

logists, derangement of mind involves disorder of its material instrument. Dr Beck, in his Medical Jurisprudence, says: "causes of insanity are usually divided into physical and moral, or bodily and mental; but a separation of this kind is not conducive to just views of the disease. Insanity is essentially a bodily disease, and the moral causes operate in producing it as they do in producing other complaints."

We gather from these, and numerous other facts of a similar nature which I have no space to mention, that when the mind acts naturally, it is because the changes within the brain go on in a normal way, and that a perverted material organ produces corresponding derangement of mind. Accompanying every thought, each act of the recollection, or of the reasoning and imaginative and emotional powers, there is a certain kind and amount of material transformation which is essential to these mental acts; and any agent or force brought to bear upon the brain, which arrests or modifies or hinders these material changes, necessarily disturbs and perverts the mental operations. This fact of the essential dependence of mental processes upon cerebral mutations, we are too much inclined to overlook. We regard the mind's acts alone, abstracted from all their conditions, separated from the corresponding material acts upon which they depend. We have such a habit of contrasting mind and matter—of considering them as separate and even antagonist forms of being—that we, as it were, detach our conceptions of mental existence and action from their vital connexions. Habituated to conceive of mind in its final and highest destiny as disincumbered of matter, we neglect the inexorable fact that such is not its condition *here and now*. As children, when out at play, are utterly unconscious of that lever-action of bones, the contractility and spring of muscles, and the lightning despatches that are continually flying in all directions over the nerve wires from head quarters to the hands, feet, tongue, lips, eyes, and the whole mobile and sensitive system, so we are all apt to forget that when we think, and hope, and reflect, and wish, and remember, and calculate, or exert the mind in any way, we are really spinning the wheel-work of that most complicated and wonderful of all machines, that masterpiece of Divine Invention, the human brain. I do not affirm that intellectual operations *originate or consist* in material changes of the brain, but only that, in the present state of existence, the mental principle cannot act except through its organ, by which such changes necessarily occur. The fact is undeniable, that, in this stage of being, the Creator has so woven the mental element into brain tissue that the former cannot work except through the latter, and in accordance with its laws.

Let us consider the practical import of these facts: A man, for example, moving free in society, discharges his duties and regulates all his conduct properly. We at once refer this course of action to his will and say that *he chooses* it. This is true, but it is not the whole truth. That right action of his mind rests for its basis upon a sound brain—that is, a brain in such a condition of harmonious and rapid physiological change as makes this course of thought and action possible. In another instance he may take advantage of his liberty to commit wrong and inflict injury upon others, and we then attribute his course to a *depraved* will. But here again we must go further back to that state of the mind's organ

which permitted the freedom of choice, for the liberty of volition depends upon a proper condition of the instrument of thought. Or, in still another instance, brain derangement may annihilate the free action of the voluntary faculties, and drive the insane individual to destructive deeds, for which he is not to be held responsible. In all these cases the final basis of individual action is the condition of the organ of thought. Government, by means of law, prescribes, in certain respects a course of action for the citizen, and appeals to certain motives as inducements to it. It promises the protection of natural rights as a consequence of obedience to law, and threatens punishment as the result of its violation. Government thus makes its appeal to mind; and we hence say that it *rests* upon mind—that its foundation is the responsible intelligence of its subject. This is quite true, but we must go deeper. Government is built upon cerebral conditions. Hence, states of the material brain become the real foundations of government. Its true basis is that which holds and sustains the intelligent nature of man in its harmony and integrity.

There is a class of persons destitute of brains, or rather they have only a part of the organ, just sufficient to regulate and control the animal life. They have no intellectual brain, their minds are therefore low and fragmentary, and we call them *idiots*. Now, within the constitution of an idiot there is nothing which government can reach so as to make him its subject. There is a deficiency of that portion of the organism upon which government is based; and it therefore, in this case, has no basis. The idiot is simply an animal lacking that organic part, which, when superadded, confers intelligence, responsibility, and subjection to law. Or, though the brain of an individual may have been formed perfect, if from any cause it becomes disordered, so that the mind can no longer use it, the relation of such person to society is at once dissolved, all moral obligations and legal demands upon him cease, and he passes beyond the limit of social and civil accountability.

These facts disclose the relative rank of different parts of the human body. Each has its importance, but there is an infinite difference in their respective values. The organs are all bound together by such ties of sympathy and mutual dependence as to constitute a harmonious unit; but when any one becomes disordered so as to interrupt or defeat its peculiar action, we behold at once the wide gradation of their offices. If the bones be broken the body is no longer supported; if the muscles be paralyzed motion is impossible; if the lungs are disordered, respiration becomes affected; or if the stomach, there is a disturbed digestion. Yet all this is but a perversion of the subordinate machinery of the human constitution. If disease fastens upon the organ of mind there is dethronement of the intellect, and a total wreck of manhood. God and man—religion, government, and all the multifiform relations which cluster around the intelligent being—are blotted out of existence, for we know nothing of these except by rational and coherent ideas, which are possible if the temple of thought be thrown into tumult and disorder. The bodily system of man may thus be contemplated as an indivisible whole in its subjection to physical laws, but as divisible into two widely different portions in respect of the purposes it serves. The first consists of the apparatus of animal life, and this is made subservient to

another and more sacred part, devoted to nobler objects, and to which appertains whatever is glorious and godlike in man's nature—a part which controls the citizen in the whole circle of his private and public responsibilities, in which, therefore, society and government have an especial and peculiar interest—upon which, indeed, they rest as a foundation.

I call attention now to an important physiological law, according to which foreign substances affect the bodily constitution. The first action of the system upon the various nutritive materials which are designed to nourish it, is by means of the digestive process, to prepare a uniform homogeneous liquid, which is to circulate through all its parts. This liquid, the blood, contains the elements necessary to form all the structures of the body. The nutrition of these parts, therefore, consists in taking out of the circulatory current and appropriating those special elements which each tissue requires. There is no one part which demands all the constituents of the blood in its growth; it therefore only withdraws such elements as it needs; other parts of the body taking the rest. Nutrition, therefore, involves a kind of vital analysis of the sanguinary fluid, and the local appropriation of its constituents. For example—where the bones are required to grow, compounds of lime are withdrawn from the blood; the muscular tissues select from it compounds containing sulphur, and the nervous tissue those containing phosphorus. And so each individual secretion and part—tears, saliva, gastric juice and bile, as well as ligaments, tendons, hair, teeth and nails—each separates from the blood at some particular place just those peculiar ingredients which are necessary to form it. Local attraction for chemical substances in the bodily system is thus the fundamental law by which the living mechanism is perpetuated.

Now this physiological ordinance is not confined to nutritive substances, it governs also the destination or medicines. Every body understands that, to combat diseases in various parts of the fabric, different medicines are resorted to which will take effect upon the different parts. Medicines swallowed and absorbed into the circulation, or applied externally, and imbibed by the tissue, enter the revolving stream, and are thence drawn out and lodged in parts which have for them a special attraction. The highest authority in *Materi Medica*, Dr Pereira, says, "*The specific operation of medicines after their absorption, on particular organs is well known.*" Indeed, eminent medical authorities, as Eberle, Dunglison and others, have made the action of remedies upon different parts of the system the basis of their classifications. Thus, one group has a specific action on the intestinal canal, another upon the respiratory organs, and others upon the circulatory, muscular, and nervous systems. Then there are subdivisions based upon the mode of action of each part. One class of remedies acts upon the blood, some upon its corpuscles, and others upon its plasma; some to thicken and others to thin it, and others to affect it in still different ways. To such an extent is this law of localization carried, that not only do medicines select particular organs, but (as Dr Carpenter observes) their action is often limited to particular spots upon the organ.

Now, precisely the same law of local attraction which governs nutriment and medicines, controls also the physiological action of *poisons*. Poisonous agents are drawn by special affini-