ON THE DOCTRINE OF HUMAN AUTOMATISM.

Part II.

THE aim of my previous* paper was to establish that—by combining the information we may obtain from the study of the physiological conditions under which the actions of animals are performed, with that which we derive from our own conscious experiences,—we can draw a tolerably definite line of demarcation between (1) the *primary automatism*, which seems to constitute the sole spring of action in the lower types of animal life, and to depend upon the *original* or *congenital* endowments of their nervo-muscular mechanism; but which shows itself in Man in such actions only as are directly concerned in the maintenance of his organic functions: (2) the *secondary automatism* that is concerned in the execution of all those actions which man has to gain the power of performing by a process of "training," but which, after they have become habitual, proceed (when once started) without any intentional direction, in virtue of the *acquired* endowments of his nervo-muscular mechanism; and (3) the *volitional direction*, which involves a determinate *nisus* of the Ego, based on a distinct conception of the purpose to be attained.

Over the primarily-automatic actions, it has been shown that the Ego has either no control at all, as in the case of the heart, or but a limited control, as in the case of the respiratory muscles. Over the secondarily-automatic, on the other hand, the Ego has complete control when he chooses to exert it; thus, although his *bête* goes on walking of itself, while his *âme* is otherwise engaged,

* See Contemporary Review for Feb. 1875, p. 397.

the *âme* can pull up the *bête* whenever (having resumed its control) it may desire to do so. Further, even in the so-called "voluntary" movements, the *âme* works entirely through the instrumentality of the *bête;*—in other words, the will does not (as is commonly supposed) operate directly upon the nervo-muscular apparatus, singling out the muscles which are to be brought into play, and combining these into co-ordinate action, but simply commands the *bête*, "do this;" and the *bête*, if previously habituated to the performance of the action, forthwith executes it, just as

> "Obedient Yamen
> Answered 'Amen,'
> And did
> As he was bid."

All our conscious experiences, I urged, justify the further assertion that the very same actions, or successions of action, may be purely automatic or non-intentional at one time, purely voluntary or purposive at another. And here I join issue with Professor Huxley; who argues from the obvious automatism of certain actions which bear in themselves the distinct impress of purpose or intention, that the universal belief of mankind as to the mental causality of volitional or emotional movements is scientifically wrong, for that they really originate in certain molecular movements of the brain, of which these mental states are the mere concomitant "symbols in consciousness." "The feeling we call 'volition,'" he says, "is not the cause of a voluntary act, but the symbol of that state of the brain which is the immediate cause of that act;" and he gives, as an illustration of his meaning, the blowing of the steam-whistle, which signals, but does not cause, the starting of the locomotive.

Now, as a physiologist, I, of course, recognize a certain "mode of motion" in the brain as the immediate antecedent of the actions in question, whether they be performed volitionally or automatically; and I can see nothing more unscientific in affirming that this "mode of motion" may be caused by a mental state, than in affirming (as Professor Huxley explicitly does) that the mental states which we call sensations, ideas, and emotions are caused by "modes of motion" in the brain. For the universal testimony of experience is as clear upon the one point as upon the other; and there is not the least difficulty in accounting for the facts on which Professor Huxley founds his argument, in perfect consistency with that experience. We are daily doing things which we originally learned to do by design, but which have come to be habitual, under circumstances which show our performance of them to be purely automatic. Thus, when a gentleman goes to bed at night, one of the first things he habitually does is to take out his watch, wind it up, and lay it on his dressing-table. I daresay that it is a common experience with

others, as it is with myself, that if we go upstairs with a pre-occupied mind to dress for an evening party, instead of to undress for bed, the act of taking out the watch suggests the winding it up; and we may "come to ourselves" in the middle of it. I know a young gentleman who, from the force of a good habit, knelt down to say his prayers under the same circumstances: and a mercantile friend, who had come home tired from his day's work in the city, and had gone up to dress for a dinner-party for which his wife had already prepared herself, not making his appearance downstairs when expected, was found by his wife in bed—the act of undressing having suggested its ordinary sequence, which the will, through the mental pre-occupation, had failed to alter. Now, to affirm that, because these habitual actions were executed automatically, they never were the results of volitional direction, but merely expressed certain brain-movements which at the same time excited "the feeling we call volition," seems to me to be alike unsupported by evidence and inconsistent with experience. I might just as well say, when I hear a tune played upon an organ furnished with both keys and a barrel, that if it can be played by the turning of the barrel, it cannot be also played by the fingers of a musician. The immediate antecedent is the same in both cases—the successive lifting of certain levers, which open valves that admit wind to the pipes; the very same levers being lifted either by the frets upon the revolving barrel, or by the depression of the keys put down by the musician's fingers. The parallel is complete as regards such a primarily-automatic action as that of coughing, which, while provided-for by the original mechanism, can also be called forth volitionally; and it would be also completed as to any secondary or acquired automatism, if we could suppose the raising of the frets upon the barrel to be accomplished by the musician's repeated performance of the tune upon the keys, so that the tune, when worked into the barrel by his determinate action, should be reproduced without his agency whenever the barrel is turned. As Professor Huxley, equally with myself, recognizes the fact that the nervous mechanism grows to the mode in which it is habitually exercised, the only question between us, in this stage of our inquiry, is whether mental changes can or cannot be the causes of physical actions.

On this question opinions will differ according to the point of view from which it is looked at. Professor Huxley has fully avowed his preference for the physical aspect only, and his desire that mental phenomena should be expressed, so far as possible, in terms of matter. It seems to me, on the other hand, that there is something in our *self*-consciousness—in our power, not only of picturing the external world to ourselves, but of reflecting upon our own mental states,—and in

our conviction of possessing a power of *choice* between two or more courses of action, whether mental or bodily,—which necessitates the conception of an Ego as something unconditioned by material states and physical forces. From this point of view, the body is to be considered rather as the instrument of communication between the Ego and what is external to it, than as a self-acting machine, of whose movements our mental states are mere "symbols in consciousness." And I find myself quite unable to conceive that when I am consciously attempting, whether by speech or by writing, to excite ideas in the minds of my hearers or readers, corresponding with those which are present to my consciousness at the moment, it is *not* my mind which is putting my lips or my hand in motion, but that (as Professor Huxley affirms) it is my body which is moving of itself, and simply keeping my mind informed of its movements. Whilst quite prepared to accept such a doctrine in regard to any of those established successions which run-on as automatically as the movements of our legs in walking,* I can no more believe that my present writing is anything else than an expression, in bodily movement, of the consciously-formed purpose of my mind, than I can believe that a piece of delicate handiwork—the painting of a miniature, for instance, or a minute dissection—requiring constant visual guidance and trained dexterity of movement, can be executed for the first time without a distinct volitional direction of each act.

It is not so long ago that Professor Huxley himself spoke of the belief "that our volition counts for something as a condition of the course of events," as one which "can be verified experimentally as often as we like to try," and as therefore "standing upon the strongest foundation upon which any belief can rest, forming one of our highest truths" ("Lay Sermons," p. 160). Yet for this belief he now calls on us to substitute the doctrine that the course of events is determined solely by a "motion of molecules" of which the feeling we call "will" is only a concomitant. I see in this the natural issue of that preference for the expression of mental phenomena in terms of physics, which Pro-

* I remember to have compared notes with the late Sir H. Holland upon an experience that we found to be common to both—that of unconsciously humming tunes while the attention was absorbed in something else. Sir Henry told me that he was sure that he did this habitually whilst walking and thinking, from the frequency with which he dropped (as it were) into the middle of an air, the previous part of which seemed to have been gone through by his brain, without his Ego being aware of it. And I replied that not only had I the same reason to believe that I had often thus "unconsciously cerebrated" the first part of a tune, but that I had been sometimes called to account by others for disturbing them by the audible humming of tunes whilst reading intently, the said tunes not being either present to my consciousness as concepts, or heard by myself as audible sounds. Here it is clear that the reproduction of the cerebral state was a physical, not a mental act; and that the mental affection, when it occurred, was (as in other cases of automatism) not the cause but the consequence of the physical. But if I *will* to hum or to sing a tune, the movements which I execute to carry out my consciously-formed intention seem to me no less clearly to originate in my Ego, the physical changes being the consequences, not the causes of the mental.

fessor Huxley avowed on the same occasion, and to which I have just expressed my objection. And it will not give me surprise if my friend at some future time should again change his standpoint, and, seeing that there is a golden as well as a silver side to the shield, should return to the belief that mental experiences cannot be ignored by any true psychologist, even though they may not be consistent with his physical conceptions.

If Professor Huxley's present doctrine be true, not only of particular cases, but of human life generally, it follows that its stream would flow on exactly as it does, if we had no consciousness at all of what we are about; that the actions and reactions of the "ideaginous molecules" would do the work of the philosopher, even if they never generated ideas in his mind; that he would give forth its results in books or lectures, not from any intention or desire that his books should be read and his lectures heard, so as to bring the thoughts of other minds into relation with his own, but simply because certain molecular motions in his brain call forth the movements of speech or writing; and that, in like manner, the noblest works of genius—the master-pieces of the poet, the artist, and the musician—would none the less have been produced, if the "symbols in consciousness" had never been evoked in their producers' nature, and would prove none the less attractive to other automata, if the molecular movements of their brains should be equally incapable of exciting either intellectual or emotional activity; such activity being, to use a legal phrase, mere "surplusage." To me this seems like a *reductio ad absurdum;* but that is, I have been publicly informed, because I am getting old, and my brain is becoming ossified, so as no longer to be able to keep up with the advance of other brains.

It may doubtless be urged by Professor Huxley, however, that even admitting volitions and emotions to be causes of the bodily actions which express them, that does not make Man the less an automaton; these mental states being themselves "conditioned" by physical changes, so as to be the no less necessary consequents of antecedent states, than are any physical actions of their antecedents. This view being common to all automatists, will be better discussed after I have marked out the relation of my own views to those of Professor Clifford and Mr. Herbert Spencer.

By Professor Clifford the mind is described as "a stream of feelings which runs parallel to, and simultaneous with a certain part of the action of the body, that is to say, that particular part of the action of the brain in which the cerebrum and the sensory tract are excited;" and he neither admits such excitement to be a cause of any kind of affection of the consciousness, nor allows that any state of consciousness can excite physical change in the brain. A question of this kind is not to be disposed of by mere

assertions, however positive. Looking at it from its physical side alone, and relying exclusively upon his physical experiences, Professor Clifford thinks himself entitled not only to ignore the more immediate mental experiences which lead men who are at least his equals in mathematical and physical ability (Mr. Kirkman* and M. Dumas,† for example) to a precisely opposite conclusion, but to speak of the assertion that the will influences matter as "nonsense—the crude materialism of the savage," although, as Mr. Tylor has shown us, the "animism" of the savage, who refers every phenomenon to the agency of a conscious Ego, much more resembles spiritualism. "The two things," says, Professor Clifford, "are on two utterly different platforms—the physical facts go along by themselves, and the mental facts go along by themselves. There is a parallelism between them, but there is no interference of one with the other. If anybody says that the will influences matter, the statement is not untrue, but it is nonsense. The will is not a material thing—it is not a mode of material motion. Such an assertion belongs to the crude materialism of the savage. The only thing which influences matter is the position of surrounding matter or the motion of surrounding matter." I think that most of the readers of this remarkable passage will agree with me that the only justification of it which the writer could give, would be his own proposition of a scientific *rationale* of the phenomena to be accounted for. But so far is he from attempting this, that he abandons the attempt as hopeless; repudiating Professor Huxley's admission of a causal relation between *neuroses* and *psychoses*, as no less unscientific than the converse; and reverting to what is really the Leibnitzian doctrine of "pre-established harmonies" without its Theology,—of which Professor Huxley remarks that those may accept it who choose to do so.

My contention with Professor Clifford, therefore, is that until he can show that he knows all about matter and its dynamical relations,‡ Professor Huxley's assertion—based on "the normal experience of healthy men"—that running a pin into one's flesh is the *cause* of

* See his "Philosophy without Assumptions," a paper read before the Literary and Philosophical Society of Liverpool.

† See his recent "Eloge" of De la Rive, in the Academie des Sciences.

‡ How little is known on this point compared with what remains to be known, may be judged from the marvellous discovery lately made by Mr. Crookes, and exhibited by him at the Royal Society on the 7th of April. If Professor Clifford had been told a month ago that the incidence of the light of a candle upon the blackened surface of four small discs, whose reverse sides are white, would drive round *in vacuo* with considerable velocity the horizontal wheel that carries them at its margin, under conditions which seem to exclude the possibility of any other agency, he would probably have designated the statement as "nonsense." But of the eminent Physicists who witnessed this phenomenon, no one seemed to doubt that the only explanation of it lies in the existence of a mechanical power in radiant Light and Heat, of which none of them had previously any conception, and of which the Undulatory theory, complete as it is in regard to optical phenomena, gives no account whatever.

the state of consciousness which we call pain, and my assertion that those states of the conscious Ego which we call volitions and emotions are the *causes* of the bodily actions that execute the former and express the latter, have a better claim to be accepted as truths of science than Professor Clifford's assertion that such statements are simply "nonsense." A more prolonged and varied study of mental physiology and pathology may perhaps hereafter lead Professor Clifford to admit that he has been, to say the least, a little premature in thus pronouncing positively upon the absence of relation between two vast classes of phenomena, the intimate *nexus* of which comes out more clearly the more it is searched into.

With Mr. Herbert Spencer, indeed, this *nexus* constitutes the essential basis of Psychological science. "The object of Psychology," he says, "is not the connection between internal phenomena, nor the connection between external phenomena, but the connection between these two connections." In this I am entirely in accordance with him; as I am also in the preference he avows for translating physical into mental phenomena, rather than mental into physical, if we are forced to choose between the two alternatives. He would, I think, fully accept the doctrine (essentially that of Augustine) which was so forcibly propounded by John S. Mill in his posthumous Essays, that "feeling and thought are much more real to us than anything else; they are the only things which we directly know to be real, all things else being the unknown conditions on which these depend." It must be borne in mind that the whole fabric of our Physiological science, though professing to be built up upon experience, is really based upon what Mill designated "mere assumptions to account for our sensations." We know nothing real about matter—"itself we do not perceive, we are not conscious of it;" what we really know are the sensations we receive from it. And thus, as I myself urged on a former occasion, while our notion of *force*, arising directly out of our own consciousness of effort, is one of those primary cognitions which we cannot dissociate from our own consciousness of personality,—our notion of *matter*, its properties, motions, and laws, is altogether a construction of our own intellects. This necessity for the intervention of Mind in every stage of our interpretation of nature, has been pointed out by Principal Caird, with admirable clearness, in the address which he delivered at the opening of the present session of the University of Glasgow:—

"You cannot build up a world out of experience, without regard to thought and its laws; for in the very effort you tacitly presuppose what you are trying to ignore. You cannot reach mind as an ultimate product of matter and force; for in so doing you have already begun with mind; the earliest step of the inquiry involves categories of mind, and it is only

in terms of mind that the very problem you are investigating can be so much as stated. . . Whether there be such a thing as an absolute world outside of thought, whether there be such things as matter and material atoms, existing in themselves before any mind begins to perceive or think about them, is not to the purpose. If there be such atoms, at any rate you, before you begin to make anything of them, must think them; and you can never, by thinking about atoms, or thinking about anything, prove that there is no such thing as thought. Before you reach thought as a last result, you would need to eliminate it from the data of the problem with which you start; and that you can never do, any more than you can stand on your own shoulders or outstrip your shadow. The fundamental vice, then, of materialism is, that that out of which mind is to be extracted, is itself the creation of mind, and already involves its existence as an originating power."

I believe that Mr. Herbert Spencer would further agree with me in regarding our own consciousness as the final court of appeal in regard to the truth (to each individual) of any proposition whatever—the base of verification to which all our logical triangulation must be worked back, if we desire to test its validity. But it does not follow that because a certain proposition is "unthinkable" by Mr. Herbert Spencer, therefore it is "unthinkable" by some one else, or by mankind in general: because any one who studies, not only his own mind, but the minds of others, must see that the acceptance of a proposition by any individual depends upon its fitting into some place in his "fabric of thought;" and that, according to the plan on which that fabric has been built up, will be the shape and size of the recesses that will determine the suitableness or unsuitableness of new pieces of mental furniture.* Hence, if I can show that not only my own consciousness, but the common consciousness of Mankind, accepts and acts upon the doctrine (even when dissenting from it as a philosophical proposition) that the Human Will is an independent or "unconditioned" factor in the *direction* of our mental and bodily activities (for I do not affirm more), this doctrine is not disproved by the fact that Mr. Herbert Spencer's "fabric of thought" has not at the present time a place for its admission.

The question of the existence or non-existence of such a power in the human Ego, is quite distinct from the question of how it has come to be there; and hence, whilst following with great interest and admiration the general outlines (the details I do not profess to have mastered) of Mr. Herbert Spencer's application of the evolution-doctrine to the study of Psychology,† I do not see that

* See my Lecture on the "Psychology of Belief" in CONTEMPORARY REVIEW for December, 1874.—It is to me not a little singular that the advocates of the doctrine of Human Automatism should advance their doctrine with such calm confidence of its being the only one that a scientifically trained mind can possibly entertain; when, as will be presently shown, it can only be reconciled with a vast body of facts which rank among the most certain of human experiences, by assumptions of which there is no proof whatever.

† As I find that a note to my former paper has been understood in a sense I by no means intended, I wish to take this opportunity of stating that when I spoke of "the idea of

in discussing the former there is any need to concern ourselves with the latter. Supposing the evolution-doctrine to be historically true, the superinduction of *conscious* upon *unconscious* existence is a phenomenon quite as incomprehensible—*i.e.* involving quite as great a departure from the previous succession—as the first introduction of a self-determining power; of the evolution of which, on a graduated scale, from very small beginnings to its highest development, I maintain that we have evidence in the growth of every well-trained child, as we also have in the passage from the uncontrolled automatism of the lowest savage, to the disciplined self-control of the man who has most completely attained the highest of all powers, that of ruling his own spirit. And we who affirm its existence, have quite as good a right to assert that we recognize its presence by our own immediate experience, as Mr. Herbert Spencer has to assert that its existence is "unthinkable."

Moreover, I fail to see that its admission is so inconsistent as Mr. Herbert Spencer affirms it to be, with the possibility of a scientific Psychology:—"To reduce the general question to its simplest form," he says ("Principles of Psychology," § 220), "psychical changes either conform to law, or they do not. If they do not conform to law, this work, in common with all works on the subject, is sheer nonsense: no science of psychology is possible. If they do conform to law, there cannot be such a thing as free-will." For the study of the relations which he regards as the subject-matter of that science, would not be prejudiced in any way by the introduction of a factor which lies outside those relations.

That there are certain uniformities of human action, which furnish the basis of our whole social fabric, and are the legitimate objects of scientific inquiry, is admitted by every one; and it is the object of psychological science to trace out the causal relations of these phenomena, so as to determine in what measures they are to be attributed to inherited constitution, to the early training imparted by others, and to the influence of the "environments" generally. But, on the other hand, every one also admits that the closest observation of these uniformities, and the most sagacious analysis of their conditions, does not justify anything more than a "forecast" of the course of human action, whether of individuals

progressive differentiation, especially in regard to the structure and actions of the nervous system" as "perfectly familiar to Mr. Herbert Spencer's predecessors in the same line of inquiry," I used the word "progressive" in the limited sense which it bears in the following passage from the third edition (1851), p. 584, of my "Principles of General and Comparative Physiology:"—"Now, the great principle of *progression from the more general to the more special*, appears to hold good as well in regard to the functional character of organs, as with respect to their structural and developmental conformity; as may be seen in proceeding from the lower to the higher forms of organized being, and in following the successive stages of development of any one of the higher organisms." I had no idea of disputing Mr. Herbert Spencer's claim to priority in the application of this doctrine to *genetic* succession.

or of communities, in any given contingency. "Who would have thought that he would have done such a thing?" is our frequent exclamation in regard to some one of whom we considered that we had a most intimate knowledge: that "the unexpected is what always happens" has passed into a proverb, since what seemed the tranquil course of political events was first disturbed by the rupture between France and Germany. It is, of course, open for the automatist to say that the element of uncertainty here arises, as in the case of weather-forecasts, from the complexity of the conditions, and from our imperfect acquaintance with them; and he might fairly urge, on general grounds, that if we could grasp the whole of the antecedents, and measure the potency of each, no "unconditioned" or self-originating element would be found to have interfered with the regular sequence of cause and effect. But this is just the point in dispute. The whole history of science shows the importance of investigating "residual phenomena;" and until the automatists have *proved* that no such exist in the science of human action, they have nothing but a general probability, drawn from the entirely different sphere of Physical science, to oppose to what Mr. H. Sidgwick designates as "the immediate affirmation of consciousness in the moment of deliberate volition," "which makes it," he continues, "impossible for me to think, at such a moment, that my volition is completely determined by my formed character, and the motives acting upon it." And while the misperceptions or erroneous intuitions which occur in the exercise of our senses, come to be corrected, as Mr. Sidgwick remarks, by that comparison of experiences which affords the only sound basis of our belief in objective realities of any kind whatever, "no amount of experience in the sway of motives even tends to make me distrust my intuitive consciousness, that, in resolving, after deliberation, *I exercise free choice as to which of the motives acting upon me shall prevail.*"*

Here, then, is the gist of the whole controversy. The "motives" in any particular case may be taken as so many forces arising out of antecedent "circumstances;" and it may be freely admitted on both sides that the relative amounts of these would be calculable if we knew and could estimate all these circumstances,—including, of course, the formed character of the individual. But, since we have no such test, the assertion that "the strongest motive prevails" is a mere truism; being only another form of saying that the motive which prevails is the strongest. If we put into a balance two bodies of known densities, we can predict, by the comparison of their dimensions, which will preponderate; but if the density of one or both is unknown, we can only determine which is the heavier by seeing which scale goes down. And so

* "The Methods of Ethic," p. 51.

in the determination of our own conduct as to matters of such a nature as not to involve considerations of duty or even of prudence,—when, for example, we have to choose between two or more objects, each simply pleasurable,—our only test of the relative strength of their attractions is furnished by the gravitation of our minds towards one or other of them. And the same is the case in regard to any morally indifferent action, towards which we feel ourselves drawn by one set of attractions, and from which we feel ourselves kept away by another. The first motive, in the absence of the second, would determine the action of the Ego; the second, in the absence of the first, would determine his inaction; and in general we have no other test of the relative strength of the attracting and the repelling forces, than the resultant mental preponderance of one over the other.

For want of such tests, indeed, we are constantly obliged to proceed experimentally, as in the training either of a dog, or of a young child that is (save in respect of language) very much in the dog-stage of intellectual and moral capacity. A certain dainty, for example, presents a strong attraction, urging the subject of that attraction to possess himself of it; the master or parent, on the other hand, desires to deter the dog or the child from this appropriation, and takes means to signify his disapproval of it. But if, on the recurrence of the temptation, the attraction proves too strong for the deterrent motive, and the act is repeated, punishment is inflicted to add to the strength of the deterrent; the association being made as strong as possible between the act and its painful consequence, in order that the offender may be led to apprehend a recurrence of the pain as a consequence of a repetition of the offence. The next repetition of the act brings on the culprit a still severer chastisement; and so we proceed until we have found a deterrent force that effectually counteracts the attractive force. The deterrent will derive additional power, in the case of a dog or a child that is capable of strong personal attachment, from the manifestation of displeasure which it calls forth on the part of the master or parent; and there are cases in which the desire to avoid giving pain to a being that is loved with all the strength of dog- or of child-nature, seems even more potent than the apprehension either of corporeal suffering or of the deprivation of some valued enjoyment. But this again can only be learned experimentally in each individual case; the character of the particular dog or child, as shown in its general course of action, only affording a probable indication as to the kind of deterrent which will prove most effectual.

Now, in the whole of this process I recognize, as fully as my opponents can do, the automatism of the nature which we are endeavouring to mould; and I believe that in the education of

young children too much of self-regulation is often expected, and a great deal set down to wilful obstinacy, which is in reality the result of a want of power to act otherwise than automatically. How far a dog ever rises to the state of *self*-consciousness, so as to be able to reflect upon his own mental states, and to regulate their intensity and succession, is a question which we have no certain means of determining. He may be capable of the most disinterested self-sacrifice, under the influence either of the strong sense of duty to his master, which leads him to make the most laborious exertions to fulfil his behests with a sagacity which is often truly marvellous, or of the almost passionate attachment which in some instances appears to dominate over every other motive,—as when a dog cannot be induced, even by the cravings of hunger, to desert his master's grave. But if, as seems to me most likely, such self-sacrifice is simply the result of a preponderance of present motives, involving neither calculation of future consequences, nor a deliberate preference of duty—*as* duty—over pleasure or interest, it does not seem to me to deserve the moral approval we give to such an act of deliberate self-sacrifice as that of the heroic steersman of the burning steamer, who kept his post while the fire beneath was roasting the soles of his feet (thereby laming himself for life), in order that, by guiding the ship to shore, he might save the lives of all on board.

In the education of a child, on the other hand, we watch for the dawn of this power of reflection and deliberation; we endeavour to strengthen his feeble resolution by judicious encouragement, and to give additional force to his sense of duty by earnest appeals to it, so as to sustain him in a conflict to which he is as yet unequal, if left to himself; but we lead him to feel that he must not always expect such help, and that it rests with himself, by habitual action upon what his reason and his moral sense tell him he *ought* to do, to gain the *power* to do it against his inclination.

Of course it will be replied by the automatist, that all such "training" is part of the external influences which go to the formation of the character; and that its efficacy depends upon the degree in which the sense of duty can be thus developed by judicious culture into efficient predominance. But I affirm it to be a matter of notorious experience, that it is the reiteration of the assurance that the child *can* govern his temper, if he tries hard enough; that he *can* overcome a difficulty, if he will summon courage to make a vigorous effort; that he *can* choose and act upon the right, in spite of strong temptation to do the wrong, if he will steadily keep before himself the determination not to yield,—which constitutes the most effectual means of calling forth that power of "self-control," which the most enlightened writers

of antiquity, and the most successful of modern educators, concur in regarding as the most valuable result, alike of moral and intellectual discipline. I find myself quite unable to attach a definite import to such words as σωφροσύνη, *continentia*, or *temperantia*—to see any meaning in the ancient proverb that "he that is slow to anger is better than the mighty, and he that ruleth his spirit than he that taketh a city," or to feel any admiration for a hero who "has gained that greatest of all victories, the victory over himself," if the course of action results from no other agency than either physical or mental Automatism, and no independent power be put forth by the Ego in determining it. And if I felt obliged to accept that doctrine as scientific truth, I should look to its honest and consistent application to the training of the young as the greatest of social calamities. For I can imagine nothing more paralyzing to every virtuous effort, more withering to every noble aspiration, than that our children should be brought up in the belief that their characters are entirely formed *for* them by heredity and environments; that they *must* do whatever their respective characters impel them to do; that they have no other power of resisting temptations to evil, than such as may spontaneously arise from the knowledge they have acquired of what they ought or ought not to do; that if this motive proves too weak, they can do nothing of themselves to intensify and strengthen it; that the notion of "summoning their resolution," or "bracing themselves for the conflict," is altogether a delusion; that, in fine, they are in the position of a man who is floating down-stream in a boat without oars, towards a dangerous cataract, and can only be rescued by the interposition of some *Deus ex machinâ*.* How the perception of this as the logical outcome of the doctrine of Automatism, weighed "like an incubus" upon the spirit of John Stuart Mill, when he first fully awoke to it, he has himself told us in his Autobiography. "I felt," he says, "as if I was scientifically proved to be the helpless slave of antecedent circumstances; as if my character and that of all others had been formed for us by agencies beyond our control, and was wholly out of our own power." And it is not a little curious that, while continuing to advocate as scientific truth the determination of human conduct by the formed character of each

* My serious warning has been anticipated by the Paterfamilias who thus humourously put the same issue to the *Spectator* a few months ago:—"It is now well known," says M. Taine, "that vice and virtue are products exactly like sugar and vitriol, and we may hope to know in time the laws by which they are produced. When science has clearly established those laws, it will be as irrational to feel indignation at base and cowardly actions, as it would be to feel angry about the chemical affinities. A clearer insight into the laws of Nature will rid us, I am assured, of the very disagreeable feelings of regret and remorse. But I find it very difficult to conceive of a society from which science has eliminated all idea of responsibility; and still more difficult to understand how the modern ideas can be taught to the young in our schools without fatally weakening every youthful effort."

individual, and while excluding any interference, at the final stage, with the strict sequence of cause and effect, he seems to have admitted the independence or unconditioned agency of the Ego in the formation of his character. "I saw," he says, "that though our character is formed by circumstances, our own desires can do much to shape those circumstances; and that what is really inspiriting and ennobling in the doctrine of freewill, is the conviction that *we have real power over the formation of our own character;* that our will, by influencing some of our circumstances, can modify our future habits and capacities of willing."

I can attach no other meaning to this remarkable passage, the teaching of which is more fully developed in chap. 1. of Book vi. of the "System of Logic," than that it recognizes a factor in the formation of our characters, which is something else than "heredity *plus* environments." For I can scarcely suppose J. S. Mill not to have seen that if a man's desires are themselves the resultants of antecedent "circumstances," the incubus of hopeless slavery to those circumstances can no more be removed by any desires for self-improvement which *ex hypothesi* arise out of them, than a weight which bears down on a man's shoulders can be lifted off by its own pressure. Any one who reads in De Quincey's "Confessions" the graphic narrative of his miserable experiences from the abuse of opium, will see how ineffectual are the strongest *desires* without the *will* to carry them into effect. And I shall now try to show that our "capacity of willing," that is, of giving a preponderation to the motive on which we elect to act, depends, *first*, upon our conviction that we really have such a self-determining power, and, *secondly*, upon our habitual exercise of it.

The analysis of an actual case, that is, unfortunately, but too common—that of a man who habitually gives way to the desire for alcholic excitement, and is ruining himself and his family by his self-abandonment—will bring into distinct view the practical bearing of the antagonistic doctrines. In that stage at which the toper first begins to feel that his propensity is acquiring the mastery over him, he may be susceptible of the strongest motives to liberate himself; such as the welfare of a wife and family, to whom he may be sincerely attached; the consciousness that he is degrading himself, alike in his own estimation, and in that of others; the prospect of inevitable ruin if he does not free himself from the trammels whose tenacity he feels to be daily augmenting: but he wants the *will* to make the effort. His friends reason with him, and he assents to everything they say; he makes the best possible resolutions to resist the temptation, and may even have enough self-command to keep himself out the way of it; but in an evil hour he accidentally meets some one in whose company he has been accustomed to the pleasurable indul-

gence; the attraction of the immediate gratification prevails over the prospect of future suffering to himself and those he loves; his good resolutions melt away like snow before the sun; and he adds one more to the melancholy list of victims to this terrible fascination. Now, since, on the Automatist theory, he cannot help yielding, he ought to incur no moral reprobation for doing so. He says to himself and to others, "I could not help it;" and society has a right to say to him, as the master says to his dog, "Then we must give you an additional motive to help it, by punishing you every time that you give way to the temptation." But the Free-will advocate says to him, "You know perfectly well that you *could* have helped it, in that earlier stage in which you felt perfectly free to choose between drinking and not drinking, and unthinkingly preferred the former. If a picture of the wretchedness you are now bringing upon others, the slavish degradation to which you are reducing yourself, had then been placed before you, you would either have recoiled from it with horror, or have refused to believe in its truth; for you would have said that you would certainly have pulled yourself up before you had fallen so low. But you have allowed yourself to sink, little by little; and you will find it far more difficult now to break away, than it would have been at first. But it is not yet too late. The struggle will be severe; but you *can* conquer if you *will*. And it rests with *yourself* to will. You have every possible motive of the highest kind on the one side, and nothing but the attraction of a selfish indulgence on the other. Be a man, and not a beast. Exert the power which you know and feel yourself to possess; keep your thoughts and affections steadily fixed upon the right; avoid the first step in the downward path; and when the moment of unexpected temptation comes, make a vigorous effort, determine to succeed, and you will come off victorious. And when you have once done so, you will feel a more assured conviction that you *can* do so again; each victory will make the next easier to you; and, by steady perseverance, you will re-acquire that power of self-direction which will enable you to keep straight without an effort."

I appeal to the experience of those who have had to deal with these sad cases, whether the latter is not practically the more effective.

When the patient can thus work out his own cure, he gradually recovers the volitional power, which had been weakened not merely by the habit of giving way, but by the specific effect of the alcohol (which it shares with other "nervine stimulants") upon his physical organization; and he comes at last to find the aggregate of moral deterrents *spontaneously* preponderating over the sensual attraction, instead of needing the intensification which they derive from *the determinate fixation of the attention upon them.*

A cure thus effected obviously has a much better chance of permanence, than any that could have been brought about by such external coercion as we use in the case of a dog or a young child. For this loses all potency as soon as its pressure is removed; whilst the re-acquirement of self-mastery gives to all the better part of the nature that legitimate predominance which it was well nigh losing, and enables it to assert itself whenever the occasion may arise.

The case appears to me to stand thus:—The Automatism of our nature (purely physical so far as the craving for alcohol is concerned, but including, in most cases, some play of social instincts) furnishes an aggregate of powerful attractions to the present gratification. On the other side is an aggregate of deterrents, which, when the the attention is fixed upon them in the absence of the attractive object, have a decided preponderance, so far as the *desires* are concerned. The slave of intemperance is often ready to cry out, "O wretched man that I am, who shall deliver me from the body of this death?"—and he proves his sincerity by his readiness to take every indirect precaution that does not interfere with his personal liberty. But when the temptation recurs, the force of the attraction is intensified by its actual presence; the direct sensory presentation makes a more vivid impression than the ideal representation of the deterrent motives; and the balance, which previously turned *against* the indulgence, now preponderates in favour of it. What, then, is it within the power of the Ego to do? On the automatist theory, *nothing*. For not only is he unable to call to his aid any motive which does not spontaneously arise, but he cannot make any alteration in the relative strength of the motives which are actually present to his consciousness. I affirm it, on the other hand, to be "the normal experience of healthy men," that we have the power of intensifying the motives which we know and feel *ought* to prevail, and of proportionally weakening the force of those which we know *ought not* to prevail; and that this power is exactly of the same kind as that by which we are continually enforcing our attention to a subject on which we desire to fix our thoughts, in spite of the counter-attraction which, without such effort, would draw them off to something else. If it be urged by the automatist that the persistence of our attention is really due to the superior strength of the motive which leads us to desire to do so, I reply that no experience I am conscious of is more real to me, than that if I did not *make an effort* to maintain my attention, the *desire* alone would fail to do it. I am further conscious that a great deal more is "taken out of me" (if I may use so colloquial an expression) by the prolongation of such a struggle, than by a far larger measure of continuous undistracted thought. And I ask why, on the Automatist theory, this should be?

In the wonderful experiment recently exhibited by Mr. Crookes (p. 945, note), the mechanical agencies of light and heat can be brought into mutual antagonism; for the wheel, which is being rapidly driven round by the action of the light of a neighbouring candle upon the black side of the discs it carries, is soon brought to a stand when one side of the glass globe that encloses it is heated with a spirit lamp; while its motion is renewed, the candle remaining where it was, as soon as the glass cools. This preponderance of one or the other force according to conditions purely physical, affords, on the determinist doctrine, a true scientific analogue of our own action. If the wheel could feel, and could tell us its feelings, it would say—"I was conscious of a force which drove me round in one direction, and I then became conscious of a stronger force, which overcame the first, and brought my rotation to a stand; but I had no more power over my own motion, than the aeronaut has when his balloon is spinning round on its axis."

Now, I submit that the Common Sense of mankind (by which, as I have explained on a former occasion, I mean the general resultant of its experiences) gives a very different account of the matter. Whatever allowances it may be ready to make for individual cases—such, for instance, as that of Hartley Coleridge, who was the victim of a strong hereditary predisposition, accompanied by a constitutional weakness of will—it recognizes as a fixed conviction, and consistently acts upon that conviction, that the incipient drunkard *has* a power over himself; that he can not only abstain if he chooses, but that he can choose to abstain, because he knows that he ought to do so; and that when, by voluntarily giving way to his propensity, he brings himself into a condition in which he is no more responsible for his actions than a lunatic, he is not thereby exempted from the penalty that may attach to them, but must be held responsible for having knowingly and deliberately brought himself into the condition of irresponsibility. On the Automatist theory, a drunkard who deserts a comfortable home for the tap-room (I make large allowance for those who have *un*comfortable homes), who neglects an attached wife and loving children for the society of profligates, and who, with ample means of higher enjoyment, surrenders himself without a struggle to the allurements of sensual pleasure, and at last renders himself amenable to the law by fatal outrage on the patient wife who has long borne with his brutality, is no more a subject of moral reprobation than poor Hartley Coleridge; who, when he strayed from the loving care of his friends, would be found in the parlour of some rural public-house, delighting the rustics with his wonderful stories, and indulging to his heart's content in the unlimited beer which the publican was only too glad to allow him.

When, on the other hand, the subject of a strong hereditary alcoholic craving maintains a daily conflict with his tempter, uses every means he can think of to avoid or weaken its seductions, and puts forth all his energy in resisting them, and, through occasional failures, comes off on the whole victorious, the Automatist can have no other approbation to bestow upon him than that which he would accord to a self-governing steam-engine, or a compensation-balance watch, each of which machines does merely that which its construction fits it for, and is no more meritorious for working "right," than a steam-engine without a governor, or a watch without a compensation-balance, is blamable for going "wrong." The welfare of that aggregate of automata which we call society, may require that every individual automaton shall be prevented from doing what is injurious to it; and punishment for offences actually committed may be reasonably inflicted as a deterrent from the repetition of such offences by the individual or by others. But it is a mistake to suppose that "right" means anything else than what is for the common benefit, or that "wrong" implies anything more than a something which tends to the general disadvantage. And all our aim will be, to bring the mechanism of each individual automaton, and the whole social machine, into the smooth and harmonious action which we witness in a hive of bees, in which each individual seems impelled to do that, and that only, which contributes to the well-being of the community at large; while in the prosecution of this aim we have ourselves no voice whatever; since we are nothing but "parts of the great series of causes and effects, which, in unbroken continuity, composes that which is, and has been, and shall be—the sum of existence."

Into such high philosophy I do not care to enter. It is like the "lunar politics" of Professor Huxley—a matter above, if not absolutely beyond, my ken; but that I have (1) a conscience, which recognizes a distinction between *right* and *wrong*, (2) a sense of duty, which prompts me to *do* the right and to *avoid* the wrong (*what* is right and *what* is wrong being a matter of individual judgment, in the formation of which there are a great many factors), and (3) a power, within certain limits, of *willing* that which I know I *ought* to do, are to me primal facts of consciousness, which are in themselves mutually coherent, which are consistent with all my own experiences, and which I believe to be accepted by mankind in general, whatever philosophers may say to the contrary. For the recognition of those facts seems to me to be evidenced by the universal use of terms whose accepted meaning must be altogether changed, if they do not imply the existence of a *choice* that is determined *by* the individual, and not *for* him: and it is not a little curious

to see how constantly even determinists make use of this language. I fully admit that in the act of deliberation which precedes the final choice and the action taken upon it, the *motives* are, in the first instance, entirely supplied by the automatism; and I also fully recognize the fact that the will can add nothing to the physical force which the automatism is capable of exerting. But my contention is that by *fixing the attention on the probable consequences* of the act, the will can modify the relative strength of the motives already present, and can call up new ones,—thus *determining the action of that force;* and I shall now suggest what seems to me the nearest approach that Physiology can at present furnish to a *rationale* of this determination.

The brain-change, which is admitted on all hands to be the condition of all interaction between the Ego and the external world, is itself conditioned by the supply of blood it receives; and that blood serves the double purpose of supplying by its nutritive material the *potential* energy, or *capacity* for functional activity, of every part of the mechanism, and of changing that potential into *actual* energy, by the destructive oxygenation of certain components of the brain-substance. For this latter purpose, a far larger supply of blood is needed than for the former: such a reduction of the calibre of the vessels as takes place during profound sleep, for example, suspends all active exercise of brain-power, and yet is consistent with that renovation of the exhausted organ which renders it capable of new activity; just as when, after the discharge of a powerful Leyden battery, it is re-charged by the continued turning of the machine-handle. Now, the control exercised over the calibre of the vessels of every part of the body, and consequently over the quantity of the blood they carry, by the nerves that ramify upon their muscular walls, is one of the most important facts established by modern physiological research; the phenomenon of "blushing," which was formerly regarded as exceptional, being now accepted as the visible type of a vast order of changes secretly going on in the penetralia of the system, which give physical expression to various states of mental feeling. Thus the nursing mother experiences a rush of blood to her breast, when her feelings are moved by hearing the cry of her babe, or even by the thought of its need. And the recent experiments of Dr. Ferrier have proved by ocular demonstration—what was antecedently probable on other grounds—that a great dilatation of the blood-vessels may take place in a certain limited part of the brain; and they further seem to me to indicate that a state of nervous tension may be induced by this *hyperæmia*, which rises to the degree of discharging itself in the special action of the part. If this be the case, the functional activity of any particular segment of the brain—one segment ministering to purely intellectual

operations, another to emotional conditions, another to the expression of mental states in bodily action; each of these segments again, consisting of vast numbers of components, groups of cells and fibres, which may act separately or in any variety of combinations—being determined by the supply of blood it receives, will depend upon the regulation of the calibre of its vessels by the vaso-motor nerves. And thus, whilst the whole amount of actual energy that can be put forth, whether in mental or muscular activity, is limited by the capacity of the mechanism and the amount of potential energy furnished by the blood-supply, the *direction* of that energy, its manifestation in one form of action rather than another, is determined by the influence exerted by the Ego upon the vaso-motor system of nerves. If, as all recent physiological inquiry seems to render probable, the desire to do a particular action is the mental expression of an active state of certain "ideational molecules," the desire may, on the other hand, be intensified by the determinate direction of our attention to the object, which increases the supply of blood; whilst, on the other hand, it may be weakened by the transfer of the attention to some different object, which, by augmenting the supply of blood to the part that ministers to the latter, diminishes that which previously flowed towards the seat of the former activity. Such changes, as Sir Henry Holland showed (in his valuable essay on the effect of Attention on bodily organs), have their parallels elsewhere. It is thus, as it seems to me, that we are able to fix our attention upon an internal train of thought (depending upon cerebral activity), to the exclusion of impressions that come to us through our external senses; the relative activity of what we may call the upper or the lower strata of the sensorium being determined by the supply of blood these strata respectively receive. It is thus, again, that we fix our attention upon one train of thought, one state of feeling, or one object of sense, to the exclusion of another of the same kind. And it is thus, in fine, that we call into activity the mechanism that expresses those thoughts or feelings in movement, or that we can repress tendency to that activity by our own determinate effort.

It may be replied by the Automatist, "I grant you all this; the will may act, as you say, through the vaso-motor system of nerves; but the will is itself conditioned by antecedent circumstances, and your *rationale* only carries us back a step further in the physiology of its exercise." This I fully admit; but at the same time I maintain that the view I have endeavoured to expound accounts for all those physiological facts which have been advanced to prove the automatism, pure and simple, of the bodily mechanism; by attributing to the will, not the creation, but the distribution of force, and thus giving it the power of regulating instead of producing the activity of the automatism. And

I find the evidence of this regulative power in that which is to myself the most real because the most immediate of my experiences, namely, my own Moral as well as Intellectual consciousness; in my conviction—not that I can always do what I choose to do (for this I am painfully conscious that in many instances I cannot)—but that I *can choose* to do what I feel I *ought* to do, in spite of a strong preponderance of attraction to the opposite; and that, in proportion to the power I have gained over my automatism by the *habit* of self-direction, in so far as my *âme* has trained my *bête* to obey its behests, in that proportion I am able, and therefore morally free, to do it. In proportion, on the other hand, as I habitually allow my *bête* to carry my *âme* where it likes, I find that I lose the power of making it go my own way; the automatic succession of thoughts and feelings assumes the predominance; and nothing but vigorous and persistent effort will enable the *âme* to succeed in recovering its former command. And while I affirm my own personal experience to be as trustworthy as that of others who declare themselves destitute of any power but that which conscious automata can exert, I can appeal to the common consciousness of Mankind in support of my position; whilst that of my opponents is sustained only by a philosophic creed, which, professing to be based on universal experience, excludes one large and most important department of experience.

The importance of the *habit* of self-direction in comparatively unimportant matters, as the key alike to intellectual attainment and to moral control, and as the means of acquiring the *power* of self-direction in those great crises of life in which its possession or its want proves our salvation or our ruin, can scarcely be overestimated. We see the results of its deficiency in those abnormal states, in which either its non-development or its suspension really makes the individual a thinking automaton, who can *not* be regarded as responsible for his acts. And hence, if it has a real existence, and is within the scope of human attainment, it should be the primal object of all education. As Dr. J. D. Morell has well said—

> "Theory and doctrine, and inculcation of laws and propositions, will never of themselves lead to the uniform habit of right action. It is by doing, that we learn to do; by overcoming, that we learn to overcome; by obeying reason and conscience, that we learn to obey; and every right act which we cause to spring out of pure principles, whether by authority, precept, or example, will have a greater weight in the formation of character than all the theory in the world."—*Outlines of Mental Philosophy*, p. 374.

With this one other consideration I will bring my argument to a conclusion. Agreeing as I do with my opponents, that the brain shapes itself in accordance with the use which is habit-

ually made of it, and that its Automatic action furnishes the motives which *prompt* the conduct, the function of the Will being to *determine* it,—I am all the more led to recognize the importance of those early influences, which lay a foundation for the good or the evil of our whole subsequent lives. Part of that training comes to us from others, and for that it is our parents and teachers who are responsible; but the most effective part of it is that which we give to ourselves, when we choose what use we shall make of our opportunities, form our own habits of thought, and settle our own principles of action. It is then that we sow what will come up either as a harvest of wholesome nourishment to the spiritual part of our nature, or as a growth of noxious weeds which inflame the "fleshly lusts that war against the soul." And it is then that we lay up in our inner chambers those accumulations of good or evil tendencies which shape our future course in life; helping us, as with the hand of an Angel whom we have entertained unawares, when we are earnestly striving to "turn to the right and keep straight on;" or dragging us downward, as with the grasp of a Nemesis, towards the lowest depths of selfishness and sensuality, when we have knowingly allowed ourselves to take the first steps in the *facilis descensus Averni.*

Addendum.

[It is with much satisfaction that I find the views above expressed to be in complete accordance with those which have been developed in the "Psychologie Naturelle" of M. Prosper Despine,—a laborious and able study from nature of the mental mechanism of crime. Admitting the doctrine of Automatism as the spring of by far the larger part of human action, and limiting the agency of the Will to those cases which are distinguished by the sense of effort that marks the struggle between the wrong desire and the sense of duty, the self-approval which follows success, and the self-reproach which ensues upon a failure to do what we feel that we might and ought to have done, M. Despine looks upon a very large proportion of Criminals as "moral idiots," devoid of the ordinary moral instincts; affirming that they have no struggle beforehand, except that of purely selfish motives, that they have no true remorse for their guilt, and that their apparent repentance is nothing but fear of the future suffering with which they are threatened. But none the less does he recognize the possession by the normal Man of a self-determining power, which he considers himself to have demonstrated

by the investigations which have shown the consequences of its deficiency. And Dr. Oliver Wendell Holmes, to whose recent notice of M. Despine's work I am indebted for this statement of his conclusions, remarks that "even if the destructive analysis of our new schoolmen threatens to distil away all we once called self-determination and free-will, leaving only a *caput mortuum* of animal substance and 'strongest motive,' we need not be greatly alarmed. For the *belief* in a power of self-determination, and the idea of possible future remorse connected with it, will still remain with all but the moral incapables—and the Metaphysicians; and this belief can be effectively appealed to, and will furnish a 'strongest motive,' readily enough in the greatest majority of cases."]

W. B. CARPENTER.