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1933
The Minutes of the Meeting of May 22nd were read, confirmed, and signed, and the Hon. Secretary announced the election of the Rev. C. R. Anderson as an Associate.

The President, Sir Ambrose Fleming, then presented the Langhorne Orchard Prize, 1933 (Cheque for £20 and a Silver Medal) to Thomas Fitzgerald, Esq.

The Chairman then called on the President, Sir Ambrose Fleming, D.Sc., F.R.S., to deliver the Annual Address, entitled "Free Will versus Determinism."

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**ANNUAL ADDRESS.**

**FREE WILL VERSUS DETERMINISM.**

By Sir Ambrose Fleming, F.R.S. (President).

1.—The Problem Stated.

Bearing in mind that The Victoria Institute has also the title The Philosophical Society of Great Britain I think we are not only justified but even obliged to turn our thoughts occasionally to philosophical questions, especially those which have implications in the sphere of religious beliefs.

There is one question complying with the above condition which has been the subject of countless discussions in books and essays, namely, the enquiry as to the freedom of the human Will, or power of spontaneous choice as against Determinism or necessity.
In spite of the abundant consideration it has already received, I think, however, I may draw your attention to it to-day for a brief period, because it has acquired some additional importance from its close connection with a recently enunciated scientific Principle of Indeterminacy, further reference to which will be made presently.

The science of the nineteenth century had as one item in its creed a belief in the universal reign of law, and that all physical events were in direct and necessary causal relation to previous events, and as a consequence that the state of the Universe in the future is absolutely determined by its state in the present and past.

It held that every physical event must have a physical and sufficient cause. Hence any unrelated events or miracles or physical events quite disconnected from all previous physical events were ruled out and deemed to be impossible.

The same causal connection was considered by some philosophers to hold good in the world of mind. Every action of a human being was held to be prompted by some motive, and that when motives conflicted the strongest motive was the one which determined the action.

There is, however, at the back of our minds a deep-seated feeling that we have in some way the power to act against a motive which would otherwise bring about a certain result or to preferentially select one motive rather than another out of two alternatives. Thus, for instance, you may have some reason or motive for remaining in this room at the present moment, but we all feel that we can, if we choose, get up and walk out of it.

We might perform such action merely from the desire to show that we have freedom of choice or Free Will. But then the determinist would point out that the desire to prove that our Will is free is in itself a motive. When, then, we come to consider our actions carefully we find there is always some motive based on desire, emotions, or purposiveness, even if that motive is only the desire to act arbitrarily to show that we have no motive. An old writer says, tell me which leg I shall move first when I start to walk and I will prove you wrong by moving the other one. Hence the logical victory appears always to be on the side of determinism, namely, that we are always moved by some motive which determines that action. That motive is not always some influence outside of ourselves. It may arise from our past experience preserved to us by memory. We avoid doing certain
things or do others because we remember that the consequences of our choice in past times involved us in some trouble or produced some disagreeable result.

We have also the power of picturing to ourselves certain situations and imagining how we should act and feel when placed in them. Nevertheless, whilst we recognize the invariable presence of some motive in all actions we have a strong conviction that in some way or another we can choose, select, or give weight to one motive rather than another, and it is by this power that we are differentiated from mere machines.

We have then to consider how this power of choice arises and whether indeed we actually possess it, and are not self-deceived in thinking we have it, and under what conditions it acts, or on the other hand how far we are justified in thinking that all actions are determined. Hence arises what is called the problem of Free Will, or as it is better to call it freedom of choice or self-originated choice.

2.—The Moral Law.

There is an unquestionable necessity for regulation of conduct or for a Moral Law in the Universe of Self-Conscious Minds, just as in the physical Universe there is need for certain general principles which result in stability or permanence.

When Newton's Law of Universal Gravitation had been formulated and a proof of its truth rendered evident by the manner in which it was found to account for the motions of the planets the question was raised whether the mutual actions of the planets in the solar system would produce such accumulated disturbances as to result in the destruction of the system. In short was the Solar system like a badly-designed machine which would pull itself to pieces or was it like a well-designed ship, stable amidst the tossing waves of a stormy sea?

The investigations of great astronomers showed that there were such general principles or controlling influences at work as to make our planetary system a stable or permanent structure.

The same requirement is evident in the spiritual and self-conscious world of minds. It is clear that a permanent and stable society cannot be built up on general dishonesty, general untruthfulness, breaking of agreements, or unlimited violence. It would crash to ruin like an ill-designed piece of machinery. Hence the necessity for a moral law.
The Evolutionist would say, therefore, that the moral law is the outcome or result of the fact that Man is a social animal and lives in communities, and that fact implies that there are things which conduce especially to the welfare of the community. The individual has to sacrifice some freedom of action for the benefit of the group. Hence arise rules and laws which the individual must obey. But although this theory may explain the lower levels of morality where the commandments are chiefly negative, such as Thou shalt not steal, Thou shalt not bear false witness, and so on, it fails to give any adequate explanation of the higher levels of the moral law where the injunctions are not merely to refrain from injury but to do positive good. Thou shalt love thy neighbour as thyself. To him that knoweth to do good and doeth it not to him it is sin. Moreover, it fails absolutely to give any explanation of that part of the moral law which concerns the relation, not of man to man, but of man to his Creator. Hence the Theist rejects altogether the evolutionary explanation of the moral law but regards it as the expression of the Divine authority which intends an order in the world of Mind as in the world of Matter. From the order, adaptation and beauty in the material world we draw conclusions that it is the result of a Supreme Intelligence and from the majesty of the moral law we can also infer that it is the outcome of the Will of a Holy Person.

3.—The Moral Law Implies Freedom of Choice and a Moral Sense.

The moral law, however, implies freedom of choice. If it says to me I "ought" to do or not to do certain things, then that implies that I "can" do them or refrain from doing them, and also that I may perhaps not comply. If the moral law forbids dishonesty, that implies that both honesty and dishonesty are possible. There would be no meaning in saying Thou shalt not steal, if men were under compulsion to steal, nor if they could not possibly steal even if they desired it. Hence the moral law implies freedom of choice and its language is quite inapplicable to mere machines. The compliance with the moral law we call "doing right" and non-compliance we call "doing wrong."

We cannot, however, use these words "right" and "wrong" except in a metaphorical sense of mere machines. We cannot say, for instance, that our motor "did wrong" to break down
on a journey and cause us to lose an appointment, but we can say that a messenger-boy did wrong to play or loiter when sent on a message and cause someone to miss an important engagement. We cannot praise a planet for keeping to its orbit. It cannot deviate a hair's breadth from the path fixed for it by the gravitational force acting on it and its own inertia. Hence the existence of the moral law and all the words and phrases used in connection with it such as "right" and "wrong" "praise" and "blame," "sin" and "holiness," all imply, and are meaningless without, the power on our part to choose, within limits, our actions.

The moral law, however, not merely offers us a choice but it makes an appeal to a certain sense within us of the obligation to choose in one way rather than another. In other words there is a sense of "oughtness" in us.

Corresponding to every external influence that acts upon us there is a certain organ of sensibility or a responsive faculty. Corresponding to light, there is the eye and vision; corresponding to aerial sound waves there is the ear and the sensations of sound. So corresponding to the injunctions of the moral law to do or refrain from certain things there is in us a moral sense or sense of "oughtness." This is something beyond or quite outside of fear or punishment or other consequences although it may take them into account, and it exists even when our disobedience to the moral law is known only to ourselves and not to our fellow-men.

The moral law makes itself known to us, and also its appeal to comply with it by three avenues. First, in the categorical imperative, as Immanuel Kant calls it, of the human conscience.

Bishop Butler, the author of Butler's "Analogy of Religion," in one of his sermons on Human Nature declares that: "Conscience unless forcibly stopped magisterially exerts itself and always goes on to anticipate a higher and more effectual sentence which shall hereafter second and confirm its own."

The most profound thinkers such as Shakespeare have been of opinion that these faint admonitions of conscience are not the result merely of human conventions or tribal instincts or concentrated results of acquired human experience, but are in some way whispers from the mouth of the Author of the Moral Law.

Then in the next place we are given in the literature we call the Bible not only the most complete enunciation of the moral law but illustrations in actual, vivid, and veracious biographies of the results of compliance or non-compliance with it.
Lastly, in the narratives of one absolutely perfect human life we are shown in its full brilliancy the beauty of holiness and the infinite perfection of a life in all respects absolutely obedient to the utmost demands of the moral law.

It is abundantly clear therefore that such words as "freedom of choice," "free will," "moral responsibility," are not merely phrases of speech but correspond to definite and certain facts.

4.—**Freedom of Choice or Free Will is the Essential Characteristic of Rational Life.**

At this point it will be necessary to define a little more carefully what is meant by the terms free will or freedom of choice and determinism.

We have already noted that all the actions of living beings are brought about by some motive, which is a desire, emotion, appetite or urge. If there are more than one motive which conflict, one of these may predominate. It is very rare for two motives to be so equal and opposite that no action can occur, and as regards human beings it would then often be the case that an appeal would be made to chance by drawing lots or tossing a coin.

The characteristic of the actions of living agents is that we cannot exactly predict the manner in which they will react under given conditions. We can, however, in general do this for the actions of non-living matter. Thus, for instance, if a number of objects such as stones, bullets, pieces of wood, corks, etc., are thrown into water some of them will sink and some will float on the surface. Their action is entirely determined by their density or specific gravity. Those which are more heavy than an equal bulk of water will sink and those which are less heavy will float. We can predict exactly from a knowledge of the density what a certain object will do when thrown into water or other fluid.

Also we know the forces acting on a celestial body such as the moon, and we can predict where it will be at any future time, and our forecast is verified by eclipses happening at the predicted time. The result is therefore absolutely determined. But we cannot do this for the conduct of a living agent nor for the action of a human being under the action of mental, moral, or spiritual motives. It is not the absence of motive which constitutes free will but the possible variability in the reaction to those motives. If he yields or responds to a certain motive it
is not necessarily because that motive in itself is most powerful. It is because all his previous choices, past experience, training and disposition have made him more sensitive to one kind of motive or influence than another.

It is very much the same with certain physical operations. A photographic plate is sensitive to light. But the action depends not merely on the nature of the light but on the preparation of the plate. One plate may be most sensitive to violet light. Another prepared in a different way to red light. The problem of free will has sometimes been presented as if the individual made an arbitrary choice of actions without any sufficient motive and many philosophers have then rejected that interpretation because it seemed to violate the fundamental postulate of all philosophy, viz., that every event must have a sufficient cause.

A much more satisfactory mode of viewing the question is that when one or more motives to action present themselves to us there is at first a hesitation or resistance to them which may be very brief, only a second or two or very prolonged. This depends on our previous experience that although we can respond to a motive we have a very limited power of foretelling what the resultant consequences of such response may be.

The amount of resistance we offer to any motive will depend upon our past experience and training and especially upon the physiological fact that actions or processes tend to become more easy by repetition. If a thing is done in one way it will be slightly more easy to do it next time in the same way and more difficult to do it in a different way.

The same applies to the mental resistance to any motive. At a certain point, however, there is a yielding or cessation of resistance, and then the motive influence exerts itself in producing a corresponding action.

A person, for instance, may be presented with some opportunity of a dishonest action. In general there would be a strong resistance to this for various reasons. If, however, that person had previously or often yielded to influences inviting small acts wanting in strict honesty his power of resistance to such inducements would be weakened and he might therefore yield. Hence what is commonly called the exercise of free will is usually a cessation of resistance to some motive rather than an arbitrary selection of one out of several courses of action. The "responsibility" consists in this yielding or ceasing to resist. If, however,
it is often repeated under the same class of motive it becomes confirmed into an almost automatic response. Hence the saying: Sow an act and you reap a habit, Sow a habit and you reap a character, Sow a character and you reap a destiny. This process, however, is something quite different from enforced or mechanical compulsion.

In one of his Essays ("Lay Sermons," p. 340) T. H. Huxley says:

"I protest that if some great Power would agree to make me always think what is true and do what is right on condition of being turned into a sort of clock and wound up every morning before I got out of bed, I should instantly close with the offer. The only freedom I care about is the freedom to do right. The freedom to do wrong I am ready to part with on the cheapest terms to anyone who will take it of me."

It is curious that so acute a thinker as T. H. Huxley did not see that if he was changed into a sort of machine the words "right" and "wrong" would have no application to him at all, and that as a piece of mechanism he would sink immeasurably in the order of Creation below that of a being gifted with the power of choice, and being gradually trained to use it rightly.

From the foregoing remarks as to the nature of the response we make to various motives, the importance of early training is obvious. What is required is to increase the mental and spiritual resistance to motives which are inimical to mental and spiritual health.

The conditions with regard to the health of the soul are very closely analogous to those with regard to the body. We succumb to certain morbid influences when the bodily resistance has been decreased in any way. We "take cold" not merely or simply by reason of the exposure to low temperatures, but because the bodily resistance is reduced by a chill and we then fall a prey to certain septic organisms or microbes in us or in the air.

Numerous cases exist, however, in which no question of right and wrong arises but merely conflicting motives of inducements for or against certain actions; in such matters as choice of a residence or business, direction of a journey or countless other things. We never act in these matters without some motive, but we endeavour to review the relative advantages or disadvantages of each course.

People who are called impulsive act without sufficient consideration, and those with so-called bad judgment act on in-
sufficient information. There is, however, a resultant or residual effect which finally determines action.

It is probably this power of mentally forecasting possible consequences of any action or at least trying to do it which is a particularly human characteristic and one not possessed by animals.

In this balancing and estimating the probable results of action we call upon our own past experience or that gathered by others and communicated to us and by such influences as fashion, and natural disposition or taste, or our resources.

5.—Free Will is Essential for All True Companionship or Affection.

It is the uncertainty of response or reaction which is the essential characteristic of free choice that alone renders the pleasures of companionship possible. We can have this intercourse with our fellow-creatures or with some of them. We can have it in a very limited degree with the higher animals such as dog or horse, but we cannot have it in any degree whatever with a machine.

The pleasure of any companionship arises when the desires or emotions of two individuals are similar and spontaneous. It is killed at once by any compulsion or rigid determination. Hence this power of free or selective choice is the only possible basis on which man can have communion with his Maker, and for which reason it was imparted to him.

This explains one of the difficulties many people feel with regard to the presence of evil in the world and how it can be consistent with the Infinite Goodness of God. The answer to that question is, I think, that we cannot have present at the same time two states or effects that are contradictory.

A thing can exist or not exist, but it cannot both exist and not exist at the same instant. If we have in any degree the power of free-choice it is impossible that every action should be necessarily and absolutely pre-determined or forced. If, however, there is free choice in the human being then that choice may be exercised by us in a manner out of accordance with or opposed to that of the Divine Choice or else the agent would not be free. Accordingly the presence of evil is an essential consequence of free will in created beings. But the question how it is overruled without bringing in absolute determination is a question too large to be discussed in this short Address.
6.—The Principle of Indeterminacy in Physics.

This is the place to refer to the principle of Indeterminacy pointed out by a German physicist, Dr. W. Heisenberg, in 1927. It is as follows: He has shown that we cannot determine both the position and the energy of a single atom or electron in imagination far less in fact. For if the atom can have its exact position determined then it must be at that moment at rest and we then cannot say what its motion and therefore its energy will be when it moves. Again, if it is in motion we cannot know what is its exact position; for motion implies continual change of position. Hence for single atoms we cannot predict their future condition as we cannot know exactly their present condition.

We cannot therefore predict the future condition or position of single atoms. They have as it were the uncertainty and wilfulness of living things. Nevertheless for a large number of atoms in a mass of measurable size the uncertainties of single atoms cancel out and within the limits of measurements we can make we can predict very nearly their future as a whole.

We can, for instance, predict the position of the moon for any future time and so foretell eclipses. It is very much the same with human life. A single life is uncertain as regards duration. But the Life Insurance Corporations who have statistics derived from observations of hundreds of thousands of lives can foretell very accurately the expectation or average duration of any life at a certain age.

As regards atoms the inference from the Principle of Indeterminacy is that our so-called laws of physics are only statistical laws. They are true for the average of a very large number of atoms but not for single atoms.

The same curious fact of freedom with regard to the single unit and determination as regards a large number is seen in other scientific phenomena. If a wafer were put on a large target and a single rifle shot fired at it by a marksman, no one could say where that bullet will hit the target. If the wafer was removed no one could say what was the point aimed at. If, however, 1,000 shots were fired by marksmen of equal average skill the bullet marks would be arranged according to a certain law, viz., that the sum of the squares of all the distances of the bullet marks from the wafer was less than if the wafer were changed to any other position. Hence if the wafer was removed we could say what was the point aimed at. This freedom of the individual
combined with determination for the multitude explains many other known facts.

7.—The Problem of Free Will in Relation to Theology.

The great practical importance of the question of freedom of the Will or freedom of choice comes in relation to the fundamental question of religion. It has divided theologians into two distinct camps, viz., those who are called Calvinists and Arminians respectively.

Calvin and those who have followed him, such as Jonathan Edwards in the United States, were rigid determinists and logically therefore adhered to a strict predestination of man in relation to a future state. Arminius and his adherents revolted against the serious consequences of this doctrine and maintained that man is free to make a choice in regard to the offer of salvation made to us by God through repentance and faith in Jesus Christ.

If there is no genuine freedom of choice then such words or phrases are meaningless.

On the other hand, the choice may be affected by countless things not under our own control, such as domicile or the country in which we are born, parentage, early training, educational influences, friendships, social life and work, and whether or not we have had the opportunity or given the time to the consideration of all the arguments and reasons for and against the choice to be made.

In the last resource, however, it remains with us to say either "I will" or "I will not." We are certainly not automata or machines and it is perfectly certain our Creator will not forcibly overrule or fix our choice, because to do so would be to convert us into irresponsible machines.

8.—Conclusion.

The sum of the matter then is that although we cannot give any irrefutable verbal proof of the freedom of the Will, it is proved to us personally by actual experiment at every hour of the day—as we say—Solvitur ambulando. It is proved by doing it. It belongs to that class of convictions or assurances which can only be reached by an action and not by words. Moreover, it is clear that in choosing between determinism and free will,
or between Calvinism and Arminianism, as a creed, we are exercising free will or choice.

The logical victory may appear always to be in favour of determinism, but the fact that we feel we can exercise choice proves that the argument in favour of determinism is not so complete as to exclude all possibility of dissent from it. Hence we are presented with alternatives, the will is either free or it is not free, and if we decide it is not free we are in that very act exercising choice or freedom.

We do, as it were, refute determinism by the very fact of giving adherence to it as a belief. But this freedom to choose is combined with a very imperfect knowledge of what may be the consequences of the choice. It is a double-edged sword which may wound the hand of him who wields it. Hence its highest use is to surrender it to One whose foreknowledge is infinite and love unbounded and only then is it innocuous to us:—As Tennyson so well says in his "In Memoriam"

"Our wills are ours, we know not how,
Our wills are ours, to make them Thine."

On the call of the CHAIRMAN a hearty vote of thanks was accorded to Sir Anibrose for his address.