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ARTICLE I.

INTRODUCTORY.

Thoughts on Moral Medicine, being an Introductory Lecture. By CHARLES CALDWELL, M. D. *Delivered Nov. 4th*, 1833.

GENTLEMEN:—Considered in one of the lights which present themselves, in a liberal examination of it, Medicine might be denominated the Science of VITAL IMPRESSION. From the source designated by that expression flow all its effects; and from a knowledge of that source only, of the principles on which it depends, and the laws which govern it, can those effects be understood and regulated.

Vital Impression may be defined the production, more strictly speaking, the *mode of production*, in any portion of the living body, of a new condition, by changing, in some way, the existing state of action in it. The change thus induced consists in an increase or a diminution of action, or in the introduction of a new form of it, and arises from contact with something that *is* material, or by impulse from something that *is not*.

The portions of the body, on which impressions can be *primitively* made, are four; the skin, the internal surface of the alimentary canal, the internal surface of the respiratory apparatus including the trachea and nares, and the brain. According to an anatomical view of this matter, not altogether unfashionable, at present, these four portions of the body might be reduced to two; the *brain*, and the *skin;* the mucous lining of all the open cavities being considered nothing more than reflected continuations of the *latter* organ, in a modified condition. Impressions on all other parts of the body are *secondary*, being communicated to them from one of these four. The process through which the communication is made, is called *sympathy*, a term intended merely to express the fact, that impression and action in one part of the body give rise to impression and action in another—sometimes an adjacent part, at other times a remote one. In most cases the *secondary* action is of the same kind with the *primary*, when the sympathy is called *direct;* but in some instances it is different, when the sympathy is called *reverse.*

Like all other unsettled subjects, admitting of the free exercise of the imagination, Medicine has been variously considered and treated, according to the varying tastes and tenets of inquirers, and the different lights, in which it has been viewed by them. It has been correctly enough, perhaps, divided into two leading branches, *Physical* and *Moral;* the first including the three forms of practice, in which the primitive impression is made on the skin, the alimentary canal, and the internal lining of the nares, trachea, and lungs; the last being that, in which the impression is made directly on the brain.

It has been already remarked, that all medicinal impressions are not the immediate product of material agents. This is especially the case with those whose seat is in the brain. They are made by impulses *intellectual and moral*, and by a set of instinctive feelings, which, with nothing of either morality or intellect in them, have received the denomination of animal propensities. Hence, on that branch of medicine, in which these modes of impression are employed, is bestowed the name

of *moral*, the class of feelings bearing that denomination being of the *highest* order. It is to a few remarks on this branch, that your attention is invited, on the present occasion.

Nor are you asked to accompany me through a barren waste, or a fruitless field. Far from it. We are to pass over a tract beauteous to the eye, and abundant in products of peculiar value. If we do not, therefore, profit, in exploring it, the fault will be our own. To drop the metaphor. It would not be difficult to show, that, in some respects, the Moral branch of Medicine surpasses the Physical, in importance, as well as interest. Being much less frequently a subject of notice, especially among British and American physicians, it has some degree of novelty in it; a consideration not to be disregarded in the selection of a subject of inquiry. Far less important, however, is that circumstance, than others which are more immediately connected with it. Deriving from the brain both its existence and character, it is identified with that organ in rank and standing. But so perfectly is the brain the master organ of the system, and, therefore, the most important, that all the others submit to it, and depend on it, if not for life, at least for their activity, energy, and usefulness. Without it, they would be as insufficient for all that confers distinction on human nature, or renders existence desirable, as azote is for respiration, or granite for nourishment. It is as truly and immediately the source and arbiter of the higher functions of the economy of man, as the sun is of the heat, light, and regulated movements of the system of planets, over which he presides. And what the obscuration, loss of power, or any other form of derangement of that master luminary would be to the heavenly bodies that move around him, receive his influence, and submit to his control—such is a serious affection of the human brain to the other portions of the human body. Nor is the removal of such an affection dissimilar to what the rekindling of the fires of the sun would be, after their extinction, and the restoration of his other attributes, after they had been lost.

Such is the pre-eminent rank of the brain, as a portion of our system. And, as already mentioned, from its immediate

connexion with it, Moral Medicine partakes of its standing; a consideration that renders the comparative neglect, which that branch of the Profession sustains, the more unaccountable, and the more to be lamented. But, that the importance of the brain may be still more clearly perceived, and its character more accurately understood and appreciated, a few farther observations on its functions and powers in health, and its phenomena in disease, appear to be requisite.

That the brain and not the nerves is the true seat of sensation, and also of the animal propensities called instincts, may be regarded as an axiom in physiology. No physiologist could deny it, but at the expense of his reputation. That it is likewise the seat of the intellectual faculties, the *rational*, no less than the *perceptive*, is acknowledged by all who are acquainted with the subject. Nor are the entire elevation and value of its character yet disclosed. It is as truly the seat of MORALITY and RELIGION, (I mean in its capacity as the organ of the mind) as it is of sensation and animal passion. In proof of this, derange certain portions of the brain, and the moral and religious sentiments will be perverted or extinguished. Restore them to soundness, and those sentiments will be revived.

I am aware that this latter view of the brain is acquiesced in only by the *few*, while the many reject it; and a portion of them even denounce a belief in it as *heretical*, if not *impious*. This consideration, however, does not shake my confidence in its soundness. On the contrary, it would not be very strange, were it even to strengthen it. In matters of science, where deep and steady research, and calm and deliberate reflection are necessary, though the few are not *always right*, the many, until corrected and informed by the *few*, are almost *always wrong*. The reason is plain. The latter do not think and inquire sufficiently, to penetrate the night of ignorance, and dispel the clouds of prejudice, that, descending on them, and settling around them, keep them from knowledge. Over the turbid and troubled waters of their minds no ministering and friendly spirit has moved, to temper and purify their passions,

disenthral them from superstition, and place them under the guidance of reflection and reason; nor has a voice gone forth to them, commanding that there be light. In simpler language, the multitude are incompetent judges of all that deserves the name of science. Yet are they the most prompt and determined in their condemnation, and the most intolerant and clamorous in their denunciation of what they least understand. Nor is this more strikingly the case, in respect to any topic, than that I am considering.

Are any who listen to me ready to demand of me, perhaps in tones of incredulity and surprise, "Is the brain, then, in every case, the source and instrument of all you attribute to it? Are we to understand, that the oratory of Demosthenes, which even now seems to vibrate in our ears, and the "splendid" rhetorical "conflagration" of Cicero, which still dazzles, while it fascinates us—are we to believe that these great mental manifestations were the products of the *brains* of those orators, and not of their *spirits?* and is the same true of the eloquence of Chatham, Burke, and Canning, Adams, Henry, and Aimes, who were scarcely inferior, if inferior at all, to the highest models Antiquity can boast? Was it the brain and not the spirit, that poured on Alexander and Cæsar, Frederick and Napoleon a flood of glory, which time, instead of extinguishing, shall brighten and perpetuate? Did Harvey and Massilon draw from the same fountain their pure and fervid sentiments of piety and devotion, Aristotle, Bacon, and Newton their inexhaustible stores of learning and philosophy, Watt and Fulton their inventive powers, so splendid in themselves, and so invaluable in their products, and Franklin, Washington and Hamilton their profound wisdom and spotless integrity? and was it the same mass of organized matter, that immortalized Homer, Pindar, and Virgil, Dante, Spencer, Shakspeare, and Milton, and other poets of unfading renown? Finally; is it the brain and not the mind, that is, in every instance, and necessarily, the true and immediate source of the greatness, glory, and virtue of our race?" To all these questions I answer, YES; the brain is the direct and essential instrument of the

whole, without which they would not have existed. Nor is there aught in the reply offensive to morality, dangerous to religion, unfriendly to the cultivation of the social virtues, or hostile to any of the interests of our race. On the contrary, being true, it is in harmony with all, whether in sentiment or practice, that is morally, socially, and theologically sound and useful. Correctly might I add, that man is indebted to his brain for every attribute intellectual and moral, that completely distinguishes him from the inferior animals, places him at the head of earthly creation, and constitutes him truly a human being. And there is no more materialism in this, than every enlightened and intelligible writer on mental philosophy is compelled to employ. The dream of ABSTRACT SPIRITUAL METAPHYSICS is no longer admitted into the Schools, where it was once deemed heretical to question its truth, or resist its supremacy. Even the cloister of the visionary and fanatical recluse, no longer harbours it.

But all the important uses of the brain are not yet enumerated. One remains, which is too closely connected with whatever is efficient and valuable in man, to be passed unnoticed. It is equally essential to the manifestation of his feelings and thoughts, and the execution of his purposes. I allude to the function of MUSCULAR ACTION. Voluntary motion, in all its modifications, has its source in the brain. This fact attaches to that organ a degree of importance greatly beyond what it is usually supposed to do. As an attribute of our nature, voluntary motion is far from receiving generally its due estimation. The cause of this plain. It is a *familiar phenomenon* which every one sees and experiences every moment (and *familiarity detracts from the weight of all things;*) and it is rarely contemplated in the important character that justly belongs to it. What, in reality, would man be without it? Unable to minister to his own enjoyments, or those of others, or to supply his or their wants, he would be fixed to a spot, with no more power to move from it, or to act in it, than a plant or a zoophyte; and, in point of usefulness, he would be inferior to either. But, to give even a limited view of the interest and im-

portance which belong to this subject, a brief analysis of it is necessary.

To voluntary muscular motion man is indebted, in part, for respiration, *the inlet of life;* and, for the power of speech, he is indebted to it entirely. Nor could he either provide, prepare, carry to his mouth, masticate or swallow his food without it. Deprived of it, he could not even open his mouth for the reception of food. To his very existence, therefore, it is as essential, as his aliment itself, or the air he respires. But this is not all. The Arts and Inventions of life, in all their variety, whether common and useful, or elegant and refined, with their innumerable productions, as well the necessary as the ornamental, depend entirely on voluntary motion. The brain conceives and matures them by its *immediate* action, and executes them *indirectly*, by the ministry of the muscles. This is as true of the arts of writing, printing, engraving, painting, sculpture, and land and naval architecture, as of any others. But for voluntary muscular action, therefore, the earth would be a blank as to recorded knowledge, also as to monumental, medallic, and other forms of transmitted remembrance; each nation (could nations exist) would be ignorant of every other; the world could not profit by ancient or remote example; nor would the accumulated wisdom of ages have a name. Even vision, hearing, taste, smelling, and touch, are essentially connected with muscular motion, and would fail by its extinction. Add to this, the entire want of agriculture, navigation, and manufactures, and the earth would be a scene of desolation and barrenness. Destroy voluntarity, moreover, in the whole animal creation, and the delights of music would cease, all other pleasing sounds would be extinct, and sepulchral silence would encompass the globe, except when broken by storms and tempests, the crash of falling bodies, the gush of cataracts, the voice of the ocean, or the peal from the thunder-cloud. And even of these disturbers of silence, the din would fall on imperceptive ears. Nor would grace of motion, or beauty of expression—the smile of pleasure, or the look of affection, any longer give delight. They too would perish in the gen-

eral wreck. So gloomy and vast would be the effect of a want or suspension of muscular motion, whose source is in the brain!

Wakefulness and *sleep*, which are nothing but affections of the same organ, concur in demonstrating the importance of its functions, and the pre-eminence of its general standing and character. When attentively looked into, as subjects of philosophy, these are found to be among the most curious and interesting phenomena of the animal economy. Nor do they appear to have been heretofore satisfactorily explained. Perhaps they are *inexplicable*. In the present condition of our knowledge, they are certainly so. Wakefulness consists in a state of excitement and action of the several portions of the brain, produced by the stimuli appropriate to each, and by their influence on each other. Sleep is the reverse of this, consisting in cerebral inaction, and is the result of the absence of stimuli, or of their want of power to produce excitement. Here again, the mutual influence of the different portions of the brain is an operative cause. The inaction of one portion tends to the production of a similar condition in others, especially in those more immediately connected with it. *Dreaming* is partial sleep, some parts of the brain being active, and others quiescent. Had I leisure to give a full exposition of the influence of sleep and wakefulness on the animal economy, it would furnish much and strong additional testimony, in favour of the importance of the organ that controls them. On no other ground could the supremacy of that organ be more clearly demonstrated.

Though the precise philosophy of wakefulness and sleep is concealed from us, we perceive a beautiful fitness between their alternation with each other, and the times and circumstances, under which they occur. The relation of the former to light, action and sound, and of the latter to darkness, inaction, and silence, are natural and perfect. The fitness and necessity, moreover, of their mutual alternation to the wants of the animal economy, are not only learnt by observation

and experience, but are in accordance with reason. Wakefulness is life in full development, with all its functions prepared for action, or active already. During its continuance, man is in a state of aptitude for the discharge of his duties, and experiences enjoyment corresponding to his condition. But so delicate is the structure, and so high-wrought and exquisite the sensibility of his brain, that the excitement and action of perpetual wakefulness would exhaust its powers, or produce in it some other form of departure from health. Hence the necessity of an occasional state of repose, that the losses it sustains during wakefulness may be restored, its derangements repaired, disease prevented, and its aptitude for its important functions renewed. As is the case with every other portion of the body, the alternation of action and repose constitutes a fundamental law of its being. And the more perfect sleep is, the sooner, more certainly, and more completely is the design of it fulfilled.

If these remarks be true (and it will be difficult to refute them, for they are founded in Nature) there is much more of poetry and fiction, than of philosophy and truth, in the oft repeated assertion, that sleep is a "*tendency to death*," or that there is any positive diminution of vitality in it. Much more correctly may it be termed a *preventive of death*, or a *renovator of life*. Such is unquestionably the office it performs. Hence the languor and lassitude often felt before sleep, and the vigour and elasticity after it. Sleep is the *latent condition* of *cerebral* or *sensitive* life. But life, when latent, is as *real* life, as it is when *active* and *open;* and it is much less obnoxious to injury and destruction. In beans found in Pompeii, life had lain latent for *seventeen centuries*, and for more than *thirty centuries*, in wheat discovered in the catacombs of Egypt. Yet, that in these cases, the life was genuine, and had suffered neither deterioration nor change, appeared from the vegetation of those seeds, when subsequently planted. In like manner latent cerebral life is still real life. Besides, during sleep, respiration, the immediate fountain of life, continues in full vigor. So do all the functions of *organic* life, which is the renovator of *cerebral*

or *animal* life. Hence the salutary and re-invigorating influence of sleep on the latter.

Sleep, then, is not to be considered a diseased or an unnatural condition of the brain. Far otherwise. When indulged in only under proper circumstances, and to the requisite extent, it is as salutary and natural as a state of wakefulness. It conforms to a fundamental law of the human constitution, as well as of that of other animals. It is therefore healthful in its end, no less than in itself. My reason for indulging in these remarks is, that, in their attempts to explain sleep, some writers have given a contrary view of it. They have represented it as the result of *cerebral compression*, which would render it morbid. They allege that, during sleep, the vessels of the brain are surcharged with blood. I need scarcely say, that this hypothesis wants proof. Though an effort is made to sustain it, by analogy, sound analogy discountenances it. True; cerebral compression, whether produced by blood, a depressed portion of cranium, or by any other means, induces sleep, or a condition resembling it. But it is not healthful sleep; it is not the sleep, which refreshes and invigorates; it is the stupor of disease; and its effects are confusion, bewilderment, and debility.

If a person, exhausted by watching and fatigue, receives a blow, which fractures and depresses his scull, and produces a torpor of ten or twelve hours, he will not feel invigorated, when the bone is elevated, and the torpor relieved. On the contrary, his debility will be increased, and he must sleep again the sleep of nature, before the balm of refreshment will descend on him. Though *an insensibility*, which, for a time, "knits up the ravelled slieve of care," may and does arise from pressure on the brain, that *healthful sleep*, which is "sore Nature's bath, balm of hurt minds"—and "tired Nature's sweet restorer" never can. As no salutary result springs directly from a morbific cause, but the reverse, refreshing sleep is compatible only with health; because the re-invigoration it bestows is the product only of natural action. Hence it is not the agitated and feverish sleep of *disease*, but the calm sleep of convalescence that refreshes the sick.

I have said that sound analogy is opposed to the hypothesis of a preter-natural accumulation of blood in the brain, during healthful sleep. My reason for that statement is plain, and may be briefly rendered. Conformably to a law of the animal economy, which is believed to admit of no exception, excitement creates a conflux of blood to the part excited, while a deficiency of excitement is accompanied by a corresponding deficiency of blood. To adduce examples in proof of this would be superfluous. No physiologist holds it doubtful. But, as already stated, there is a want of excitement in the brain during sleep. Such indeed is the very essence of that condition of the brain. Under no other can it be experienced. In proof of this, sleep is invited by the abstraction of excitement from that organ, and prevented by its presence; especially by the presence of an unusual amount of it. When it exists, moreover, it is easily removed by the renewal of excitement, by touch, sound, light, the sudden application of cold, or any other mode of producing sensation. There is no just ground, therefore, to believe, that there is a congestion of blood in the brain, during sleep. The contrary is by far the more probable opinion. It may be pronounced certain, that no congestion of *arterial* blood exists. Such congestion is always accompanied by a well marked increase of action and sensibility. Nor is this more strikingly the case in any organ, than in the brain. The augmented sensibility and action, in inflammation of the brain, in which arterial blood is accumulated there, is the chief cause of the sleeplessness and distress, that are always experienced in that complaint. In ferocious insanity, also, arterial blood superabounds in the brain, and, in some instances, months, if not years, pass over the sufferers, unmarked by the refreshment of sleep. Nor is this all. The highest excitement, and most vigorous action, of which the brain is susceptible in a healthy condition, are always accompanied, and essentially promoted, by an augmented conflux of arterial blood to that organ. Witness the condition of the brain of the orator, at at the moment of his happiest achievements in eloquence. The tenseness and throbbing of his carotid and temporal arte-

ries, the deep glow of his countenance, the piercing flashes of his eye, the fulness and tension he feels in his head, and the alarming vertigo, which, at times, invades him, all testify to the unusual state of arterial congestion, in the organ of his mind. And to the heightened tone of that organ, produced by the congestion, is to be attributed the improvement in his powers of eloquence. In proportion as his brain becomes more fully injected and vivified by blood, are all his mental manifestations amended. His perception is clearer, his recollections livelier, and his combinations and inferences more prompt and forcible. But this makes only a portion of the augmentation of his powers. His imagination becomes more brilliant and his conceptions loftier, his pathos deeper and his declamation more splendid, his invention readier and more fertile, his wit brighter and more pointed, his irony keener, and perhaps, bitterer, his sarcasm more caustic, and his bursts of invective more indignant and blighting. Nor are all his forms of improvement yet enumerated. The fluency, force and fitness of his language keep pace with the swelling current of his thoughts, and even his action and the intonations and compass of his voice are equally amended, as means to manifest the resources of his mind. In fine; the grandeur and lustre of all the highest qualities of eloquence united are but the product of the intense excitement and tone of the brain, under a deep congestion of *arterial* blood. So true is this, that neither Demosthenes nor Cicero, nor any other speaker ever played the orator *fully*, until his brain was thus injected. Venous blood, having parted from most of its vital qualities, a congestion of *it* never vivifies, but always deranges the part where it occurs. Perhaps I should rather say, that it is itself the issue of derangement already existing, and tends to increase it.

Another effect of arterial congestion in the brain, worthy of notice, as being calculated to show the importance of that organ in the human system, is its augmentation of muscular strength. This effect is most strikingly produced, when the congestion occurs in the organs of Combativenes and Destructiveness. Evidence in proof of this is abundant. Those organs

are chiefly congested in ferocious madness; and the strength of an infuriated maniac is sometimes amazing. Of men addicted to broil and battle, when moderately excited by wine, or ardent spirits, and intensely so by anger, the same is true. Their strength receives a fearful increase, which renders them dangerous to those who encounter them. In this provision we perceive one of the innumerable aptitudes, which mark the faultless economy of nature. The organs of Combativeness and Destructiveness are bestowed on man, that he may possess the disposition to defend himself and others from aggression and wrong, and to inflict injury, or destroy life, if necessary, in effecting his purpose. And their excitement, and congestion with arterial blood, not only heighten his courage and resolution to meet danger and set death at defiance, but give him greater strength, for defence and attack.

But, in denying the existence of a congestion of blood in the brain during sleep, I do not rely, for evidence to sustain me, on analogy alone. Direct observation testifies conclusively to the same effect. In persons, whose brain was denuded, and open to inspection, in consequence of the removal of a portion of the integuments and cranium, that organ has been always found in a state of comparative flaccidity and collapse, during uninterrupted sleep. Under disturbed and dreamy sleep, it is perceived to be somewhat tense and full, but still more so, under entire wakefulness, and most of all, when excitement is intense. A remarkable case of this kind occurred in Montpelier, in France, in 1821, the history of which is given by Dr. Pierquin, a physician of distinction; and several of a similar character have fallen under the notice of Sir Astley Cooper, and other physicians. Indeed I cannot doubt that the phenomenon shows itself, in every instance, where the trephine is applied. And, as a fact in Physiology, useful as well as interesting, it has a fair claim on the attention of the Profession.

Most of the foregoing phenomena, indicative of the important character of the brain, belong to the healthy condition of that organ. Its morbid affections testify to the same effect, with no less directness and force. A concussion of the brain,

by suspending or destroying all the mental faculties, both intellectual and moral, together with voluntary muscular motion, unfits the mind to conceive and arrange schemes of usefulness, and the body to execute them, and, if not removed, terminates in death. Of compression of the brain, as heretofore intimated, by a depressed portion of the scull, the same is true. So is it of apoplexy and palsy. These affections, consisting in diseased conditions of the brain, destroy indiscriminately all mental and corporeal capabilities, and soon extinguish life. Epilepsy, St. Vitus's dance, and other forms of convulsive disease, which, for a time, unfit both mind and body for useful action, are the product of morbid affections of the brain. I need scarcely add, that, unless the system be relieved from them, they usher in other complaints highly afflictive, and usually fatal.

That madness, in all its forms, is exclusively an affection of the brain, is now acknowledged by every pathologist. And, were it not for the influence of habit, and the power of prejudice and superstition over the mind, it might well excite surprise, that it was ever considered otherwise. But, of all maladies, it is one of the most fearful, because it makes a wreck of the highest and most valuable attributes of man. This however could not be the case, were not the brain, from which madness takes its character, the master organ of the system. For, as already intimated, the character of the disease must correspond to that of the part, in which it is situated. But madness does not act alone on the brain. Owing to its indirect influence on other important parts of the body, it tends to shorten human life. The insane rarely attain to an advanced age—Idiotism is likewise an affection of the brain. But the mental desolation, in which it consists, need not be mentioned. Nor does its deplorable character arise from any other cause, than the high rank of the organ it destroys.

Such are some of the facts demonstrative of the peculiar importance of the brain. And many others might be added to them. But if *deleterious* impressions made on that organ exercise an influence so powerful over the other parts of the system, it is hardly possible, that salutary ones, well timed, and judi-

ciously directed, can be destitute of power. On the contrary, reason and analogy authorize the belief, and experience confirms it, that, in many cases, they are highly efficacious. I need scarcely add, that they are peculiarly useful in the complaints of females, whose brains far surpass those of males, in delicacy and sensitiveness, as well as in their influence on the other parts of the body. Male brains, however, possessed of feminine susceptibility are not wanting. I shall now advert to some of the principal means of producing salutary and restorative cerebral action.

The manners and general character of a physician, more especially his deportment in sick-rooms, are a source of moral impression on his patients, much more influential than it is usually supposed to be. If they are harsh and blustering, or marked, in any way, with incivility, or a want of feeling, they impress disagreeably and *injuriously*, and always ought to procure, as they often do, the dismissal from employment of him who practises them. If, on the contrary, they are mild, affable and kind, courteous, attractive and dignified—such, in all respects, as characterize a gentleman and a man of feeling—they cannot fail to do much good. A cheering lenitive to pain and distress, they tend *directly* to assuage irritation and anxiety, and minister to hope; and, in doing this, they contribute *indirectly* to calm and relieve a throbbing brow and an aching head, cool the burning of a fevered hand, and almost occasion, in the sufferer, a forgetfulness of his disease. These effects they produce on a two-fold ground; the bland and soothing impression they *immediately* make on the patient's brain, which diffuses its benign influence throughout his system; and the confidence they beget, and the gratitude and affection toward his physician, which they awaken in his mind. They thus put his brain into so good a condition, as to enable it to do its duty the better to the other parts of his body. For the true and only mode of successful practice is, to restore the controlling organs to soundness, and they will produce on the subordinate ones a similar effect. These latter considerations are peculiarly important. The physician, who possesses the confidence and

attachment of his patients, can scarcely fail to be successful in his practice. Beyond a doubt, other things being alike, he will be more successful *with* such moral aids, than he could be without them.

On certain well known principles of human nature, the same remedies administered by a favorite practitioner, in whom confidence is reposed, will prove much more beneficial, than if they came from one to whom the sick are indifferent, in whose skill they do not confide, or whom they have reason to dislike. Nor is disgust of a medicinal article much less prejudicial, than antipathy to him, who prescribes and prepares it. Hence the propriety of making medicines as grateful as possible to the taste. It is the result of experience, as well as a fair deduction from principle, that, other things being equal, a medicinal substance disagreeable to the taste, contributes less toward the removal of disease, than one which is pleasing to it. On the principles of moral medicine, this may be easily explained. As already stated, the brain is the seat of every form of feeling. All disagreeable feelings, therefore, (of which an offensive taste is not the least operative and repulsive) are irritants to that organ, produce in it some sort of unnatural action, and not only injure *it immediately*, but the rest of the system *indirectly*, through its influence. I do not say that I have never known pills and powders, potions and boluses, swallowed reluctantly and with feelings of disgust, to be productive of good; but I do say, that I have known them to do mischief, in cases where they were not improper in themselves. For the same reason offensive smells, loud, harsh, and disagreeable sounds, and strong light are detrimental to the health of the infirm and sensitive, and more especially to those, who are already suffering from a cephalic complaint. By acting immediately and deleteriously on the brain, they injure secondarily the rest of the system. Hence the necessity of silence, darkness, and unadulterated air in the wards and chambers of patients labouring under cerebral affections, more especially when connected with fever.

On the same ground, all corroding and strongly exciting pas-

sions, such as grief, fear, anxiety, anger, hatred, and revenge are prejudicial to the sick. They consist in excessive and therefore deleterious action in the brain, vitiating its influence, and unfiting it for the salutary superintendence of the system. The victims they consign to the grave are innumerable. This is more especially true of fear, during the prevalence of epidemic complaints supposed to be contagious. On such occasions, that passion is not only a frequent and powerful exciting cause of disease, but often swells very appallingly the bills of mortality, by deepening the malignity of the complaint, paralyzing hope, one of the chief conservators of life, and weakening the recuperative powers of the sick. Yet how rarely is it true that epidemics are contagious! After a course of observation and inquiry, pursued attentively for thirty years, mingled with no inconsiderable share of experience, my conviction is decided, that within that period, epidemic small pox excepted, no *contagious epidemic* has prevailed in the United States. That this opinion is opposed to that of a majority, perhaps a very large one, of the physicians of our country, I have not now to learn. That consideration, however, does not move me. My endeavour is, to make my views conform to *facts*, regardless of their discrepancy with the views of others. And, on that ground, I have no hesitation in considering a belief in the contagious nature of yellow fever, plague, cholera, influenza, and peripneumonia typhoides, as unfounded as a belief in necromancy or witchcraft. Nor have I any solid reason to say less of a belief in the contagious nature of measles. And, in time to come, when ignorance and prejudice shall have given way to a brighter day of knowledge, such, I feel persuaded, will be the opinion of the world. But I am not yet done with the influence of malign impressions on the brain, in producing particular forms of disease.

Fear, grief, despair, jealousy, rage, ambition, disappointed love, and excessive religious enthusiasm are often the productive cause of insanity. So are paroxysms of inordinate joy, and other forms of strong moral impression; and the same causes induce also vertigo, hemorrhagy, fever, epilepsy, paral-

ysis, apoplexy, and sudden death. Of excessive study, long-protracted watchfulness, deep anxiety, and every other source of high cerebral excitement, the same is true. In persons predisposed to mental derangement, all such causes, acting as irritants on the brain, contribute to its development, and should, therefore, as far as possible, be avoided.

Nor, as already suggested, do these causes confine their action to the brain. They often throw it indirectly on the lungs, in the form of consumption, and on the chylopoetic organs, producing dyspepsia, gastrodynia, colic, gastritis, and other kinds of abdominal derangement. From the same source spring, occasionally, jaundice, hepatitis, and intestinal inflammation. In females, whose sensibility, as already mentioned, is more acute, and their sympathies more active and pervading than those of men, cerebral irritation often produces serious uterine affections. This is true in a more especial manner, as respects the gravid uterus, abortion, and permanent injuries to the fœtus resulting from the influence of the passions, as a very frequent occurrence. Nor, as might be easily shown, do the skin, kidneys, and heart escape mischief from it. Indeed, excessive passion, consisting in a state of inordinate and deleterious cerebral irritation, and the brain being, as already stated, the governing organ, it is impossible for any other portion of the system to escape.

So much for the causes which *injure* the brain. Those which *act favorably* on it shall now receive some further attention. In treating of them, I shall speak more definitely than I have heretofore done, specifying the diseases in which they are salutary. I shall first, however, remark in general terms, that, for the removal, no less than the prevention of disease, a pleasurable condition of the brain is important. Every painful feeling and emotion indicates a malign cerebral impression, and may therefore be regarded as a morbid affection, more or less injurious to the rest of the system; and the converse. To remove such impressions, then, and substitute grateful and natural ones in their places, constitutes an element of moral medicine.

To the moral treatment of fever, especially where the brain is affected or threatened, reference has been made already. To speak of it however, more fully, it consists in the exclusion of all deep sensations and irritative cerebral impressions. Darkness and silence, the mildest kind of food and drink, an atmosphere pure, odourless, and pleasant in temperature, and perfect cleanliness of skin and clothing are essential. I say the atmosphere of sick-rooms should be "odourless;" and to this I attach much more importance than is usually done by medical writers. That the influence of odours on the brain is highly exciting and often deleterious, cannot be doubted. Hence the sickness and fainting which proceed from it, in some cases, and the fierce passions and temporary madness, in others. The effect of certain smells on the brains of the inferior animals, producing in them, in some instances, the wildest fear, and, in others, ungovernable fury, is matter of notoriety to every observer.

As respects personal purity, its moral influence is not, in general, duly appreciated. On many individuals it is powerful, and acts more or less favourably on all. I once knew a lady of excellent intellect and high accomplishments, but unusually sensitive on the subject of cleanliness, thrown into convulsions and nearly destroyed, by being maliciously told, that her breath and perspiration had an unpleasant odour—an assertion the more reprehensible, because it was untrue. And a conviction of that, kindly but firmly impressed on the patient's mind, proved peculiarly medicinal.

The attention of the nurse should be so vivid and faithful, as to satisfy, on that point, the wishes of the sick; her treatment should be kind, and her manners affectionate, and the deportment of the physician, as already stated, should embody every thing calculated to soothe distress, cherish hope, and inspire confidence. With a countenance marked with tempered cheerfulness, his manners and conversation should be equally remote from mirth and moroseness, gloom and levity, and he should do nothing to produce in his patient either alarm and despondency, or undue buoyancy and elevation of spirits. In

fine; his professional ethics being judiciously regulated, and his intercourse with the sick grateful and encouraging, are measures which enhance not a little the moral of his practice.

A topic here presents itself, which I am bound to notice; yet it is requisite that I do so with delicacy and caution. I allude to the intercourse of the clergy with the sick, and their dispensing to them the comforts of religion. Is the practice useful, (I mean, as relates to the restoration of health,) and therefore to be encouraged? or prejudicial, and to be forbidden? A correct answer to these questions must be drawn chiefly from two sources; the condition of the sick, and the character of the divine. If the patient be under high febrile excitement, especially excitement of the brain, the intercourse is inadmissible. But if there be little or no fever, or cephalic affection accompanied by irritation, or any form of increased sensitiveness, the patient desirous of a pastoral visit, and the clergyman mild, prudent, and intelligent, the case is different. Under such circumstances, the interview may be beneficial, and should therefore be permitted. The conversation held should be addressed chiefly to the moral and intellectual, especially the reflective organs of the brain; and when they are judiciously impressed, their influence on the system is soothing and salutary. In such a case, however, the divine who is called to "minister to a mind," which, if not "diseased," is anxious and unsettled, should be well qualified for his duty. He should, in a special manner, be so much of a physiologist and true mental philosopher, as to know that he is to act *immediately* on the tender and irritable *matter* of the individual; and on his *spirit* only *secondarily* through that medium; that, in fact, he is to impress his brain, for good or evil, according to the substance and tenor of his conversation, and his manner of conducting it. He should duly appreciate his responsibility, in respect to the health of the *body* of the sick, no less than with regard to the welfare of his *spirit*. He should, therefore, soothe and win, with the promises and consolation of the Gospel, not alarm and agitate by the terrors of the law. By thus dispelling doubt, cheering dejection, assuaging anxiety, and skilfully exciting

hope, veneration, and the other moral organs, whose influence on the system is bland and healthful, he may render his visits happily medicinal. By thus contributing to ameliorate the condition of the brain, he may minister successfully in the restoration of health. But a clergyman, whose religion is intemperate and fanatical, his disposition stern, his dogmas unyielding, his precepts exclusive and imperative, and his manner hectoring; and who combats with what he deems irreligion or heresy, as a dragoon does with his foe—an agitator like this, should never be suffered, in his official capacity, to enter a sick-room. As well might a patient laboring under fever, or any form of irritative disease, be indulged in the potation of ardent spirits, as in the conversation of such a comforter.

The moral treatment of the insane has never yet been carried to the useful extent, of which it is susceptible, and which it is destined to reach, at a future period, when the science of medicine, in its entire compass, shall be better understood. The reason is plain. Until the present century was somewhat advanced, madness had never been studied on its true principles, and was not therefore correctly understood. It is now known to consist, like other complaints, exclusively in a derangement of organized matter. It is nothing but a morbid affection of the brain; not indeed of the whole brain (for madness is rarely if ever universal, some of the faculties of the mind being perhaps always sound) but of one or more of its single organs, or groups of organs. And the correct moral treatment of the complaint consists in giving the distempered organ rest or action, according as it is already inordinately excited, or morbidly torpid. Is the excitement of the deranged organ preternaturally high, and the faculty belonging to it wild and excessive? Bring it to a state of comparative inaction, either by general rest, or some other mode of reduction, or by transferring the excitement to another organ. To exemplify my position.

Is the inordinate state of action in the organ of Number, or that of Tune; and is the individual threatened with madness, or is he already mad, in either of the corresponding faculties?

Restrain him, as much as possible, from calculation and music, and engage him in some mechanic art, or in the moderate study of geography, history, mineralogy, or chemistry, in which the organs chiefly exercised will be Size, Weight, Locality, Individuality, Eventuality, Form and Colour; Number and Tune being nearly quiescent. Let his study, I say, be moderate; for under excessive morbid excitement of any portion of the brain, severe exercise of any other portion would be injurious. This is an attempt to cure the complaint, by *revulsion;* in like manner as we irritate the surface of the body by blisters or rubefacients, to remove irritation and congestion from some deep-seated part. And, by travelling, change of scenery, and various shifting forms of amusement, where most of the cerebral organs are exercised, in succession, gently and pleasantly, the end in view may be attained, with but little effort. For effecting the same purpose, nothing is more efficacious than well-timed and judicious conversation—that kind and degree of it, I mean, which engages and excites lightly and agreeably, and maintains chiefly in action other organs than the diseased ones. Hence the peculiar benefit derived, by the *moderately* insane, from an intercourse with discreet and intelligent friends, especially if they are versed in the science of Phrenology. I have said 'moderately deranged;' for, in insanity of high excitement, the presence and conversation of friends are inadmissible. They rouse and exacerbate rather than tranquilize.

Are one or more of the cerebral organs morbidly inactive? Let it be awakened to action, by frequently presenting to it its appropriate stimuli, or by blistering, caustics, electricity, and galvanism, judiciously employed. Benefit may also be derived from the frequent and brisk exercise of adjacent and associated organs. One of the great advantages, in the treatment of madness, derived from Phrenology, arises from its furnishing a knowledge of the immediate seat of the morbid affection. And if such knowledge is highly valuable, in the treatment of other complaints, it must be equally so in that of mental derangement. The usefulness of Phrenology, more-

over, in the treatment of insanity, is the greater, from its not only indicating the seat of the complaint, but from its also teaching the best mode of exciting torpid organs, and reducing those that are acting excessively to a state of rest. It makes known the important fact, that different portions of the brain have their peculiar and appropriate stimuli, whose influence alone they feel and obey, precisely as the eye is stimulated and thrown into action by light, but not by sound, the ear by sound, but not by sapid bodies, and the tongue by the latter, but not odorous ones. And the physician who knows how, where, and when to apply cerebral stimuli, will experience no difficulty as to the time and mode of withholding, administering or suppressing them. Another mode, in which Phrenology ministers to the successful treatment of insanity is, by indicating not only the deranged organ, but also those most intimately associated with it, in sympathy as well as locality. Hence the phrenological practitioner possesses a twofold advantage. He can, with more facility and certainty than other physicians, act *directly* on the seat of disease, and *indirectly*, through the most strongly sympathizing portions of the brain.

In convalescence from most diseases, especially if it be accompanied by depression of mind, the moral impression produced by cheerful society judiciously indulged in, as well as that by interesting and pleasant amusements, is highly beneficial. By exciting the brain, in a salutary manner, and to the proper extent, it restores to it its lost strength, and enables it to communicate again its invigorating influence to the other parts of the system. For the brain is as certainly strengthened by suitable exercise, as the muscles of voluntary motion. Hence circulation, arterialization, nutrition, secretion, and all the other functions of the system are improved in their character, and health and strength are established and confirmed. In those who are enfeebled and dis-spirited by disease, the steady maintenance of the hope of recovery is peculiarly important. It is highly medicinal to a large and powerful organ of the brain, and through that to the system at large. To this point, therefore, physicians and nurses should be strictly attentive.

Neither doubt nor despondency should cloud their countenances; nor should they express in words, or signify by actions, the slightest discouragement. Even to those who are in health, hope is *much*, to confirm them in their resolutions, and cheer them in their toils. But to the sick and enfeebled it is *every thing*—their sun-light by day, their dream of joy and well-being by night, and their balm and consolation under all they endure. Their chief life-giver and source of enjoyment, to extinguish it would be to destroy. Hence the delicate and precarious task a physician has to perform, when he is called on to prognosticate the issue of a disease. Should he predict recovery, and the complaint prove fatal, his reputation suffers; and, if his prediction be unfavourable, it may aid not a little in its own fulfilment. In diseases of danger, therefore, a physician should never prognosticate, except under circumstances he cannot resist.

Another complaint, in which the judicious administration of moral remedies is peculiarly useful, is dyspepsia. That that affection is often, perhaps generally, induced, by care, anxiety, grief, disappointment, mental toil, and other forms of cerebral irritation, will not be denied. Nor is it less certain that the removal of that irritation is essential to its cure. The victims of dyspepsia abound most among the care-worn, the distressed, and those inordinately devoted to mental labour. Hence the importance to them of relaxation from the perplexities and annoyance of business, an abandonment of excessive study, and the enjoyment of cheerful and agreeable society. The relief experienced by dyspeptics from travelling, is attributable chiefly to freedom from care, and the grateful and renovating impressions made on the brain, by interesting scenery perpetually changing, pleasing associations, and other salutary kinds of cerebral excitement. That muscular exercise, contributing to the formation of good blood, with wholesome air, suitable aliment, and medicinal substances may co-operate in the cure, is true. But alone, they are rarely sufficient to effect it. The requisite moral remedies must be made to unite with them and aid them, else they seldom prove successful.

Yet that the latter means often succeed alone, has been felt by thousands. On this subject I speak from experience, the most unerring of teachers. Many years ago, I was a sufferer from dyspepsia. When at home, and ardently engaged in business and study, I was compelled to subsist on selected fare, and notwithstanding this, was still an invalid. But, on throwing off care, and every other sort of cerebral irritation, burying myself a few days in the shades of the country, and joining my companions in rural sports, my health and elasticity returned as if by enchantment, and I could eat, with impunity, whatever was served up to me. Cases of this description are innumerable. When dyspepsia is relieved, by a resort to watering places, the cause is to be looked for, in the moral considerations of the occasion, much more than in the virtues of the water. The potation of the same waters, in the midst of care, business, grief, and intense study, would be unavailing. If one dyspeptic repairs to a watering place, carrying his cares and grievances along with him, and another, leaving all his troubles behind him, voyages by sea, or journeys by land, without the aid of medicinal waters, the former will experience but little relief, while the health of the latter will be soon re-established.

Animal Magnetism, which is now engrossing so much of public attention in Europe, especially in France, produces its effects by its action on the brain. Precisely what those effects are, I am not prepared to express a belief, because I have not positively formed one. If reports be true, however, even to half their extent and extraordinariness (and some of the authors of them are men, whose veracity, and competency to observe and judge, ought not to be inconsiderately questioned) the issue of the operation referred to is one of the greatest marvels of the age. That the individual operated on has his personal identity temporarily subverted; that he is changed, I mean, into a sensitive and intellectual being entirely different from what he was previously, and from what he becomes afterwards, forgetful during each change, of his prior existence, and that these two distinct conditions of his existence can be made to alternate with each other, at the option of the opera-

tor—that this extraordinary phenomenon occurs, is asserted by physicians, who profess to have witnessed it, and whose veracity and judgment, I say, we cannot impugn, without detracting from the validity of human testimony, in a manner injurious alike to science and history. That the sense of vision is so modified and improved by the process, as to enable those experimented on to see through bodies considered opake, is also gravely pronounced to be a fact. Nor is it less confidently declared, that so deep is the insensibility, as far as *feeling is concerned*, in the system generally, that the individual under its influence can sustain a severe surgical operation, the exsection of a tumour for example, without experiencing pain, and even without a consciousness of being in the hands of the surgeon. As respects certain other reported effects of this process, they partake so much of the marvellous, that I shall not recite them. Yet to pronounce them an entire fiction or delusion, considering the authority, on which we are called to admit their reality, would be at least discourteous, if not discreditable. That, at any rate, the magnetizing operation, whatever may be the nature of the agent concerned in it, produces a powerful effect on the brain, it were unwarrantable scepticism to doubt. That effect, therefore, may be regarded as a moral influence; and that it may yet be redeemed from any empiricism that may now attach to it, and turned by the regular Profession, to a profitable account, in the treatment of diseases, seems not improbable.

But it is, perhaps, in the preservation of health, and the improvement of the general standing and character of our race, that moral means can be most usefully employed. The supremacy of the brain over the other parts of the system has been already noticed, and is universally acknowledged. The importance, therefore, of the sound constitution, and vigorous condition of that organ, to the health, activity, and strength of the body, no one will question. Nor is their influence on the mind less unequivocal. But organized matter, of every description, can be brought to the highest perfection, of which it is susceptible, only in one way—by a proper amount of *suita-*

ble exercise, regulated judiciously, as to time and manner, quantity and place. Nor, as already observed, is this less true of the brain, than of any other portion of the animal frame. Let that organ, therefore, be skilfully trained, from infancy to mature age; and let not the process be abandoned even then, but be reasonably persevered in until the termination of life, and man will be much improved, by the measure, in all his powers, both mental and bodily. I speak of the discipline of the *whole brain*, not of that of any class or set of its organs, to the exclusion of others. That viscus being divided into three leading compartments, the animal, the intellectual, and the moral, it is important to its own soundness and competency, as well as to the health and general efficiency of the system, that a well regulated equilibrium between them should exist. An undue preponderance of any one of them is so far a form of derangement, and may, under certain occurrences, difficult always, and at times, impossible to be guarded against, prove a source of actual disease. But such preponderance can be prevented only by a well directed scheme of cerebral cultivation. Are any organs found to be unnaturally feeble? Let them be suitably exercised, in manner and degree, and their weakness will be removed. Do any, on account of their disproportioned strength, threaten to become unruly in their functions, and thus lead to irregularities and hurtful intemperance of conduct? Let them be repressed in their action, by withholding from them stimulants, and strengthening other organs, and their exbuberant power and energy will be diminished. Perhaps the greatest defect in schemes of education, as now conducted, consists in a neglect to strengthen, in due form, the moral organs, whose influence is most essential to the soundness and welfare of the body, as well as of the mind. When children and youth are taught the arts of reading and writing, with a knowledge of figures, a few branches of physical science, and a smattering of other fashionable acquisitions, and certain ornamental accomplishments, they are thought to be *well educated;* while principles of sound and *practical morality*, though often gravely *talked* over *to*

them, and perhaps *read* over *by* them in text books, have never been made a regular element in their education. Pupils, I mean, are not disciplined, in the course of their school and family-instruction, in the great work of doing to others, as they would that others should do to them, which is the consummation of morality. No such task as this is prescribed to them, as a practical duty, for the strict performance of which they are to be held responsible to their teachers. To speak more definitely; in our schools of instruction, whether they are called academies, colleges, or universities, the pupils are not trained, as an exercise, in the important business of doing and awarding justice, defending right, protecting the feeble, allaying discord, appeasing resentment or removing its cause, dispensing charity, promoting harmony and friendly intercourse, and actively ministering in all the various branches of beneficence and virtue. While reading, writing, ciphering, music, painting, dancing, and even swimming, and other gymnastics and *kalisthenics* are statedly taught, as branches of education, the duties of morality, the highest excellencies and ornaments of man, are merely enumerated and recommended, and there the matter ends. As if abstract precept could ever be rendered a substitute for practice. As well might instructors attempt to teach the art of reading, by talking to their pupils about it, or by reading in their presence, as the moral and social duties of life. As soon shall pupils become painters, without handling a pencil, or musicians, without touching a musical instrument, as full success attend our present defective schemes of education.

Thus are the moral organs of the brain permitted to continue, for want of due exercise, in a state of comparative debility, to the injury of the body, no less than of the mind. No wonder, therefore, that the progress of practical morality does not always keep pace with the progress of knowledge. For, if the *intellectual* portion of the brain be exercised, and the moral allowed to remain inactive, the former will increase in strength and resources, while, compared to it, the latter will be feeble and barren. This is as certain, as that one arm may increase

in vigor, by constant exercise, and the other grow weaker, by habitual confinement to a state of inaction.

The source of the evil here referred to, consists in one fundamental error, which has brooded, like an incubus, over the mass of mankind, since the commencement of our race. The character of the human mind, and its dependance on the brain for the exercise of all its faculties, have been unknown or misunderstood. In this state of ignorance, the cultivation of one mental faculty has been considered tantamount to the cultivation of several, if not of all. Indeed it has not been understood, *as a practical reality*, that the mind possesses a plurality of faculties capable of being exercised independently of each other. In a special manner, it does not appear to have been known, (certainly the knowledge has not been fairly reduced to practice) that the discipline of the intellectual and that of the moral faculties are two processes, distinct from each other, and to be executed by means entirely different. In fine; the evil, in all its ramifications, is attributable to the want of an acquaintance with the anatomy and physiology of the brain; to an ignorace of the fact, that that viscus is composed of different organs, some of them the seats of intellectual, and others of moral faculties, each of which can be educated separately, and requires to be trained and strengthened by means, and in a manner, peculiar to itself. It has not been understood, that education is a physiological process, confined exclusively to the improvement of material organs, the improvement of spirit, or the production of any change in it being beyond its reach.

But the hour has arrived, when I must close my address. Permit me to do so, by earnestly recommending to you the study and practice of moral medicine, as the highest and most delightful branch of the Profession. And allow me to add, that, in this you can never succeed, in a degree either useful to others or creditable to yourselves, without a previous acquaintance with that system of MENTAL PHILOSOPHY, which, in its principles and details, conforms to the ANATOMY AND PHYSIOLOGY OF THE BRAIN. And however my remarks may have failed to convince you of this truth now, be assured, that the obser-

vation and experience of such of you as may faithfully examine the subject will convince you of it hereafter, and thus vindicate the GROUND of the effort I have made.

ARTICLE II.

An experimental inquiry, into the Principles of Nutrition, and the Digestive Process. By JOHN R. YOUNG, of Maryland; Member of the American Linnean and Philadelphia Medical Societies.

"We ought in every instance to submit our reasoning to the test of Experiment, and never to search for truth, but by the natural road of Experiment and Observation." LAVOISIER.

[In re-publishing the following paper, in this department of the Journal, we deviate from our usual course, for the purpose of laying before our readers, at full length, a very ingenious Thesis, submitted to the Faculty of the University of Pennsylvania, in 1803, by a young Physician of Maryland, who died a few years after receiving the honors of that Institution. The ingenious experiments performed by the author, go far towards establishing certain still mooted points concerning the important process of Digestion.—ED.]

Man is endowed with motion, sensation and thought. These are dependent on some internal or inherent principle, and also on various external agents; when they are all regularly performed, they are said to constitute perfect animal life. When we contemplate this life, we are struck with motion, as its principal characteristic; and when we take a farther view, we must perceive that this motion and its laws, must necessarily tend to waste the machine in which they reside. It becomes essential therefore to the existence of the living body of man, that he be provided with means to counteract his tendency to decay. To effect this, he is furnished with an apparatus which prepares new materials, to supply the waste of the old; and these the beneficent hand of nature has plentifully diffused, over every part of the globe. Lest he should neglect them, he is furnished with faithful centinels, which seldom fail to admonish