

Cambridge University Press  
978-1-108-02354-2 - Physics and Politics  
Walter Bagehot  
Excerpt  
[More information](#)

---

# PHYSICS AND POLITICS.



No. I.

## *THE PRELIMINARY AGE.*

ONE PECULIARITY of this age is the sudden acquisition of much physical knowledge. There is scarcely a department of science or art which is the same, or at all the same, as it was fifty years ago. A new world of inventions—of railways and of telegraphs—has grown up around us which we cannot help seeing ; a new world of ideas is in the air and affects us, though we do not see it. A full estimate of these effects would require a great book, and I am sure I could not write it ; but I think I may usefully, in a few papers, show how, upon one or two great points, the new ideas are modifying two old sciences—politics and political economy. Even upon these points my ideas must be incomplete, for the subject is novel ; but, at any rate, I may suggest some conclusions, and so show what is requisite even if I do not supply it.

B

If we wanted to describe one of the most marked results, perhaps the most marked result, of late thought, we should say that by it everything is made 'an antiquity.' When, in former times, our ancestors thought of an antiquarian, they described him as occupied with coins, and medals, and Druids' stones; these were then the characteristic records of the decipherable past, and it was with these that decipherers busied themselves. But now there are other relics; indeed, all matter is become such. Science tries to find in each bit of earth the record of the causes which made it precisely what it is; those forces have left their trace, she knows, as much as the tact and hand of the artist left their mark on a classical gem. It would be tedious (and it is not in my way) to reckon up the ingenious questionings by which geology has made part of the earth, at least, tell part of its tale; and the answers would have been meaningless if physiology and conchology and a hundred similar sciences had not brought their aid. Such subsidiary sciences are to the decipherer of the present day what old languages were to the antiquary of other days; they construe for him the words which he discovers, they give a richness and a truth-like complexity to the picture which he paints, even in cases where the particular detail they tell is not much. But what here concerns me is that man himself has, to the eye of science, become 'an antiquity.' She tries to read, is beginning to read, knows she ought to read, in the frame

of each man the result of a whole history of all his life, of what he is and what makes him so,—of all his forefathers, of what they were and of what made them so. Each nerve has a sort of memory of its past life, is trained or not trained, dulled or quickened, as the case may be ; each feature is shaped and characterised, or left loose and meaningless, as may happen ; each hand is marked with its trade and life, subdued to what it works in ;—*if we could but see it.*

It may be answered that in this there is nothing new ; that we always knew how much a man's past modified a man's future ; that we all knew how much a man is apt to be like his ancestors ; that the existence of national character is the greatest commonplace in the world ; that when a philosopher cannot account for anything in any other manner, he boldly ascribes it to an occult quality in some race. But what physical science does is, not to discover the hereditary element, but to render it distinct,—to give us an accurate conception of what we may expect, and a good account of the evidence by which we are led to expect it. Let us see what that science teaches on the subject ; and, as far as may be, I will give it in the words of those who have made it a professional study, both that I may be more sure to state it rightly and vividly, and because—as I am about to apply these principles to subjects which are my own pursuit—I would rather have it quite clear that I have not made my premises to suit my own conclusions.

1st, then, as respects the individual, we learn as follows :

‘ Even while the cerebral hemispheres are entire, and in full possession of their powers, the brain gives rise to actions which are as completely reflex as those of the spinal cord.

‘ When the eyelids wink at a flash of light, or a threatened blow, a reflex action takes place, in which the afferent nerves are the optic, the efferent, the facial. When a bad smell causes a grimace, there is a reflex action through the same motor nerve, while the olfactory nerves constitute the afferent channels. In these cases, therefore, reflex action must be effected through the brain, all the nerves involved being cerebral.

‘ When the whole body starts at a loud noise, the afferent auditory nerve gives rise to an impulse which passes to the medulla oblongata, and thence affects the great majority of the motor nerves of the body.

‘ It may be said that these are mere mechanical actions, and have nothing to do with the acts which we associate with intelligence. But let us consider what takes place in such an act as reading aloud. In this case, the whole attention of the mind is, or ought to be, bent upon the subject-matter of the book ; while a multitude of most delicate muscular actions are going on, of which the reader is not in the slightest degree aware. Thus the book is held in the hand, at the right distance from the eyes ; the eyes are moved, from side

to side, over the lines, and up and down the pages. Further, the most delicately adjusted and rapid movements of the muscles of the lips, tongue, and throat, of laryngeal and respiratory muscles, are involved in the production of speech. Perhaps the reader is standing up and accompanying the lecture with appropriate gestures. And yet every one of these muscular acts may be performed with utter unconsciousness, on his part, of anything but the sense of the words in the book. In other words, they are reflex acts.

‘The reflex actions proper to the spinal cord itself are *natural*, and are involved in the structure of the cord and the properties of its constituents. By the help of the brain we may acquire an affinity of *artificial* reflex actions. That is to say, an action may require all our attention and all our volition for its first, or second, or third performance, but by frequent repetition it becomes, in a manner, part of our organisation, and is performed without volition, or even consciousness.

‘As everyone knows, it takes a soldier a very long time to learn his drill—to put himself, for instance, into the attitude of ‘attention’ at the instant the word of command is heard. But, after a time, the sound of the word gives rise to the act, whether the soldier be thinking of it or not. There is a story, which is credible enough, though it may not be true, of a practical joker, who, seeing a discharged veteran carrying home his dinner, suddenly called out ‘Attention!’ whereupon

the man instantly brought his hands down, and lost his mutton and potatoes in the gutter. The drill had been gone through, and its effects had become embodied in the man's nervous structure.

‘The possibility of all education (of which military drill is only one particular form) is based upon the existence of this power which the nervous system possesses, of organising conscious actions into more or less unconscious, or reflex, operations. It may be laid down as a rule, that if any two mental states be called up together, or in succession, with due frequency and vividness, the subsequent production of the one of them will suffice to call up the other, and that whether we desire it or not.’<sup>1</sup>

The body of the accomplished man has thus become by training different from what it once was, and different from that of the rude man; it is charged with stored virtue and acquired faculty which come away from it unconsciously.

Again, as to race, another authority teaches:—‘Man's life truly represents a progressive development of the nervous system, none the less so because it takes place out of the womb instead of in it. The regular transmutation of motions which are at first voluntary into secondary automatic motions, as Hartley calls them, is due to a gradually effected organisation; and we may rest assured of this, that co-ordinate activity

<sup>1</sup> Huxley's *Elementary Physiology*, pp. 284–286.

always testifies to stored-up power, either innate or acquired.

‘The way in which an acquired faculty of the parent animal is sometimes distinctly transmitted to the progeny as a heritage, instinct, or innate endowment, furnishes a striking confirmation of the foregoing observations. Power that has been laboriously acquired and stored up as statical in one generation manifestly in such case becomes the inborn faculty of the next; and the development takes place in accordance with that law of increasing speciality and complexity of adaptation to external nature which is traceable through the animal kingdom; or, in other words, that law of progress from the general to the special in development which the appearance of nerve force amongst natural forces and the complexity of the nervous system of man both illustrate. As the vital force gathers up, as it were, into itself inferior forces, and might be said to be a development of them, or, as in the appearance of nerve force, simpler and more general forces are gathered up and concentrated in a more special and complex mode of energy; so again a further specialisation takes place in the development of the nervous system, whether watched through generations or through individual life. It is not by limiting our observations to the life of the individual, however, who is but a link in the chain of organic beings connecting the past with the future, that we shall come at the full truth; the

present individual is the inevitable consequence of his antecedents in the past, and in the examination of these alone do we arrive at the adequate explanation of him. It behoves us, then, having found any faculty to be innate, not to rest content there, but steadily to follow backwards the line of causation, and thus to display, if possible, its manner of origin. This is the more necessary with the lower animals, where so much is innate.’<sup>1</sup>

The special laws of inheritance are indeed as yet unknown. All which is clear, and all which is to my purpose is, that there is a tendency, a probability, greater or less according to circumstances, but always considerable, that the descendants of cultivated parents will have, by born nervous organisation, a greater aptitude for cultivation than the descendants of such as are not cultivated; and that this tendency augments, in some enhanced ratio, for many generations.

I do not think any who do not acquire—and it takes a hard effort to acquire—this notion of a transmitted nerve element will ever understand ‘the connective tissue’ of civilisation. We have here the continuous force which binds age to age, which enables each to begin with some improvement on the last, if the last did itself improve; which makes each civilisation not a set of detached dots, but a line of colour, surely enhancing shade by shade. There is, by this doctrine, a physical cause of improvement from generation to generation:

<sup>1</sup> Maudsley on the *Physiology and Pathology of the Mind*, p. 73.



and no imagination which has apprehended it can forget it; but unless you appreciate that cause in its subtle materialism, unless you see it, as it were, playing upon the nerves of men, and, age after age, making nicer music from finer chords, you cannot comprehend the principle of inheritance either in its mystery or its power.

These principles are quite independent of any theory as to the nature of matter, or the nature of mind. They are as true upon the theory that mind acts on matter—though separate and altogether different from it—as upon the theory of Bishop Berkeley that there is no matter, but only mind; or upon the contrary theory—that there is no mind, but only matter; or upon the yet subtler theory now often held—that both mind and matter are different modifications of some one *tertium quid*, some hidden thing or force. All these theories admit—indeed they are but various theories to account for—the fact that what we call matter has consequences in what we call mind, and that what we call mind produces results in what we call matter; and the doctrines I quote assume only that. Our mind in some strange way acts on our nerves, and our nerves in some equally strange way store up the consequences, and somehow the result, as a rule and commonly enough, goes down to our descendants; these primitive facts all theories admit, and all of them labour to explain.

Nor have these plain principles any relation to the

old difficulties of necessity and freewill. Every Freewillist holds that the special force of free volition is applied to the pre-existing forces of our corporeal structure; he does not consider it as an agency acting *in vacuo*, but as an agency acting upon other agencies. Every Freewillist holds that, upon the whole, if you strengthen the motive in a given direction, mankind tend more to act in that direction. Better motives—better impulses, rather—come from a good body: worse motives or worse impulses come from a bad body. A Freewillist may admit as much as a Necessarian that such improved conditions tend to improve human action, and that deteriorated conditions tend to deprave human action. No Freewillist ever expects as much from St. Giles's as he expects from Belgravia: he admits an hereditary nervous system as a *datum* for the will, though he holds the will to be an extraordinary incoming 'something.' No doubt the modern doctrine of the 'Conservation of Force,' if applied to decision, is inconsistent with free will; if you hold that force 'is never lost or gained,' you cannot hold that there is a real gain—a sort of new creation of it in free volition. But I have nothing to do here with the universal 'Conservation of Force.' The conception of the nervous organs as stores of will-made power does not raise or need so vast a discussion.

Still less are these principles to be confounded with Mr. Buckle's idea that material forces have been the