

HUMAN PENDULUM—A PLAUSIBLE HYPOTHESIS

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(The human life is compared with a pendulum. A drug or a disease can set it in motion. The vital force provides its force of restitution.)

A pendulum has got some special meaning to scientists; we understand by it something which moves to and fro or up and down. As for example, a small piece of stone when suspended by a long thread from a rigid support forms a pendulum. It swings to and fro like the pendulum of a clock. A test-tube containing some sand or a little amount of mercury, when made to float on water, forms a pendulum. When slightly dipped into water and then let go, it oscillates up and down. To cite one more example, let us take a spring fastened rigidly from a support, with its lower end attached to a load. When the load is slightly pulled down by the application of a force, another force appears insidiously within the system. This is known as the elastic force which on withdrawal of the external force tries to restore the load to its normal position and as a result the oscillations take place. But these oscillations soon die down on account of the viscosity of air and other dissipative factors and the load comes to its original position. This is commonly called 'damping' of the oscillations. The development of the elastic force, which is the cause of these oscillations, is automatic and it is the nature of all material bodies to develop this elastic force when some external force is applied to deform it. According to Newton's third law of motion, the external force is the action and the elastic force is the reaction. They act in opposite directions. Here the action pulls the load downward and the reaction pushes it up.

The human body is also like a pendulum in a sense. It does not move to and fro or up and down like a pendulum. But it shows changes in a particular direction and the next moment in the opposite direction when some stimulus is given. This is like oscillations, we may say comparingly. (1) A hand dipped in warm water feels hotter than the other hand. But when it is taken out and soaked dry it feels colder. Let us do the reverse thing. (2) When a hand is kept in very cold water it feels colder; then when it is taken out it feels hotter and sometimes so hotter that it develops some inflammation. (3) In excessive labour we feel hot; but after some time we get tired and cold and need some stimulant drink. (4) When we take opium we sleep deeply for some time after which sleeplessness prevails for days together. (5) Another action of opium is that it produces constipation after which diarrhoea ensues. (6) It is a common experience that after the action of the purgatives is over constipation sets in¹.

Though we have given only six examples, these are many more which

show action and reaction produced in a human body when it is acted on by some external force in the form of drugs, etc. The reaction developed in the body is due to what is called 'vital force', of which we know very little. This 'vital force' is comparable to the elastic force of the spring-pendulum described earlier. It always acts in the opposite direction whenever our body falls prey to the influence of some external agent such as the action of some drug or the affliction of some disease. It is the restoring force which always tends to keep us in normal health as the binding force always tries to keep an electron in its position in the atom, or as the elastic force of the spring-pendulum tends to keep the load in its equilibrium position. The ancient Greek and Indian philosophers believed in the existence of this 'vital fore'.

In all the six examples cited above the 'human pendulum' moves once in one direction and then in the reverse direction. There is however no repetition of this to-and-fro motion. Though there are certain cases in which we see a faint 'swing-back' or a third beat in the direction of the first beat, its absence decidedly suggests that the vibrations of the 'human pendulum' are strongly damped. This damping plays an important role in determining the time of recovery from illness. The lesser the damping the greater is the time required by the pendulum to return from its disturbed position to its equilibrium state. This equilibrium state corresponds to healthy state in the case of human pendulum.

The pendulum-action of the human body is not always seen. Very many drugs never produce oscillations. This is perhaps because we are not familiar with the reverse of certain feelings or states. To make the matter clear let us take the case of a drug which produces pain in our body. Since the feeling opposite to pain is not known to us, we do not see the oscillation in the reverse direction. In these cases, we see only one half of the oscillations.

So far we have been talking of the situations in which the pendulum is pushed into motion from its initial position of rest. Let us examine the action of an external force on an already moving pendulum. This is a complicated problem of forced oscillation. There are two alternatives. Its motion either gets accelerated or slowed down depending on whether the external force is applied in phase or out of phase with the pendulum. In this situation it is difficult to distinguish the action of the force from the reaction of the pendulum. That is why we see, instead of constipation, diarrhoea produced as the action of opium in some cases, after which, of course, constipation follows². Here the 'drug-force' is applied on the 'human pendulum' already in motion.

Now let us see how medicines act in curing diseases. We imagine a simple case of a disease. It is like the spring-pendulum stuck off at some point in course of its oscillations by an obstacle. The vital force is active; but it is equal to the force exerted by the obstacle and therefore the pendulum stays there displaced from its mean position of rest, in any one of the two directions—up and down. We apply the medicine now which displaces the

pendulum more in the direction in which it is already displaced. The 'vital force' gets a 'boost up' since it is proportional to the displacement and the force of the obstacle is overpowered. As a result the spring comes to its position of rest. This is how homoeopathic medicines act. Alternatively, we may apply a medicine whose action is to displace the pendulum oppositely to the direction in which it is already displaced. There is a probability of the spring being flung out of the grip of the obstacle, and then it comes to its position of rest. This is the mode of action of the antipathic medicines. Here the drug force acts in the direction of the vital force and in the former case against it. This is a very simple picture of a disease. Actually the 'disease-force' acts in a complicated manner on the 'human pendulum'. The vital force is absolutely essential for the homoeopathic medicines to effect a cure, whereas the antipathic medicines may not require the help of the vital force.

In the light of the above discussions, we may specify some areas of incurability by the application of homoeopathic medicines. If we take the example of the spring-pendulum again we see there is a maximum limit (elastic limit) to its displacement; if the spring is stretched beyond this limit it is stretched for good, it never comes back to its position of rest. In this case, the external stretching force exceeds the restoring force. Similarly, if the 'drug-force' or any 'disease-force' acting on a 'human-pendulum' exceeds the vital force, death is the only result. It is like an electron in an atom knocked out by a force which is greater than the binding force due to the nucleus. There is another case. Suppose a 'disease-force' has displaced the 'human-pendulum' very near to the elastic limit but not beyond it. If now a well-selected homoeopathic medicine is applied, its action will increase the displacement and thus the elastic limit may be crossed resulting in death. This is actually what happens in the advanced stages of tuberculosis, Bright's disease, cancer, gout, etc. Here the antipathic medicines may be considered advantageously.

Though a human being is here compared with a pendulum in a gross manner there are certain finer elements of the vital dynamics where the comparison becomes very difficult. Besides, the frequency of oscillations, the causes of damping and mode of actions of the drug-force and the disease-force require further investigations.

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