUMBER I.



Sidney's Press, New-Haven, 1810.

AT a Convention of the Medical Society of the State of Connecticut, October 1809, a Committee was appointed, to select pieces for publication, from such communications, as then were in possession of the Secretary, or should be made to them, and to publish them before the meeting of the next Convention—In pursuance of their appointment, a selection has been made, of such pieces, as in the opinion of the Committee, were best calculated to answer the design of the Convention.

The Committee regret, that from some of the Counties they have received no Communications, nor from several individuals, from whom they flattered themselves, that valuable medical information would have been received.

JOHN BARKER.
JOSEPH FOOT,
ELI IVES,
THOS. GOODSSELL, } COMMITTEE.

New-Haven, September 1810.

Communications

OF THE MEDICAL SOCIETY OF CONNECTICUT.

AN enquiry into the propriety of using highly stimulating remedies in the PETECHIAL, or SPOTTED FEVER, TYPHUS and other cases of debility. Also a sketch of the SYMPTOMS of the Spotted Fever, and a method of cure proposed.

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EAST-HARTFORD, April 10, 1810.

IN this enquiry I shall endeavor to point out the *primary* effects of the *cause* of disease, whatever the cause may be, on the human system, in violent cases of *spotted* and other fevers.

And in this place I shall premise, that I understand by what Dr. Cullen calls the sedative effect of disease, or of the cause of disease, to be the same on the system, as Dr. Brown's over-excitement, Dr. Rush's *defect of action*, from *excess of force*, and Dr. Wilson's atony from the same cause. These positions I shall endeavor to illustrate by quotations from the above named Authors; and shall afterwards attempt to apply the principles held by Drs. Rush and Wilson, to the cure of cases of debility.

Dr. Cullen in speaking of the proximate cause of fever, says "To discover the cause of the cold stage of fevers, we may observe, that it is always preceded by strong marks of a general debility prevailing in the

system." In speaking of the remote cause of fever Dr. Cullen says, "I shall hereafter endeavor to shew, that the most noted of the remote causes of fever, as contagion, miasmata, cold and fear, are of a *sedative* nature, and therefore render it probable that a debility is induced."

Dr. Brown on the other hand, does not allow that any agent produces a sedative effect on the human system, for he seems to consider every agent capable of producing any change on the living body as an exciting power. These powers he terms stimuli, and their effects on the living solid, or excitability, he terms excitement. The application of every agent, therefore, to the living body, produces excitement, and in proportion as it has this effect, it exhausts excitability.

Dr. Brown says, "This mutual relation obtains between the excitability and excitement, that the more weakly the powers have acted, or the less the stimulus has been applied, the more abundant the excitability becomes. The more powerful the stimulus, the excitability becomes the more exhausted." In the latter of these the body is said to be in a state of indirect, and in the former of direct debility. Dr. Wilson observes here, "Dr. Brown regarded these principles as fully demonstrated, and with a want of caution altogether inexcusable, founded on them his modes of practice." Which every one knows is to give stimulants in almost all diseases, whether brought on by too much excitement, in which the excitability, as he supposes, is exhausted; or by too little excitement, where the excitability is accumulated.

I shall now attempt to give Dr. Rush's opinion of this primary effect of disease, or its cause, when suddenly induced, on the system. Dr. Rush says in his outlines of a Theory of Fever, "There is but one exciting cause of fever, and that is stimulus. Heat, alternating with cold, marsh and human miasmata, contagions and poisons of all kinds, intemperance, passions

of the mind, &c. all act by a stimulating power only, in producing fever."

The following is Dr. Rush's statement of the difference between his opinion and Dr. Brown's on this subject. "The Dr. he says, supposes a fever to consist in debility, I do not admit debility to be a disease, but place it wholly in morbid excitement, invited and fixed by previous debility. He makes a fever to consist in a change only of *natural* action of the blood vessels. I maintain that it consists in a *preternatural* and convulsive action of the blood vessels. Lastly, Dr. B. supposes excitement and excitability to be *equally* diffused over the whole body, but in unhealthy proportions to each other. My theory places fever in excitement and excitability *unequally* diffused, manifesting themselves, at the same time, in morbid actions, depression, and debility from abstraction, in different parts of the body. No new excitement from without is infused into the system by the irritants which excite a fever. They only destroy its *equal* and *natural* distribution; for while the arteries are in a plus, the muscles, stomach, and bowels, are in a minus state of excitement, and the business of medicine is to *equalize* it in the cure of fever. Dr. Rush remarks, that morbid action in the blood vessels, whether it consists in preternatural force and frequency, or preternatural force without frequency, or frequency without force, constitutes fever. Excess in the force and frequency in the pulsations of the arteries have been considered as the characteristic marks of what is called inflammatory fever. There are, however, symptoms which indicate a much greater excess of irritating impressions upon the blood vessels. These are preternatural slowness, intermissions, and depression in the pulse, such as occur in certain malignant fevers. This grade of fever transcends in force that which produces inflammation, and proves fatal in a few hours after it attacks. Such is the force of morbid excitement, that it sometimes *passes*

suddenly over all its intermediate effects, and discovers itself only in death. The following is Dr. R's account of the malignant state of fever. It constitutes the highest grade of morbid diathesis. It is known by attacking frequently without a chilly fit, by coma, a depressed, slow, or intermitting pulse, and sometimes by the absence of pain, and with a natural temperature or coldness of the skin. It occurs in the plague, in the yellow fever, in the gout, in the small-pox and measles, in the hydrophobia, and after taking *opium* and other *stimulating* substances." [And why, I would ask, may it not occur in the *spotted fever*, as many of the above and following symptoms mentioned by Dr. Rush, seem strongly to resemble those which appear in the worst forms of that disease.] "They are the effect," continues Dr. R. "of such a degree of impression as to prostrate the arterial system and produce a *defect of action* from an *excess of force*. Such is the excess of force in some instances, in this state of fever, that it induces general convulsions, tetanus, and palsy, and sometimes extinguishes life in a few hours by means of apoplexy or syncope. The less violent degrees of stimulus in this state of fever produce palsy in the blood vessels. It probably begins in the veins and extends gradually to the arteries. It seems further to begin in the extremities of the arteries, and to extend by degrees to their origin in the heart. This is evident in the total absence of pulse which sometimes takes place twenty-four and even forty-eight hours before death. But there are cases in which the palsy affects both the veins and arteries at the same time. The depressed and intermitting pulse which occurs in the beginning of these fevers perhaps depends upon a tendency to palsy in the arteries, independently of an affection of the heart or brain. This prostrate state of fever more frequently, if not soon removed, terminates in *petechia*, *buboes*, *carbuncles*, abscesses and mortification, according as serum, lymph, or red blood is ef-

fused in the viscera, or external parts of the body. These morbid appearances have been ascribed to putrefaction, and the fever has received, from its supposed presence, the name of putrid. The existence of putrefaction in the blood in a fever is rendered improbable by similar appearances with those which have been ascribed to putrefaction, having been produced by *lightning*, by violent commotions of the mind, by extreme *pain*, and by every thing else which produces *sudden* and universal *disorganization* in the fluids and solids of the body." Dr. R. goes on to prove, that the above named symptoms are caused by the *effects* of disease on the blood vessels, and not by any thing putrid in the blood, by several particulars which he mentions, such as an acute pain in the eye, the effects of a certain fish taken into the stomach, which produced a distressing vomiting, a coldness of the extremities, and an absence of pulse. He also mentions the effects of *opium* in large doses producing the *same train* of symptoms. Error, continues Dr. R. is often perpetuated by words. A belief in the putrefaction of the blood has done great mischief in medicine. For which reason I shall reject it hereafter, and substitute in its room, The gangrenous state of fever; for what appears to some Physicians to be signs of putrefaction, are nothing but the issue of a violent inflammation left in the hands of nature, or accelerated by stimulating remedies."

I shall next take a view of Dr. Wilson's opinion of the effects of disease on the system. He seems to adopt the opinion of Drs. Brown and Rush, as to the application of agents to the system having a stimulating effect, at least, when moderately applied; but when applied in excess, instead of producing excitement, *atony* is the consequence. He says, "If the change, produced by the agent, be moderate, it proves a stimulus; and within a certain range, the greater the change the greater is the excitement. Beyond this as we have seen in the instances of opium and distilled spirits, it

occasions debility, and when excessive, death. When the change produced is consistent with the health of the parts on which the agent acts, excitement is the consequence; but when the change is sufficient to *derange* the mechanism of the living solid, if I may use the expression, its immediate effects are debility or death. Dr. W. in summing up the facts which he thinks Dr. B. overlooked in forming the great outlines of his hypothesis, says, every agent is capable of producing either excitement or atony, according to the degree in which it is applied. In general diseases, i. e. in fever, which is the only general disease properly so called, the state of excitability is so changed, that the same agents do not produce a greater or less degree of the same effects they produce in health, as Dr. B. supposes; but either atony, or that kind of excitement which is followed by atony."

CAUSE.

As to the cause which produces spotted fever, I know of nothing we can add to the common causes producing fevers prevalent in this country, unless it may be the unusual state of the weather for several years past, which we know has been uncommonly wet and cold, and in that way may not only have injured the human system, and disposed it more to the particular disease under consideration by its *immediate* effects on the system, but it may also have injured grain, fruits and other vegetables so much as to cause *them* to have a noxious effect on the body.

We read of diseases which appear in Europe at certain times being ascribed to the badness of grain, fruits, &c. and we know that wet and cold seasons do not produce grain, &c. in as great perfection as warmer and drier seasons. The cause, perhaps, lies hid, but the effects sufficiently appear; which should stimulate us to use all our exertions to discover the best method of cure.

SYMPTOMS.

I have said above that many of the symptoms pointed out by Dr. Rush under his malignant state of fever, occur in the worst forms of spotted fever. I have been informed of many cases of this disease, in which the patient was suddenly attacked, without a chilly fit, with coma, a depressed, slow, or intermitting pulse, and some with absence of, or insensibility to pain, with universal coldness of the skin, entire loss of the senses, numbness, partial or total blindness; in short, a universal torpor seemed to pervade the system. Some of these last symptoms I have seen, as will be mentioned below.

The symptoms peculiar to this disease are very various; and from the best information I have been able to obtain, they vary considerably in the different places in which the disease has made its appearance. I shall state a few of the symptoms, as they are mentioned by Dr. Woodward; those which I have seen myself will be described in a statement of cases. Dr. W. says, "It attacks with lassitude, chills, great prostration of strength, eyes red and watery, often delirium, with exquisite pain in the head, great anxiety at stomach, with tossing of the body, nausea; often a troublesome vomiting. A pain and lameness in some of the limbs often ushered in the disorder. In some, after the chills, there was great heat, of the stinging, thrilling kind. The pulse, like other symptoms, was various, sometimes considerably full, but generally very weak, quick and irregular. The disease, sometimes in this season, assumed the inflammatory type, but generally the typhus. The violent symptoms were, great lassitude with universal pains in the muscles, heats, if any, were of short duration, universal prostration of strength, delirium with severe pain in the head, vomiting, with indistinguishable anxiety at the stomach, eyes red, watery and rolled up, and the head drawn back with spasm, pulse weak, quick and irregular, petechiæ and vibescens

all over the body, and a cadaverous countenance and smell. When the vital flame began to be kindled in the system, some grievous external affection most certainly appeared; such as inflammation of the joints, like the acute rheumatism, or an erysipelatous affection of the skin, or racking pains, convulsions, &c.”

While writing the above, Dr. North's description of this disease, published in *Med. Museum*, vol. 6, p. 280, fell into my hands.

Dr. N. says the symptoms are, “pain in the head, more commonly the back side; slight chills; furred tongue, great prostration of strength early in the disease; loss of appetite, although less he thinks than in other fevers, especially in the lighter cases, vomiting and purging sometimes; distress about the precordia; pains of the limbs, frequently; sometimes a slight cough; pulse generally weak and quick, sometimes full, but never hard, as he judged. Some had, apparently, little or no febrile heat. Others had great heat, and apparently a high fever.

Dr. N. says, upon enquiry, almost all would tell you that they had, in the commencement of the complaint, a slight sore throat, although few would mention it of their own accord.

In the bad cases, the most distressing symptoms were pain of the head, and universal pain and agony, which would cause children to draw back their heads, and toss and throw about their limbs; these had a constant sighing and quickness of breathing. Some had delirium. It was sometimes low; in others it was a violent mania. Some were comatose.

With regard to the spots or *pelechiæ*, from which the disease appears to take its name, they are by no means a constant or frequent symptom. When they do appear, they are of various sorts. Some have spots in the true skin resembling flea bites. One patient was covered all over with such spots, for a number of days. But more commonly you will find only a few

scattered on different parts of the body. They are of different grades of colour, from a red to a dark colour. Some resemble a bruise; others appear as though the patient had been struck with a whip. Some have been attended with hemorrhages from the nose; others with symptoms resembling hysteria.

Although the typhus fever has been evidently very contagious, yet the spotted fever has appeared not to be communicated by contagion. Death happens many times, in the spotted fever, suddenly and unexpectedly, and when there is apparently little danger, at least to common observers. Children and young persons are the most liable to this disease, although I have heard of one woman who was sixty years old who died with it. Those of a sanguine constitution and feeble habit, are more liable to it than others.

Dr. N. says he has been of opinion, that such causes as had a tendency to produce a debilitated and scorbutic habit of body must be considered as the predisposing. Of these may be reckoned a moist atmosphere, and less nutritious food than usual. Two seasons preceding this epidemic, have been uncommonly wet; so much so that we have had very little corn, less garden vegetables, and bad grain. The most frequent immediate exciting cause has been obstructed perspiration by cold."

Many of the above named symptoms have not been noticed, since the first year or two of the prevalence of the disease.

METHOD OF CURE.

A considerable difference exists, or has existed, in the opinion of practitioners respecting the proper mode of treatment in this complaint. Many who stand high in the profession suppose some kind of evacuation from the stomach, or bowels, or both, to be necessary in the commencement of the disease, (at least in a great proportion of the cases) and to be continued as occasion requires through the whole course

of it. And from analogy, we should suppose they judge right; for even in the plague, when the infected have dropped down suddenly, as if shot by a musket ball, they have been perfectly restored by one emetic, in some instances; in other cases, three or four emetics have been given in twelve hours, with the best effects, according to writers on that disease. Indeed I do not recollect reading of any febrile disease, spotted fever excepted, in which evacuations were not, generally, recommended in the commencement.

On the other hand, there are Physicians who will not allow of any evacuations, neither in the commencement or course, not even the most gentle enema, for days, and in some instances, for weeks, and then have imagined the patient sunk in consequence of a gentle enema, administered after so long a time.

Those who are opposed to evacuations, as far as my information extends, insist, that we must begin the cure with highly stimulating remedies, and continue them through the whole course of the disease.

It appears to me that we ought to be very cautious in adopting a method of practice, so contrary to all former experience with which we are acquainted. That the Brunonian practice, especially in typhus fever, is fast falling into disrepute, we are abundantly taught by many of the late writers in Europe; witness a Wilson, a Hamilton, and the *Edinburg Med. and Surgical Journal*; and on the same side we are not wanting for writers in our own country.

To illustrate what I have hinted above respecting the treatment of typhus fever and Brown's practice, I shall quote something from Dr. Wilson's *Essay on fever*, and something from the *Journal*, above mentioned, before I quit the subject.

I do not, however, mean to insinuate that there are no cases in which evacuations, especially in the commencement of spotted fever, are unsafe; but surely they are not unsafe in all cases! neither do I pretend

there are no cases in which stimulants are not beneficial and even necessary. But what I contend for is, that they are not universally necessary or beneficial; and that evacuations ought generally, to be made, either immediately, or as soon as may be done with safety. What I wish to bear testimony against, is prescribing for the *name* of a disease. When stimulants are necessary in the cold stage, let them be used, and let them be gradually withdrawn, as excitement takes place, and not continue the use of stimulants merely because the disease has the name of spotted fever.

It seems to be too much the practice with *some* of the Medical profession to prescribe the same kind of remedies through every stage of a disease. If they would attend more to the fluctuating state of the system, and prescribe accordingly, many might be saved from an untimely death.

I would now take notice of the practice which Dr. Rush has adopted, when such symptoms as he mentions under the malignant state of fever take place. For a number of years, viz. from 1793 to 1797, while the highly inflammatory diathesis prevailed, he found it necessary to bleed and purge, in order to relieve the system. So in some places a small bleeding, provided it was done at the commencement of the disease, was safe and beneficial in spotted fever, and in some instances it was necessary to repeat the bleeding. Emetics and Cathartics were also necessary, followed by gentle stimulants. In 1798, Dr. R. says there were cases in which the lancet was forbidden altogether. In these the symptoms appeared to be prostrated by the *force* of the miasmata below the point of reaction. This state of the disease manifested itself in a weak, quick, and frequent pulse, languid eye, sighing, great inquietude, or great insensibility.* In this state of the disease he gave emetics with the best effects. And it is as certain, that many have been benefitted, in spotted fe-

system
 reaction
 1797

* The very symptoms which occurs in some cases of spotted fever.

ver, by an emetic. Some have been nearly cured by it, when given in the forming state of the disease. In the year 1799, Dr. R. says, "In those cases where the system was prostrated below the point of reaction, he began the cure by sweating. Blankets, with hot bricks wetted with vinegar, and the hot bath, when practicable, were used for this purpose." We also find the sweating practice has gained much credit in the spotted fever, inasmuch as to be the first thing resorted to by many.

I shall next quote some of Dr. Wilson's sentiments respecting the use of stimulants in typhus, which will apply in some measure at least, to spotted fever, and all other diseases of debility, as far as his principles are correct. He says, "The feeble state of the circulation, and the temporary good effects of powerful stimuli, has led most Physicians, and particularly those of later times, to employ them with great freedom. Many, however, confess that they have been disappointed in their effects; of this number, he feels no hesitation in declaring himself to be one. He has found the second stage of fever most tractable when all powerful stimuli were avoided. It is true, indeed, that large quantities of opium, or wine, will often give a degree of vigor, increasing the strength and lessening the frequency of the pulse. But these effects are transitory. It is soon necessary to repeat the remedy, and at length to increase its power, in order to produce the same effects; and this transitory vigor seems frequently obtained at the expence of exhausting the strength, which, had it been more carefully husbanded, might have carried the patient through his disease.

Dr. W. says, were he to state the result of his own experience, in the second stage of fever, it would be, that opium is only useful when small doses allay irritation, and procure composure, if not sleep; and that wine is *rarely* beneficial if given in larger quantities than might be taken in health without subsequent de-

bility, and can seldom, perhaps, be given without injury to this extent. Whether there are states of fever in which large doses of the stimuli may be of advantage, is difficult to say. In extreme debility, when the patient is almost in *articulo mortis*, a strong stimulus may sometimes, perhaps, by rousing the languid system, be the means of preserving life. He has frequently seen the experiment made with *temporary*, never with *permanent* good effects.

In Note 63, to his essay on fever, Dr. W. says,—When we see a patient labouring under symptoms of extreme debility, and these symptoms almost uniformly relieved by a considerable quantity of wine, it is difficult, at first view, to persuade ourselves that the wine is pernicious; but an attentive observer will look beyond its immediate effects, and will then readily see sufficient reason to doubt the safety of this practice.

He will find, that the temporary excitement he thus procured, is succeeded by a greater degree of debility than that which the stimulus had removed, and if he perseveres in this plan, that in a large proportion of cases the pulse, upon the whole, will gradually become more frequent and feeble, till it ceases altogether.

Dr. W. says, he has seen these effects so often, that he cannot help thinking that almost any fever may be rendered fatal by a certain quantity of wine. And when we recollect that the excessive stimulus of wine is a frequent cause of fever, can we be surprised that the constant repetition of this stimulus should increase its symptoms. Besides the apparent good effects of wine for a short time after its exhibition, Physicians have been led to an excessive use of it in typhus by another observation, the comparatively small effects it produces. That a pint of wine in typhus will not produce a greater effect than a glass in health, is adduced as an argument for a pint in the one case being as innocent as the glass in the other. But it is to be recollected that wine in typhus, only produces less excitement

than in health, in proportion as the remaining excitability is less, and consequently, that a degree of excitement which would occasion little or no inconvenience in health, may produce a fatal exhaustion in typhus. Here there is no excitability to spare, and the first principle of treatment seems to be, as much as possible, to prevent its further exhaustion. A very moderate and uniform exhibition of stimuli seems often necessary, that the action of the central parts of the sanguiferous system may not fall too low to support that of the circumference; but all excitement *beyond* this seems to have no other effect, except that of *exhausting* the little vigor which yet remains."

In further confirmation of my opinion, respecting the ill effects of too free a use of highly stimulating remedies in typhus and spotted fever, and my belief in the justness of Dr. Wilson's remarks above quoted, I beg leave to add some observations on the Brunonian Doctrine, from the Edinburgh Journal above mentioned. In vol. V. page 85, &c. we find the following sentiments.—“Physicians seem now to be gradually recovering from those delusions with which a false theory, more than mistaken or unguarded observation had beset them.

“The practice founded on the Brunonian doctrine of debility, excitement, and stimulus, has slain, we believe, in sincerity of heart, its thousands and ten thousands. This doctrine not only set all former observation and experience at defiance, but so strong a hold had it taken on the imagination of its votaries, that medicine appeared to them unsusceptible of further improvement. The most obvious and most *fatal* error of the doctrine now alluded to, was, that every evacuation was necessarily and directly debilitating; and that strength and excitement could only be effected by stimuli. In fevers, therefore, all evacuations were dreaded, while wine, brandy, and opium, were considered as sovereign remedies, and too often

employed with little discrimination, and still less regard to the state of local symptoms and organic affections."

The quotations that have been made above, especially from the writings of Dr. Rush, seem clearly to shew, that the cause which acts thus suddenly and powerfully on the system, produces the very same symptoms, or appearances, whether plague, yellow fever, gout, small-pox, measles, or spotted fever is to follow. And it also appears clearly, from the principles of physic, that whatever remedy will remove those symptoms which appear in either of the above named diseases, will, *cet. par.* have the same effect in any one, or in all of them. To be more particular, if we see a patient affected with coma, a depressed, slow, or intermitting pulse, absence of, or insensibility to pain, with a natural temperature or coldness of the skin, great prostration of strength, &c. our indications of cure ought to be taken from the present symptoms, without regard to what particular disease is about to follow. I hold this as a fundamental maxim in physic.

It would be difficult, perhaps impossible, to point out a plan of treatment that would embrace all cases of spotted fever. I beg leave, however, to mention the plan which appears to me the most proper in *many* cases, at least, of this disease.

If the patient is found in a cold, torpid, insensible state, with great prostration of strength, small, weak and quick pulse, coldness of the extremities, and of the surface, generally, undoubtedly no evacuation should be immediately made from the blood vessels, stomach, or bowels; but he should be put into the warm bath, and the heat of the bath should be increased after being in for a few minutes; or external heat should be applied to the body in some other way; by steam, as recommended by Dr. Woodward, or by wrapping the patient in hot blankets, and applying hot bricks, or blocks of wood, or brands from the

fire quenched in water and wrapped in flannel, to the body and limbs. Sinapisms and bottles of hot water should be applied to the feet, giving internally at the same time, warm or hot aromatic teas, such as snake-root, pennyroyal, &c. Tincture of opium, if the pain is great, essence of peppermint, heated wine, if necessary, should be given till warmth is restored, and sweating, if it can be induced, takes place. As soon as there appears to be sufficient warmth, let the stimulating remedies be lessened, and gradually withdrawn, as the particular case seems to indicate. When there appears to be sufficient strength, let a gentle emetic, injection, or cathartic, according to circumstances, be administered. Perhaps some wine and laudanum may, occasionally, be necessary after the natural warmth is restored. Laudanum should always be given after evacuations.

It seems to me, however, that it cannot be proper to make use of stimulants of the stronger kind, such as wine, ardent spirits, and laudanum, in great quantities, when there is increased action of the heart and arteries, and at the same time too much heat on the skin. From what I have observed in this disease, it is very necessary to keep the feet warm. I have seen several become faint and very much distressed, if the feet became too cool, and the most ready way to remove such symptoms, was to restore warmth to them.

Local applications to remove severe pain often have a very sudden and agreeable effect. Where the pain is urgent, sinapisms, from their quick action, should be preferred to blistering-plasters: blisters, however, are of great benefit, and ought to be used very freely. In several cases, distressing vomiting, and great anxiety at the pit of the stomach are apt to occur and require immediate and assiduous attention. In some of these cases, especially where constant nausea takes place, I have seen good effects from a julep composed of a common tea-spoon full of carbonate of potash, with as much, or

more of the essence of peppermint, in a tumbler of water, sweetened with loaf sugar so as to make it palatable, taken frequently, from half a table spoonful to two or three spoonfuls. If the vomiting and distress at the stomach continue, and the case is urgent, apply a large sinapism to the region of the stomach. I saw one instance where life was apparently saved by such an application. Dr. Rush mentions great benefit resulting from spirits of turpentine given in a dose of ten drops every two hours, in a little molasses, or syrup, in the distressing vomiting occurring in the second stage of yellow fever, in the year 1805. He says it was administered with success in one case after an absence of pulse, and coldness of the extremities had come on, and that it gave great relief when exhibited in glysters, as well as by the mouth, in distressing affections of the stomach and bowels. Dr. Fowler's solution of arsenite of potash has been used by many, as I have been informed, with much advantage, in cases of great lowness. Does this solution prove beneficial solely from its stimulating power, or from a specific effect, which it exerts on spotted fever and some other complaints, in the same way that mercury acts on the siphylitic virus?

In cases of less severity, I should, with Dr. North, propose the following as the indications of cure. 1st. To evacuate the first passages. 2d. To restore the obstructed perspiration. 3d. To invigorate the solids. Dr. North proposes two more indications, viz. to correct the scorbutic tendency of the humours, and to obviate accidental death.

Dr. North's method of practice coincides more with my own ideas of the proper mode of treating this disease, than any thing I have seen written on the subject.

If the physician is called in the commencement of the complaint, and there are no symptoms of immediate danger, let an emetic of ipecac, or tartarized

antimony, according to circumstances, be immediately administered. I am aware that it is said by some, that nothing of a morbid appearance is discharged by spontaneous vomiting, or that which is procured by emetics, but if I am not much mistaken, it is for the most part owing to the emetic not being strong enough to cleanse the stomach. How often do we see emetics fail to throw up any thing bilious, or otherwise foul, and the very next day, or in a few hours, on the exhibition of another emetic, there will be a vast quantity of very foul matters discharged from the stomach? If we give only a few grains of sulphate of zinc, or a small dose of ipecac, we must often expect to be disappointed.

Although the same objections are made to cathartics, which are made to emetics, viz. that nothing morbid is discharged from the bowels, yet if the emetic does not operate downwards, and the bowels appear to require evacuating, I would give an injection, or some gentle physic, as fenna and manna, rheubarb or *calomel*, according to circumstances.

I have a great opinion of calomel, both as a purge, and in small doses. Sinapisms, &c. must be applied to remove local pains, and restore the natural excitement. Opium, in some forms, should be exhibited after evacuations, and continued as occasion requires; and either cooling or gently stimulating drinks, as circumstances point out. I have known one patient very sensibly benefited by washing the whole body and limbs with vinegar and water, on account of the great heat of the surface. I have been informed by Dr. Evirest, that he made use of the cold affusion to one patient with great advantage.

The bowels must by all means be kept free, with injections, or with gentle, or more active physic, according to the degree of excitement in the system. In short, it appears to me that the principal part of the physician's business, is to equalize excitement, re-

store perspiration, in some instances induce sweating, regulate the bowels, and administer proper nourishment.

A pill composed of opium, camphor, and calomel, given two or three times a day, especially where there is much uneasiness, and the extremities are apt to become cold, is of great advantage. There may be cases of *this* grade of the disease which will require some wine before convalescence takes place, but I have rarely seen any. From the time that reaction takes place, the disease is, generally, easily managed.

It will be kept in mind that I am opposing the *highly* stimulating plan of treating this disease only; although it is said by some, to be the "only safe and efficacious mode of cure." I am very sensible that I differ considerably from some of my brethren, in my sentiments respecting the best method of cure in the spotted, as well as the typhus fever. I shall state the following as some of my reasons.

First, the method of cure, which can, with propriety, be said to be the best, should be such as will cure the greatest number of patients treated according to the proposed method; and as speedily as the nature of the disease will admit. I would ask, has this highly stimulating mode of practice been thus successful? I think the answer must be in the negative.

Secondly, all other methods of treating the disease should appear very evidently to be less efficacious. The last position, I think is not true; for I have reason to believe that many very bad cases have been cured by a practice different from the highly stimulating one, or by such a kind of practice as is recommended above.

I shall weary your patience but a few moments longer, while I give a short account of a few cases of spotted fever which have come under my care.

The first I saw, was April 18, 1807, which was pronounced to be a case of spotted fever, by a practitioner who had been very conversant with that disease,

and stimulants were recommended. I saw the patient in less than an hour after, a girl aged ten years. She complained of a severe head ache, pain and distress at the pit of the stomach, considerable numbness of the limbs, extremities rather cool, &c. The action of the arterial system was rather too great. I drew eight or nine ounces of blood from the arm, which relieved the pain of the head in half an hour, and she fell asleep soon after. I directed sinapism to the feet, gave a dose of calomel, desired that she might be kept comfortably warm. The next morning found that she had rested well, calomel had operated, and in three days she left the room.

On the 15th April, 1808, I was called to see a lad aged sixteen years, he was taken a few hours before I saw him, suddenly with a chilly fit, followed by violent pain in the head and stomach, sharp flying pains in the limbs, feet and hands cold, surface of the body unequal as to heat, some parts of it being too cool, while other parts were too hot at the same time. His pulse indicated the loss of some blood, which was taken, an emetic was administered, blisters to the neck and ancles, sinapisms to the feet. Laudanum was given after the emetic. Some part of the time for three days, the surface of the body was very hot, so that he was benefitted by having his body and limbs washed with vinegar and water. At other times he was too cool and received benefit from warm aromatic teas, laudanum in small doses, bottles of hot water to his feet, &c. His bowels were attended to throughout the disease. He was very sick for three days, after which he bore gentle tonics, a little wine, &c. and was well in about ten days.

On the 24th of the last mentioned month, I was called to see a woman aged about twenty-two years, who was taken suddenly in the meeting-house, in the time of the forenoon sermon, she was put into a carriage and carried home; she was so sleepy on the way that

her husband had much difficulty in preventing her from falling out of the carriage.

I saw her at half past four in the afternoon, she was comatose, had great prostration of strength, and so torpid in mind and body, that she took no notice of any thing, and could give no account of herself, only that her head pained her, and that she had great distress at her stomach. Her hands and feet were cold, almost as ice. The inequality of heat and cold on the surface of the body, much as in the last mentioned case. The pulse was rather frequent, very weak, unequal, and hesitating.

My first endeavor was ^{to} equalize excitement. For this purpose, laudanum and essence of peppermit were given in warm aromatic teas, the feet put in warm water, sinapisms and blisters applied, bottles of hot water, &c. The great prostration, weak pulse, &c. seemed to forbid evacuations altogether. At eight o'clock in the evening I saw her again, found the excitement rather more equal. The apparent debility was still so great, that I dared not make any evacuation. She had moister on some parts of the skin. Same plan continued. Monday morning, the symptoms pretty much the same as yesterday, except the coldness, which was nearly gone, heat, generally, rather too great, coma continues, pulse rather fuller and not so frequent.—Left calomel to be given in doses of a few grains, every three or four hours till it operated; other medicines to be given much as yesterday. Tuesday morning, the calomel operated in the night and afforded evident relief, pulse freer, breathing easier, coma, however, continues. About the close of the third day she recovered her senses, and was able to inform me that she was struck with a sudden and violent pain, which shot like lightning across the hams and calves of the legs, and immediately affected her head and stomach, and that she remembered but little, if any thing, more for the three days. She convalesced very slowly; the latter

end of the week, her stomach appearing to be foul, she took an emetic, and afterwards light bitters; some wine was tried, but as it did not set well, it was discontinued. About the middle of the next week, she was seized with a violent pain in her head, which required several bleedings, cathartics, and blisters to the head and limbs. She was confined for a number of days, from the violence of the pain in the head, and the blisters were repeated several times to the head, sometimes to a particular part of it, and sometimes to the whole head. She finally recovered and is now in good health.

I would remark, that the last patient seemed to have a violent inflammation of the brain, or its meninges, and appeared to be threatened with hydrocephalus internus, and that it commenced in about ten days from the first attack. Is it not probable that she was not sufficiently evacuated during the first ten days, and that the great degree of prostration and debility, in her case was owing, in part, at least, to a *depressed* state of the system; and not wholly to that kind of debility which takes place more gradually, in common typhus complaints? Could so great a degree of inflammation take place in so short a time, if the debility was purely of typhus kind? Does not this case add to the necessity of the caution above mentioned, as to the mode of practice, proper to be adopted in spotted fever?

On the 20th of May following, I was called in great haste to see the child of the last mentioned patient. It had been sick about four hours, the pulse was so rapid as not to be counted, heat and cold partial, as in the two last mentioned cases, eyes staring, pupils sometimes very much dilated, sometimes much contracted, frequent tossing of the body and limbs, convulsive motions of the face, sudden starting; and in short, the child appeared to be dying. Little, of course could be done. In about two hours after my first seeing the child, spots, resembling ink spattered on very white

cloth, appeared over the face, neck and breast; and it died convulsed in two hours more, making eight hours from the attack.

March 4th 1809, was called to see a man who had been highly stimulated for two days, with ardent spirits, laudanum, &c. the last twenty-four hours, however, he had not taken so much, (only a pint of brandy from sunrise to 4 o'clock P. M.) of the stimulus, as he did the first day.

He appeared to me to have too much excitement, generally; pulse pretty full and frequent, and rather strong than weak; pain in the head, bowels and ankles; face very red, eyes red and suffused, skin dry, and rather hot, thirst considerable, some delirium, remiessness &c.---Ordered the ardent spirits to be discontinued, the feet to be put into warm water, in bed, directed tinct. of Opium and Antimonial wine, five drops of the former, with fifteen of the latter, to be given in warm aromatic tea, once in three hours, for the purpose of inducing sweat, sinapisms to the feet; calomel to be given in doses of a few grains often, till it operated, which it did in about twelve hours, and afforded sensible relief.

The next day, his pulse was moderate, redness of the face and eyes gone, heat and thirst diminished, skin moist &c. He recovered rapidly. I saw him but four or five times.

The same month, I visited a woman aged about 30. She went out at the door to get some wood, and fell senseless on the ground, and lay a considerable time before she was discovered, she did not recover her reason short of two or three hours. I saw her about four hours after the attack. Reaction had begun to take place. She had violent pain in the head, nausea and distress at stomach, severe pain in one arm and one side, numbness of the limbs, extremities cold. She took an emetic with advantage, afterwards laudanum, next day a small dose of physick. She was dis-

tressed considerably, but moderate doses of laudanum controlled the distress, for the most part. She had several turns of being distressed at stomach, and vomiting for two or three days. The julep above mentioned had an excellent effect in her case; blisters to the side and limbs &c. She had several doses of physick in the course of her disease. She was well in about a week.

The same month, I saw a lad of thirteen, who was taken very suddenly, while sitting by the fire. He had been in usual health till the moment he was taken—he was seized with a chilly fit, followed by violent pains in the head, stomach and limbs. He was immediately put to bed, and attempts were made to get him warm. I saw him in about half an hour from the attack. Before I arrived, he said he was blind, and the bed was whirling round; and he was holding on by the bed to prevent being thrown off.

I immediately exhibited an emetic of ipecac, and tartarized antimony, he took a very large dose before it operated, but was much relieved by it. At evening he had a dose of calomel, which operated freely—laudanum was given after the emetic, and after the operation of the calomel, blisters &c. were used, as occasion seemed to require. He left the room in three days.

I saw in the course of two or three years, several other cases, most of which were less violent than those I have detailed. They were all treated, as nearly as circumstances would permit, according to the general plan above laid down. I saw one child aged six years, who died in six hours and a half after I saw it, convulsed and spotted. I lost but two patients, which were both spotted, and they were the only cases which were spotted, that I saw.

TIMOTHY HALL.

ON ALIMENT.

The subject of the following remarks, is, the nature and uses of Aliment in the Animal Economy.

AS a first step, I ask assent to the following positions, viz. That by assimilation of matter, to the first stamen, deposited in the uterus of the female, the future adult is formed: That all the material particles, which have been once vitally united to the organized mass, constituting the frame, so necessary to sublunary existence, are constantly fleeting, and—That new ones, in succession, from the same source, and by the operation of the same agent, are made to supply their places.

How, therefore, is this difficult, and apparently almost impossible work accomplished? It is answered, by the powers of the system, operating upon aliment.

By the powers of the system, is meant, the animal fibre, in a state of excitability, or, in other words, possessing the power of action, on the right application of excitants, or stimuli. Aliment may be defined to be every substance, taken into the system, upon which, the excitable fibre, is capable of so acting, either directly, or through some medium, as to convert it into principles, homogeneous with the different proximate ones, of the body. That the first stamen possesses excitability, is sufficiently evident, from the observations of physiologists; but on account of its minuteness and the feebleness of its powers, it is, at first, unable to elaborate what is necessary for its own support. It is, therefore, placed in a situation, whether every thing needful is brought, ready prepared, for its use; and its whole exertion need only be to absorb nutriment, that comes into contact with it. This is, undoubtedly, what takes place in the imperceptible embryo state, for in process of time, in consequence of its en-

largement, we begin to see its motion; next, we discover its organization; and finally, we perceive its demands from the mother. After a certain period, it acquires vigour enough to discharge, by itself, all the functions of digestion and assimilation; its foetal life ceases, and it is brought into the world. By continuing the discharge of these functions, for a few years only, its body is expanded to about the size of the bodies of its fellow mortals. It seems soon, however, to reach its acme; its capability of action begins to wear away, without the power of accumulating; it is gradually exhausted, and at last, becomes extinct. This constitutes death. This is the series of phenomena, which invariably takes place, from the uterus to the tomb, unless some violence, or acute disease, cuts prematurely, the thread of life.

An examination of the chemical, and other properties, first of the ingesta, secondly of the ingredients, and composition of the body, and thirdly of the excreta, will assist, in demonstrating the dependence of the production, and continuance of the phenomena of life, upon Aliment. The articles taken into the stomach, are animal, and vegetable substances, fermented liquors, and water. By the lungs, oxygen only is received. These, I am of opinion, are the only avenues, designed by nature, for the admission of any thing nutritive into the system. I am aware, that to cutaneous absorption has been ascribed a considerable quantity of the water found in the great mass of our fluids; and that the increase of weight, which it is well known the body sometimes receives, without any thing having been taken into the stomach, has been thought to prove it incontestibly. When it was supposed that any substance that should be occasionally presented to the mouths of the absorbents, might be taken into the circulation, and botched upon the body, without any modification, this doctrine might do well enough; but now, when it is known,

that these vessels have an elective power, and are necessarily intended to be incapable of taking up every thing, the notion becomes absurd. This subject is intended to be glanced at, in the sequel, sufficiently to explain the circumstances which have been supposed to prove it; or at least to show, that nutrition cannot take place by this passage. It may be proper to remark here too, that the stomach and lungs, are not only the exclusive natural avenues for the introduction of Aliment, but that art has not yet, and doubts never will succeed, in making any other. It is believed, that it will appear, from what follows, that certain impressions upon, and actions of the stomach, are necessary, occasionally, in order to keep up assimilation and excretion; and that, for want of this nutrient enemata, and transfusion of blood, can never support life but little longer than it could exist without them. That individuals have lived some weeks, under their use, without taking any thing by the mouth, I shall not pretend to deny; and so, we are informed, by respectable, and unquestioned authority, they have likewise done, without even these.

Animal substances, that are employed for food, consist principally of nitrogen, carbon, hydrogen, and a small quantity of oxygen. Besides these, a few other principles, such as sulphur, phosphorus, and certain metals, appear in exceedingly small quantities. Vegetables consist principally of carbon, and hydrogen, in combination with much oxygen. Some contain a small quantity of nitrogen; and in all, as in animal substances, there is occasionally detected, certain metals, sulphur, and phosphorus. Fermented liquors, are composed entirely of carbon, hydrogen, and oxygen. Water consists of the two last named principles.

Various other substances, are occasionally thrown into the stomach, for medicinal purposes; but when they consist of any other than the above mentioned elements, or even of those, in such a state of combina-

tion as to be indecomposable by our organs, they answer no other purpose than to make a certain impression upon the parts with which they come into contact. Notwithstanding the experiments of a late celebrated writer on therapeutics, from which it is concluded, that opium is actually applied to the brain, by the agency of the sanguiferous system, when it produces its sedative effect; I still think, that the notion, that medicines, as such, and in the form in which they are exhibited, are ever taken into the circulation, ought to be exploded. As far as medicines are convertible into chyle, so far are they taken into the mass of our fluids, and no further. Whoever found antimony, quicksilver, lead, or copper, in blood; and how is it possible for these articles to leave the *primæ-viæ* for any other part of the system, except by the medium of the blood-vessels; and if these do not operate, by taking such a course, what evidence have we, that others do? Where shall the line be drawn, between those that are applied to every part of the body, by the sanguiferous system, and those that produce their medicinal effect, by acting upon the alimentary canal? I would not be understood, to question the experiments of the celebrated writer above mentioned. In only this instance, perhaps, has he drawn any other than the obvious conclusion, from the phenomena before him.

In describing the different sorts of aliment, the real ultimate principles of a human body have been named, as their elements. The proximate ones, are too numerous to be mentioned and described, on this occasion, and too well known to need such a detail. In the course of the following observations, therefore, each will be spoken of, by its appropriate name, without any especial explanation.

The obvious and palpable excreta from the human body, are the perspirable matter and sweat, the halitus from the lungs, the urine and *fœces*: To these, per-

haps, may be added, a few other secretions, which are not of sufficient consequence to be here mentioned. The chemical-composition of these several excreta, it is now unnecessary to specify, as it will be comprehended in what follows; suffice it to say, that they contain no one principle, which cannot fairly be traced to the Aliment.

I might now proceed to the actions of the system, in consequence of the reception of nutritious matter, within the sphere of its influence, but I chose first to notice its manifest, and surprising ability, of accommodating itself to peculiar circumstances, in regard to this point: I allude to the balance, between appetite, and action, between respiration and digestion. A toad buried in sand, it is supposed, by naturalists, will live for ages without food. The facts which support this opinion, say they, are too numerous and circumstantial, not to deserve some credit. In some animals of the forest, the vital flame, throughout the winter, is kept alive merely by the fat, accumulated during the summer, in the cellular substance.

This could not be adequate to such an effect, unless the animal should become inactive, and in some measure torpid. The same phenomenon, is likewise very observable in men, who at one time labour, and at another are unemployed. A late physiological writer relates, that persons inactive, weak, and slow of respiration, have many times lived weeks, without receiving the least nutriment.

The balance between respiration and digestion, clearly appears, from attention to the quantity of air consumed, in a given time, when the stomach is empty, and when it is full; when it is charged with oxygenated food, and when with that, which is more entirely combustible. It is related that Mr. Spalding, who made so many experiments with the diving-bell, constantly found, that when he had eaten animal food, or drank fermented liquors, he consumed air much

faster, than when he lived upon vegetables, and drank water. On the other hand, when from the increased rarity, or density, of the atmosphere, the same number of inhalations, causes the lungs, to receive a greater, or less quantity of air, the appetite is increased, diminished, or otherwise varied.—In the one case, we crave more food, and that, which is little oxygenated, in the other, we need less, but that especially which is acid. This difference of appetite, happens to every one, in winter and summer, on the tops of mountains, and in the vallies. It is stated, to be remarked, by Doctor Ingenhous, that strangers feel a remarkable increase of appetite, on their arrival at Vienna; and experiments there, with the eudiometer, prove, that the atmosphere contains a greater proportion of vital air, than at Holland. Every sagacious physician, says Mr. Townsend, must have had frequent opportunities to remark, that when the stomach is oppressed, respiration labors; but that when the lungs are plentifully supplied with vital air, the superabundant quantity of food is no longer a burden.

The utility, and great importance of the above-mentioned balance, it is thought, is very manifest, from the facts, that on it depends, first, the due excitability of the fibre; secondly, the proper, and salubrious temperature, of the whole body; and thirdly, the assimilation of new matter from, and the excretion of the detrita, which are incessantly brought into the great mass of the fluids.—The truth of the last proposition, it is believed, will be sufficiently evident, from what is to follow; but here it may with propriety be asked, how that of the other two, can be made to appear, since it is confessed, that the lungs imbibe no element, but what may be, and actually is received, by the stomach? The answer is ready. Substances taken into the stomach, cannot be appropriated, to the building up of the body, except, by the action of the fibre; but by this very action, excitability is rapidly exhausted,

so that, of necessity, there must be some other source of renewal. The oxygen then, received by the lungs, is the principle of excitability. This is evident, from the following facts; first, an obstruction to, or prevention of its reception, as in non-closure of the foramen ovale, confinement in mephitic-air, or bronchial inactivity, as happens sometimes to new born infants, to slaves confined in ill ventilated holds of vessels, etc. or as happens, either in symptomatic, or idiopathic dyspepsia, invariably occasions diminution of excitability, manifested by weak and intermitting pulse, speedy fatigue from labor, frequent syncope, somnolency, livid-fibre, and at last complete ataxy, and death.

Plants, and either animate, or inanimate muscular fibre, may be deprived of excitability, by substances that possess a strong deoxydizing power. Animals, that naturally possess little excitability, and little power of locomotion, have lungs, diminished in capacity, in the same proportion; and they actually consume so much less air. Their powers of digestion, very often, are not diminished, in the same degree, which makes it plain, that excitability does not depend on what is elaborated by the stomach.

Secondly, it is observed, on the other hand, that an increased supply of oxygen, by the lungs, occasions increased excitability, or susceptibility of action, strong, hard pulse, cerebral energy, insomnia, and florid fibre.

Animals, that have increased capacity of lungs, and increased bronchial action, and that, of course, consume a greater proportion of oxygen, have strong, and quick powers, of loco-motion, and that, in the same degree. This is the case with wrestlers, who, as Richerand observes, astonish us by the developement of their muscular organs, and the vast efforts of which they are capable; and of birds which are obliged to support themselves in the air, by rapid and strong exertions, and many of which live by prey. The latter, frequently, have exceedingly weak powers of di-

gestion. Children are more excitable, in proportion to their size, than adults, and vitiate more air. Vegetables, and animate, or inanimate muscular fibre, that have been deprived of excitability, may have it again restored, by treating, with oxy-muriatic-acid. The florid colour too, returns by the same means. To the above remarks, it may be added, that intoxication, fatigue, and immoderate panting, from violent exercise, are almost instantly relieved, by the respiration of vital-air; and that great exhilaration, and excitement, from the inhalation of nitrous-oxyd, and pure oxygen-gases, are not succeeded by any depression, as would invariably happen, were their modus-operandi analagous to ordinary stimulants. This I have often experienced in my own person, and have had opportunity to witness in two or three of my friends. In most instances, the person respiring these gases is irresistably impelled, to the most violent exertions, such as dancing, running jumping, halloing, etc. as it were, to relieve himself from a superabundant quantity of excitability; and all this, is not attended with fatigue. That animal heat, depends upon oxygen, received by the lungs, appears, from its bearing precise proportion, in a given time, to the quantity of air vitiated; but more of this hereafter. The manner in which oxygen produces excitability, seems to be by its combining loosely with the fibre; and action, I am of opinion, is a motion essentially attended with a disengagement of this oxygen. This appears from the fact, that oxygen is inhaled in the form of gas; and by the bronchial action, is combined with the blood, in but a slightly solidified state, (for little caloric is given out in that organ) and being carried round in the circulation, is proved to become still farther concrete, by the additional heat, generated in every point of the body. Now the oxygen that has disappeared, it is probable, has united with the muscular fibre, as the colour of this is changed from a

purple to a florid red, and its susceptibility of action from the impression of stimuli, is much increased.— That by action this oxygen is disengaged, appears from the circumstance of the reduction of the fibre to its former purple colour, and unexcitable state. But during action, the lungs continue to imbibe oxygen, whilst the fibre gives it out, and yet the blood is not preternaturally charged with it. It does not recombine with the fibre to produce excitability and animal heat, inasmuch as the lungs are still provident of a new quantity, and as it must be now too far solidified to answer these purposes. We find however, that the detrita, consisting principally of effete hydrogen and carbon, brought into the circulation by the absorbents, are constantly making their escape from the system by way of the renes, skin, and lungs, in the forms of water, and carbonic-acid. The oxygen then, which is now equally useless with the hydrogen and carbon, and just in a sufficiently concrete state, to combine readily with them, is undoubtedly the vehicle of their escape. This account, apparently, does away considerable difficulty in the commonly received doctrine of the uses of respiration. I allude to the notion, that oxygen is taken into the lungs, merely to form in that organ, the water and carbonic acid of excretion, and there likewise, to give out its caloric, and that it answers no other purposes in the animal economy.— On such a supposition, superficial heat would not be sufficiently accounted for, as I conceive, the increased capacity of arterial blood for caloric, and the diminution of the capacity of that of the veins is not adequate to it, though it should undoubtedly be taken into the account; nor could we explain the union of the vital with the combustible principles, as it is well known that the latter have little or no affinity for the former, when it is in its gaseous state, or nearly so.

In the foregoing account of the course and offices of that part of the aliment, which is received by the

lungs, no notice has been taken of the doctrine that secretion is the source of animal heat ; or of Girtaner's opinion, favoured indeed by Richerand, in his work on physiology, that the combination of oxygen with the fibre, may take place from the water in the blood, by the action of the nervous fluid, which he supposes to be identical with the galvanic.

With regard to the first of these notions, it is in some respects what appears the truth to me ; for the oxygen must manifestly be deposited with the fibre, by the fecerning arteries. As it respects glandular secretion, where the substance produced is not more dense than that from which it is separated, I cannot well discover how it can disengage much caloric. The opinion of Girtaner, I deem untenable, in two respects.—First, the oxygen in water is too far solidified to answer the purpose of producing excitability and heat ; and secondly, I think Wilson has demonstrated, and even Richerand himself, made it probable that cerebral influence is altogether unnecessary ; for the action of involuntary organs ; and that nerves are of use only, for voluntary motion, sensation and sympathy. The famous experiment of dividing the nerves of the heart, and its cessation of action thereupon, amounts in my view, to nothing more than that for the operation, so much violence must be done as to destroy its capability of motion ; or that a communication with some other viscera, for the sake of sympathetic excitation is necessary to its due excitement.

In detailing the uses of that nutriment which enters by the pulmonary avenue, actions have been spoken of, the causes of which were not specified. In treating of what is received by the stomach, it is hoped some light will be thrown on this branch of the subject. When therefore, from the sensations, styled hunger and thirst, we are induced to take into the mouth, either vegetable or animal matter, in proportion to its quality and quantity, does it stimulate

the salivary ducts, to pour forth the fluid secreted in their glands, and by the operation of the teeth, tongue, etc. it is broken down; and by a mixture with atmospheric oxygen, and saliva, reduced to a uniform pulpy mass. This by the voluntary action of the muscles of deglutition, is carried down into the stomach, to undergo that change which most eminently is termed digestion; a process accomplished by actions according to a late physiologist, at once mechanical, chemical, and vital; mechanical, in that the food is agitated by a gentle peristaltic motion, by which all parts of it are presented to the action of the gastric juice, and the chyme carried through the pylorus; chemical, in that the food is acted upon by a peculiar fluid, which the stomach is stimulated to secrete; and vital, in that a peculiar excitement is occasioned according to the quantity and quality of the substance digesting. Although the food is commonly said to be digested in the stomach, yet it must not be forgotten, that it really undergoes as important changes in the small intestines, as in that organ. By the admixture of the chyme with the bile, pancreatic, and enteric juices, etc. it becomes an essentially different substance, and is termed chyle. It is probable too, that it is somewhat modified by the lacteals and mesenteric glands, through which it must pass to reach the thoracic duct, the canal which runs near the aorta, and empties its contents into the left subclavian vein, near its termination in the cava. The large intestines, though a direct continuation of the small, answer but little other purpose but that of conducting out of the body, such matters as were indigestible, and refused by the lacteals. The vital motion of the stomach, is now to be considered, for by means of this, it is believed the whole actions of assimilation, secretion, and excretion, are carried on. All the organs employed in discharging the natural functions, have nervous communication with the stomach, by means of the intercostal,

and par-vagum, undoubtedly, for the purposes of sympathy.—Each of these organs is probably so constructed, as to be capable of sympathizing with those peculiar actions of the stomach, that are excited by the kind of aliment, the preparation for, or disposal of which, necessarily requires the exertion of such organ; and on the contrary, those whose exertions are not required for such purposes, are so formed, as not to be affected by such excitement. If flesh, for instance, be the food stimulating the stomach, (and this perhaps is one of our most nutritious articles of diet, and consists principally, of combustible matter) the action of the whole sanguiferous system, will be increased, that the detrita may be thrown off, the fat deposited in greater abundance in the cellular substance, and in short, all the secretions increased, in order to make room for the new matter about to come into the circulation, and to bring about the great purpose of building up our bodies. The quantity of this action must be proportioned to the quantity of the chyle, that can be elaborated from the aliment received, and its rapidity to the speed, with which this chyle can be formed.

Animal substances afford more chyle than vegetable, are quicker digested, and occasion much more irritation and heat. Hence, while the stomach is acting upon them, more matter must be assimilated from the blood, more excreted, and more of the excitable principle imbibed. Vegetable substances, on the contrary, afford less nutriment, are not so readily acted upon by the digestive organs, and occasion both less irritation and heat. This difference may very plainly be traced to the difference in the quantity of combined oxygen in each; and it at once explains the balance between respiration and digestion. These principles are every day recognized by the practice of physicians; for, in diseases of more and stronger action than natural, animal food, fermented liquors, narcotics, etc. are never allowed, while the necessity of abstinence, to a certain

extent, is invariably inculcated; and in diseases of weaker and less action, both the stimulus and nutriment of combustible diet, is universally acknowledged to be of the utmost service to the patient. Excitement without nutriment, however, in what manner soever occasioned, causes debility and emaciation; as is seen in all febrile affections. The oxygen which is disengaged from the fibre by the action, must take combustible matter to help it off, by the several emunctories; and this is, accordingly, brought into the circulation by the absorbents; its waste not being supplied by the stomach.

The opinion that the vital action of the stomach is by sympathy propagated to those organs whose assistance is necessary to dispose of its contents, may be illustrated and confirmed by the fact, that immediately on the reception of unusually aqueous aliment, even before any of it can have passed the pylorus, the renes, as suddenly, secrete an unusual quantity of watery urine. Indeed, the peculiar excitement of the stomach, occasioned by certain sorts of liquid aliment, seems, often, to be so exactly propagated to other organs, as to occasion an almost similar secretion from them. This has become proverbial, with regard to mucilages, the albumen of the egg, etc.; and I have known one case, where, in a very short time, from swallowing a large draught of peppered cider, after a long exposure to cold, that urine was very soon evacuated, having somewhat the smell, and producing on the urethra somewhat the sensation of the then contents of the stomach. Such phenomena are notorious also of the milk, and have induced many to suppose that there must be a more direct communication of the renes and mammæ with the stomach, than through the medium of the circulation. There does not, however, seem to be a necessity for this; for it may be as easily supposed that the impression of any particular fluid will occasion a secretion of a somewhat similar one, by the renes, as

that the application of but a particle of variolous vaccine, psoraic, or syphilitic-virus, to a surface, from which the epidermis has been abraded, should produce a secretion of a similar one, all over the body.— In short, there is considerable foundation for supposing, that in every instance, the urine bears some resemblance to the liquid on the stomach at the time of its secretion; though, in ordinary cases, from its small quantity, it does not stimulate the vesica, to evacuate it, till it has become changed by the absorbents.

No objection to the above notions can be made, on the score of the size of the renal arteries; for Haller, from the nicest calculations, has determined, that their diameter is one eighth of the aorta; and Richerand asserts, that a thousand ounces of blood pass through the renal structure in the space of an hour; and that, admitting this fluid to contain only a tenth part of the materials necessary to form urine, an hundred ounces could be separated from it in this short interval; and a larger quantity is never secreted in an hour, however copious and diuretic the drink may be.

Excitement occasioned in the skin, as well as the stomach, is sometimes propagated to other parts, though less powerfully. By immersion in a warm bath, bronchial and renal action becomes greater; a circumstance which explains the increased internal formation and secretion of water, the additional weight of which has been deemed a proof of cutaneous absorption.

Although it is the natural course for the digesting organs to occasion the action of the secreting, yet, in certain diseases, the order of nature seems to be so completely inverted, as that the contrary takes place. In diabetes, for instance, the stomach and lungs seem to sympathize with the renes; for there is a continual appetite for fluids; and an increased quantity of oxygen received by the lungs, which, with the assistance of the hydrogen and carbon, that the body every where loses, abundantly indicates the source of a fo

much greater weight of saccharine urine, than all the aliment visibly received. Hereby another supposed proof of cutaneous absorption is done away. Indeed, diabetes, from the acknowledged torpor of the skin that always attends it, never afforded a very strong evidence of the doctrine.

The system, in a state of health, or incipient disease, seems to struggle, as it were, to keep up a just balance in the excitement of the several parts; yet certain causes may so weaken particular organs, or increase the power of others, as completely to destroy it. The phenomena of a few maladies, seem to result from this condition; scorbutus, for instance, and phthisis pulmonalis, according to some of the most celebrated writers upon them. The symptoms of the former, which are supposed to depend upon a deficient supply of oxygen by the lungs, in proportion to the combustibles by the stomach, and the bodily exercise, are immediately removed by a restoration of the balance. The symptoms of the latter have, certainly, been palliated by the opposite treatment; and in cases where there has been no organic lesion, it is believed, a cure has sometimes been effected. It is related, that the French academicians, upon the summit of Pinchincha, where, independent of rarefaction, the air contains a less proportion of the vital principle than the middle regions, were attacked with scorbutic symptoms; and those who live in very damp and low situations, according to several eminent writers, experience them likewise.

Pregnancy, in its latter stages, as Denman informs us, has the same effect; and is attended likewise with an insatiable appetite for vegetables, and other accessories. It is supposed that this is caused by the demands of the fœtus for the principle of life; and by the hindrance of its free reception, from obstruction, to the motion of the diaphragm. As animal fat consists principally of hydrogen and carbon, the explanation of the phenomena of obesity, from a disturbance of the bal-

ance, seems to me highly probable; and it receives farther confirmation from the fact, that a free use of liquors, with which oxygen is but loosely and in a slightly solidified state combined, most commonly obviates them.

Indeed, it is a common observation, that those who live in a cider country, and use this liquor freely, are more commonly lean, than those who make beer their common beverage; and that certain opiates, and metallic oxyds, and acids, are antidotes to each other in the animal body. I was, not long since, informed by a gentleman, who was totally ignorant both of the theory and practice of medicine, but who had a smattering of chemistry, and was frequently making small experiments, that, one day, having access to an apparatus for the respiration of the gases, he determined to make a trial of oxygen upon himself. As the first effects were not adequate to what he expected, he continued the bag to his mouth longer than was prudent, the consequence of which was, a pretty violent pneumonical affection, precisely similar to the first stage of phthisis. It must be remarked, that he had naturally a very slender constitution, and never enjoyed very firm health.

Much has been said by writers of eminence, of a certain something, supposed to belong to a living body, and styled *vis-medicatrix-naturæ*. The principal phenomena of fevers are, by Dr. Cullen, referred to it.

I take it, however, to be nothing more than this sympathy of one part with another, this nervous communication of the organs of digestion with those of assimilation, secretion, and excretion, by which, if one is stimulated into action, the rest are incapable of remaining torpid. Townsend refers the effects of the application of an epispastic to the surface, and of an exhibition of a cathartic or emetic to a *vis-medicatrix*; but it is believed, however, that the organization of the skin, and *primæ viæ*, is simply such, that their exhalent vessels are capable of being stimulated into a

specific action, by specific applications; so that the epispaſtic, the cathartic, and the emetic, are in reality the efficient cauſes of the phenomena occaſioned.

That the final cauſe of the effuſion of lymph, in a bliſter, is to preſerve a tender organ of ſenſe from too violent irritation; and the effuſion of fluids, during the operation of a cathartic, and emetic, to waſh away the offending matter, is readily granted; and in that light may be ſtyled a *vis-medicatrix*; but on the ſame principles, even ſo may be moſt of our voluntary motions. I am even unwilling to allow, that the particular determination of matter to form new ſubſtance, in every breach of continuity, is any thing more than the immediate effect of irritation.

WILLIAM TULLY.

Case of an AFFECTION of the right OVARIUM; communicated by Dr. JOHN BARKER.

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A Mrs. W—r, of the county of Windham, aged about forty years, for more than twelve months previous to my being called to conſult with her attending phyſician, had the uſual ſymptoms of pregnancy; and was ſuſpected, the greater part of the time, both by herſelf and her acquaintance, to be in a pregnant ſtate. At the expiration of the firſt nine months, as the ordinary reſult of geſtation did not follow, a phyſician, who practiſed and was conſidered ſkilful in the obſtrietric art, was conſulted, and decided that ſhe was not pregnant, but that her diſorder was an hydropical affection of the right ovarium. I was requeſted to call and ſee the lady with him, and conſult upon the expediency of attempting to relieve her by an operation.

The whole abdomen appeared enlarged, and she looked like a woman ready to parturite. After making what examination was necessary, to satisfy myself of the nature of her disorder, I was convinced that not only the ovarium was morbidly affected, but likewise that a fluid of some kind was fluctuating in the cavity of her body; but so great was the distention of the abdomen, that although the ovarium could be felt through the integuments, and it was easy to decide as to its enlargement, it could not be very well determined as to its consistence. An operation was agreed upon, to relieve her of the fluctuating fluid, which appeared to occasion great distress; but we had a further object in view, viz. to be better able to decide as to the practicability of relieving the ovarium. On the 27th April, 1793, I performed the operation, (with a trocar at least one half larger than the usual size,) and drew from her about seven quarts of a gelatinous substance. This afforded temporary relief. She was then treated by her attending physician with carminatives, gentle cathartics and diuretics; and on the 6th of May following, I was again called to assist her by a second operation. It was agreed to perforate the enlarged ovarium, in this operation, and relieve it of its contents, (for the prevailing opinion of the council was, that it contained matter of a similar consistence with what had been drawn off at the preceding operation.) The result was, we drew six quarts of gelatinous matter more tenacious than before; her strength had failed her considerably since the former operation; a loss of appetite had followed the loss of strength, and her days and nights were one continued scene of distress; her urine in small quantity and high coloured; 'twas difficult to decide by the feel whither the ovarium was much diminished by the operation or not—She continued in the use of carminative, diuretics and cathartics, without deriving much benefit from them, until I was called upon the third time to operate, viz. on the 18th

of June, at which time I drew from her about five pints, of the consistence and appearance of new soap when boiling.

At this operation I left a tent in the perforation, to keep it open, and attended daily every morning to draw off the matter, which continued of the same consistence until the 24th at night—From the time I first saw her until now, her fever had been slight—In the night of the 24th, a violent fever came on, and on the morning of the 25th, such a quantity of a thin watery fluid had discharged from the orifice of the wound, where the trochar entered, that upon introducing the canula, I obtained but about half a pint of clear lymph at first, followed by about the same quantity of purulent matter; it retained this consistence, and I continued to draw off about the same quantity every morning, until her death, which took place on the 30th. Leave was obtained to examine the body, and accompanied by my friend Dr. Lee, we proceeded to the examination,—appearance was as follows:—Upon removing the integuments of the abdomen, the omentum being wholly consumed, the right ovarum presented, rather in an oval form, considerably larger than a goose-egg; it adhered on one side to the peritoneum; at its apex, it adhered to the diaphragm, the left ovarium considerably enlarged, such an entire adhesion had taken place between the right ovarium, uterus and vesica urinaria, that they appeared one compact and entire body, tho' of an uneven surface, the right ovarium upon being laid open had the appearance of a hog's liver, very porous, and interspersed with a number of cysts, containing a mixture of purulent and gelatinous matter, of a very offensive smell in quantity about half a pint.—The uterus and vesica urinaria, præternaturally thickened; it was discovered on dissection, that the trochar had perforated the right ovarium, but no particular advantage or disadvantage had resulted from it.—Attached to the diaphragm and peritoneum, were a

variety of small cysts, containing from a tea-spoonful to half a gill of a thin fluid—The whole abdominal viscera besides, tho to appearance sound, were immersed in a body of offensive and purulent matter.

A partial Analysis of the Waters of Stafford Spring, extracted from a Communication made to the Medical Society of Connecticut, by Dr. SAMUEL WILLARD.

POWDER of the galls of Aleppo, of Peruvian and white oak bark, and hyson tea, strike a dark purple colour, almost immediately, on being mixed with this water—Distilled spirits produce the same effect, but more slowly.

The purple juices of vegetables, such as violets, flower de luce, &c. give to the water a most beautiful green tinge—Caustic fixed alkali produces a precipitate, of a reddish brown colour. In this experiment, the carbonic acid attaches itself to the alkali, leaving the iron with which it was before combined, to fall to the bottom in the state of oxyd.

Silver on being wet with the water, acquires a blackish hue—Prussiates of lime and potash produce in it a very discernable blue tinge.

Two gallons of the water afforded, by evaporation, twelve grains of sediment; this sediment appears to consist of oxyde of iron, and aluminous and magnesian earth—It effervesces strongly with the sulphuric acid.

On the side of the vats where the water trickles down in a very gentle manner, I observed a very light sediment adhering; this appeared to be carbonate of magnesia, combined with a very small portion of the oxyde of iron. On some of this sediment I poured a few drops of the sulphuric acid, a lively effervescence immediately ensued, a quantity of fixed air was

extricated, a new combination took place, which on examination, appeared to be fulphate of magnesia or epfom falts. In this instance, I fuppofe the fulphuric acid feizes on the magnesia, and the carbonic acid, which was before united with the magnesian earth, being fuddenly difengaged, flies off.

The water will not unite with foap, but curdles on being mixed therewith.

For want of chemical apparatus adapted to that purpofe, I have not been able to examine the different gafeous principles which heat would probably extricate from the water.

The experiments which I have made, have been defultory—They cannot, by any means, be confidered as forming a complete analyfis of the water; fome experiments which I wifhed to have made, I could not for want of fome of the agents or tests which are generally ufed, in the examination of mineral waters—From the above related experiments, I have however deduced the following conclufions, viz.

1ft. That iron is the prevailing ingredient in the water—that it is held in folution by the carbonic acid—that when the water is expofed to the action of the atmofpheric air, or is acted on by heat, the acid is extricated, and the iron precipitated—the purple colour ftruck by the vegetable astringents, and by diftilled fpirits—the precipitate produced by the cauftic fixed alkali, and the blue tinge communicated to the water, by calcareous and alkaline pruffiates all indicate the prefence of iron. 2d. That the water is alfo impregnated with the fulphurated hydrogenous gas, its fulphureous fmell, its poffeffing the property of blackening filver, and its receiving a green tinge, from the admixture of vegetable purple juices, I confider as proofs. 3d. That the water contains aluminous and magnesian earth, its effects on foap, its effervefcence with the fulphuric acid, when deposited as a fediment, and the new combination which takes place on the admixture of that acid, induce a belief of this fact.

The following Case of an enlarged LIVER, was communicated by Dr. JOSEPH FOOT, of North Haven.

IN January, 1810, I was called to visit Thankful, wife of Solomon Linfly, esq. of Branford, aged 49.—On enquiry it appeared that her natural constitution had been good—that she had uniformly enjoyed good health—excepting periodical turns of head ache, attended with nausea, accompanying the menstrual flux, and sometimes slight hemorrhoidal affections.

As the menses disappeared, the hemorrhoids increased, and for two years past, particularly the preceding and present season, had been attended with so great an evacuation and pain, as very much to debilitate the system. Previous to my seeing her, by the application of white lead and oil, the discharge was suddenly checked, and no apparent ill consequences resulted from it, excepting a strong apprehension of future evil.

My enquires whether any tumors, pains, or soreness, had ever been perceived in or near the stomach, were answered in the negative; but on examination the following night, a large indurated tumor was discovered apparently in the stomach, rather inclining to the left; at this time the appetite and digestion were but little impaired, the pulse almost natural.—She was immediately put on a free use of mercurials and cicuta, internally and externally, and a moderate hemorrhoidal affection was again induced, by stimulants locally applied; the system was moderately affected, and a gentle ptyalism continued for several weeks, with occasional use of absorbents, bitters and physic, as symptoms indicated.

Comparing the situation and size of the tumor with the symptoms, I could not be satisfied what part was diseased—Counsel was called, and after determining successively, that it must be the liver, spleen, pancreas and an organic substance in the stomach, we left the

patient as wife as we came. Under the use of medicines mentioned, she continued gradually to decline until about the 8th of February, when she was suddenly attacked with most excruciating pain, especially on moving, in the left hypochondrium—Bleeding, fomentation, antispasmodics and blistering were used, and in a few days the pain abated; during the severity of pain, the tumor entirely disappeared, and by some was tho't to have discharged; but immediately returned of the usual size, as the spasms gave way; from this time she gradually declined (and as far as I could judge by the sight and touch, through the integuments, the tumor very slowly increased) until the 29th of May, when death closed the scene.

Leave had been previously obtained to examine the body; but in consequence of the distance and accidental circumstances, it was not opened until nearly 24 hours after decease. Upon dissecting the integuments, almost the whole cavity of the upper region of the abdomen, was filled by the enlarged left lobe of her liver, which appeared to be in an intermediate state between schirrus and ulceration, resembling the cortical part of the brain. The right lobe of natural size, and, excepting a few schirrosities, preserving a healthy colour—The gall-bladder moderately full of healthy looking bile, the stomach very small and pressed to the left, the right kidney very much enlarged, the liver when dissected out, weighed nine pounds and seven ounces, the exterior edge being about seven inches thick—Owing to the length of time after death, and satisfaction being obtained as to the disease, no further examination was made.

An instance of the fatal effects of CANINE MADNESS.

JAMES REMINGTON, a lad of about six years of age, was on Saturday the 28th of October, 1797, on a visit at his uncle's, Mr. Erasmus Grangers, in Suffield, the boy observed that his uncle's dog growled at him, when he first saw him, and told some of the family that the dog threatened to bite him—he escaped at that time, however, unhurt; but soon after this lad with some other boys, were at play in the street, at some distance from the house, the same dog followed the boys to the place, and there fell upon said James and bit him in the face, the boys beat the dog off, and he ran home. This adventure produced some disorder among the boys, and put an end to their diversion—James, with his mates attending him, returned to his uncle's with his face wounded and bloody; as he drew near the house of his uncle, the dog was by the gate; as he came up the dog flew at him with great violence, threw him down, and wounded his face in a most desperate manner; one of his tusks entered the lids of the right eye, and rent them both open—one tusk perforated the cheek on the left side, and tore out two of his teeth; at the same time wounding his face badly in several other places: In this mangled condition he was carried into the house, and the dog immediately killed; I was directly called to see him, after washing off the blood and examining the wounds, the eye-lids were united by a suture on each lid, and the wounds dressed in the usual manner. The boy complained of great pain in his face at intervals, which probably was in consequence of the wounds which he had received. A considerable degree of inflammation succeeded, and in about two days his face was so much swelled that both eyes were entirely closed, and he was

totally blind for some days ; after the inflammation had subsided, a pretty good digestion succeeded, and the wound discharged freely, which was encouraged by stimulating digestions, in order if possible, to prevent the effects of infection in case the dog should prove to be mad, which began to be apprehended by many, and the accident excited a general alarm in the neighborhood, particularly in the family and among the friends of the wounded boy. At this time no pains were spared to obtain the best advice as to the mode of treatment on supposition that the virus had been communicated to the lad ; he was put upon a mercurial course of medicine, and the mercurial ointment frequently applied to the parts affected ; as the inflammation abated, he began soon to recover appetite, cheerfulness and activity ; some of the wounds were healed by the first intention, others shewed a disposition to unite, and would have closed up, but our object was to keep them open and excite a free discharge ; symptoms appeared favourable, and the boy in a fair way of recovery, until Tuesday the 10th day from his receiving the wounds ; towards evening the family observed he began to droop and did not appear so cheerful and active as before ; the night following, he was rather restless and disturbed in his sleep, and did not rest so well as usual ; Wednesday morning on removing the dressings, the wounds were dry without any discharge, notwithstanding they had discharged freely at dressing ; the preceding morning he appeared rather listless and dull, complaining of some pains in the wounded eye and in his head, accompanied with a slight fever, with other symptoms usually attending a cold, and it was hoped his complaints originated from that source ; in the afternoon of the same day, however, the family observed as he attempted to drink, he was attended with starting and twitching, particularly in his neck, which drew his head back. On being asked why he did so, he replied he could not help it. This symptom

alarmed the family, and I was immediately called in— he was now frequently attacked with sharp darting pains through his head and breast, attended with spasms, particularly when he attempted to drink; the night following he was restless and uneasy, slept but little, and that in short disturbed naps, starting as in a fright. These symptoms increased during the course of the night. On Thursday morning all the foregoing symptoms had increased to an alarming degree; he lay on the bed and chose not to be moved, his countenance was pale, attended with momentary flushes in the cheeks, anxiety and distress were visible in his face, he appeared in a state of general debility, yet the nervous system excited to the highest state of sensibility. Fearfulness in particular seemed to be a predominant symptom, which was even apparent in his countenance, respiration was difficult and laborious, especially in the return of the paroxysms which were become frequent; at each inspiration spasmodic catches resembling short sighs, interrupted his breath; when he attempted to drink he was seized with violent spasms, particularly in the neck, which drew his head back with great force, notwithstanding his utmost exertions to prevent it; even the mentioning of drink would produce similar agitations, and bring on a return of the fits; he was able only to get down a tea-spoonful of liquid at a time, and that with great difficulty, which he seized with eagerness, trembling and agitation; he seemed to have the same aversion to the wet clothes which were used in fomentation and applied to his stomach and renewing them produced nearly the same effect as drinking. At intervals of ten or fifteen minutes, he was seized with a violent catching for once and no more at a time; this symptom was singular and what I had never before noticed in any disease; the noise produced by this effort was sharp and shrill, different from what is usually the effect of retching to vomit (hence remarked by many that were present, that it

resembled the noise made by a dog) it seemed to be occasioned by violent spasms of the diaphragm without sickness, as he had never discharged any thing from the stomach except a little wind, he remarked that he felt a little better after it; this symptom resembled in some measure a sickness, but bore a nearer resemblance to retching from sickness of the stomach, and attended him at longer or shorter intervals through the course of the disease. He would frequently shriek out in great distress from the acute darting pains in his head and breast; these shrieks resembled those of infants in convulsion fits, as they are commonly called, and seemed to be the effect of fearful apprehensions as well as of pain; at this stage of the disorder he often complained of the cold, and was attended with frequent rigors. His pulse at this period was about one hundred in a minute; he retained the exercise of his reason, unless fearfulness might induce some degree of derangement in the rational faculties. The white of that eye which had not been wounded, appeared a little inflamed.

Under these threatening symptoms, no doubt could be entertained as to the infection. By advice of several physicians, who were called, he was put on the use of opium and musk, in large and repeated doses, and the room directed to be filled with the fumes of vinegar. In the space of about three hours from taking the first dose of opium, the retching was become less frequent, and not quite so violent, the other symptoms continued much the same; in the evening the pulsations of the arteries were about one hundred and ten in a minute; he complained of a dysuria, and attempted frequently to make water without effect; he inclined rather to be up than in bed; the catching for breath was not so frequent nor so hard; the turns of shrieking were rather more frequent, attended with extreme agitations, and some degree of delirium in time of the paroxysm. In the course of the night the

dysuria abated, and whenever he attempted to drink he would void urine, which symptom continued thro' the remaining progress of the disease. He would swallow with less agitation and pain than before the use of the opium and musk; he passed the night without any sleep. On Friday morning there appeared a sensible alteration or variation of the symptoms; the pulsations in the night had increased to 120 in a minute; they were now fallen to about 90, with frequent intermissions; he refused altogether to lie on the bed, chose to continue in an erect posture; he appeared wild, in great hurry and agitation, constantly talking and in continual motion; the sighing had subsided in a great measure, but the retching continued; he could take liquids with less terror and agitation.

About this time he began to complain that his throat was full and felt sore, and at evening a hoarseness succeeded the other symptoms; the pulsations had fallen to about 85 in a minute, with frequent intermissions, and were now become very feeble, the violent retching still continued, a coldness of the hands and feet had begun to appear some time before, but was now more apparent. He had taken about 16 grains of opium in the space of twenty-four hours in divided doses, and sundry portions of musk, which had in some measure moderated the violence of the spasms, but not subdued the disease. Friday evening, 7 o'clock, symptoms began to grow more alarming, his loquacity subsided, and was succeeded by great anxiety and restlessness, constant tenesmus, and after about two hours endeavour, he evacuated a small quantity of extremely fetid matter. About 8 o'clock, with much difficulty, he got down a small portion of musk, after which the raving increased fast—extremely difficult to retain him on the bed—pulse very low and fluttering—eyes fierce and staring—countenance very wild—9 o'clock he with great exertion got down the usual dose of opium—anxiety and restlessness increasing to a most a

distressing degree, until about 20 minutes after 9, when he evacuated from the stomach a quantity of viscid phlegm, which gave him temporary relief; at which time he lay down quite calm until about 10, when by attempting to swallow a tea-spoonful of tea, was extremely convulsed, and every symptom returned with redoubled force; violent subfultus of the tendons, frequent retchings to vomit, was almost strangled with a tough viscid phlegm in the throat, his whole nervous system was in the most violent agitation, his mind in constant perturbation, he starts often, asked if there was not a dog in the room, foams and froths at his mouth, &c. he now loses his speech, his extremities grow cold, pulse intirely gone, and exhausted with striving, he sinks down upon his pillow; at this time his friends anxiously hope that his sufferings are soon to be at an end; at about 11 o'clock he suddenly revived, sat up, took a cloth and wiped off the saliva from his mouth, quite calm and free from convulsions—Thus he continued till about 12 o'clock with an anxious melancholy on his countenance, and unable to speak, but would point to any one in the room, whose name was mentioned to him, gave his hand to each one of the family, while his looks spoke more than words can describe. He now made several fruitless attempts to convey a spoonful of tea to his mouth, but after many trials succeeded, but was shockingly convulsed by attempting to swallow.

About one o'clock Saturday morning, he puked up a very viscid mucus with a little tea which he had last taken, the sight of which threw him into the most extreme convulsion, grinding of the teeth, involuntary fits of laughing and crying by turns, even the sight of liquids now threw him into great distress—2 o'clock more terrible still, frequent grinding and gnashing of the teeth, foaming and frothing at the mouth, eyes extremely fierce and staring, starting with the most fearful apprehension, catching at things in the

air, and at the bed clothes, striking violently with his hands and feet, though not at any particular object, he never made any attempts to bite or injure any person—he could now speak so as to be understood; he continued thus to rave with the most sudden and violent contractions of the body, with frequent retchings to vomit, but little discharged until between 3 and 4 o'clock, quite exhausted, he again sunk back upon the pillow, when with a ghastly countenance, staring eyes, laborious and interrupted respiration, but free from convulsive affection, retaining the faculties of seeing, hearing and knowing his friends, and able to speak pretty distinctly, he continued till 5 minutes past 5 o'clock, when in a moment without a struggle or a groan, death closed the scene.

HOWARD ALDEN.

An unsuccessful case of HYDROPHOBIA, treated upon the stimulating plan.

February 18th, 1806—This day I visited for the first time, a patient bitten seven weeks since by a dog supposed to be mad. The patient was a lad of seven years, the circumstances were these:—As the boy returned from school he saw a dog sitting by the side of the path upon his hind legs, the boy was frightened at the unusual appearance of the dog—began to run, the dog pursued him, threw him down and bit him several times in his wrist, making a very deep and lacerated wound. The inflammation and pain of the wound was very considerable, which was treated with poultices, and suppuration induced. From the time of the accident until the symptoms of hydrophobia came on, the boy was under an alterative course of mercur-

ry as prophylactic. On the 17th the parents became alarmed at the appearance of the disease, viz. pain in his arm, shoulder and bowels, with restlessness and increased sensibility, and some difficulty in swallowing. The attending physician gave him calomel in doses of two grains every two hours, with laudanum sufficient to restrain it from passing off by the bowels. On the 18th I found him with pain in his arm, shoulder and bowels, tongue covered with white fur, the wound put on a livid appearance, had entirely ceased to discharge, difficulty of swallowing at this time great; yet he was able to overcome it, had frequent and sudden inspirations, like a person suddenly immersed in cold water, pulse slow, small and irregular, sometimes a full stroke, quick succeeded by a small one, pupils very sensible to light, and extremely so to sound; when he drinks he has a wild stare with his eyes, rolling them back; he speaks with great earnestness, and a commanding tone of voice; if any one comes into the room he commands them to go out immediately; when he is informed it is one of the family, he becomes quiet; frequently he calls for water, as soon as the vessel is brought into the room he springs up in the bed and cries, "carry it out, it will kill me;" when he is told it is the drink he called for, says O! I'll drink it, I thought it was something that was going to hurt me." Mercurial ointment was rubbed into the thighs very freely; injections were given with temporary relief of the pain in the bowels; the matter discharged was of a dark green color. At 11 o'clock, A. M. a council was called, consisting of the physicians of the town.—Influenced by Cullen's nosological arrangement, and Dr. Mease's supposed analogy between this disease and tetanus, the council advised to treat the patient upon the stimulating plan—Increase the dose of laudanum and submuriate of mercury—give injections of the bark, wine and opium—bathe the body with sweet oil. Altho' several oz. of strong mercurial oint-

ment were applied to the surface by frictions, and forty grains of submuriate of mercury given, not the least effect was produced upon the mouth and bowels, unless the pain in the latter was increased by it. The difficulty of swallowing and all the other symptoms were very much aggravated in the afternoon. He began now to froth at the mouth—the convulsions became more frequent and continued longer, agitating the whole body in such a violent manner as to require two men to keep him in bed. During his paroxysms he became delirious, imagining some person was going to kill him—frequently begged to go home—he frequently attempted to bite, tore pieces out of the bed-clothes, and continued to chew them for a considerable length of time. The frothy saliva discharging from his mouth in great quantities, was very troublesome to him, though it did not appear to be viscid; he often attempted to wipe the saliva from his mouth, which he rarely succeeded in doing on account of the spasms—In the intervals of the convulsions he expressed much anxiety lest he should bite his attendants.—His skin was uniformly dry until within an hour or two of his death. At 7 o'clock, P. M. a mild delirium came on; in the intervals of the spasms he laughed and tried to excite laughter in others by obscene language—imagined himself sliding on the ice with his companions—attempted to be witty with them. During this mild delirium, swallowing was not as difficult as it had been—touching his body excited the spasms; when any thing was given him to drink, he was directed to open his mouth wide, and the liquid was poured far back upon his tongue; if the spoon touched his mouth before the liquid was poured into it, he could not receive it—Oil was applied to his body with some little relief, or at least it was agreeable to him. Sulphuric ether given in tea spoonful doses diluted with water, produced convulsions much more

violent than those which were occasioned by swallowing water.

Previous to his delirium, and in his lucid intervals, he took medicines very well, exhibited decision of mind and strength of resolution in taking liquids beyond what would have been expected from a boy of his years. The tincture of opium (ozj of opium to lbj proof spt.) was given on the 17th, in doses of 8 drops, and increased gradually until he took a tea-spoonful every hour; on the afternoon of the 18th, in the space of 5 he hours took ozs of the above tincture, without any perceptible effect in stopping the progress of the disease; he was taken out of bed and a pail-full of cold water suddenly thrown upon him, he was immediately wrapped in blankets and laid in bed; the affusion produced violent convulsions, which continued longer than usual, after being laid in bed was more quiet for a little time. At 11 o'clock the spasms subsided, pulse scarcely perceptible, became comatose, had a cold sweat, continued in this condition until one o'clock, when he died.

Dissection.—The brain was first examined. The blood vessels of the dura and pia mater were very much distended with blood, the other parts of the brain exhibited no marks of disease. The glands of the throat were tumefied; papillæ at the root of the tongue were very much so, and the excretory ducts of the sublingual glands were livid like the spots produced on the skin by the bite of leeches. The tonsils were larger than common, and contained several pustules filled with purulent matter. The trachea contained a froth, like that which had been thrown out of the mouth, in so great abundance in the latter stages of the disease. The lungs appeared healthy—In the left ventricle of the heart was a polypus. The intestines were much distended with flatus and a dark green matter. The gall-bladder was unusually large, and filled with dark coloured bile.

Would not the remedies used in this case probably have had more effect if the excitement had been reduced previously to their administration, by depleting the blood vessels and evacuating the contents of the primæ viæ? If stimulants were proper, would not local stimulants, such as acetite of copper, sanguinaria canadensis, lobelia inflata or tinct. of cantharides with more certainty than diffusible stimulants have removed a disease which had a local determination? Is there any analogy between the orgasms of hydrophobia and the tonic spasms of tetanus; if there had been, would ether have aggravated the symptoms; and if the disease had been of a weak action, would the meninges of the brain shewn marks of inflammation?

ELI IVES.

To the Committee of Publications.

Gentlemen,

Considering experiments and facts, tested by experience, as the only sure ground of medical improvement, I submit to your consideration the following case, to publish or not, as you shall think most conducive to the good of Society.

S. J. Aged 34, of a robust constitution, plethoric, and of an irritable habit, indulging in a free use of ardent spirits—January 2d, 1806, was attacked on the road by a dog, and bitten in several places on the buttock, near the gluteus maximus muscle. As no cases of diseased dogs had occurred, he pursued his business, without any apprehension of danger, washing the wounds with spirits. A lad in New Haven had been previously bitten by the same dog on the same day, and another afterwards in North Haven.

The dog pursued his course, making an unprovoked and violent attack on every animal in his way; this soon alarmed those who were bitten; the boy in

North Haven applied to me on the 3d of January ; by applying caustic freely, giving mercurials, and cortex peruvianus, a violent inflammation was excited, a free suppuration ensued, and continued for six weeks, no ill consequences have resulted from the bite. January 5th, S. J. applied to me for directions relative to his wound, the same course as above described was adopted, but the inflammation and suppuration were much more moderate than in the other case ; the calomel powerfully infused the system, and was continued as long as was thought prudent. Although extremely alarmed at his situation, he made a free but forbidden use of spirits. February 22d, the wound gradually healing, S. J. being at work, about 12 o'clock was suddenly attacked with a sense of great weakness without pain, but of short duration ; it was soon succeeded by another similar attack ; about this time, attempting to eat dinner, he was affected with a violent pain in the stomach and breast, difficulty of swallowing, followed by retching to vomit. Being at a distance, I did not see him until about 5 o'clock, he was then exercised after short intervals with the most excruciating pain in the breast, stomach, lumbar region and throat ; an almost entire inability to swallow, spasms of the extremities, motions of the eyes and body instantaneous as lightning, countenance bordering on furious delirium, sensibility and hearing far more exquisite than I had ever seen, thirst great, but very averse to attempt to swallow. I immediately bled him about two pounds, with little mitigation of pain ; in about twenty minutes two pounds more were drawn ; faintness immediately followed, the pains abated, and he slept some part of the night, with occasional spasms, and twitching of the tendons. It may be remarked in this place, that after he was bitten he procured a recipe from Dr. John Crous, of the state of New-York, in which he placed confidence. Soon after the second bleeding, it was prepared and given him ; at this time he had

not swallowed any thing from the time of attack. The first portion was swallowed with difficulty, and as he thinks with great relief to the spasms in the throat. From this time he gradually regained his health.

Dr. John Crouse's recipe.—“ Take of the lower jaw of a dog burnt and powdered, one tea-cup full, sulphur of venice one half tea-spoon full, and if you please one third of a colt's false tongue, and a small quantity of blood-root and poke-root, reduce them to a compound, and give the patient one half tea-spoon full in water, in half an hour give the filings of one half copper ; repeat the application on the following day—The above are sufficient doses for an adult. To a child give discretionally—Use no sweet milk for two or three days.”

This, like the amulets of old, must require great credulity, and strong faith to prove curative.—In what manner could the sudden depletion operate ?

N. B. The lad in New-Haven died with symptoms of hydrophobia the week previous to the attack of S. J. And almost every animal known to be bitten, died diseased, unless destroyed before the common period of attack. The above named S. J. several years before this period, when inebriated, had one or two fits resembling epilepsy.

JOSEPH FOOT.

The following, as a marked case of the powerful and sudden effects of unequal excitement, and disproportioned action of the arterial and venous system, constituting the characteristic difference of petechial from common fevers, is submitted to the public.

MERIC LINSLEY, of Branford, aged 26, of a healthy habit, remarkably strong digestive powers, on Saturday, March 10, 1810, after eating a full dinner,

was suddenly attacked with the common symptoms of fever. My father, Doct. Jared Foot, was applied to, administered an emetic, and after the operation, an active cathartic, directing after the operation, mild diaphoretic drinks. Early on Sunday morning, it was discovered that the body and lower limbs were interspersed with vibices, some nearly as large as the hand, and down to the size of a cent; totally black and insensible, the upper limbs with petechiæ of a small size. In this situation I was called to visit him about 10 o'clock; his pulse full but not hard, great anxiety and restlessness, with oppression of breathing; countenance highly morbid, skin moderately warm, intellectual functions evidently impaired.—Being equally alarmed with his friends, with the approbation of the attending physician, he was immediately put on a free use of diaphoretic powder, composed of opium, camphor, sal. nitre and ipecacuanha, soft wood boiled in water, and wrapped in woollen, was applied near the body and limbs, and frequently changed; a moderate use of warm wine, and a frequent use of sal. soda. dissolved in water; in an hour or two a free and equal sweat was induced, and moderately continued; the anxiety and uneasiness somewhat abated; at evening Doct. Jared Potter came as council, it was agreed to continue the above practice with a mild purge of oleum ricini during the night.—March 11, in the morning the symptoms of danger were not increased, the effusion had not spread, but was evidently circumscribed by a lighter color, the physic operated freely, the discharge highly fetid, and slightly discolored, the same treatment moderately continued with a very free use in substance, of camphor. The afternoon exacerbation increased with more activity of the vital functions, and less derangement of the animal. For several successive days, the above practice was continued with the addition of ether, lavender, &c. and daily purging, an absorption from the margin of the effused blood gradually progressed until

nearly one half of the extravasated blood was reabsorbed. The skin and cellular substance too torpid to be restored, sloughed off, and the ulcers were treated as usual; at one time there were about thirty ulcers to dress; the uniformity of the subsequent symptoms and mode of treatment, preclude the necessity of following the disease from day to day. Early in the disease it was discovered that the muscles and optic nerve of the right eye appeared to be in a state of partial inactivity, during the convalescence, this state was succeeded by a moderate inflammation in the eye, by the application of cold water, and the common remedies, the action of the eye was so far restored as to be susceptible of vision, when by a sudden exposure to the full rays of the sun, vision was entirely destroyed, and is now considered by some a cataract, and others a gutta serena.—The health of the young man by a moderate use of the diffusible stimuli and mild tonics, is perfectly restored.

JOSEPH FOOT.

To the Medical Society of the State of Connecticut.

GENTLEMEN,

AN answer to the question, viz.—“*What is the most eligible method to promote Medical Knowledge in the State of Connecticut?*”

In prosecuting the subject I shall consider and treat the matter as tho' every physician in the state was incorporated, and of course subject to be influenced by the censures and encouragements of the President and Fellows, and constrained by their laws.

Admitting this to be the case (which is in a great measure true) it is from the said encouragements, frowns and constraints we are to expect the greatest stimulus; hence proper regulations become matters of

the highest importance. The arrangements hitherto adopted (by your respectable body, do them much honor) in some points have failed in their operation; this no doubt gave rise to the question now before me, and to obviate the difficulty, I would submit to your wisdom the following considerations, viz.

The society have proposed several important questions to be discussed by the faculty, with the flattering encouragement of the public thanks of the society to whomsoever should make the most satisfactory reply: But unhappily the importance of the medical science is so little attended to by the people at large in this state, that a public declaration of a man's learning and ingenuity in this laudable profession, does not raise him to that degree of eminence as to excite him to pursue an intricate subject with that persevering industry which an accurate investigation might require.

But how is this to be remedied? I answer, by adding a pecuniary reward. But (say some) is not the cause of humanity, and the applause of his fellow citizens a sufficient incentive? Why truly at first sight, it seems it ought to be; but when we look into all other societies we find it otherwise; and you will pardon me for supposing physicians to be like other men. To illustrate this we have only to reflect that among the numerous faculty in this state, a very small proportion have hitherto been induced to put pen to paper.—This neglect I impute to the particular circumstances of a great proportion of physicians in this state, whose moderate prices and necessary attention to a common subsistence, will not permit them to devote any considerable proportion of their time, merely to obtain applause.—This in some instances I know to be the case.

But admitting a pecuniary reward to be necessary, the next question is, How is money to be raised without burthening those very men who are already cramped by their poverty? With becoming deference to

your better judgment, I would propose the following methods.

First—Let our representation be lessened. From the county of Fairfield, which contains about thirty members, are sent five fellows; this makes the ratio as one to six, which appears to me a very great proportion. The necessary expence of this representation will require, every session, a tax of at least one dollar on each member, which I confess is nearly as much (considering the present advantages resulting from the institution) as will be cheerfully submitted to. Now if instead of five fellows, only two, or even three were to be deputed (which I conceive would be amply sufficient for every legislative purpose) there would be a saving of twelve dollars in this county only; and admitting the county of Fairfield to be an average ratio for the state of Connecticut, ninety-six dollars might every session be deposited for the benefit of the institution, without any additional burden to individuals. This properly modified into premiums, with the applause naturally connected, would, I believe, prove a sufficient incentive to put the wheels of genius in motion, and that many useful communications would be the result.

Secondly—Should this method be deemed ineligible, or on experiment be found inadequate, let us look up to the hon. legislature of the state, whose patronage of learning in general has of late been so conspicuous, as to afford a well grounded confidence, that they would lend a helping hand in so laudable a pursuit.

And, *thirdly*—Should such solicitation prove abortive, let a subscription be opened and presented to the beneficent of the faculty and other patriotic gentlemen.

In the next place, permit me to offer a few hints respecting the growth and discipline of our institution. The design of every incorporation is, that each component part should add a value and efficacy to the general mass; and on this principle is founded the association of our present society; that each member from

his different genius and opportunities, should by his discoveries contribute something to the improvement of the medical science and the benefit of mankind. And while each individual is engaged in his own proper sphere, he is deriving to himself the accumulated advantage of the labors of the many.

Hence the utmost caution ought to be exercised in the initiation of members. Every applicant who is not likely to add utility or respectability to the society ought ever to be excluded. And when admitted, let him be punctual in his attendance at the periodical county meetings to which he belongs; which I am sorry to say, has, so far as my acquaintance extends, been too generally neglected. To remedy this, I would propose the enactment of a bye law, making it the duty of every member, once in a reasonable time, to exhibit a narrative of some interesting case which shall have occurred in the course of his practice, marked with the most striking peculiarities, together with his system of cure. And if nothing should occur which might merit a relation, let him produce a dissertation on some medical subject. And in case of neglect, let the delinquent be subjected to a reasonable fine, and let a repeated and obstinate omission amount even to an expulsion.

Secondly—Let our honorary degrees be administered with the most scrupulous impartiality.—Let merit be the only ladder to diplomatic honors, and whether in youth or in age, in affluence or penury, let the deserving applicant receive a hearty welcome; and let a personal application, accompanied with proper specimens of meritorious worth, instead of being deemed an arrogant presumption, be encouraged as a laudable emulation.

Finally—From the various combinations of honor, emolument and improvement, may we not expect to see the faculty incited to a more close attention to the laws of animal nature; to the power and operation of medicine on the human system; and a cheerful readi-

ness to communicate whatever may be interesting or useful. Genius and industry, however obscurely lodged, will be encouraged by finding free access to honors and emoluments; and the medical meetings in the several counties, will, from the many useful communications, become interesting periods. And, no doubt, such collections of knowledge might frequently be made, as would adorn the closet of every physician.

GIDEON SHEPHERD.

A case of that species of Dropsy called ANASARIA, communicated by ABRAHAM TOMLINSON, M. D. of Milford.

DANIEL BURNE, aged 58 years, middle stature, narrow chested, light eyes and hair, complained of shortness of breath and lassitude, attended with tumor of his legs, scrotum, and abdomen, to that degree as nearly to fill a common sized shirt and trowsers, and was so unwieldy as scarcely to walk. I had been sick during this period of Mr. Burne's illness, till he had arrived to the state above described.

On my first visit, July 11, 1803, I found him given over by his physician and friends, despairing of recovery. At this time his pulse was feeble, little thirst, urine small in quantity and high colored, with coliciveness and loss of appetite.

On considering this case, I was of opinion that it originated from an enlarged liver, occasioned by a too free potation of ardent spirits, which over stimulated the absorbent lymphatics of the cellular membrane, and produced a paralysis or torpor of the same (which I name *indirect debility*) in consequence of which the cells of the cellular membrane become replete with a mucilaginous fluid, which constituted the disease.

Having investigated the complaint, (to my own satisfaction) I proceeded to the method of cure, founded on the following data.

I said, (agreeing with Doct. Brown) it was necessary to begin the cure with strong stimulants, such as fox-glove, squills, cuprifus salts, &c. and gave them in such quantities as to produce nausea, by a continued irritation until the lymphatic absorbents that open into the cellular membrane, should become inverted and produce a large flux of urine.

For promoting this intention, I selected the digitalis, which I used in decoction, prepared by boiling an ounce of the dried leaves in a pint and a half of water to half the quantity, to which I added one gill of spirits.†

I gave two large table spoonfuls for a dose once in 4 hours for about 24 hours, which produced sickness and gentle vomiting, at this time a copious flux of urine commenced and continued for two or three days. The quantity evacuated on the second day amounted to 3 gallons one pint and a half, ascertained by actual measurement; the amount for the other days was judged to be more than that on the second day, the whole quantity discharged was about 7 gallons.

About the 5th day the evacuation was completed, and left him (to use a vulgar expression) nothing but skin and bones.

When I first visited this patient, the compression (occasioned by the tumor) on the arteries and abdominal visera was such as greatly to impede the circulation and suspend the peristaltic motion of the intestines, whence costiveness, &c.

The sudden removal of this pressure, reduced the patient to great languor, so much so, that I found it necessary to use opium in small repeated doses to prevent swooning, also to give a dose of rhubarb to evacuate the contents of the bowels, which had the desired ef-

† Two additional decoctions were used in this case.

fect. After this I completed the cure by the use of bark and iron, aided by wine and occasionally opium.

I gave as much as two drachms of filings, and half an ounce of bark in substance, in 24 hours, in alterative doses, at the end of 17 days dismissed my patient, convalescent.

A case of UTERINE POLYPUS removed by ligature.

June 15th, 1809, I was called to visit Mrs. V. with disease of the uterus. Previous to her present complaints she was very healthy, and industrious, has one child twelve years of age, her parturition with that child without any extraordinary symptoms, and enjoyed perfect health for several years afterwards. At the time of my first visit, she complained of pain in the sacrum, hips, pubis, extending down the thighs, with sensation of bearing down, when in an erect position. Sometimes she passed urine in small quantities with pain, at other times in very large quantities, without pain. The menses were regular as to the time of their commencement, beginning with pain, and terminating with hemorrhage. For two years past, the catamenial evacuations were small in quantity and without pain, for the first twelve hours after their commencement, then began the most violent pain in the groin darting through to the sacrum illium and down the thighs to the knee. These pains were referred to the bones by the patient. The case had been declared by the physicians who had visited the patient a schirrous os tincœ. The patient had taken astringents both vegetable and mineral, to restrain the hemorrhage, and made use of injections into the vagina of preparations of lead, also worn sponge, and taken conium

maculatum; under the use of these remedies the disease constantly increased.

On examination, the parts exhibited the following appearances; passing the finger about two inches into the vagina, a convex body was felt distending the sides of the vagina. The lower part of this body was perfectly spherical receding upon pressure like a prolapsed uterus, by pressing the tumor to one side of the vagina the finger passing about an inch further, came to indurated parts, which upon superficial examination, appeared like the continuation of the same tumor. Upon further examination, however, the finger could be passed between the indurated parts and the tumor, until its diameter was not more than half or three-fourths of an inch. These indurated parts which surrounded the body of the tumor, and embraced about two thirds of it, proved to be os tincæ very much enlarged and indurated. The enlargement of the os tincæ was principally upon the right side, where it gave the feel of another tumor. The surface of the tumor was very smooth and resisting to the touch.

In uterine affections, it is of the last importance, to discriminate between fungous excrescences and inversions of the uterus. The insensibility of the tumor, while the adjacent tumefied parts were very sensible; the form of the tumor, perfectly spherical below, and diminishing its diameter above, until it terminated in a mere peduncle of an inch and a half in circumference; the fact that no cause had been known to have existed which could have produced inversion together with the frequent and profuse hemorrhages, were the reasons which induced me to think the disease a fungous excrescence commonly called polypus.

Not relying upon my own opinion solely in a case of so much consequence, I asked counsel:—Dr. Eneas Monson (whose superior talents, and continued friendship to me, I am happy on every occasion to acknowledge,) was the physician who was called in consulta-

tion. It was agreed that the tumor was a polypus, that the only remedy was extirpation, and the most eligible mode, that by ligature.

The operation was delayed for some weeks on account of the debility of the patient, and her reluctance to the operation, and also, from the expectation that the neck of the tumor would become elongated, so that the place of its insertion might be better ascertained, and the application of the ligature facilitated.

The last catamenial evacuation previous to the application of the ligature came one week sooner than ordinary. The evacuation as usual was moderate, and without pain, for the first twelve hours, then came on severe pain, for which warm teas were given and fomentations applied to the parts affected; the pain ceased and the hemorrhage came on so violently as to threaten the life of the patient. *Compd. tinct. of vitl. and phosphorous acid were given, cold vinegar and alum applied without any effect. The hemorrhage was finally stopped by plugging the vagina with a napkin, as directed by Mr. Burns in his treatise on uterine hemorrhage. It was now determined to apply the ligature as soon as the hemorrhage should cease, it being apprehended lest the irritation of applying the ligature during the hemorrhage would increase the evacuation, and the patient die in our hands. The hemorrhage continued for three weeks, some part of the time profusely. The patient had now lost her color, and was so weak as scarcely able to raise herself in bed. The patient was now informed by her physicians that her flowing would continue until the commencement of another period, which would not be far distant, and which she could not survive. She now gave her entire consent to the operation. The common double canula was used, bent to apply to the convexity of the tumor. The ligature was a common skein of sewing silk braided. The ends of the ligature were introdu-

* See tenth vol. Med. Com. Philad. Dobson.

ced through each tube of the canula, leaving a noose out of the canula, sufficiently large to pass over the body of the polypus, I attempted to pass the ligature, by first passing the canula, up the sides of the tumor, but the polypus with the canula so completely filled the vagina, that the finger could not be passed to carry over the ligature. The canula was then withdrawn, and the ligature attempted to be passed before it. After two hours exertions to apply the ligature, it failed, and it was very evident that it could not be done by the common canula. At this time the hemorrhage was moderate, and the exertions made to pass the ligature had not increased it. Mr. Cooper's improved canula would have, no doubt, answered the purpose in this case, but could not be procured at this time; as a substitute for it, I procured a very large probe needle, eight inches in length, and about one eighth of an inch in diameter; above the eye of the probe was a large head, to avoid lacerating the parts. This probe answered the purpose perfectly well, and had the advantage of Mr. Cooper's canula, on account of its simplicity, and in avoiding the danger of wounding the tumor, which must attend the passing the ferrules on the tubes with his fork.*

I threaded the eye of the probe with the silk, the probe being bent to apply to the convexity of the tumor. The probe was readily passed with the right hand as far as the neck of the tumor, when with the fore finger of the left hand, the silk was kept in its place, while the probe was carried round the tumor, until it came to the finger of the left hand, then withdrawn and slipped off the ligature. The two ends of the ligature without the vagina were drawn through both tubes of the canula, and made fast to its ears. The ligature could have been carried further up, but it was feared lest some part of the uterus would be

* See Mr. Sam. Cooper's first lines of the practice of surgery, page 107.

embraced in the noose of the ligature, which would have proved mortal.

August 23d, 1809, the legature was tightened, and the hemorrhage ceased immediately, and never appeared afterwards. The ligature was tightened every day, using moderate force at first, until the density of the neck of the tumor was ascertained. I found great advantage by inserting small pegs into the canula, to prevent the cords from retracting, until I had time to make fast to the ears. I was necessitated to make use of this, or some other expedient, to gain a mechanical advantage, on account of the hardness of the neck of the tumor. The patient took bark and wine, and her health mended during the time of the application of the ligature. The eighth day the canula came down, inverting the tumor and bringing the neck to the os externum. On the ninth day the polypus was removed with the blunt hook—a very fetid smell was perceived in 24 hours after tightening the ligature.

The neck of the polypus was not cut off where the ligature was applied, but sloughed off like an umbilical cord. Two weeks after the polypus had been removed, an examination was made, and the parts found almost restored to a healthy condition as to size, and relative situation. Within the os tinæ on the cervix of the uterus a roughness was felt where the peduncle of the polypus had been attacked. The health and strength of the patient mended very fast, the catamenia became perfectly regular in every respect, and in three months she was able to attend to the ordinary business of her family, and at this time, August 1st, 1810, enjoys perfect health. The polypus weighed four ounces; it probably lost as much as one third of its weight, from the time of applying the ligature until it was removed.

ELI IVES.

Case of BILIARY CALCULI, by Dr. LEMUEL HOPKINS.

Mrs. Millar, aged 52, of a sanguine choleric temperament, the mother of 13 children, commonly healthy, except that she had been subject to transient turns of jaundice, of short duration, for about 20 years, was taken with dysentery late in the summer 1797. Some of her family also had the same malady, of which she lost a little son. This together with the loss of a favorite son of flattering hopes and adult years, some months before, depressed her spirits exceedingly and seemed to retard complete recovery. Several of the rest of her family the succeeding fall were ill of the late epidemical fever, of which one was sick 70 and another 90 days. The agency of these causes was aided by her having recently passed the period of *menstrual cessation*, and her labouring under mental depression and bodily infirmities usual with the sex at that period of life. She continued some weeks under the symptoms of general debility, considerable emaciation and mental depression, tempered, however, with native fortitude. In the course of the fall or early in the winter, her eyes and skin grew yellow; strong pain seized at times the pit of the stomach, extending along the course of the bile ducts, affecting in a very depressing manner, the back at its junction with the diaphragm. In the progress of the winter the paroxysms of pain increased in force and frequency of attack, till she was in almost continual pain; her eyes and skin passed thro' all the shades of bilious yellowness, till the latter became of a dusky hue. A cutaneous eruption came on by degrees, attended with intolerable itching which she mistook for the genuine *itch*. Her appetite decayed,

her turns of vomiting became frequent, her feces were of a light ash colour and tough, her weakness and emaciation arose to an alarming degree, and she had also much faintness, till the last of February, or early in March, 1798, she was treated chiefly with tonics, bark, &c. together with small doses of opiates, under the idea of nervous debility. At that time it was adverted to that her disorder was of the Icteric kind, and that biliary calculi, passing the duct, were the real cause of all her symptoms. A saponaceous diluent course was prescribed, along with a quantity of opiates sufficient, at all events, to render her pains at all times tolerable. Finding this, however, difficult, she was bled after she had followed the course about a month. Weak and emaciated as she was, the bleeding gave great relief, and the blood taken, which was about 6 oz. in quantity, was very buffy. The next day after bleeding she took salts and manna. When she entered on this course a strict search was enjoined to detect any calculous matter which might pass off in her stools. It was not long before small gravel and a sandy grit were daily found in quantity from a third of a teaspoonful to three teaspoonfuls a day. In the last of March or beginning of April, after a paroxysm of pain difficult to repress by a very free use of opiates, she voided a gall-stone of the size of a large hazelnut, and about a week after another of the size of a nutmeg, or 5-8ths of an inch in diameter. In the nucleus of the first were some particles of sand as she voided cemented loosely, by glutinous bile. The nucleus of the other was not apparent. Both were made up of concentric lamina, like the coats of an onion; the two outermost of which were of a chocolate colour, the rest of a bilious yellow. The surface of each had the polish of the smoothest pebbles on the sea shore. The form of the larger calculus was nearly globular, and no part of its surface indented. For ten hours before it passed into the bowels, she had the most excruciating

pain, incapable of being sensibly repressed by very large doses of opiates, together with an almost incessant vomiting. On voiding this her pains all vanished, leaving only a sense of foreness and pressure, as she expressed it, at the pit of the stomach for a few days; the yellowness of her skin and eyes went rapidly off; her appetite and power to digest hearty food returned; bile flowed freely into her bowels, and her flesh within 10 days was sensibly increased. Even then, however, she continued to void some sand in her stools of a yellower hue than that which came off before the large calculi; for that was of a light colour, almost like floor sand, with a small portion of a chocolate colour, but the gravel was in part like whitish flint gravel for colour, of a roundish shape, the rest of chocolate colour, and the most part flat and angular, like small pieces of broken slate-stone. Some, however, of both sand and gravel resembled spermaceti for whiteness. Her medicines, after she was treated as ill of a jaundice, consisted (1st) of opiates in larger and smaller doses as occasion required, which were commonly given once a day in an enema.—(2d) Of the galls of animals inspissated to the consistence of pills by a very moderate heat. In this way she took the galls of 22 dozen of eels, and still more of that of hogs.—(3d) Bitter saponaceous pills.—(4th) Neut effervescent mist.—(5th) Such diluents as decoctions of the opening roots, cheese whey, weak green tea and other pleasant herb teas.—(6th) In her turns of puking, weak lean fowl broth, salted to her taste.—(7th) Occasionally purges, whenever the bowels were tardy. These medicines, however, were all used at the same time, Opiates, diluents and gall, the latter alternated with the bitter saponaceous pills abovementioned, were the only medicines constantly used. The neut. effervescent mixture much relieved a faintness which often attended her, and more than any other drugg, opium excepted, counteracted puking.

A little camomel (gr. 2) with hesitation was added to 2 or 3 of her purges at first ; but in the latter part of the treatment was discontinued.

Are not mercurials, especially when so used as to enter the habit, improper in such cases ?

Did not the light coloured sand and gravel, which she voided before the large calculus came off, form in the biliary ducts, in their course between the large calculus and the entrance of the ductus communis into the duodenum, and also in the hepatic duct, and not back of that obstruction in the gall cyst ?

Is it not important in such cases of a total and long obstruction of the flow of the bile into the bowels, to throw substitutes for that peculiar fluid into the first passages, assiduously ? and is there any substitute which can at all compare with the gall of such animals as digest the food of man ?

Is not inspissation, in a very moderate heat, to a consistence proper for pills, the best mode of preparing the bile, especially for such as cannot take bulky bitter doses ?

To the Committee of Publications.

Gentlemen,

The following case of retroverted Uterus may be important, on account of the simple means used to restore the Uterus.

September 23, 1808, Mrs A—, of New-Haven, a woman of forty years of age, the mother of eight children, in jumping from a horse, felt something give way in the pelvis ; at this time she supposed herself to be about three months advanced in pregnancy. The shock was followed with great weakness ; sensation of bearing down, costiveness, dysuria, nausea, and vomiting, and all the train of hysteric symptoms, arising from the stomach, sympathizing with an irritating and inflamed uterus. These symptoms were

supposed by the patient to arise from her pregnancy, and of course were endured with patience, until they increased to a very alarming degree. A period of fifteen days elapsed, during which she took a little castor, valerian, &c. At this time she was examined. Entering the vagina, the finger met a tumor twice the size of a hen's egg, between the vagina and rectum, pressing itself forward into the vagina, and occupying two-thirds of the os externum. A finger of the other hand was passed into the rectum, by which it appeared that this tumor was a sack of the rectum filled with indurated feces, which sack had been formed by the pressure of the superincumbent uterus; passing the finger into the rectum, a little farther up, the rectum was entirely obstructed by the fundus of the uterus, beyond which the finger could not pass, and on which it could make no impression. The uterus at the same time was felt by the finger in the vagina, wedged firmly between the sacrum and pubis and the os tinæ, in the superior and anterior parts of the vagina. At this time the stomach could retain nothing—Strong spasms agitated the system frequently; bowels were full and tense, particularly above the pubis; frequent inclination to pass urine and stool, with much pain and distention in the pubis. The urine had been entirely obstructed; but for two or three days past the patient thought she had passed the usual quantity of urine; however the catheter was introduced, and eight pounds and three ounces of urine drawn off. The rectum was also emptied. The patient was laid upon her back, her hips raised; in this position, with two fingers in the vagina, and two in the rectum, exertions were made to restore the uterus, until her physicians were satisfied that it could not be restored in this manner. The patient was placed on her knees and elbows, and repeated trials made to restore the uterus, but with no better success. The uterus was finally restored by an instrument resembling

a probang, made of a cylinder, the size of the finger, and eight or ten inches in length, on the end of which a head was formed, by winding flax and covering it with soft leather, as large as could be passed into the rectum. With this instrument, oiled and introduced into the rectum, the patient on her knees, the thorax lower than the pelvis, two fingers in the vagina, and much force applied by the instrument and fingers, the uterus was raised above the brim of the pelvis. The patient was enjoined rest and a recumbent posture; and after the usual period of gestation, was delivered of a healthy child.

A Member of the Society.

New-Haven, July 10, 1810.

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