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A. H. BOULTON, ESQ., LL.B., IN THE CHAIR.

*THE PLACE OF MIRACLE IN MODERN THOUGHT
AND KNOWLEDGE.*

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(*Being the Schofield Prize Essay, 1950.*)

SYNOPSIS.

A miracle may be defined as "an unusual action that cannot be accounted for by natural laws alone." Modern philosophical thought is not interested in miracle. Immanentist philosophers (*e.g.*, Whitehead and Tennant) tie God up too closely to the universe for Him to break in with sudden acts of power. Brightman postulates "The Given," against which God must work by "normal" means. Some modern theological thought (*e.g.*, the Modern Churchmen's Union) discounts miracle, but Alan Richardson and H. H. Farmer accept the fact that Christ worked miracles. C. S. Lewis and Sherwood Taylor argue constructively in favour of miracles. Most stress the importance of beginning with the Person of Christ, and some have started directly with the Resurrection and Virgin Birth.

Modern knowledge of the indeterminacy at the basis of physics is not really relevant to miracles. A helpful approach is by way of spiritual healings. Suggestion, hypnosis, and Rhine's P.K. experiments cannot fully explain all healings. P.K. effects may account for some modern miracles (*e.g.*, Spiritualistic phenomena) and offer a partial analogy of some Biblical miracles, though not of all (*e.g.*, the Resurrection). But the essence of miracle is that it contains something ultimately inexplicable.

THE well-known saying, "The age of miracles is past," is a reminder that we live in a scientific age. In the minds of most people who use it there is the implication that the reason why miracles no longer happen is that in point of fact they never have happened. What was once regarded as a miracle can now be given a satisfactory explanation, either through the introduction of new laws that were unknown at the time when the alleged miracle occurred, or through faulty observation on the part of the one who reported the miracle. The frontiers of

science have been pushed further and further forward, so that now it is commonly believed that ultimately every event is capable of a rational interpretation. Even an alleged miracle of the present day will ultimately be found to be an operation of the law of material cause and effect.

This is a popular view of miracle. It is the object of this essay to examine this view, and in particular to see whether more precise modern thought and knowledge support the idea that no miracles have occurred, or can occur at the present day, and that all alleged miracles in the past cannot rightly be classed as miracles at all.

A DEFINITION OF "MIRACLES."

A precise definition of "Miracle" will itself throw some light on the nature of the problem before us. The following would appear to be sufficiently accurate both in what it contains and in what it omits: "*A miracle is an unusual action that cannot be accounted for by natural laws alone.*"

Let us notice what this definition omits and what it contains.

1. It does not say "*known natural laws.*" Thus it excludes any occurrence that might appear completely inexplicable to one generation, yet that can be partially or fully understood by later generations. An example would be the so-called St. Elmo's Fire, an electrical discharge that at times appears as a tufted bluish light on the masts of ships, and elsewhere. Pliny in his *Natural History* records that the sailors invoked these lights as the visible appearance of Castor and Pollux, while Mediterranean fishermen in Christian times regarded them similarly as the sign of the protecting presence of St. Elmo. But the modern knowledge of electricity has lifted this phenomenon entirely out of the realm of the supernatural.

2. Returning to the definition, we notice that it contains the word "*unusual.*" It is perhaps a disputable point whether this word should be used or not, but its omission would extend the scope of this essay beyond what common opinion would consider to be its scope. If it were omitted, it would introduce all those events of daily life that we take for granted, even though we cannot account for them by natural laws alone.

An illustration may make this clearer, even though it concerns a situation that could not actually arise. Let us suppose that a man and wife are shipwrecked on some completely barren island, where nothing grows at all. The wrecked ship, however,

is loaded with an enormous quantity of tinned food, on which they are able to live for a number of years. If they have a child, he will grow up without any experience of plant growth. In process of time he discovers on the ship a packet of seeds. When he plants them, he sees a miracle. Something happens on the island that has never happened before. The living seeds grow into living plants.

This is the miracle of life, which, because of its constant repetition, is no longer counted as a miracle. Yet the origin of life, and the germ of life in each seed and cell, cannot be accounted for by natural laws. The search for the secret of life has continued in vain for many years now, but one cannot say that it will never be discovered. A few months ago a Russian scientist claimed to have created life, but until the details of the experiment are published, and the experiment repeated by other workers, most people will remain sceptical, in view of the unsubstantiated claims that have been made from time to time in the past.

If the origin of life should be discovered, and thus taken out of the sphere of what might be termed "miraculous," the present trend of opinion suggests that it might be found in the viruses. This and other theories were discussed and criticised by Dr. R. J. C. Harris in his paper before the Victoria Institute in 1949 on "The Origin of Life."

But even if the viruses should prove to be the bridge between inanimate and animate matter, the problem of the ultimate origin of the material universe still remains beyond the range of accountability by natural laws. From the purely scientific standpoint it seems as though this unbridged gap must always remain. A scientist is unable to start with Nothing, and from it produce Something. Even if, like Fred Hoyle in his broadcast talks and book, *The Nature of the Universe*, he postulates a continuous creation, with hydrogen atoms emerging continually, and life spontaneously appearing wherever conditions in the universe permit, the problem of ultimate origin is not necessarily solved. Moreover the theory of continuous creation is no more than a theory, and Hoyle's view has been strongly criticised by Professor Dingle both in a review of his book in *Nature* and over the radio.

It would be beside the point here to discuss the philosophical approach to the doctrine of Continuous Creation, as it is expressed, for example, by Dr. W. R. Matthews in *Studies in*

Christian Philosophy and Professor E. S. Brightman in *A Philosophy of Religion*, since neither of these philosophers is concerned with any explanation of the origin of matter in non-miraculous terms. The same is true of Eastern and mystical views which maintain the eternity of the universe and hold that the Why and the Wherefore are incomprehensible to man.

This digression has been necessary as a reminder that in one sense we live in a world of perpetual miracle, and at present it appears unlikely that the increase of knowledge will do much to dispel this miracle. But miracle in this wide sense is obviously beyond the scope of this essay. It is therefore necessary to add the limiting adjective "unusual" to the definition.

3. The final word in the definition is "alone." This is again an important qualification of the expression "that cannot be accounted for by natural laws." A number of the miracles in the Bible, for example, can be accounted for perfectly easily by natural laws. The crossing of the Jordan and the fall of the walls of Jericho, recorded in Joshua 3 and 6, are a perfect example of this. Professor Garstang's excavations on the site of the old Jericho showed that the walls of the city had suddenly collapsed in a manner that suggests an earthquake. In 1927 an earth tremor caused a subsidence that blocked the Jordan at El Damieh some 16 miles upstream from Jericho, so that the flow was interrupted for nearly 24 hours. (Garstang, *Joshua—Judges*, pp. 136 f.). It is characteristic of earthquakes for there to be several shocks over a short period of time. If then in Joshua's day one earthquake shock made the waters of Jordan "rise up in one heap, a great way off, at Adam" (Joshua 3: 16) so that the people could cross near Jericho, it is not surprising if a more severe shock threw down the walls of Jericho shortly afterwards.

These two events, though perfectly explicable by natural laws, may none the less be regarded as miracles, in that both occurred at the precise moment when they were needed, and, according to the Biblical record, at the precise moment when God had previously declared that they would occur. The miracle is thus one of synchronisation. A most striking attempt to account for the plagues of Egypt and the miraculous events of the Exodus by volcanic and seismic disturbances, that by divine providence synchronised with the needs of the Israelites, is in Canon Phythian-Adams' book, *The Call of Israel* (pp. 135 f.). In an even more speculative book, *Worlds in Collision*, Dr. I.

Velikovsky attempts to account for Joshua's Long Day by the approach of what is now the planet Venus into the earth's orbit. In recent times many people have believed that the unexpected calm at the time of the evacuation of Dunkirk was a similar miracle of synchronisation.

4. It may seem strange that the definition makes no reference to God, but reflection shows that most believers in miracles down the ages have refused to assert that only God can be the author of them. It has been held that there are other supernatural agencies who, by divine permission, though not necessarily by direct divine authorisation, can work miracles for purposes of their own. Pharaoh's magicians could compete up to a point with the miracles that Moses and Aaron worked by divine power (Exodus 7). Even if it is held that these men were no more than clever conjurers, we have the authority of Jesus Christ Himself for holding that false Messiahs and false prophets would appear, and would show great signs and wonders that would be so significant as almost to deceive the elect people of God (Matthew 24: 24). St. Paul speaks to the same effect in 2 Thessalonians 2: 9, 10; and in Revelation 13: 14 the visionary evil beast has power to work deceptive miracles. Similarly, if we turn to non-Christian sources, students of the occult make a distinction between white magic and black magic.

It would therefore be misleading to include the Name of God in a definition of Miracle. At the same time it is important to emphasise that a miracle must have a personal agent behind it. A haphazard event of a queer character would not qualify to be called a miracle. Hence in the definition it has seemed preferable to speak of "an unusual *action*" rather than of "an unusual *event*."

This detailed exposition of the definition has fulfilled the useful purpose of clearing some of the ground, and of clarifying the approach to the subject.

The title of this essay indicates that there are two aspects of the subject to be considered. It draws a distinction between modern thought and modern knowledge. The former concerns the philosophical and semi-philosophical approach, while the latter concerns the actual evidence that is alleged to support the occurrence of miracle. In practice the two cannot be kept in watertight compartments, since philosophical ideas cannot ignore concrete facts. Yet, in general, "thought" and "knowledge" represent two different forms of approach.

MODERN PHILOSOPHICAL THOUGHT.

It will perhaps be best to begin with the emphasis upon thought, since the majority of mankind are guided in their attitude to miracle by their philosophy of life. On the one side there is David Hume, with his belief that a miracle is the most improbable of all events, so that it is always more probable that the witnesses were lying or mistaken than that a miracle actually occurred. On the other side there are those who have, for one reason or another, such a firm belief in the thinness of the veil between the natural and the supernatural, that they credulously accept any story of divine, angelic, or spirit intervention in the course of earthly affairs.

Hume's attitude reflects the deistic outlook, which was so dazzled by the reign of natural law in the universe, that the transcendent God was bowed out of contact with the machine that He had created. Religion was a matter of reason, and had no need of miracles to attest its authority.

Theistic philosophers of the present day tend towards an immanentist view of God, and one would therefore expect them to have a more open mind towards the question of miracle. But one cannot see that the question interests them, apart from those who write as specifically Christian philosophers, and those who, like P. D. Ouspensky, represent a more unusual type of philosophic outlook.

It is, however, worth seeing how miracles could find a place in one or two of the philosophies of the present day.

The theological scheme of Dr. A. N. Whitehead, for example, is not easy to grasp, but it is definitely a theology of immanence, and God Himself is an evolving deity. Thus in his book *Process and Reality* Whitehead writes: "When we make a distinction of reason, and consider God in the abstraction of a primordial actuality, we must ascribe to him neither fulness of feeling, nor consciousness" (p. 486). And again: "The consequent nature of God is conscious; and it is the realization of the actual world in the unity of his nature, and through the transformation of his wisdom" (p. 488). Again in his book, *Religion in the Making*, he says: "The power by which God sustains the world is the power of Himself as the ideal. He adds Himself to the actual ground from which every creative act takes its rise. The world lives by its incarnation of God in itself. . . . He is not the world, but the valuation of the world. . . . In the actual world, he confronts what is actual in it with what is possible for it" (pp. 156, 159).

It would seem that Whitehead has made God and the world so mutually dependent that one cannot conceive of what one might call a decisively independent act of God in the world.

Dr. F. R. Tennant, in his *Philosophical Theology*, lays great emphasis upon the appearance of purpose in the universe, which he holds makes it reasonable to postulate an intelligent Creator. Tennant, however, finds it necessary to believe that "God without a world, or a Real other, is not God but an abstraction" (Vol. II, p. 168). God therefore was bound to create, and in creating He limited Himself by delegating a certain spontaneity of action to His creatures.

From this it can be seen that Tennant's view is not immanentist to the same extent as Whitehead's, but he again appears to have tangled together God and the process of nature in a way that would logically compel him to reject the idea of miracle. A God who is compelled to create can hardly rise above His creation.

One further philosopher may be quoted as representative of those who hold to a finite, or finite-infinite, God, in distinction to the orthodox Christian belief in God who is infinite. This is Professor E. S. Brightman, who feels that his position is necessary to account particularly for the existence of evil. Over against God, who is eternal, there stands eternally what Brightman called The Given, though The Given itself has no other origin than God's eternal being. This Given is both God's instrument of expression, and also an obstacle to the complete and perfect expression of God's æsthetic and moral purposes. On page 187 of Brightman's *Philosophy of Religion* there is a quotation that is extremely relevant to any discussion on Miracle. Brightman writes: "In some situations The Given, with its purposeless processes, constitutes so great an obstacle to divine willing that the utmost endeavours of God lead to a blind alley and temporary defeat. At this point, God's control means that no defeat or frustration is final; that the will of God, partially thwarted by obstacles in the chaotic Given, finds new avenues of advance, and forever moves on in the cosmic creation of new values."

If these philosophers may be taken as representative of the general run of modern philosophical thought, we can see that, where God is admitted at all, He is admitted only on terms that render miracle virtually impossible.

MODERN THEOLOGICAL THOUGHT.

It would obviously be unfair to limit modern thought to those

philosophers who tend to hold aloof from a more precise theological position. What then is the present attitude of Christian theologians to miracle ?

Those who give the fullest authority to the Biblical records, whether they are Protestant or Roman Catholic theologians, naturally have maintained the traditional Christian view of the genuineness of the miracles of the Bible. In addition the Roman Catholics accept other post-Biblical and modern miracles, of which Protestants are sceptical. A topical example is the enforcement of the doctrine of the Assumption of the Virgin Mary as a cardinal dogma of the faith. Modern miracles of healing are in a different category, and will be considered later.

At the opposite extreme is the Modern Churchmen's Union, whose members find miracles a stumbling block, and who feel free to reject the miracles of the Virgin Birth and the bodily Resurrection of Jesus Christ. It is difficult to assess how far scientific prejudgement enters into their estimate of the evidence. That is one of the problems of miracle : we all of us find it easier or harder to accept the Biblical records according to presuppositions that we have formed on other grounds.

At the same time one feels that some Modern Churchmen are not ready to be convinced of the fact of miracle. Where it is possible to accept a late date for a document, or to suppose that there is an interpolation in it, they will do so unhesitatingly in order to avoid accepting a miracle. This was one of the strongest criticisms made against Bishop Barnes's book *The Rise of Christianity*. On the other hand Emil Brunner, whom one could not class with the Modern Churchmen's Union, finds himself unable to accept the Biblical evidence for the Virgin Birth, as he points out in his book *The Mediator*.

An intermediate position is taken by Alan Richardson in two books, *The Miracle Stories of the Gospels* and *Christian Apologetics*.

He is concerned primarily with the miracles of Jesus, and points out that the only historical evidence that we possess is that Jesus did work miracles. "The evidence that Jesus worked miracles is just as strong, and is of precisely the same quality and texture, as that He taught that God is Father and that His disciples should forgive one another" (*Christian Apologetics*, p. 170). These are strong words, but Canon Richardson qualifies them by pointing out that they do not form an argument that can compel unbelievers to accept the historicity of the miracles.

Moreover belief in the historicity of miracles alone might be held independently of Christian faith. A student of psychical research might be convinced by modern parallels to the miracles of Jesus, and yet fail to hold the faith of the apostolic Church about them. "For the apostolic Church the significance of the miracles of Jesus was that they were the signs of His divine mission, foretold by the prophets of old . . . the miracles of Jesus were, for those who had eyes to see, signs that enabled them to penetrate the mystery of His person" (*Christian Apologetics*, p. 172).

This thought is worked out more fully in Canon Richardson's other book already mentioned. Yet here he points out that we are not bound to accept all the details of each miracle story in the Gospels. "It is by faith that we know that Jesus worked the mighty works of the power of God; but, having reached this point through the grace of God, it is by the exercise of our critical intelligence and our historical imagination that we try to determine the nature and circumstances of these works in their historical setting and in the implications which they were perceived to involve for the faith of the earliest Christian disciples" (*The Miracle-Stories of the Gospels*, pp. 129, 130).

This blending of faith and agnosticism is also seen in H. H. Farmer's book *The World and God*, with its sub-title, "A study of prayer, providence and miracle in Christian experience." Dr. Farmer holds that the Christian must not be tempted to define miracle in terms of a suspension of natural laws, but must see miracle as an awed realisation of the working of God. "The question of how much, or how little, of the miraculous element in the gospel stories we accept is not of the greatest moment, provided only that the decision springs not from pseudo-scientific dogmatism, but from the continuous endeavour to grasp by every means at our disposal, the mind of Christ" (p. 269).

The position then of Canon Richardson and Dr. Farmer may be taken as typical of much modern theological thought, which accepts the general principle of miracles in the Gospel story, but refuses to be tied down to the acceptance of any single event in the form in which the narrator apparently believed it to have happened.

A more robust approach is found in C. S. Lewis's book *Miracles*, called modestly "A Preliminary Study." Lewis refuses to heed Dr. Farmer's warning about the definition of miracle, but boldly plunges into a logical defence of the traditional

Christian ideas. He points out the inadequacy of Naturalism as an explanation of the universe and all things in it.

Once God is admitted, miracles become theoretically possible. But are not miracles contrary to the natural laws that God Himself has ordained? So-called Natural laws are only our classification of observed events, just as, for example, rules for writing Latin verse are deductions drawn from the great Latin authors. A small mind might regard these rules of verse as hard-and-fast, yet to our amazement on rare occasions we find that Virgil breaks them, though always for a very good reason.

One need not be afraid that in admitting God and miracles one is opening the door to a nonsensical universe. Miracles are not mere conjuring tricks, but have a certain propriety about them. Lewis then proceeds to discuss the Gospel miracles and their appropriateness, beginning with the supreme miracle of the Incarnation, and from there proceeding to the miracles ascribed to the One who was thus incarnate. Lewis finds the literal acceptance of Christ's miracles to be quite reasonable as he takes and considers them one by one.

If C. S. Lewis writes from a theological standpoint, he is supported by a scientist, Dr. F. Sherwood Taylor, in his study of the relations of Science and Religion, entitled *The Fourfold Vision*. The theme of the book is naturally wider than that of Lewis, but in his discussion of Law and probability he follows a very similar line. He emphasises that "the evidence for every scientific law is based on observations which cannot include all cases" (p. 45), and he rightly points out that "the only evidence that can be brought against the miraculous is that historically it *did* not occur, not that theoretically it *could* not occur" (p. 44). As an example he quotes the belief in the Virgin Conception of Jesus Christ, and exposes the hollowness of the reasoning which says that Christ could not have been born of a Virgin, since such an event is a biological impossibility; and he concludes: "Scientists say 'I see no evidence for parthenogenesis in man, *therefore* it does not occur, *therefore* any evidence in its favour is false.' The same circular reasoning has in the past led to denial of the reality of globe-lightning and of anæsthesia by hypnosis, both now experimentally proven" (p. 49).

Whilst Dr. Sherwood Taylor's conclusions are necessarily negative, since he is concerned here to show that science cannot disprove the occurrence of miracles, it is clear that he himself does accept the authenticity of the Biblical miracles.

From this discussion of some modern theological and scientific views it has become clear that much depends upon one's general attitude to Jesus Christ. Even if one approaches the whole matter of miracle on a broad front, and admits the possibility of miracles, the next step is to ask the old question: "What think ye of Christ?" If He is God incarnate, then one would expect His birth and His death, with its sequel, to be unique, and one would expect mighty works of all kinds to show themselves in Him. If He is a great Teacher sent from God, then again one would expect certain mighty works, though one might well hesitate at accepting the so-called Nature miracles, and hesitate over the Virgin Birth and the bodily Resurrection.

There have been attempts to start from another point of view, and to try to prove the historical truth of the Virgin Birth and of the Resurrection. The latter has proved more readily defensible than the former. The most famous modern book on the truth of the bodily Resurrection is Frank Morison's *Who Moved the Stone?* The book is all the more convincing in that it was apparently planned in the first place as a refutation of the Resurrection, or at least as a minimising of it. But the examination of the evidence produced this striking book, which showed the complete inadequacy of all natural attempts to account for the confessedly empty tomb. Morison deals trenchantly with such modern explanations as that of Dr. Kirsopp Lake and Dr. Gardner Smith, that the women mistook the tomb in the half-light, and misinterpreted the words of a gardener, who told them "He is not here," and who offered to show them the real tomb, with the words, "Come, see the place where they laid Him!" Even if the women had mistaken the tomb, there were plenty of others, both friends and enemies, to go to the real tomb later.

There is no doubt that the evidence for the bodily Resurrection of Jesus Christ is extremely strong, though space does not permit the setting out of the arguments here. It is however, not so easy to argue for the historicity of the Virgin Birth, though the obviously independent testimony of Matthew and Luke would normally be regarded as adequate for any fact that was non-miraculous.

One of the most scholarly investigations of it in recent times is that by J. Gresham Machen in *The Virgin Birth of Christ*. Dr. Machen gives a long and detailed examination of the Biblical evidence, and gives solid reasons for rejecting the usual objections

to the accounts in Matthew and Luke on the ground both of textual variants and of apparent discrepancies between the two infancy narratives.

Others, from a scientific standpoint, have approached the subject along the lines of natural parthenogenesis. Dr. Sherwood Taylor, in his book already referred to, *The Fourfold Vision* (pp. 47 f.), points out that two biologists, Reimann and Miller, have caused an unfertilised human ovum to commence development by mechanical stimulation in human blood-serum containing a trace of ethyl acetate. Similarly another worker, G. Pincus, caused rabbit ova to begin to develop by cooling them, and then transplanted them to the uterus of another rabbit, where one female actually came to maturity. Sherwood Taylor and others have even suggested that parthenogenesis may occur spontaneously in human beings.

Those who rely on arguments of this kind have overlooked a most important fact about sex-determination. To quote from Dr. Kenneth Walker, *The Physiology of Sex* (pp. 21, 22): "In mammals generally . . . the male forms two varieties of gametes or spermatozoa, that have been termed X-bearing and Y-bearing. The female, on the other hand, furnishes only one type of ovum, which can be termed X-bearing. These uniform egg cells are capable of being fertilized by either kind of spermatozoa; an X-bearing spermatozoon so as to form XX, a female, or by a Y-bearing spermatozoon so as to form XY, a male." In other words, unless a Y chromosome fertilises the ovum, the result will be a female. Therefore if an ovum can begin to develop through parthenogenesis, it is bound to become a female since it contains only the X determinant. This fact in relation to the Virginal conception is discussed by Dr. E. C. Messenger in Vol. II of his book *Two in One Flesh* (pp. 90 f.).

Thus we are bound to say that such knowledge as we have of parthenogenesis only serves to intensify the need for a miracle if Jesus Christ was truly born of a virgin. This after all has always been the faith of the Christian Church. It has never been supposed that the fact of parthenogenesis made Jesus Christ divine. But Christians have felt that this manner of His coming into world was congruent with His deity.

MODERN KNOWLEDGE.

So far the main part of this essay has been concerned with modern thought. In so far as it is possible to separate the two,

it is now necessary to consider whether there are any well-attested facts, known to-day, that throw light on the probability or improbability of miracles.

An obvious fact which demands consideration in any modern discussion of miracles is the principle of indeterminacy that underlies modern physics. Whatever theoretical conclusions may be drawn from it, Heisenberg's principle of indeterminacy would appear to be a fact. Heisenberg was concerned to point out that we cannot by the nature of our methods measure simultaneously both the velocity and the position of an atomic particle.

Two conclusions have been drawn from this. The one says that there is a real uncertainty or arbitrariness at the heart of things, and theologians have jumped at this, both as supporting free-will against materialistic determinism ; and also as indicating a method whereby miracle can be introduced into the ordered scheme of the universe.

Others believe that the uncertainty is due only to the inadequacy of our present methods of measurement, and that the movements of atomic particles will ultimately prove to be determinate.

Some of the factors involved were dealt with in a paper before this Institute in 1948 by Dr. F. T. Farmer on "Physical Science and Miracle." A lecture by Professor Max Born and an essay by Professor Albert Einstein, reproduced in No. 17 of the *Penguin Science News*, also debate the points at issue.

Does it really matter, for the purpose of our investigation of miracle, which view of Heisenberg's principle is adopted? It would hardly seem so. The random movement of an electron would not be sufficient to cause a miracle, and, while physicists may be unable to predict the movement of one atomic particle, they would certainly deny that they could not predict the movement of atoms in the mass. As Dr. Farmer says in a slightly different connection in his paper already referred to (p. 63): "It is doubtful, indeed, whether an influence by the mind upon electrons within the fine limits which physical indeterminism allows, could account for any of the large scale movements of our bodies which occur."

It has been necessary to begin with this basis of modern physics, even though it would appear to contribute nothing of value to the argument, since it is mentioned so often in connection with free-will and determinism, and also in the discussions of the influence of immaterial mind upon matter.

A more helpful line of discussion is the fact of so-called Spiritual Healing. Healings have always ranked high amongst alleged miracles. A large proportion of the miracles in the Gospels and the early Church were healings, and such healings have occurred spasmodically down the ages.

The Church of Rome has continually claimed miracles of healing through her saints, relics, and holy places. Protestant claims were less frequent, though such men as George Fox undoubtedly possessed powers of direct healing. But in recent times there has been a surprising revival both of interest in the subject and in actual cases. Since the last war each year has seen the publication of one or two books on the subject.

Some of these have been frankly startling. In particular there have been three by Starr Daily, the two most relevant being entitled *Recovery* and *Release*, and also by Agnes Sanford, *The Healing Light*. These all come from America, and record healings of every kind, some of which appear to be far beyond the power of suggestion to accomplish. Mrs. Sanford, for example, records the restoration of a baby who had been dead for half an hour (p. 97), and the complete recovery of a man who was dying, and whose "heart had swollen until it filled almost the whole chest . . . every valve had burst and was leaking like a sieve" (p. 101).

In our own country there is a quiet work going on at such places as Milton Abbas, while the Rev. F. L. Wyman at York has written two small books, *Commission to Heal* and *The Divine Physician*, in which he mentions cures that have come about through prayer circles with which he is linked.

That body of Christians that are grouped under the general title of Pentecostalists have practised the laying on of hands for healing for many years now, and they too can show definite results.

Roman Catholics encourage regular pilgrimages of sick people to Lourdes. Here too cures occur, but no cure is claimed as miraculous unless there is a detailed medical history of the case. The number of cures each year that are reckoned by the Roman Catholic investigators to be above the powers of nature to effect, amount to between five and twelve.

Many people who know nothing of the doctrines of Christian Science respect its claims to heal; while healing services are now a feature of Spiritualism, and such mediums as Harry Edwards are reported in the spiritualist press almost every week as responsible for miraculous cures.

With this apparent wealth of evidence, one would expect to be able to find some factors common to them all, that might help in assessing the precise nature of the healings. But immediately there is a difficulty. Very few of the cures are accompanied by case histories of a type that a doctor would regard as adequate. It is extremely easy for a layman to be misled over the exact nature of a disease, and of the likelihood of a sudden turn for the better in the natural course of events. Moreover one rarely reads the sequel to the cures. Many diseases can ease up remarkably for a period, only to relapse later.

In this connection *Psychic News* (Jan. 15, 1949) published some investigations of cures claimed by Harry Edwards, some six months previously. In Edinburgh "not all the patients had made noticeable progress, but in the majority there was improvement, with a new hopefulness and a deep sense of gratitude for benefit received." At Ilford a sufferer from disseminated sclerosis says, "It would be wrong to say I was cured by Mr. Edwards but I am definitely very much better . . . I receive weekly healing treatment at ——— Spiritualist Church, which helps me a great deal."

When one has eliminated these doubtful cases, there still remain others, both amongst spiritualists and elsewhere, that go beyond what most doctors would regard as normal. Some healers, such as F. L. Wyman, work in close co-operation with the local doctors, and one of these writes the foreword, and contributes some case notes to Mr. Wyman's two books.

Assuming then that "there is something in it," is it possible to find any common factor in the different healings? Here again one finds difficulties. Some, such as Mrs. Agnes Sanford, make considerable use of the laying on of hands. She and her patients frequently feel a sensation of power flowing through her hands like an electric current. She is herself a Christian, but she does not confine her healings to Christians.

Mr. Wyman commonly makes use of anointing with oil, following the injunction of James 5: 14, 15. He does not feel it right to anoint any who are not Christians, and he seeks to make them spiritually right with God before he prays for their healing.

The cures at Lourdes may occur at any time during the pilgrim's visit, but generally during some service at the Grotto there. The cures are ascribed to the intervention of the Virgin Mary.

Christian Scientists obtain their cures through the assertion of

the non-reality of matter. Matter, pain, and evil, are illusions of the mortal mind, and the realisation of the illusion, for oneself or for others, is the way of freedom from its supposed effects.

Healing mediums generally claim to be guided by spirits, who can detect the disease and prescribe for its treatment, but Harry Edwards appears from the reports and pictures to rely on manipulations without being in a state of trance. Presumably he holds that some spirit guide is working through his touch.

Where is the common factor here? From what does the healing issue? Is it in the healer, who acts as a channel for a healing flow of divine life? Is it in the patient, in whom new forces are generated in response to faith? Or is there some force in the process used?

The fact that some people appear to have a specific gift of healing would suggest that there is some virtue in the healer. Yet these healers cannot heal everyone, which would suggest that the healing power lies in the response of faith, which is stimulated by the expectancy aroused by some well-known healer or method that has healed others. Yet even when there is a healer and a spirit of faith, there may be no healing; which would suggest that one cannot leave out of account some Power over and above that in the healer and the patient, namely God Himself. Why He should heal some and not others must remain a mystery.

The New Testament itself suggests these same sources of spiritual healing. Jesus knew that power had gone out of Him when the woman touched Him in the crowd and was healed (Mark 5: 30). In Nazareth He could do no mighty work because of the people's unbelief (Mark 5: 5, 6). And at Miletus Trophimus had to be left behind ill (2 Tim. 4: 20), although Paul had the power to work miracles of various kinds, and Trophimus presumably knew this.

Some light may be thrown upon the power to work miracles of healing by the modern knowledge of the effects of suggestion and hypnotism, and also by the investigations of what is often called the PSI factor in man.

Suggestion and hypnotism show the powerful effect of the mind upon the body. The suggestion, to be effective, must pierce the barriers erected by the conscious mind, and be accepted by the unconscious or subconscious, which has so powerful a control of man's actions. Hence the suggestion can best be made when the consciousness is less active, as at the moment of falling asleep, or when it has been deliberately suppressed

through the act of hypnotism. In the deep state of hypnosis the mind can play all sorts of tricks on the body, producing heat blisters when touched with cold metal, and doing more fantastic things that have been exploited by stage hypnotists.

There is no doubt that hypnotism and suggestion can be used for physical cures, but they have certain limitations. They can be used helpfully in functional troubles, where the disease is largely the outcome of a mental attitude. But the danger here is that, by suppressing one manifestation of the root trouble, a substitute may appear. Moreover there is a tendency for a belief that is accepted through suggestion to lose its hold after a time.

It would be reasonable to suppose that some of the miraculous cures that are claimed are the result of an accepted suggestion. The expectation aroused by the presence of a noted healer, the atmosphere generated, perhaps, by repeated hymns, or again the constant repetition of some formula of assertion, provide the proper frame of mind for the necessary suggestion to pierce the resistance of the conscious.

This is no reflection upon the integrity of the healer or upon the reality of the cure. And if the healer is able at the same time to supply spiritual strength to the patient, it is likely that the deep cause of the trouble may also be adjusted.

This is regarding the cure from the point of view of reactions within the patient. But the investigations of the PSI faculty in man may throw some light on the flowing of power from the healer. The standard book on the subject now is J. B. Rhine's *The Reach of the Mind*, in which Dr. Rhine describes his careful experiments at Duke University.

It may suffice to say here that the opinion of almost everyone who has studied the evidence is that Dr. Rhine and his fellow-workers have proved the direct communication of mind with mind through telepathy or clairvoyance, and also the influence of mind upon matter. It is this latter fact that is of importance for the study of miracle. Dr. Rhine's experiments have shown that when dice are thrown mechanically, it is possible to influence the predominance of high or low numbers by willing accordingly. Statistically the fall of the dice shows results that are above the chance factor. This effect is known as psycho-kinetic, or P.K. for short.

Now although Rhine's results in P.K. are comparatively small, they do indicate some influence of mind on matter that one may

suppose could at times occur in an intensified form, thus producing what would normally be called a miracle. It may be that, in cases of healing, the healer is able to produce in the patient that result that the patient is unable to produce in himself. His mind is able to pour power into the seat of the disease, and set in motion the forces of healing.

All this may seem to have brought so-called miraculous cures down to a much more mundane plane. If the cures can be ascribed either to the mind of the patient or to the mind of the healer, are they miraculous at all in the sense in which we have defined miracle ?

Two things must be said. In the first place no one has yet discovered the laws of the working of the PSI faculty. One day a subject may give correctly the order of 15 cards in an unseen pack. Next day his rate of scoring may be equal to chance or only slightly above. He cannot tell how he succeeded in the first place or failed in the second. As Rhine says on page 151 of *The Reach of the Mind*, "PSI is an incredibly elusive function." Why do some manifest it more than others ? And if healing is a P.K. effect, why are there so few healers, and why cannot everyone cultivate the gift ? And why cannot one and the same healer cure all diseases or at least all sufferers with similar diseases ? Are there in fact any natural laws that will apply to the operation of the PSI faculty in healing ?

The second thing to be said is that a demonstration of the influence of mind over matter should not be taken as only showing the influence of human mind over matter. Rhine's work has made materialism less likely as an explanation of the universe, and consequently has made the theistic view of the universe more likely. Obviously these experiments have not proved the existence of God, but, granted that God exists, they have made it reasonable to assert that as the Supreme Mind He can still operate directly upon matter. It is, for example, perfectly reasonable to believe that in answer to prayer God will influence those physical causes that make for rain or for fine weather, as the Old Testament prophets believed. The sneers of sceptics against the observance of days of prayer for temporal blessings as "unscientific," can no longer be justified.

Similarly one cannot be certain that all spiritual healings can be simply dismissed as due to the operation of forces naturally inherent in all human minds. Healing gifts in the first place may well be special gifts from God, even if they are intensified

forms of a P.K. force that is dormant in the majority. These gifts may be misused in the interests of an erroneous system of belief, just as any natural gifts can be.

From the other aspect, no one can at present fix the limits within which an accepted suggestion can operate for healing. But the acceptance of a suggestion strong enough to effect an unusual healing may itself be due to the miraculous working of God upon the inner mind.

Probably most people to-day find little difficulty in accepting most of the healing miracles of the Bible. This is one of the results of modern knowledge. We may speak of suggestion or of P.K. force as the agent of healing, but this is not much more than giving names to things that we do not understand and may never understand. All we can say is that Jesus Christ and His disciples had gifts of healing that they believed to be gifts of God over and above natural gifts. Their gifts were deliberately used, and were not spasmodic occurrences. We are not obliged to rule out the use of simple suggestion as the explanation of some cures, since one supposes that God naturally uses the simplest means to effect His purposes. But other cures, such as the giving of sight to one born blind, would seem to demand a power beyond the capacity of the natural mind of man. We also notice that, in contrast to the majority of modern spiritual healings, the cures in the Bible were practically instantaneous.

The case for the authenticity of other types of miracle still largely rests upon one's presuppositions as to whether God is likely to have worked as the records state. The most that modern investigators can do is to show that the influence of mind over matter, if it is regarded as proved by Rhine's experiments, makes such miracles as the floating axe head in 2 Kings 6: 6 a little more credible for those who wish to explain "how it was done." Whether the mind in question was the mind of Elisha, or whether it was the Supreme Mind working through Elisha, the effect produced is analogous to so-called P.K., though its effect is so much greater than anything ever effected by P.K. under experimental conditions as to make the analogy almost ludicrous.

This reference to "P.K. under experimental conditions" indicates that there may be P.K. under other conditions also. Some experimenters, including Dr. Rhine, believe that the time has now come to investigate more carefully some of the spontaneous cases that might be classified as P.K. This has in fact been part of the work of the Society for Psychical Research

during the 70 years of its existence. The difficulty is, however, that in investigating spontaneous cases that cannot be repeated under controlled conditions, so much depends upon the subjective element. What did the witnesses actually observe, and how much did they construct unconsciously? The personal bias of the investigator also must be taken into account.

There have been two papers before the Victoria Institute in recent years which show the relevance of psychical research to our subject. In 1947 W. E. Leslie wrote on "Psychical Research in the Light of Recent Developments," dealing more particularly with telepathy and clairvoyance. In 1948 I wrote on "The Bearing of Psychical Research upon the Interpretation of the Bible," and discussed certain modern parallels with some of the miracles of the Bible. Thus I mentioned particularly evidence for fire-walking and for levitation. Investigators vary in the extent to which they are convinced by the evidence. But fire-walking, if genuine, would take its place with other practices where the body seems temporarily immune from the normal effects of physical injury, as with certain dervishes who, under trance, as many travellers have testified, can cut and stab themselves without inflicting any serious wound.

Levitation is particularly interesting. Dr. E. J. Dingwall, a far from credulous investigator, gives the evidence in his book *Some Human Oddities*, for the levitation of Joseph of Copertino and others during times of spiritual ecstasy or fervent prayer. It appears to have been uncontrollable, and indeed at times a cause of embarrassment. There appears to be no evidence for similar levitations during Christian prayer to-day, but it is of course claimed by Yogis as a fact, and there is the famous, though still disputed, case of the medium, D. D. Home, who is alleged to have floated out of one window and in at another. The case has been discussed by Dr. Dingwall and others. If levitation is proved, it affords a partial parallel to such a miracle as Christ's walking on the sea.

How far can one use the physical manifestations of spiritualism as evidence for miracles? A sane opinion could probably be that there "is something in them," but that it is impossible at present to say how much. Only those who have studied the investigation of physical mediums know how difficult it is to devise adequate controls. Members of the Magic Circle have from time to time staged faked séances in which they have

reproduced the astounding phenomena of the séance. A particularly striking demonstration was made before members of the Press in 1948, and was featured in *Everybody's Weekly* on October 9th, 1948.

On the other hand the evidence for poltergeists is fairly strong. Harry Price's *Poltergeist over England* is a recent book on the subject. His two books on Borley Rectory are also relevant. For poltergeists the simplest theories seem to lie in a choice between malicious spirits or an unconscious force put out by someone in the house—in other words, an exaggerated P.K. effect again. This same force might also be exerted by such physical mediums as Rudi Schneider, who was willing to submit to cast-iron control, yet when he went into his trance, objects were moved in different parts of the room, as Harry Price testifies in his book *Search for Truth* (p. 142).

Hence one may make a modified use of mediumistic phenomena. Such evidence as there is in support of them would indicate that there is something that influences matter independently of material contact. But it is not certain whether that "something" is a latent force of the medium's mind, or some spirit, good or evil. It does, however, tell in favour of the likelihood of miracles rather than against them.

This may seem to be a feeble conclusion. But it is the type of conclusion to which we have been driven all along. It is in fact an inevitable conclusion if a miracle is a miracle at all. For the essence of miracle is that it is not a conjuring trick, whose methods can be learned and reproduced at will.

The most that modern thought and knowledge have shown is that it is likely that there is an order of being behind the visible order of things, and that from time to time a link-up between the two orders produces something that we call miracle.

The late P. D. Ouspensky, who has written so much about the fourth dimension, entitled his recent book *In Search of the Miraculous*. In actual fact there is little that is miraculous in it, except for the occasion when he and his master, Gurdjieff, carried on conversations purely by telepathy. But a conclusion to which he comes on page 265 is particularly apposite: "No phenomena of a higher order, that is transcending the category of ordinary things observable every day, or phenomena which are sometimes called 'metaphysical,' can be observed or investigated by *ordinary means*, in an ordinary state of consciousness, like physical phenomena."

This is a fact that the investigator of miracle must admit. If an event is a miracle, there will necessarily be something about it that eludes his observation, even if he sees the miracle happening before his eyes. He may ascribe it to God, or to some spirit, or to latent powers of mind ; but in each case it is due to something unknown, that transcends the regular laws that operate in the visible universe.

When he is confronted with some alleged miracle of the past, such as the miracles of the Bible, the most that he can do is to investigate the recorded evidence of the witnesses, or to assess the likelihood of the occurrence in its total setting.

Thus one can begin with the Resurrection of Jesus Christ, and decide from the historical evidence that it is more probable that it did occur than that it did not. If it did occur, one must emphasise that it is a miracle of such an astounding character that no analogy of P.K. or suggestion can possibly even begin to account for it, since it involved a restoration of a body that had been dead for three days, and its transformation at the same time into a new order of existence.

Then one can link the Resurrection with the whole context of the Gospel revelation of Jesus Christ, and conclude that His Resurrection is more consistent with His Person, His life, and His teaching, than any other culmination to His earthly ministry. From these one is led more readily to the credibility of the other miracles that are recorded of Him ; and from these to the likelihood of other miracles during the revelatory history that led up to Him in Old Testament times, and during the period when His first disciples went out to preach in the world.

CONCLUSION.

Modern thought and knowledge have not proved the fact of miracle, but they have certainly not disproved it. In so far as they have indicated a non-material order behind phenomena, they have removed certain barriers that materialism had set up. But in the last resort the acceptance of an event as a miracle involves an act of faith ; it need not, however, be an act of credulity.

DISCUSSION.

The Chairman (Mr. A. H. BOULTON) said : I am sure that I am expressing the feelings of all who have heard the reading of this paper in saying how grateful we are to Mr. Stafford Wright for the

very thoughtful essay which he has presented. Since it was my privilege not very many months ago to present to the Institute my own thoughts on this same subject, it is not my intention to take up your time now, but rather to open the meeting for other speakers to make their contributions.

It is, however, perhaps worth while to mention something which Mr. Stafford Wright commented upon to me in conversation just before this meeting began. It is this: Although his approach to the subject and mine were very different in their method and viewpoint, there has been a remarkable correspondence between our two papers not only in the conclusions we have suggested but also in the facts to which we have referred and even the books we have quoted. This is particularly so with reference to the more recent discoveries and happenings. It suggests, which I believe to be the fact, that there is a real change taking place in the climate of opinion on this most interesting and challenging subject.

I believe this to be a true and important development, and one which may lead eventually to a complete change in the relation, so often assumed to be hostile, between science and religion. Victorian materialism is outworn, and cannot be sustained in the face of actual happenings testified to by contemporary witnesses, and there is very much more readiness for the limitations of our knowledge to be freely admitted.

I believe that we who accept the truth of the Christian faith may legitimately take courage at this change of direction in contemporary thinking.

Dr. J. E. STOKES said: Many of the miracles of a physical nature recorded in the New Testament are miracles of healing and, therefore, regarded from the scientific point of view, would come under the science of biology. Arguing by analogy from the spiritual to the physical and *vice versa*, any physical interpretation of them is likely to be exceedingly complex. There are many examples in modern biology where old and comparatively simple theories of common phenomena have had to be replaced by exceedingly complex explanations (e.g., propagation of the nerve-impulse and muscular contraction).

Assuming the usual view of the human being as composed of body,

mind and spirit, a number of conclusions follow. We know how complex the "fruits of the spirit" as enumerated by St. Paul are, and yet if these fruits are to be exhibited or enjoyed by us on earth, there must be in our bodies some mechanism which is equally complex and through which the fruits may be exhibited. We have such a mechanism in the human brain, every cubic centimetre of which, at a rough estimate, contains as many telephone connections as the London Regional system. Our hospitals are full of cases of bodily illness, our asylums of cases of mental illness and our churches should be full of people who have some realization of their spiritual illnesses. It is perhaps not realized that few, if any, illnesses are confined to one level. Most illnesses affect all three levels in varying degrees. As a practising physician one is all too conscious of one's inability to sort out these tangles, but our Lord was not subject to this limitation. All these facts have an important bearing on the healing miracles of our Lord; and it is an interesting exercise to sort out those in which He healed almost at first sight from those in which He required an act of faith first, or commenced by forgiveness of sins. In at least one instance He began by enquiring into the medical history of the case.

In considering modern miracles of healing either in the various Guilds or Healing Ministries of the Church, or at Lourdes or elsewhere, I would like to see more evidence of an evaluation of these points.

Rev. C. T. COOK called attention to the distinction between what may be called nature miracles and providential miracles, illustrating the latter by instances from the lives of Hudson Taylor and George Müller, and instances of preservation which could be traced to special prayer. All these fall within the category of miracle.

WRITTEN COMMUNICATIONS.

Dr. R. E. D. CLARK wrote: Mr. Wright's paper is one of great value, for which all those associated with the Victoria Institute will be grateful for some time to come. There are only two comments that I would like to make. In the first place I think we should be a little cautious in arguing that the progeny of a human virgin birth would necessarily be a female in the normal course of events. The

mechanism that determines sex is as Mr. Wright states, but this is not the whole of the story. If it were, sex reversal would hardly be possible, yet we have all heard of cocks that lay eggs! A case of sex reversal in the human species is on record.

Secondly I feel that Mr. Wright dismisses the evidence from the Heisenberg principle a little too cavalierly. As C. S. Lewis argues so well, the point is not that large-scale events resulting from events within the limits imposed by the uncertainty principle would be miracles, but rather that the uncertainty principle has shown us that our evidence for determinism in nature is not ultimately convincing. If we cannot prove that *any* events are determined by laws of nature (other than statistical laws), what right have we to say that science is incompatible with belief in miracle?

Mr. E. H. BETTS wrote: "A miracle may be defined 'as an unusual action that cannot be accounted for by natural laws alone.'"

What does our Author mean by "accounted for by natural laws"? He *should* only mean that the event in question is in conformity with the usual run of events. For the "laws" of nature, so called, are nothing more or less, at bottom, than observed regularities and recurrences in the course of "nature." Men know nothing, just nothing, about the compelling causes of these regularities—apart from revelation. The "laws of nature" are merely statements in formal and possibly mathematical shape of the results of observations—multitudinous observations it may be, but still only such; for science is shut up to observation. This the French Encyclopædists and again the scientists of the Victorian age ignored or forgot. Consequently they foisted not merely on the man in the street but on practically the whole world of thought the false notion that a law of science was a fixed and unalterable fiat requiring and compelling the observance of the regularity and its continual and everlasting recurrence in unchangeability. That this assumption is totally invalid is now well-recognized by scientific philosophers—by men, indeed, of such diverse outlook as Hume, Whewell, Keynes and C. D. Broad. Inductive science, from its very nature, dependent as it is on observation, can give wide generality but cannot give universality or unexceptionability.

There is therefore plenty of standing room for the well-attested miracles or "unusual actions." Their *logical* validity can be

categorically asserted. We do assert it. And accordingly we receive all the miracles of the Christian revelation unhesitatingly and with deep thankfulness. The difference between "miracles" and "laws of nature" is purely and simply a matter of evidence. Both alike are observed phenomena. To faith, too, both alike are the outcome of the spoken word of God. We press this view on the Modern Churchmen's Union. Rev. J. Stafford Wright in his very complete and clear paper has, we feel, adopted it in his approving citations from Dr. Sherwood Taylor and Mr. C. S. Lewis. We trust he will pardon the additional stress sought for it in this comment.

If modern research confirms, as the paper tends to indicate, well and good. It cannot invalidate.

Mr. TITTERINGTON wrote: May I suggest that much of the difficulty which is so often felt and expressed about miracle is because we adopt too limited a frame of reference? It is very natural for us to regard everything from the standpoint of our own observation and experience, which is perforce restricted in the main to the visible and the material. Even within this sphere our knowledge is limited. There is light we cannot see, and there is sound we cannot hear, because our eyes and ears are not constructed to see and hear them. Further, there are probably properties of matter of which we can know nothing, even of their existence, because our senses are not capable of observing them: if we had no sense of smell, how should we ever guess that such a thing ever existed?

But "the things which are seen are temporal; the things which are not seen are eternal." That is to say, that beyond all that our senses can apprehend, there is a whole world of existence of which, by natural means, we have, and can have, no cognizance. We are apt to regard these as two distinct and separate realms. Perhaps it would be more correct to say that there is one great realm of Creation, of which the visible and tangible is only a part. God's modes of action are not limited to those which are normally observable in the processes of nature. It need not surprise us at all if He sometimes brings to bear in the material realm forces which are not those with which we are familiar. Sometimes He operates through the medium of natural forces (as He probably did at the

fall of Jericho); at other times He may act more directly, and independently of natural forces. We must make room in our thinking for the operation of the supernatural. It is not that natural law is suspended, or even overridden; but rather that a wider law comes into operation.

Dr. LESLIE WEATHERHEAD wrote: I prefer to think of miracles as normal activities on a higher spiritual plane of being than that with which we are familiar; the break-through of the energies of the kingdom of heaven. I have worked this out more fully in my recent book, *Psychology, Religion and Healing*.

AUTHOR'S REPLY.

I should like to thank those who by their contributions have supplemented what I said in my paper. Few call for further comment.

It is extremely difficult to give a watertight definition of a miracle. A miracle, although observed as a phenomenon, cannot be tracked back by the steps of cause and effect within the normal terms of reference of the natural sciences; though it can be accounted for by anyone who widens his terms of reference to include God and unseen spiritual beings. This perhaps makes my definition clearer in the light of what has been said by Mr. Betts.

I hesitate to join issue with Dr. Clark on scientific matters, but I cannot entirely agree with him on sex reversal and parthenogenesis. The example of cocks and hens is not a true parallel, since in birds the female carries the sex determinant. I can find records of hens becoming cocks, when their ovaries have been destroyed through disease, but I cannot, in the limited books that I have available, find examples of cocks that have become hens under normal conditions, without injection of the female hormone.

In human beings I doubt whether "sex reversal" is the correct term, but again I must be subject to correction. The records seem to me to indicate that from time to time there are certain cases of doubtful sexuality, where the person for a time lives as e.g., a female, but is later found to possess more of the physical characters of a male. In such cases there has presumably been the XY formation from the beginning. It would seem that the basic sex distinction depends upon the XX and XY factors, but that the

development of "maleness" and "femaleness" depends upon the functioning of organisers and secretions in the body. One could develop the argument from the results of parthenogenesis in the hive bee, where the result is always the production of a drone (male).

I certainly missed the point of the use that can be made of Heisenberg's Principle, but would still point out that not all physicists apparently accept this as an ultimate indeterminacy.

One speaker at the meeting, who has not sent in a written comment, drew attention to miracles of providence, and of spiritual regeneration. I think that I ought to have taken more notice of these, but the former is in the nature of miracles of synchronization referred to on page 30, and, while the latter are convincing for the Christian, their observable results can frequently be accounted for in part by those who have studied the workings of the human mind. A full paper on the supernatural and natural elements in Christian conversion would be of the greatest interest.