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793RD ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, JANUARY 6TH, 1936,

AT 4.30 P.M.

COMMANDER R. G. STUDD, D.S.O., R.N. RET., IN THE CHAIR.

The Minutes of May 27th, 1935, were read, confirmed, and signed, and the HON. SECRETARY announced the following elections:—As a Member: Col. A. H. van Straubensee; and as Associates: Eric W. Russell, Esq.; W. M. Reid, Esq.; James S. St. Clair; and the Rev. John Howe; and as a Missionary Associate: the Rev. H. S. Nesbitt.

The following had also been elected since the last Meeting:—As a Life Member: Mrs. C. H. Greenleaf; and as a Member: Lt.-Col. Sir Francis Fremantle, O.B.E., M.D., F.R.C.S.; as Associates: Lieut. M. A. Bid-dulph; P. H. I. Dolton, Esq.; T. B. Gilbert, Esq.; W. J. Jackson, Esq.; Dr. J. F. Merrill; Miss Annie Moss; Arthur O. Neve, Esq.; Rev. G. H. Perman; B. P. Sutherland; Miss N. K. Snow; Dr. W. J. A. Schouten; Miss Tryon; G. R. Titchener, Esq., Edward Whittaker, Esq. (Eng.), and Harry Rees, Esq., B.Sc., Student Associates; and Miss A. M. D. Dinneen as a Missionary Associate.

The CHAIRMAN then called on the Rev. F. W. Pitt to read his paper entitled "The Times of the Gentiles."

THE TIMES OF THE GENTILES

By the REV. F. W. PITT.

IT has been said that the important thing is not when the Times of the Gentiles began but when they will end.

There is some truth in this, if we confine our interest in the subject to its bearing upon present world events; but if we are to study it as a whole, it is essential to know when that period began which the Lord said should continue until the Times of the Gentiles be fulfilled.

It is generally accepted, both by Futurist and Historicist interpreters of prophecy, that the Times of the Gentiles began in 606 B.C., when Nebuchadnezzar conquered Jerusalem, and some Futurists and most Historicists have decided that the period should last 2,520 years.

If that were so, anyone from Daniel onwards could have made a simple calculation to show that the Times of the Gentiles would end in A.D. 1915, reckoning ordinary solar years. But if prophetic years of 360 days were used in the calculation, the end of the 2,520 years would be in A.D. 1878. The wonder is that no one in the distant past was "cute" enough to see this; for instance, Paul, who was certainly equal in intelligence to most of us. Yet though by his teaching the close of the Times of the Gentiles was related to the Second Advent, instead of telling people that they need not worry till A.D. 1878 or 1915, he urged them to be watching and waiting.

Date fixers before those years were, of course, proved to be wrong when their dates passed and nothing happened.

Later date fixers, in the hope of hitting upon a successful prediction, have altered the date of the commencement of the Times of the Gentiles from 606 B.C. to 587 B.C., when Jerusalem was destroyed. 2,520 years from this date would bring us to 1897, using prophetic years, or 1934, using solar years.

No doubt someone will find reasons for explaining the complete failure of every effort to fix the date of the Advent, and think out a new date, but the fact remains that 1934 has passed and the Times of the Gentiles are not at an end.

There must therefore be something wrong with the system of date fixing.

I submit that the year for a day principle which has governed all date predictions, is the cause of the trouble, and that it is without any Scripture authority.

In Numbers xiv, 34, we have the expression "each day for a year," or as in the Revised Version, "For every day a year." But it is unreasonable to take that expression and say that it authorises us to apply it whenever a day is mentioned prophetically. If it did, then the Lord meant He would be three years in the heart of the earth when He said three days.

What Numbers xiv, 34, actually says is, that for each day in which the land was searched by the spies there should be one year of wandering in the wilderness. "For every day a

year." The days are days, and the years are years. Even if it were otherwise, who is to decide when and how the extraordinary device of calling days years is to be applied?

For the purpose of determining the period of the Times of the Gentiles 2,520 days are turned into years. But where in Scripture are 2,520 days mentioned? Nowhere, from Genesis to Revelation, does the number 2,520 occur in any connection whatever, neither as days, years, nor anything.

It is quite evident, then, that they must be produced somehow by a process. It is done in two ways.

In Leviticus xxvi, there is the warning of judgment upon Israel for apostasy, and God said, "I will punish you seven times more for your sins."

These "seven times" have been wrested from their context and made to represent seven years. The rest is easy. Taking 360 days to a year, seven times 360 equals 2,520 days. Apply the Year Day theory, and there are the 2,520 years of Gentile domination. It seems like conjuring, but it is worse. Every scholar knows that the times of this chapter are not periods. The expression occurs in verses 18, 21, 24 and 28. Verse 21, which says, "I will bring seven times more plagues upon you" proves that an increasing number of judgments is meant. But, if it were not so, as "seven times more" is repeated four times, that would amount to twenty-eight, bringing the total years up to 10,080. This discrepancy has led some to abandon the times of Leviticus xxvi and fix on Nebuchadnezzar's seven years of debasement; and if that is correct Nebuchadnezzar may be still somewhere in the world eating grass like an ox.

I have considered the year for a day theory carefully and prayerfully for a long time, and I am convinced that every postulate from which the 2,520 years of Gentile supremacy are articulated has no foundation in fact, and that therefore it is not proven that the Times of the Gentiles began with Nebuchadnezzar, apart from the fact that Scripture never says they did.

The Times of the Gentiles, therefore, cannot mean the period from 606 B.C. onward. If it did, then they must have ended when the Jews returned from the Captivity, for after that, and even while they were still in Babylon, they were God's chosen people, through whom He implemented His plans for the world's redemption.

Israel were God's people when Christ came. The Kingdom of Heaven was preached to and through them. Their rebuilt temple was the House of God. Their land was God's land, and after the death and resurrection of Christ Peter appealed to the nation to repent and be converted, that their sins may be blotted out, so that there may come seasons of refreshing from the presence of the Lord, and that He may send the Christ who hath been appointed for you, even Jesus, whom the heavens must receive until the restoration of all things which God hath spoken by the mouth of His holy prophets. (Acts iii, 19, R.V.)

The nation, as such, did not repent, and yet God graciously gave Israel further opportunities to become the channel of blessing to the world.

But with the stoning of Stephen, and the coming of the Apostle of the Gentiles, God set Israel aside, eventually scattering them among all nations, as they are at this day.

It should be noted that all prophetic time periods are related to Israel, and never to the Gentiles. Their affliction in a strange land was to be for 400 years. The captivity in Babylon seventy years. Daniel's seventy weeks of years were determined upon his people—the Jews and Jerusalem.

I am fully convinced that 69 of those weeks ended with the cutting off of Messiah, leaving "the one week" unfulfilled. This interpretation is ridiculed by many who resent the so-called "gap theory." But the gap theory is an established fact supported by many passages in the Old Testament.

For instance, "Unto us a Child is born, unto us a Son is given: and the government shall be upon His shoulder" (Isa. ix, 6). The gap occurs between the first two sentences, which predict the coming of the Messiah, and the last sentence, which will not be fulfilled till the Messiah comes to reign. The gap is exactly that parenthesis between the 69th and 70th week of Daniel ix.

Nearly all the predictions of the coming of the Messiah give details of what did take place at His first coming, and what cannot now take place till His second coming.

There are reasons outside the limits of this paper which necessitated writing Old Testament prophecies as if they were one continuous whole, although events proved that part of the prophecy had to be deferred.

A second advent is never spoken of in the Old Testament. It is a definitely New Testament revelation necessitated by the rejection of Messiah by the Jews.

The Chosen Nation's obduracy and consequent judgment brought in the Times of the Gentiles, which will close with the Second Advent.

That the Times of the Gentiles began at the destruction of Jerusalem by Titus in A.D. 70 is implied by the Lord's own words in Luke xxi: "They shall fall by the edge of the sword, and shall be led away captive into all nations, and Jerusalem shall be trodden down of the Gentiles until the Times of the Gentiles be fulfilled."

From this Scripture and others I conclude that the Times of the Gentiles is that period during which God ceases to have any governmental dealings with the Israel people. During that period they are dispossessed of their land. Their Temple, which was ordained to be a house of prayer for all nations, is non-existent; their very language died out, and instead of being God's agents for distributing the riches of His Grace to the world, they are wanderers among all nations, hated and despised, a byword and a proverb.

There is, of course, a lesser sense in which the Times of the Gentiles began with Nebuchadnezzar, but that was only a preliminary and temporary fulfilment of God's judgments upon His people, and as the Lord Jesus definitely related the Times of the Gentiles to the treading down of Jerusalem upon its destruction by Titus, it would seem to be from that date the Times of the Gentiles in the full sense should be reckoned, for since that day God has not used that nation for any purpose. "Blindness (or hardening) is happened unto Israel until the fulness of the Gentiles be come in" (Romans xi, 25); that is, until God has finished His work of taking out from the Gentiles a people for His name, "and to this agree the words of the prophets as it is written: After this I will return, and will build again the tabernacle of David which is fallen down; and I will build again the ruins thereof, and I will set it up, that the residue of men might seek after the Lord, and all the Gentiles upon whom my name is called, saith the Lord, who doeth all these things." (Acts xv, 14-17.)

The "Times of the Gentiles" are not the same as the "Fulness of the Gentiles." The latter indicates the Church parenthesis

as in the gap between the 69th and 70th week of Daniel ix. The period of the Fulness of the Gentiles will end with the removal of the Church. The Times of the Gentiles will continue until the 70th week is ended, that is at least seven years longer than the Fulness of the Gentiles.

When those seven years are ended God will build again the tabernacle of David, and all Israel will be saved, and become the channel of blessing to the Gentiles. "For out of Zion shall go forth the law, and the word of God from Jerusalem." Then the millennial glory, the knowledge of God shall fill the earth as the waters cover the sea.

Thus we have in prophecy a complete plan of the ages, covering the Times of the Gentiles from A.D. 70 till the Millennium.

In these stirring days it is natural that we should inquire if there is any way of determining that the Times of the Gentiles are running out. Are we near the end?

I have sought to show that we cannot fix dates, for there is no chronological scheme in Scripture applicable to the Gentiles or the Church. Chronology had to do with the Jews only. When the fulness of the Gentiles is completed by the removal of the Church, predicted dates may be looked for. The last seven years of the Times of the Gentiles will be inaugurated by a seven years' covenant made between the Roman Prince that shall come and the Jews at Jerusalem.

At the close of the seven years the Second Advent will take place. This proves that the Jews are the outstanding sign of the end of the Age.

This is confirmed by the Lord's words in Luke xxi: "Jerusalem shall be trodden down of the Gentiles until the Times of the Gentiles be fulfilled," which will not be till the last seven years have expired.

There have been attempts to falsify this prediction, especially that of Julian the Apostate, who, to justify his apostasy, undertook to rebuild the Temple at Jerusalem. The power of the Roman Empire in alliance with the fanaticism of Jews longing to recover their lost heritage, should have been able to do a simple thing like that. But, as Gibbon says, while the work was being feverishly pursued, the men using silver spades and the women silken shawls to carry away the rubbish, without warning, explosions and fireballs dispersed the workers and

frustrated Julian's purpose, who, not long afterwards, was killed in battle and cried, "O Galilean! Thou hast conquered." Since those days the Jews have been excluded from their land by Saracens and Turks until the Great War.

The story is well known of how when the British Government had run short of high explosive a Jewish chemist gave the formula of a new explosive in exchange for a promise that Britain would favour the Zionist scheme of making Palestine a national home for the Jews.

This resulted in the famous Balfour Declaration being delivered to Lord Rothschild as representing Judaism in this country.

When this Declaration was published several prominent students of prophecy waited on the late Dr. F. B. Meyer, and pointed out the importance of the Balfour Declaration in regard to the Times of the Gentiles.

Although the Turks were still in possession of the Holy Land, and with German assistance had fortified the Judean hills with modern armaments, Dr. Meyer and his friends arranged a mass meeting at the Queen's Hall, London, to be held on December 13th, 1917. Four days before the meeting was held the startling news was published that General Allenby had taken Jerusalem without firing a shot, and the Turks soon after yielded up the Holy Land to Britain.

This amazing event electrified the meeting at the Queen's Hall, for it indicated that God had lifted His hand the second time to recover the remnant of His people. It was impossible to see in it anything less than a sign that the close of the Times of the Gentiles was on the distant horizon. Some people have gone so far as to declare that the expulsion of the Turk from Jerusalem ended the Times of the Gentiles. But this of course is not the case, for Britain is as truly a Gentile nation as Turkey, although, thank God, not so cruelly Gentile as some others who revel in Anti-Semitism.

If, then, the termination of the Times of the Gentiles has cast its shadow before, how long before, and under what circumstances will the last seven years, the seventieth week of Daniel, develop?

The first thing to happen is the coming in of the Fulness of the Gentiles, and the removal of the completed Church. After that the Jews must have settled in their land in sufficient

numbers to recover their nationhood, and choose a King, the Antichrist, the false King of the Jews. Until that day the Jews without a constitution and a recognised head, cannot make the seven years' treaty with the Roman Prince that shall come. The making of that treaty implies the recovery of Israel's nationhood, which consummation is already the ambition of the Revisionist Section of Zionism.

There is no outstanding personage in view who is a portent of the Antichrist King, but he will come in due course. It seems as if some Jews would recognise anyone who was bold and strong enough to assume kingship, for even before the war, Zionists offered the throne of David to the Sultan of Turkey if he would grant them permission to settle in the land from which they were then excluded.

But there is no uncertainty as to the Roman Prince with whom the covenant will be made. Mussolini, who is at least his portent, has declared and partly fulfilled his ambition to revive the Old Roman Empire. In a new street in Rome he has had set up a huge map of the Ancient Roman Empire, and Italians are being stimulated by promises of world dominion.

The unwarrantable invasion of Abyssinia is part of the programme. But Mussolini has his eye on much beside Abyssinia. After Abyssinia there is Egypt, though the Dictator keeps his own counsel as to that vital link with British interests in the East. But he has openly declared his policy for Palestine; has demanded that the Mediterranean shall become an Italian lake; Cyprus, Malta, and Gibraltar are marked down for inclusion in his scheme, and there is much beside.

Prophetic students at the beginning of this century were laughed at when they foretold the revival of the Old Roman Empire. But there it is being assembled under our eyes in preparation for the last seven years of the Times of the Gentiles.

One of the most significant acts of Mussolini was the restoration in modified form of the temporal power of the Papacy, and now we see the Scarlet Coloured Woman of Revelation xvii mounted on the Scarlet Coloured Beast, both of course thinking themselves master of the situation, but for the present allied in their project of universal world power.

The Pope has been praying for peace, and when it is asked why he does not use his great influence to restrain Mussolini's

aggression, we are told by his representative in England that he is an old man, unable to do anything.

But, if the truth were known, the Pope is as much in favour of the conquest of Abyssinia as Mussolini himself. The present Emperor has shown marked approval of the work of Protestant Missions in Ethiopia. He doubtless remembers Jesuit intrigues in the past, and fears that they will again undermine the authority of the government. But the Pope knows that if Mussolini's campaign succeeds, Abyssinia will again be free for Roman Catholicism and the Protestant Missions will be suppressed.

Thus we see the stage being set for the last dread scenes of the Times of the Gentiles.

There are other unmistakable evidences that the day of Israel's redemption is at hand.

"There shall be signs in the sun and moon, and in the stars; and on the earth distress of nations with perplexity; the sea and the waves roaring; men's hearts failing them for fear, and for looking after those things which are coming upon the earth." (Luke xxi, 25, 26.)

There is not time to refer to all these signs; but one thing is beyond doubt: the "distress of nations with perplexity." The world has not yet recovered, and probably never will recover from the results of the Great War; but already, while there are scores of peace pacts, preparations for the next war are being rushed forward. Europe is an armed camp. More money is being spent on armaments than ever before in the world's history. Suspicion and unrest prevail everywhere, and neither the League of Nations nor protective alliances can allay the fears of men looking anxiously for those things which are coming upon the earth.

There are thirty millions of unemployed people; starvation and tyranny in Russia and elsewhere. National debts are being piled up by nations already paralysed by economic disaster. Gold reserves are depleted. Bankruptcy threatens most governments, and as H. G. Wells says, "there is no way out." The literal meaning, though he may not have known it, of the words, "with perplexity."

Surely the end is in sight, and our only comfort is found in the words, "When ye see these things *begin* to come to pass, then look up, and lift up your heads, for your redemption draweth

nigh." That mighty event implying the coming of the Son of Man in power and great glory will bring to an end the Times of the Gentiles.

DISCUSSION.

The CHAIRMAN (Commr. R. G. Studd), proposed a vote of thanks to the lecturer, which was carried with acclamation, and commenting on the paper, said: I do not like the suggestion that, if anybody had been "cute enough," he could, years ago, have forecasted certain important dates such as 1917, 1934, etc. The Holy Spirit only reveals prophetic truth at the appropriate moment, and prophecy seldom enables anyone to accurately forecast a specific event before it comes.

I agree with the lecturer's statement that the year-for-a-day principle cannot always be applied to every day mentioned in the Bible, but I am unable to agree with him when he suggests that it can never be applied.

Nor can I reject out of hand Grattan Guinness' chronology, for he had been amazingly right with regard to 1917, and it might well be that he was right with 1934. He specified that these dates were important dates connected with the restoration of the Jews to Palestine. 1917 saw the freeing of Jerusalem: 1934 saw the beginning of the Jews being thrust out by a Gentile nation (viz., Germany) and forced to go back to Palestine. Emigration as a result had leaped up from about 4,000 per annum to 48,000 per annum.

We need to remember that dates refer rather to the restoration of the Jews than to the end of the time of the Gentiles. The two periods appear to overlap to some extent.

It is interesting, further, to note that whatever school of prophecy we belong to, or whatever theories we may hold, all exponents of prophecy are united in their belief that the Return of Our Lord is imminent. Not only so, but men everywhere appear now to be living in expectation of a world crisis of some sort; witness these extracts from a City periodical concerned with commerce alone:—

"We know, beyond any peradventure, that Britain is now a land of paradox. Internally she is enjoying an unprecedented and unparalleled recovery. Externally she is beset with many dangers, both of politics and economics. Her recovery has

occurred within a trading world which has not itself restored prosperity. Her continued prosperity depends upon no political forces being permitted to upset the course of her external trade and the inflow of her food and raw materials. She has, in short, reached a momentum like that of a bicycle—it depends upon the maintenance of a most precarious balance. A sudden gust, an unexpected obstacle, a mistaken leaning to one side or another, and the momentum ends as the vehicle crashes to the ground.

“If we suppose that anything but this is the case, we allow optimism to deceive us. . . .

“The episode of Italy and Abyssinia cannot have been other than a stimulation to the aspirations of Germany. If the united Powers cannot prevent the annexation of territory by force, why should not the claims of any claimant be thrust forward aggressively, provided the claimant has the force to threaten and command? Until the force available to the keepers of justice is superior to that of the outragers, ordered life among the nations must remain impossible.

“We face, therefore, a world in which the already enunciated States’—like Italy, Germany and Japan—desires for expansion, for military dominance, for raw materials, may soon become insistent demands. This means that we have passed from the era of disarmament to that of rearmament with a vengeance. It was foreseen long ago. It was as far back as the spring that one observer of the European scene said, “We are out of the post-war era and into the pre-war era.

“What really are the probabilities? Unless those nations without territory and without adequate internal resources, but with a passion for building up large and overflowing populations, can expand by peaceful penetration, they must expand by force. . . . Any one of these avenues may be the cause of that wholesale world war which all dictates of common sense and experience tell us will be the end of Western civilisation.”

Almost the whole world acknowledges that we stand upon the eve of some great event, but only students of prophecy realise what that event is going to be.

Lastly, we are persuaded that the Lord's return is imminent because it seems as though the Holy Spirit is speaking to men's hearts particularly on this subject at the present time. There is a quickened interest in it among Christian people. At Keswick last year the feeling of expectancy was very noticeable. Although no address was devoted to the subject of our Lord's return, yet whenever casual reference was made to it, it was noticeable that there was a sort of thrill of expectancy which ran right through the tent, so much so that it was remarked upon by one of the speakers at one of the meetings towards the end of the week.

The PRESIDENT (Sir Ambrose Fleming, F.R.S.) said: I am much interested in the subject of the paper by Mr. Pitt, and I note his novel treatment of it. It is always an advantage to be led to new views of any old subject, especially one so important as the present one, although I cannot, however, agree with some of Mr. Pitt's conclusions.

At the outset of any discussion on the subject of unfulfilled prophecy there are two questions to be considered which seem to me to be fundamental. The first of these is whether scriptural prophecy has been given to us in such a form as to enable us to predict exactly the course and time of future events. Is it not rather given in such a form that, when it has been fulfilled, we can see such correspondence between prediction and events as to confirm our faith in the Divine Inspiration of the Scriptures?

The second question is whether exact predetermination is possible at all when dealing with events concerning beings like ourselves possessing within limits the power of free choice or free will.

It is now recognised that even in physical phenomena exact predetermination is not always possible. Heisenberg, a German physicist, has shown that in phenomena connected with atoms and electrons there is a principle of indeterminacy. We cannot, for instance, fix or know *both* the position and the motion of the electron. In radioactive atoms, such as radium or thorium, the nuclei of some atoms burst, but we cannot tell why one nucleus should break up and not another. On the average, a certain number break up in a year or any fixed time.

There is the same indeterminacy about life and its duration. We cannot tell how long each one of us will live ; but the life insurance societies, dealing with statistics of an immense number of human lives, can fix with close approximation the expectation of human life at any age.

The same indeterminacy holds good of certain events in human activities. If we were to say to a farmer, "When shall you reap your cornfield ? ", he would not give a definite date because that day might be wet or stormy. He would say, "I shall reap it when it is ripe." And if we were to ask him when it will be ripe, he would say, "I must wait and see."

Now the end of the period of time we are discussing, viz., "The Times of the Gentiles," is evidently connected with another event called "the end of the Age," and that again with a time of selection or separating which our Lord mentions under the simile of a harvest ; and when speaking of it He said : "Of that day and that hour knoweth no man, no, not even the angels of heaven, but my Father only" (Matt. xxiv, 36); and He added : "neither the Son" (Mark xiii, 32). Even then, although the Will and foreknowledge of God the Father may have fixed that a certain event or events shall take place, He may have reserved to Himself the power of determining *when* it shall take place, conditioned by the state of affairs at that time. We are therefore told it will certainly take place ; but we are not given the information, or can be given it, as to the actual time excepting broadly and generally.

Thus whilst the Daniel prophecy of the "Seventy Weeks" or Seventy Sevens, coupled with our knowledge of the approximate dates of the decrees of Cyrus and Artaxerxes for the return of some of the expatriated Jews to rebuild the temple and the wall of Jerusalem, enables us to see in it a chronological prediction which was fulfilled, yet it never enabled the Jews to recognise Jesus of Nazareth, when He came, as the Messiah or Christ, and it is noteworthy that Christ himself never appealed to it to convince the Jewish Sanhedrom that he was the promised Messiah. There were vague or indeterminate convictions about that time that his coming was due, as shown by the statements of Simeon and Anna at the presentation of the Child Jesus in the Temple and by the visit of the Magi to Bethlehem.

Whilst it is unquestionable, then, that there will be an end to the present human government of man by man, and that a supreme world-wide theocracy or Kingdom of God will be set up on earth, beginning with the events of the Second Advent, all attempts hitherto made to fix a precise date have been falsified by events ; and I am not sure that they do not do more harm than good, because when nothing very striking occurs at the date humanly predicted, it encourages unbelievers to say : “ Where is the promise of His Coming ? for since the fathers fell asleep, all things continue as they were from the beginning of the Creation ” (II Peter iii, 4). It seems to me that the course of human history is very much like a long railway journey for a passenger in an hitherto unvisited country. The traveller cannot tell precisely the time at which he will arrive at the terminus, but, from the general view out of his carriage window, he can say to himself, “ It cannot now be long. The houses and buildings get close together and more numerous. The green fields and forests are left behind, and, now and again, the train slows up as the signals are set against it.” Can anyone, taking a broad glance at the world to-day, believe that human power alone will bring the world back to an era of universal peace and prosperity and abolish war, poverty, crime, and international contests ? Science has made the world smaller and given inventions which annihilate space, but it has also furnished weapons for mutual destruction.

As regards the year-day theory, whilst I agree with Mr. Pitt that there are considerable difficulties in its application, yet Grattan Guinness' prediction of the importance of the year 1917 was obtained by its help. Starting from the year 604 B.C., the first year of Nebuchadnezzar's sole reign, 2,520 years brought us to 1917 and the liberation of Jerusalem from the grip of Mohammedanism, enduring for more than 1,200 years. In addition, 1,335 days, taken as lunar years (*see* Daniel xii, 11), and dating from the Hegiva (A.D. 622), terminated at the same date.

In Ezekiel (Chapter iv) we have a distinct equation of “ each day for a year ” (Ez. iv, 6)—390 days and 40 days for a similar number of years. The year-day theory of interpretation has been strongly supported by such prophetic students as Professor T. R. Birks, Mr. Elliot and Grattan Guinness.

I am rather dubious as to the correctness of Mr. Pitt's forecast of events towards the end of his paper. The view that Anti-Christ is a person, who will be elected by Jews as king, is not in accordance with the use of the word in the only places in which it is used in Scripture, viz., the Epistles of St. John. St. John writes of "many Anti-Christ" (I John ii, 18), and again, that he is Anti-Christ "that denieth the Father and the Son." The prefix *anti* is equivalent to *vice* as in Vice-President. It is thus any doctrine, or system, of worship, which puts anything in front of, or in place of Christ as an object of worship.

Now what we are seeing in Europe at the present time in Germany, Italy and Russia is the old revived worship of the State as supreme.

Mr. Renan, in his Hibbert Lectures, 1880, says with regard to similar ideas in the Roman Empire that the real object of worship of the Romans was the empire itself. The emperors encouraged this because it enabled them to pose as divine, or objects of worship. They did not object to other objects of worship, provided they were included. "Let men worship other gods or not as they pleased, but if they refused to offer homage to Rome and the emperors, they were not merely irreligious persons, but bad citizens." The Christians were persecuted not because they worshipped Christ, but because they would not worship the State and the emperors as well. It is quite out of the question to suppose that Mussolini or any successor can restore the old Roman Empire and conquer France, Germany, and the whole Near East; but he is reviving the Roman worship of the State as supreme, and, in that sense, is an Anti-Christ, as St. John uses the term.

As regards all else in the womb of the future, we must "wait and see." But all present events strongly indicate we are in the time of the End, and that the stone cut out without hands is now falling on the feet of the great image seen in Nebuchadnezzar's dream, and that we are approaching the time when the God of Heaven shall set up a kingdom which shall never be destroyed, but shall break in pieces all present kingdoms, and shall stand for ever.

The Rev. C. W. COOPER, F.G.S., said: To my mind the main statements of the paper are built upon mistaken conceptions of

“The Times of the Gentiles.” On page 15, para. 3, the writer states, “The Times of the Gentiles began A.D. 70,” and further says this is implied by our Lord’s words (Luke xxi, 24), “Jerusalem shall be trodden down of the Gentiles until the Times of the Gentiles be fulfilled.”

Surely this statement stands self-condemned, for it is beyond dispute that Jerusalem was at that time under the dominance of Gentile Rome, and had been under the dominance of the Gentile nations, since Nebuchadnezzar set up the first of the Babylonian succession of Gentile empires.

The plain meaning of the words of our Lord is that Jerusalem would continue to be “trodden down by the Gentiles until the Times of the Gentiles should be fulfilled,” which occurred, at least in part, in 1917, when Jerusalem was set free by the victory of General Allenby, after 2,520 years of Gentile domination.

The same statements and the same claim, made in other passages, *e.g.*, page 16, lines 12–14, that “the Times of the Gentiles is covered by A.D. 70 till the Millennium,” is shown to be erroneous by the fact that our Lord bids us, in the parallel passage of St. Matt. xxiv, 15, to read and understand Daniel’s prophecies.

The four Gentile kingdoms were to stand as an image, intact (Dan. ii), until, not the introduction of Christ’s Kingdom, in the first century A.D., but until the “victorious” coming in of the stone Kingdom of God, which clearly marks the Times of the Gentiles as beginning with Nebuchadnezzar’s dominance, lasting until those Gentile Kingdoms are crushed.

So again with the fourth chapter of Daniel. “The Stump” of Nebuchadnezzar’s tree of Sin (not Nebuchadnezzar himself, but his Gentile anti-God kingdom) was to remain in the earth until “seven times” passed over it (Dan. iv, 23). The same teaching with regard to the “seven times” is repeated in the subsequent chapters of Daniel.

Hence, I consider it a grave error to say that Scripture does not represent that the Times of the Gentiles began with Nebuchadnezzar as stated (p. 13, line 46).

The writer of this paper makes a strange statement on page 16, lines 12–14. Surely, God’s “plan of the ages” began in the time of

Genesis, and the Old and New Testaments are the history of the Israel and Judah nations unfolding that plan.

All Israel had so sinned against God that He punished them by allowing (Dan. ii, 37 says it was God's doing) Nebuchadnezzar to set up kingdoms contrary to God's kingdom. This was part of God's plan, but their overthrow after "seven times" was also part of His "plan of the ages."

It is strange that the writer should say on page 3, paragraph 9, "There is, of course, a lesser sense in which the Times of the Gentiles began with Nebuchadnezzar," but why insert the words "only temporary"? All the chapters in Daniel say that dominance was to last the seven times, *i.e.*, 2,520 years, and the Book of Revelation speaks of the coming of the last half of these times, as time, times and half a time, *i.e.*, 1,260 days or 42 months—when the "Babylon" Gentile Kingdoms will be finally overthrown.

In view of these few references of Scripture as to the duration of the Times of the Gentiles, we are amazed to read the statement, on page 16, lines 18–20, "there is no chronological scheme in Scripture applicable to the Gentiles."

This confusion arises through the writer failing to see that the term Times of the Gentiles is synonymous in meaning with the Scripture use of the word "Babylon." I have examined every reference, throughout Scripture, to this name Babylon and in every case I find that each reference has but one of two meanings each made clear by the context, *viz.*, either it is a passing reference to the historical city, or a reference to a world rule and blighting influence in opposition to God's Kingdom.

I challenge the writer to produce one Scripture passage which states that "Babylon" is the Papacy, as the paper assumes on page 8. The Papacy, no doubt, is part of the false spiritual ruling power in the Babylonian kingdoms.

The Babylon of the Old Testament and the Book of Revelation is to this day to be found in the kingdoms of this world, with its unscriptural system of economics, usury, etc., while the Kingdom of God is the kingdom over which Jesus is King and over which He will yet rule in Person until "the kingdoms of this world become the Kingdoms of our God."

Colonel A. H. VAN STRAUBENZEE said: God addresses Himself in the present dispensation to three classes of people: the Jews, the Gentiles, and the Church of God; the last named, composed of all true believers, Jews and Gentiles who form the "Body" or Church of Christ. We do not know exactly when this Body commenced, or when it will be completed; but we do know both Jew and Gentile existed before it did commence, and will continue on the earth after its completion. From this we gather that the Times of the Gentiles are related to the Jew, and have nothing to do with the Body of Christ. Times and seasons are given in the Bible in their duration, and not in reference to their starting-point, or their termination. Anno Dei reckoning ceases sometimes whilst Anno Mundi reckoning goes on, and it is governed according to God's Divine counsels concerning His people Israel.

In Daniel ii, Nebuchadnezzar's dream, we are shown that five world powers would possess Jerusalem. Since all these powers have a previous existence before they get possession of the city, they are reckoned only as they obtained possession of Jerusalem. The five powers are those of Babylon, the Medo-Persian Empire, Greece, Rome, and Islam. The real sign of the ending of these times must therefore be the removal of the Mohammedan power from the land of Israel (Luke xxi, 24, "Jerusalem shall be trodden down of the Gentiles, until the Times of the Gentiles be fulfilled"). Has not the treading down ceased since 1915-17? Should not the Times of the Gentiles be understood to mean "the Times of the Gentile possession of Jerusalem"? These five kingdoms are all in existence to-day, and in verses 34, 35 of this chapter (Dan. ii) it is foretold that they shall be broken in pieces together by Messiah's Kingdom.

The important question arises as to where are we now. In answering that question we have three New Testament prophecies given by our Lord: the first in the Temple (Luke xxi); the other two on the Mount of Olives (Matt. xxiv; Mark xiii). They deal with these three problems: (1) When shall these things be? (2) What shall be the Sign of Thy Coming? (3) What shall be the Sign of the Consummation of the Age?

Luke xxi, 12, is very significant and says *before* all these, *i.e.*, before the Great Tribulation, and all that is recorded concerning

Jerusalem (verses 12 to 24). Between verse 24 and verse 25 our Lord passes over this dispensation and takes up the time of the end. There are two different words for "end," one, *sunteleia*, meaning the meeting-time of two ages—a transitional period; the other, *telos*, the actual end, in this case three and a half years. The *sunteleia* will probably be not less than 30 years, and not more than 40. During this period large numbers of Jews will be settled in Jerusalem. With some "form of government" they will be able to make a covenant for seven years with a Roman prince called Anti-Christ, who will be a member of the fourth iron power, because that power destroyed the city and the sanctuary. In the future they cause the sacrifice to cease, etc., after breaking their seven years' covenant.

What of the *fullness* of the Gentiles? At the end of the *telos* our Lord appears visibly to destroy Anti-Christ and his power. He sits on the Throne of His Glory for 1,000 years; and before Him there are gathered "representatives" of all Gentile nations. There is no resurrection, but the nations are judged, and some pass on to enjoy millennial glory, while others are removed. Surely this is "great grace" or "fullness," and is for the world like *life from the dead*, inasmuch as He has received His own people the Jews again (Rom. xi, 15).

The "Body of Christ," what of it? All from the grave, or else, some from life and the majority from the grave, will be "received up into Glory," "called on High," just as the Head of the Body was. Glory to His Name.

Mr. G. WILSON HEATH said: Mr. Pitt opens by selecting a date, 606 B.C., which years ago was thought to be correct chronology but which is at variance with modern chronology by more than a hundred years.

It is unfortunate that Mr. Pitt uses this to cast discredit upon the "day-year" interpretation of the prophetic number 2,520, and upon "day-year" reckoning generally.

If Mr. Pitt's datum B.C. line is, say, a hundred years too ancient, then his deductions on this "day-year" results are at fault.

If a more recent and more accurate B.C. datum line had been adopted, the 2,520 result might be expected at, say, 100 years

hence. My opinion is that Mr. Pitt's argument fails. Mr. Pitt finds himself compelled to accept modern chronology, and the "day-year" theory, when he deals with the 70 weeks of Daniel ix. His datum line, then, must be 452-4 B.C. as the "20th year of Artaxerxes," from which the 490 years (70 weeks) must commence if the coming of "the Anointed Prince," and the "cutting off" of the same is to coincide with the dates A.D. 26-29. I humbly suggest it is a mistake to refuse the "day-year" dates in connection with 2,520 year, and to use "day-year" dates to support the theory of the 70 weeks of Daniel ix. Those who refuse the "gap" theory in connection with the 70 weeks of Daniel ix, because Scripture states the 70 weeks are a "determined" or specially cut off and completed period, thankfully accept the "gap" period, say, in connection with Luke iv, 19, or the great "gap," the present interval of grace between the casting off of Israel and the future reception of Israel, this wonderful interval or "gap" when God in grace is calling out from Jew and Gentile a people to be Christ's co-heirs, His Body, the Church.

We affirm that the "determined" period of 70 weeks or 490 years, was given to Israel as a *final period of probation*, and that it ended at the cruel murder of Stephen, the man "full of the Holy Spirit," in, say, A.D. 35. Sin against the "Son of Man" was to be forgiven, but sin against the Holy Spirit would have no forgiveness (Matt. xii, 32). From then to now, and onwards, Israel are a scattered people, until He comes to set up His kingdom and reign.

Messiah was to be cut off "after" the 69 weeks (Dan. ix, 26), in the midst of the 70th week. He was anointed by the Holy Ghost at His baptism at the close of the 69th week. Then for three years or so He presented Himself to Israel and was then "cut off." They cried, "We have no king but Cæsar." Kingship was taken from Israel and given to Nebuchadnezzar and the Gentile powers, and will remain so, "as the Times of the Gentile," until the true King comes and crushes the colossal image of Daniel ii to fine dust.

The Rev. H. C. MORTON, B.A., Ph.D., said: I should have liked to follow up Sir Ambrose's argument and to show that it is not generally dates, but conditions and events to which the Bible

directs us. I rejoice over all so-called "indeterminacy," which frees us from the bondage of necessity and leaves room for real human freedom both in life and history.

It is very good to find myself in agreement with Mr. Pitt that there is very doubtful Biblical ground for assigning 2,520 years to the Times of the Gentiles; but I am bound to say that to me there seems even less Biblical assurance for certain statements made dogmatically by Mr. Pitt himself.

The "seven times" of Lev. xxvi is altogether too doubtful in its significance for anything more than a hesitant suggestion to be based upon it. But "more" in "seven times more" evidently is a mere mark of emphasis, and will not bear Mr. Pitt's meaning: vv. 18 and 21 say "seven times more"; vv. 24 and 28 only "seven times." Things which make one think it just possible that it *does* mean 2,520 years are: i, that the half of that period so often appears in the Bible; ii, that one or two notable dates, like 1917 and the deliverance of Jerusalem, fit into the 2,520 scheme of things. I should have liked such a paper as Mr. Pitt's to deal closely with two such issues as these.

Quite a large number of affirmations in this paper make me feel very critical. They are like the affirmations so common from some speakers at Advent Testimony meetings, for which no Biblical ground is given or presumably can be given. Just to take four out of the many:—

- i. That the "fullness of the Gentiles" "indicates the Church parenthesis as in the 60th and 70th weeks of Daniel ix."
- ii. That the "fullness of the Gentiles" will end with the removal of the Church.
- iii. That the Times of the Gentiles will continue seven years longer than "the fullness of the Gentiles."
- iv. That the Coming of the Son of Man will bring to an end the Times of the Gentiles.

There is already much confusion in the interpretation of what is called "prophecy"; but the many statements like these make the confusion worse confounded. I strongly contend that no dogmatic statements like these should be made unless there is clear and

definite Bible proof to be adduced on their behalf. I wish Mr. Pitt had confined himself to an attempt to test and adjudicate upon the common views, so stoutly advanced, as to the period called "The Times of the Gentiles." It would be a real gain to get *something* clearly settled by sound and convincing argument. I believe Mr. Pitt to be definitely without proof of each of the four statements quoted above. In this I may be quite mistaken and Mr. Pitt quite right. But what I look for in such a paper is clear proof of Scripture upon a Bible subject; and it is just clear proof from Scripture which he does not attempt.

Mr. H. W. BRYNING said: There are several points in Mr. Pitt's paper that are contrary to the teaching of the inspired words of prophecy, and, as the time allotted for debate is very short, it would be difficult to take up all the points that appear to me as unscriptural.

We are, however, in agreement regarding the truth of prophecy, though we may differ in interpreting its significance, particularly in regard to the beginning and ending of the Times of the Gentiles.

Students of prophecy do not appear to realise the significance in the subdivision of the seventy weeks into three sections that were historically fulfilled—but not without a break of thirty years between each. This break may be seen in the time which elapsed from the Decree of Cyrus to the first Decree of Artaxerxes, which was occupied only in the building of the Temple of Solomon. Grattan Guinness shows the period to have been 79 years (*i.e.*, 49 plus 30).

Therefore, the threescore and two weeks could not have begun to count until the way was prepared "to restore and to build Jerusalem unto Messiah the Prince."

The whole period from the Decree of Cyrus is thus to be taken as 69 weeks-of-years plus 30 years, which makes the interval to the Nativity 513 years instead of (69×7) 483 years.

Now the seventieth week obviously began with the "anointing" of the Messiah, who began His ministry at the age of 30. Thus another interval of 30 years was included in the prophecy so as to try those who were wise in their own conceit in that day.

It was in the midst of this week that the Messiah was "cut off," but not for Himself; and, according to the text, the covenant

which was to be confirmed with many was so confirmed by the preaching of the Gospel to the Jews first, for three and a half years, and then to the Gentiles, among whom were the other lost sheep of the House of Israel, to whom our Lord sent out the 12 disciples, for all those were "*lost sheep*" who had walked contrary to God.

The "Times" of the Gentiles therefore began when the reigning "house" of Judah came under the dominion of Nebuchadnezzar, King of Babylon, the "head of gold" of his dream-image, which Daniel interpreted as being *the first* in a series of world empires.

This Gentile dominion over Israel was established in the fourth year of Jehoiakim and continued without a break until, as explained by the Lord Jesus Christ to His disciples, Jerusalem ceased to be trodden down of the Gentiles.

Now the treading down of the Holy City came to an end when the British Forces occupied Jerusalem without opposition during the Great War. This outstanding incident of the war surely points to Divine intervention and approval of the nation into whose custody it passed, and has remained ever since A.D. 1917.

The date of this event, therefore, furnished what was required to ascertain the date of the Nativity in terms of the modern calendar; for no certain *datum* is known for the years "B.C." by present reckoning.

The end being thus given of the prophetic period, it is easy to ascertain the date of the beginning, and thereby learn the dates of the three periods as truly given to Daniel by the Angel of the Lord. Acting upon the revelation given, I believe that the correct date of the Nativity is 3 B.C., as shown below. The figures are quoted from a brochure on World Chronology, which I am engaged upon.

Extract from World Chronology.

Items	A.C.	B.C.	A.D.
Nebuchadnezzar's Year 1, Jehoiakim's			
Year 4, and the first year of Gentile			
dominion in the world	3430	604	
Jerusalem destroyed	3448	586	
Year 1 of Cyrus	3518	516	
,, 7 of Artaxerxes	3597	437	
The Nativity	4031	3	

Extract from World Chronology—continued.

Items	A.C.	B.C.	A.D.
“ The Anointing of Messiah ”... ..	4061		28
The Crucifixion	4064½		31½
Jerusalem destroyed by Titus	4134		70
Jerusalem handed over to the British Forces... ..	5950		1917
Judah’s <i>seven times</i> expires	6968		1935

Note.—This closes prophetic chronology from the Bible, but there is another date, which may concern what is written in Isaiah xxvi, 20, regarding the protection of God’s people during the “*time of trouble,*” which should end in 1936, according to the symbol of protection in the King’s Chamber, and revealed through the Chronology of the “*Witness in Stone.*”

MR. T. FITZGERALD wrote : I welcome Mr. Pitt’s paper, and I am glad the Victoria Institute has included in its syllabus a paper on such an important and momentous subject. All devout students of prophecy will appreciate any contribution to the fuller understanding of what is called Dispensational Truth. Augustine’s words are as true to-day as when uttered : “ Distinguish the dispensations, and then the Scriptures will agree together.”

There is a great deal in Mr. Pitt’s paper with which I entirely agree, but there are some statements open to criticism. While the lecturer grants that in a lesser sense the Times of the Gentiles began with Nebuchadnezzar, he urges the view that the Lord Jesus definitely related the Times of the Gentiles to the treading down of Jerusalem upon its destruction by Titus in A.D. 70, and that it would seem to be from that date that the Times of the Gentiles, in the full sense, should be reckoned.

We need to determine the exact meaning of the words used in Scripture. “ The Times of the Gentiles ” have a definite and distinct meaning. The plural form of *kairos*, which is used, signifies fixed or appointed periods of limited duration : not *one* period only, but *several*, and each of these periods characterised by distinctive events. Then the plural form of *ethnos* is used to denote not *one*

nation, but that *several* nations are related to the times, each nation a distinctive people, "living under common institutions" but having a destined time-limit to its course.

We have, further, the words "shall be trodden down," expressing power to subjugate, to dominate what has been conquered. Jerusalem stands for the centre of Jewish government, and represents the whole of Palestine.

This analysis conveys the meaning that our Lord predicted that Jerusalem would at a future day be compassed with armies, and that the Gentiles, who then held sway, would continue their domination until the "Times of the Gentiles" (a retrospective and prospective term)—times which had their beginning when power was given into the hands of Nebuchadnezzar—reached their appointed end in "the end time."

The Jews and their land have never been released from the foreign yoke since Nebuchadnezzar's day. The nation of Israel has been in the condition of Lo-ammi, "Ye are not my people, and I will not be your God" (Hos. i, 9), since the words were written, and they still apply.

There was a remnant in Palestine necessary for the fulfilment of the prophecies concerning the forerunner and the advent of the Messiah, but Jerusalem and the land were under Gentile rule.

Definite nations were destined to rule over Palestine, and the duration of their rule was fixed. Hence Babylon, Medo-Persia, Greece, and Rome each held sway in their turn and then were set aside. The present domination of the Gentile over Palestine, no doubt, has its predetermined limit, for "known unto God are all his works from the beginning of the world" (Acts xv, 18); but there is no revelation in Scripture as to the length of time the present domination will endure, just as there is no revelation in Scripture when the present "Day of Grace" will close.

When, however, the conditions depicted by Daniel and confirmed by our Lord arrive (Dan. ix, 27; Matt. xxiv, 15), then the wise will understand, and will learn from the books that their deliverance is at hand (Dan. xii, 10; ix, 2; Luke xxi, 28).

There is just one other point. Is it correct to state that "Since those days the Jews have been excluded from their land by Saracens and Turks until the Great War"? Surely Jews have lived there,

but life had been almost unbearable owing to the cruelty of Turkish officials and oppressive taxation.

Mr. L. E. JOSE wrote : We have reason to be grateful to Mr. Pitt for his watchman's call ; and we lift up our heads and look along the landscape of contemporary events to the horizon, and thence to the sky above. The constructive suggestions in the paper are the essentials which we shall ponder in our hearts. But my comment deals with a, perhaps, lesser matter which, yet, should not be passed over. In throwing one beam of light on the last days, the lecturer has tried to shut off another, for the year-day theory is actually and exactly fulfilled in the soli-lunar cycles. This may be—

- (1) Coincidence (which seems unlikely).
- (2) The result of an ancient knowledge of celestial cycles, deliberately expressed in symbolic terms, which were quoted or otherwise used in the Book of Daniel, and again in the Apocalypse.
- (3) The direct inspiration of God.

Further, the prophetic times have been fulfilled again and again in accordance with this theory.

Mr. Pitt's argument that it is wrong, because nowhere plainly stated in Scripture, would rule out a good part of the things spoken in Moses and the Prophets and the Psalms concerning Christ, *e.g.*, Rachel weeping in Rama for her children. No reference to Bethlehem or Herod, or the Wise Men ; apparently a prediction of local and contemporary application. The meaning of God's promises and sentences is often concealed till the right time comes and the right people.

The late Dr. Grattan Guinness laid stress on the gradual illumination of God's people as the end draws near. The light shines more and more, but each increase of daylight retains some darkness and error. And this seems exemplified in his own wonderful contribution, with its indisputable and exact illumination, united again and again with a mistake, or misapprehension. His long-spun-out and crowded pages are veritable gold mines of treasure for our earnest search and study. The fall of the Turkish power in

Jerusalem and the fall of the Caliphate and Sultanate at the next indicated point warn us to ponder with pure hearts and hushed earnestness what may have passed before our blind eyes in 1934.

May it not be that *every* school of thought is basically right—picture-thought, spiritual, præterist, presentist, futurist? Deep principles fulfil themselves with exactitude in many ways and many spheres; yet in each human interpretation there is likely to be error and ignorance and confusion of thought in details and in generalisations. But with God's elect the darkness departs as the dawn approaches. His ways are higher than our ways; His thoughts than our thoughts. His way is one, with many expressions. And our part is not to wrangle, but to watch and watch and watch, with eagerness and mutual encouragement (such as Mr. Pitt offers); for in such an hour *as we think not* the Son of Man cometh.

Dr. NORMAN S. DENHAM, D.Litt., wrote: I am in general agreement with the lecturer, but would point out that in his adherence to a specious interpretation of the prophecy of the Seventy Weeks he is ultimately supporting the system of prognostication which he rightly deprecates.

If anyone will trouble to check Sir Robert Anderson's calculation of the sixty-nine weeks in *The Coming Christ*, he will find that the sum exceeds the true total of days by ten. But, even if the epochs of reference were correct, which they are not, why may we calculate a *Jewish* prophetic period given to Daniel in 459 B.C. (received 538) in terms of Julian dating formulated by the Roman, Julius Cæsar, in 46 B.C.?

No prophetic period in the Bible has been fulfilled in other than ordinary Jewish calendar years. The termini always bore defined, God-given demarcations. No pseudo-prophet can clearly define from Scripture what was signified to happen in 1917 or 1934. There has been failure to inquire into the system of Biblical time reckoning. It was inclusive. Orientals did not compute, as we do, in intervals. Neither has the question of the accuracy of Ptolemy's Canon been raised. It is palpably incorrect for the Persian era; hence any significance of dates founded on the hypothetical period of 2,520 years fails.

There are eclipses and festivals noted by historians—Herodotus, Thucydides, Xenophon, Plutarch, Eusebius, etc.—which are not satisfied by the received system of years. There is one, and only one, series of years which will satisfy these notices, because, for instance, in the space of 25 years only, not less than five solar eclipses and two Olympic years are noted. The issue must result in the telescoping of the Persian era very considerably, and the right solution will agree precisely with the true interpretation of the Seventy Weeks.

I would heartily endorse the lecturer's statement that prophetic years do not measure the times of the Church or Gentile nations, except that these times are given for our instruction, and for the benefit of those who shall pass through the Great Tribulation, when the Church of God has been gathered Home.

Mr. G. B. MICHELL wrote: With one exception I am in cordial agreement with the whole of this paper. The exception may seem to some hypercritical, but, for the accuracy of the Scriptures, it is important. I refer to the term "prophetic year" for 360 days. This period is not a year in any sense of the term, and is *never* so called in the Bible. It is invariably called a "*time*" (*mo'ed*). This word (or any other) does not occur in Leviticus xxvi. The word there used on every occasion is *sheba'*, *i.e.*, *sevenfold* in one word, and has no reference whatever to time. Ever since I first met with the expression "prophetic year," in Grattan Guinness' works, more than fifty years ago, I have protested against its use. There is only one kind of year used in the Bible, and it was absolutely accurate, namely, the true solar year of 365½ days, regulated by the Egyptian observations of the heliacal rising of Sothis. The lunar "year," of 12 lunations, was observed only for festival purposes, and never ran consecutively for more than four years. It was then adjusted to the solar year. It could not, therefore, be used for consecutive lunar periods for chronological purposes.

The excuse put forward for the "year-day" theory is Ezekiel iv, 5, 6. This, however, is the reverse, not a year for a day, but a day for a year!

I agree that "the Pope is as much in favour of the conquest of Abyssinia as Mussolini himself." The Vatican has always hated

every form of the Eastern Church more intensely than any other error, even Islam.

W. BELL DAWSON, M.A., D.Sc., F.R.S.C., wrote: It would not be possible in any reasonable space to reply fully to the many questions brought up by the Rev. F. W. Pitt on "The Times of the Gentiles"; but it may be allowable to draw attention to the following points:—

(1) Periods predicted in Scripture relate to the limitation of "evil times," or periods of trial and difficulty for the people of God. This is evident all through Scripture, as in the 400 years of servitude in Egypt, the 40 years in the Wilderness, and the Babylonian Captivity. It is thus contrary to the whole tenor of prophecy that the Second Advent should be fixed by the ending of a period.

(2) The purpose of the predicted period is to maintain hope, and to awaken expectation of deliverance when the end draws near. This is clear from the above examples, as well as the Seventy Weeks to the Messiah, which did so very notably.

(3) The long periods beginning in Daniel's time were not to be understood until the "Time of the end." We find, accordingly, that it was only at the Reformation that correct exposition of the periods began.

(4) At that era also the principle of "a year for a day" became definitely established. In regard to the prevalence of this view a recent work (1935) may be cited, which explains exhaustively the interpretation of prophecy throughout the Christian era: *The Impelling Force of Prophetic Truth*, by L. R. Conradi. (See pp. 338–39, and other references to the matter.)

(5) It is to be regretted that the author of this paper, by laying out the future so definitely, disregards the sound warning of Sir Isaac Newton, who was a deep student of the prophecies. He says: "The folly of interpreters has been to foretell . . . as if God designed to make them prophets. By this rashness they have . . . brought prophecy into contempt."

It has always been difficult for those who live in a time of crisis, as we do at present, to perceive the true significance of events. But are we not much in the position of Daniel when Babylon had already given place to Persia, and deliverance had not come? He

makes his appeal to God, in view of the predicted period in Jeremiah, for the time seemed to be up. Would it not be well, therefore, if the whole Church would now make this its prayer: "Even so, come Lord Jesus."

MR. PITT'S REPLY.

If by the "Times of the Gentiles" is meant that period during which Israel is a subject race, then, as I admit in my paper, the "Times" began in 606 B.C. But if the "Times of the Gentiles" means the period in which God has no governmental dealings with or through Israel, then they began after the stoning of Stephen in accordance with the ninth, tenth, and eleventh chapters of Romans.

When the "Times of the Gentiles" began is of minor importance to my exposition of the manner of their ending which was so vehemently opposed by Dr. Morton, although I am in agreement with the vast majority of prophetic students to-day. But when the Times of the Gentiles began is vital to those who contend without any Scripture authority that they will last for 2,520 years. By the aid of the year-for-a-day theory a number of interpreters have calculated that the Times would end in 1934.

Passing over the remarks of those speakers who said nothing more against my paper than that they do not agree with me, let us test the so-called chronologic system so ably expounded by Dr. Grattan Guinness, for, after all, the correctness of a theory depends on how it works out.

Dr. Guinness, in *Light for the Last Days*, new edition, p. 6, states that "Daniel's prophecies foretold the events of twenty-five centuries, the existence of the Babylonian, Persian, Grecian and Roman Empires, and represent them as occupying the entire interval between the prophet's own days and *the day of the resurrection of the dead and the establishment of the glorious and everlasting Kingdom of God on earth.*"

That is quite plain enough, and Dr. Guinness proceeds to calculate the date when the 2,520 years begin. He finds three dates, but the latest of them brings us to the year 1934. Here are his words (p. 255):—

"Yet we must call attention to a further interesting fact connected with the *last possible measure* of this comprehensive and wonderful

'Seven Times' that starting from the capture of Zedekiah and the burning of the temple in the nineteenth year of Nebuchadnezzar and terminating in 1934. The termination of the 'times of the Gentiles' meets at this point the 1,335 lunar years dated from the Omar capture of Jerusalem, an event even more momentous in its effects on Palestine and Jerusalem than the Hegira era of the commencement of Mahomedanism.

"No chronologic prophecy of Scripture indicates any date whatever beyond this year, as astronomic considerations forbid the thought that the supplementary seventy-five (see Daniel xii, 11, 12) is to be added to these solar measures."

Nothing can be more explicit than these statements. According to Dr. Guinness, Daniel's prophecies foretold the Times of the Gentiles as lasting 2,520 years, from 587 B.C. to A.D. 1934. In the latter year the resurrection of the dead would take place and the glorious and everlasting Kingdom of God would be established on earth.

Do the facts prove the correctness of this system of interpretation? "If the thing follow not, nor come to pass, that is the thing the Lord hath not spoken" (Deut. xviii, 22).

1934 is gone and we are in 1936, but the dead have not been raised and the Kingdom of God is not established on earth.

One speaker referred to the rise of Hitler as being a sufficiently important event to justify Dr. Guinness in fixing on 1934 as the last of the 2,520 years, which means that instead of the resurrection of the dead and the Kingdom of God, we have Hitler. That is as bad as asking us to believe that when God says a day He means a year. Such excuses only emphasise the futility and even absurdity of the chronologic system so learnedly and powerfully supported by Dr. Guinness.

But we are told there must be something in the chronologic prophetic method. Did not Guinness foretell the deliverance of Palestine from the Turk in 1917? No, he did not, though we have been assured scores of times that he did. What he said about that memorable year was: "There can be no question that those who live to see this year 1917 will have reached one of the most important, perhaps *the* most momentous of these terminal years of crises" (*Light*, p. 255).

There is nothing about the Jews or Jerusalem, or anything definite, and if instead of Jerusalem being captured, Mussolini had appeared in that year, it would probably have been said that Dr. Guinness had foretold the coming of Mussolini.

If Dr. Guinness's system really indicated the release of Palestine in 1917, surely it should have again proved itself seventeen years later in 1934. But it was proved to be false and unreliable. If it was right for 2,502 years of the 2,520 it ought not to have gone to pieces with the crowning day, which is the climax of prophecy.

I have dealt in my paper with the fanciful year-for-a-day theory, so I need not refer to that again except to correct a misstatement of fact. Two of the speakers suggested that I was inconsistent in repudiating the year-for-a-day theory because, they alleged, I resorted to it in my reference to Daniel's Seventy Weeks. The charge would be true if Daniel's weeks were weeks of days, but they are not. Bishop Horsley says that it is false to say that the Hebrew word for sevens means seven days, and that "he must be a baby in Hebrew literature or a giant in effrontery that will deny this."

The seventy sevens are sevens of years of 360 days each; there is therefore no necessity to resort to the year-for-a-day theory as $70 \times 7 = 490$ years of 360 days each.

794TH ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, JANUARY 20TH 1936,
AT 4.30 P.M.

ALAN STUART ESQ., M.SC., F.G.S., IN THE CHAIR.

The Minutes of the Meeting of January 6th, 1936, were read, confirmed and signed, and the HON. SECRETARY announced the following elections :— Major E. F. Holland as a Member, W. A. Pite, Esq., F.R.I.B.A., Rev. J. R. S. Wilson, B.D., and F. Junkison as Associates, and Dr. Williams's Library as a Library Associate.

The CHAIRMAN then called on Lt.-Colonel F. A. Molony, O.B.E., to read his paper on "The Noachian Deluge and its Probable Connection with Lake Van."

*THE NOACHIAN DELUGE AND ITS PROBABLE
CONNECTION WITH LAKE VAN.*

By LT.-COLONEL F. A. MOLONY, O.B.E.

IT is now generally agreed that the art of writing is extremely ancient. R. C. Thompson says: "The epic of Gilgamesh would appear to have had its origin with the Sumerians at a remote period, perhaps the fourth millennium or even earlier. Three tablets exist which cannot be much later than 2000 B.C." The *Encyclopædia Britannica* says: "2100 B.C., while its text was apparently derived from a still older tablet." Hence it seems possible, and even probable, that some record of the Flood was made by a member of Noah's family.

A great deal has been written to prove that Noah's Flood was universal and covered the whole earth. Two main arguments are used. One of these is that tribes all over the earth have traditions of a great flood. But not only are we told in the Bible that the earth was peopled by Noah's descendants, but there is much other evidence that the races of men spread

from one centre. If this dispersion took place after the Flood, they would, of course, carry traditions of that great deluge with them. The other argument is that there is geological evidence that almost all continents have been submerged. This is indisputable. But to prove that Noah's Flood was universal, it would be necessary to prove that this submergence was simultaneous, and this, I believe, has never been done.

We were taught, as children, that Noah's Flood covered the whole earth; and we naturally would like to prove this to be true. But there are several other passages in the Bible referring to the whole earth which we never take literally.* By insisting that this flood covered everything, we put a great obstacle to belief in that early record. If Noah's Flood was not universal, what did it cover? The Bible gives us one clue, in saying that the ark rested on the mountains of Ararat. Now Sayce, in his book on the Hittites, says that the name Ararat was applied in ancient times to the district around and *south* of Lake Van: that is, to Mesopotamia. The events described in Genesis, both before and after the Flood, seem to be located in Mesopotamia, making it probable that the Flood took place there.

The eleventh tablet of the Gilgamesh Epic plainly refers to Noah's Flood, because it speaks of the great boat made water-tight with pitch, of Noah, his family and the animals, of the flood and the drowning of multitudes, of the sending out of the raven and dove, and of Noah offering a sacrifice when he left the ark. And the epic says that the ark was built at Shurippak, which has been identified with Fara, on the banks of the Euphrates, south-east of Babylon.

Now the part of the great Mesopotamian plain which lies below the 500 feet contour is as large as England without Wales. Hence it is probable that Noah and his sons never saw a mountain in their lives. Words and expressions alter in meaning, especially when translated. We have a notable case in Gen. vii, 20: "Fifteen cubits upwards did the waters prevail, and the mountains were covered." Fifteen cubits is only about 23 feet, so it would seem that the word we translate, "mountains," would be better rendered mounds, probably raised by human labour.

You have doubtless heard of the discovery, in the south part of the plain, of a layer of clay, 8 feet thick, with no potsherd

* Gen. xli, 57. Deut. ii, 25. Kings x, 24. Luke ii, 1.

in it, whereas there are potsherds above and below it. This has been dug through in three places, and comes where a great flood would form a backwater, or where the water would be so quiet as to deposit its sediment. It seems highly probable that this was Noah's Flood. But what can have caused so great a flood? The Bible speaks of forty days of rain, but hints at another cause when it says: "All the fountains of the great deep were broken up." Some think that this referred to a great wave, caused by an earthquake, sweeping up from the Persian Gulf. Others think that the "great deep" refers to subterranean waters. I beg to direct your attention to another very probable cause, the great Lake Van, at the head waters of the Tigris. Its extent is about 1,500 square miles. Its height is 5,680 feet above the sea, and it has no surface outlet.

The remarkable point is that six different valleys lead out of the depression in which Lake Van lies. That is, if the waters of Lake Van were raised by various amounts totalling 1,062 feet it would empty itself by six wholly different routes, of which two lead to the Euphrates and four to the Tigris. These passes, or "cols," cover an arc of 85 miles, and high mountains usually lie between them. Now in the case of such depressions geologists usually infer that the valley first formed must have got temporarily blocked, causing the formation of a lake, the waters of which rose until they found a different depression, which they proceeded to cut into a valley. In the case of the Lake Van depression, this blocking must have happened several times. Old shore lines have been noted above Lake Van, 15, 40 and 100 feet above its present level. Only a rise of 260 feet would be needed to cause the lake to shift its overflow sixty miles.

The blocking of the valleys was probably caused either by volcanic action or by glaciers. The broadest valley leading from the Lake Van depression is that to the south-west of the lake. Six miles north of this valley is Nimrud Dagh, a very large volcano, with a crater over four miles in diameter. It erupted violently as recently as A.D. 1441, and was "Rent asunder to the breadth of a city." A geologist writes: "An eruption of cindery basalt dammed up Lake Van." It appears from Oswald's geological map of Armenia that lava has flowed from this volcano via the Bitlis valley for 30 miles. Lava would make a permanent dam, cinders a permeable dam; but

volcanoes often emit mud, and mud would make an impermeable dam, but one that would give way rapidly once the water rose high enough to top it.

Several instances have been known of valleys having been so blocked by glaciers that considerable lakes have formed. In such cases the material of the dam, being lighter than water, gives way with great suddenness, causing a flood very dangerous to life in the valley below. T. G. Bonney gives interesting details of the inundation of the valley of the Drance in 1818. It was caused by "the advance of the glacier of Gétroz, which dammed up the river and formed a lake about 10,000 feet long, 400 wide, and 200 deep; containing, it was estimated, about 800,000,000 cubic feet of water. The danger of the situation being recognised, about two-fifths of the water was successfully drained off by means of an ice tunnel, and people in the valley were warned of their danger; but the dam suddenly broke up, the water came down like a wall, and fifty lives were lost."

The case of a glacier blocking a tributary of the Indus, near its head waters, will be remembered by many. A very dangerous flood was the result. We were told that a flood similarly caused had once drowned a Sikh army. It is generally believed that the "parallel roads" of Glen Roy are due to a similar cause; if so, it proves that ice can hold water up to a depth of 700 feet.

The best-known instance of a glacier creating a lake is the creation by the Aletsch glacier of the Marjülen See, north-east of Brieg, in the valley of the upper Rhone. This lake is a mile long, by 550 yards wide, and is about 90 feet deep. Bonney gives half a dozen other similar cases and writes: "Though a large mass of ice can act for a time as a dam, this is very liable to give way." He says that he once saw the Marjülen See drop 60 feet in twenty-four hours.

Before considering whether a glacier could have come down as low as Lake Van in Noah's time, it is essential that we assign some date to that much-discussed deluge.

Archbishop Usher put the date of the Flood at 2448 B.C. It has long been recognised that this date is too recent. The Babylonian "King lists" would put it very much earlier; but if we adopt the recently proposed and reasonable method of assigning to these kings average reigns of twenty-five years, this gives the date for the great Flood as 4500 B.C., say 6,400 years ago. The evidence that the Ice Age was then not long

past its greatest intensity is partly astronomical but mostly geological.

Astronomers do not profess to be at all certain about the causes of Ice Ages. The theory which they favour most is that the ellipse of the earth's orbit is elongated every 21,000 years. At present, winter in the northern hemisphere occurs when the earth is nearest the sun, but 10,500 years ago the opposite condition prevailed, and there must have been a long succession of very cold winters. If this caused the last Ice Age, then, at the date we are assuming for Noah's Flood, 6,400 years ago, the Ice Age was indeed passing away, but the melting had not yet reached its fastest epoch.

Geologists have lately come to believe that the last Ice Age was much nearer our time than they formerly supposed. Rocks like those round the English lakes, which have obviously been polished by ice, do not look as if they had been exposed to all weathers for more than 7,000 years.

Niagara receded 4.4 feet a year before so much of its water was taken for power purposes. The post-glacial gorge which it has cut is seven miles long. In strict proportion this should have taken 8,400 years to cut. Gilbert puts it at 7,000 years. By counting mud markings, De Geer seems to have clearly established that the ice margin retreated north past Stockholm only about 9,000 years ago. Sir H. H. Howorth says: "We must allow that in the last period of the earth's history there was a development of glaciers on a large scale in nearly all latitudes where high land existed . . . this view . . . seems to be established beyond question." Felix Oswald, in his geology of Armenia, mentions several glaciers still existing in the Armenian highlands. He writes of a "quite imposing glacier" on the west side of Ararat, and another "at the head of the great Akhury chasm descending to as low an altitude as 8,000 feet." The Aletsch glacier in Switzerland descends to 5,500 feet, a little lower than the level of Lake Van. The latitude of the glacier is 46.20, of the lake 38.20. So we have to account for a glacier descending to the same level in 8 degrees of latitude further south. J. Geikie, in his book, *Prehistoric Europe*, shows the ice cap on the Caucasus coming down to the shores of the Black Sea in latitude 44. Nowadays they come down to sea level in latitude 62 only. Assuming the astronomers to be right about their theory of Ice Ages, and that the peak

of the last was 10,500 years ago, then the latitude at which glaciers descend to sea level has shifted 18 degrees during this period, which probably equals 9 degrees during the half-period of 5,250 years. It would therefore clearly shift more than 8 degrees during a period of 6,400 years.

Considering all this evidence, it seems almost certain that glaciers did come down to Lake Van in Noah's day. In view of the raised beaches and numerous valleys leading from the basin of the lake, we may also infer that there were blocks temporarily raising the water level.

As regards the volume of the flood sent down, the area of Lake Van is 1,476 square miles. If it rose 100 feet, its area would be 1,771 square miles: taking the mean of these, we find that if the water ran off to its present level when the lake had been filled to the height of the 100-foot raised beach, it would send down 30 *cubic miles of water*. Now this is 5,600 times what the burst of the Gétroz glacier sent down, even taking that at 800,000,000 cubic feet of water, which is obviously an over-estimate, as it is got by multiplying together the *maximum* length, breadth, and depth of the temporary lake. Let us take another instance to help us realise what a 30-cubic-mile flood means. It is 468 times the volume of the flood sent down by the bursting of the glacier on the Indus, taking the figures as published in the journal of the Royal Geographical Society, and reckoning as in the last case. The topography is such that the flood from Lake Van may have been 400 cubic miles.

The gradient of the Tigris valley is 23 feet per mile for the upper 240 miles, then 4 feet per mile for 240 miles, and then only 1 foot in 3 miles for the last 330 miles to the Persian Gulf. Needless to say, this marked flattening of the gradient is precisely what makes for a great and wide-spreading flood.

Sixty miles north-west of Mosul, or Nineveh, the Tigris comes out of the high hills, and from there to 20 miles south of Mosul the contoured map shows low, rounded hills, all rising to about the same graded plane, and looking very much as though they were made of the coarser silt deposited by some tremendous flood. We have already seen evidence of 8 feet of fine silt deposited in the south part of Mesopotamia. If the flood had come up from the sea, the fine silt would have been deposited near Mosul, and the coarse silt in the south.

EVIDENCE FROM THE RECORDS.

The earliest version of the story of Noah's Flood is the Sumerian. The late Dr. L. W. King, F.S.A., published in 1918 a book entitled *Legends of Babylon and Egypt in Relation to Hebrew Tradition*. He used early texts inscribed towards the close of the third millennium B.C. These texts are very much damaged, but say

“ By our hand a flood will be sent
To destroy the seed of mankind.”

The missing portion of the fourth column must have described Ziusudu's building of the great boat in order to escape the deluge, for at the beginning of the fifth column we are in the deluge itself.

“ All the mighty wind storms together blew.
The flood . . . raged
When for seven days, for seven nights
The flood had overwhelmed the land
When the storm wind had driven the great boat over the
mighty waters.”

The reader is requested to note the last line, as we shall have occasion to refer to this wind later.

GILGAMESH EPIC.

The most important ancient version, outside of the Bible, is the Gilgamesh Epic. Mr. C. P. T. Winckworth, of Cambridge, has kindly given the author the following as the best translation :

“ For one day the de(luge . . .)
Swiftly mounted up (. . .) mountain (. . .)
Like a war engine it comes upon the people.
By six days and nights the wind drives,
The deluge tempest overwhelms the land,
When the seventh day arrives the tempest subsides in the
onslaught.
Urragal tears out the mast.”

The Gilgamesh Epic states that the man corresponding to Noah built the ark at Shurippak, which has been identified in latitude 31° 35' north, and longitude 45° 45' east. If this be

correct, then a flood coming from Lake Van would have emerged from the mountains 430 miles from where the ark was built. The waters would have spread themselves before they lifted the ark ; consequently the bore wave did not cause the ark to capsize, but apparently gave it a very nasty flick, which caused it to lose its mast.

An Irish fisherman once told the author that he was sailing in the mouth of Bantry Ban, where there is a submerged rock on which waves break occasionally. He reckoned that it could not break at the then state of tide and sailed over it. But it did break, and snapped his mast.

The portion of this extract most relevant to our subject is that about a war engine, because such, in early days, generally took the form of a tower, with battering-ram below, which was *rolled* towards the fortress it was to attack. Mr. Bonney writes regarding the flood in the Drance valley already mentioned : " It is said to have issued from the defile of Lourtier like a moving wall or mound, a hundred yards high, the head of the column of water being entirely masked by the confused mass of mud, stones, beams, and trunks of trees which it swept along, and overhung by a dense cloud of dust. The people in the valley had been warned of their danger, nevertheless 50 lives were lost."

The advance of a war engine would appear to be a very apt illustration to describe floods caused by the bursting of glacier dams. The mention of the dense cloud of dust should also be noticed, because the Gilgamesh Epic mentions a " black cloud " in connection with the flood it describes.

When a bore rushes up a tidal river there is generally a main wave or " wall," but a good many rise before and after it. In the same way the flood caused by the bursting of a dam at Lake Van would probably " mount up " after the " wall " had passed. In the south part of the Mesopotamian plain this would probably take a whole day, as described in the first two lines of the foregoing extract from the Gilgamesh Epic.

THE BIBLE ACCOUNT.

The rule of climax necessitates putting the strongest arguments last. The biblical account states that the ark was 300 cubits long, 50 broad and 30 high ; and these are very near the dimensions of a pre-Dreadnought battleship. The Sumerian account

says that the length and breadth of the ark were equal, and Dr. King remarks that, if so, it was probably like the circular coracles still used on the Tigris. But if made to the dimensions given in Genesis, its construction would be easier than if made circular, because two logs scarfed together would span it from side to side. It probably drew 15 cubits of water.

The Bible account implies that the flood was due chiefly, but not entirely, to rain. Apparently a spell of wet weather caused the waters of Lake Van to top the dam and break it up. The rain appears to have spread to the south with the flood. There must have been immense evaporation from the water covering the hot Mesopotamian plain. And the raising of the whole atmosphere 30 or 40 feet over a large area would cause considerable atmospheric disturbances.

If you raise the atmosphere 43 feet over a large area, the displaced air must get away somewhere. If you at the same time cause the atmosphere to drop more, over a neighbouring small area, and so create a partial vacuum, a wind will blow from the first area to the second. That is, in this case, up the Tigris. That is from a hot region to a cold one. That means condensation. Hence directly the flood passed any given point, the wind would start, clouds would form, then would come drizzle and rain, all within 24 hours. The evaporation would cause the rain to last many days.

Gen. vii, 4 and 10, show that Omniscient God allowed Noah one week to herd the animals into the ark, Noah having been previously told to prepare for this. Probably Noah and his family embarked on the last day. The above two verses certainly imply that *the Flood began on the first day of the rain*. The chronicler probably knew that this would be thought improbable, but kept to the truth. He realised that such a great and sudden flood could not be due to rain alone; so he said, "All the fountains of the great deep were broken up." Where the great body of water came from he had no means of judging. He knew that the artificial mounds were very seldom more than 15 cubits high. He saw that they were all covered, so he wrote (Gen. vii, 20): "Fifteen cubits upward did the waters prevail; and the mountains were covered." Gen. viii, 3, shows that for 150 days there was nothing but water to be seen. The next verse describes the grounding of the ark at the end of that period, probably on one of the higher mounds. It is likely that this was the

first intimation that the inmates received that the flood was running off, because, if the ark was drifting about, soundings would give unreliable information on that point. Two and a half months later the tops of other mounds appeared. That is, the flood took that time to run off the 15 cubits which the ark drew. Two months later the plain began to dry, but as there was no grass to be seen anywhere, and as travelling to where grass could be got would be rendered very difficult by the fact that every depression was still full of water, God inspired Noah to wait another eight weeks before disembarking.

The Bible account certainly represents the Flood as taking a surprisingly long time to run off. We have seen, however, that Lake Van might send down a most colossal flood. And the gradient of the Mesopotamian plain is so slight, that when the wind was from the south-east and strong, the water would hardly run off at all. W. K. Loftus, in *Travels and Researches in Chaldea and Susiana* (re Bagdad), says: "The Tigris rose 22½ feet, and it was a full month before the people could ride beyond their walls."

Thus it would seem that we have hitherto been dealing with perfectly clear and credible statements, consistent with our idea of the Flood proceeding from Lake Van. Now we come to a more debatable passage, for Gen. viii, 4, states that the ark rested upon the mountains of Ararat, and not at the south-east end of the great plain, though we should expect a flood coming from Lake Van to carry it there.

There seems scant reason why we should take this passage to refer to the particular mountain we now call Ararat. Dr. A. H. Sayce says that the name was given in ancient times to the whole district around and south of Lake Van.* The Jews have a tradition that the ark grounded on the Judi Dagh, which is east of Mosul, and about 50 miles south of Lake Van. Other accounts state that it grounded further to the south and east on mount Nisir. How could we account for it grounding among the foothills north-east of the great Mesopotamian plain? Noah would naturally wish to avoid the ark being carried out to sea. He may have rigged jury masts and sails, and anchored when the wind was northerly.

* *The Hittites*, p. 71.

My supposition accounts for *all* the inhabitants of the plain being drowned. Had the flood been due to rain alone, many of the dwellers on the borders would have escaped to the hills.

SUMMARY.

The raised beaches on the south shores of Lake Van prove conclusively that in past times its waters have stood at higher levels than they do now. The number of valleys leading from the depression of the lake implies that this was due to temporary blocks of the outlet and not to ordinary processes of denudation alone. These blocks may have been caused by volcanic mud, landslides or glaciers. Records show the latter to have been a very probable cause, and it is known that when ice dams break, they do so suddenly.

We then found reason to believe that Noah's Flood may be dated about 4500 B.C., at which date the last Ice Age would not have passed from so high a lake as Van.

We then noted the colossal volume of the flood that Lake Van could send down, the steepness of the upper drop, but the flatness of the great Mesopotamian plain. The low (gravelly ?) hills round Mosul and the 8-foot bed of clay at Ur, both point to a very huge flood, which cannot have come up from the sea.

We then turned to the ancient records, and found that the Sumerian speaks of the Flood overwhelming the land for seven days, while the Gilgamesh Epic says that it mounted up in one. The description of the Flood coming upon the people like a war engine, and the tearing out of the mast, both imply that the Flood was extremely sudden. The Bible account says that the Flood began on the same day as the rain, and is perfectly consistent in its account of how the Flood ran off, though the time it took to do so was longer than we should have expected.

Finally, we saw that the Bible statement that the ark grounded on Ararat need not force us to abandon a theory for which there is so much evidence. The Bible and other documents all agree as to the fact of the Flood ; recent excavations at Ur confirm it, and the author trusts that the suggestion of a flood coming from Lake Van may explain as eminently reasonable what has hitherto appeared to be unlikely or incredible.

CHAIRMAN'S REMARKS.

I am very glad to have been given an opportunity of being here to-night at the reading of a paper on a subject which is of perennial interest to Biblical students and especially to myself, a student of geology as well.

It is true to say that even for non-Christians, Noah's flood has passed from the realm of folk-lore into that of history, and it only remains to discuss the natural causes which God set in motion to bring it about. The first point is, I agree with Col. Molony, that whereas it is true there is evidence that almost all the continents have been submerged, this must not be taken to mean that a universal deluge has taken place since man appeared on earth, for the geological evidence of fossils only proves that different parts of the continents were submerged at various times. There is no geological evidence known to me that proves a universal deluge, or that some dry land has not existed since it first appeared out of the primeval sea. Again, fossils of sea-shells to be found in rocks composing the highest mountains do not mean that the sea covered the mountains as they are to-day. The rocks of which the mountains are now made were laid down in the sea but have since then been raised to their present position, as the gorges cut by rivers such as the Indus across the Himalayas definitely prove, because, in order to produce such a physical feature, the river valley must have been made first.

That glaciers existed round about the Lake Van area in the glacial period is highly probable, for the famous cedars of Lebanon, which grow on glacial material, in latitude 34° N., are south of the latitude of Lake Van at $38\frac{1}{2}^{\circ}$ N., and which, being far from the sea, would have a more extreme climate. From Col. Molony's description it would appear that Lake Van had been dammed by ice at one time, but I think that the "waters of the great deep" refer neither to the waters of an ice-dammed lake nor to any having a subterranean source, but to oceanic waters. Subterranean water is not present in huge reservoirs, but is largely held in the pore spaces of rocks, and is not therefore available for producing a sudden great flood. On the other hand, around and within the Arabian block, faulting and volcanic action have been frequent in

geologically recent, and even into historic, times. A submarine earthquake could have sent a large wave up the Persian Gulf to meet the waters of the flooded Mesopotamian rivers, and thus cause a catastrophic flood. Flooding of the rivers must have been inevitable during the Pleistocene pluvial periods which corresponded in this part of the world with the warmer interglacial episodes known to have occurred in Europe. I take it that Col. Molony refers to the last glacial advance before the ice finally retreated. The work of de Geer on "varved" clays has given us a much more accurate measure of the time which has elapsed since the ice finally retreated from northern Europe and Canada, the last oscillation of glaciers having taken place about 5,800 years B.C. This is getting much nearer to Biblical chronology than used to be the case. The speaker's statement that "Rocks like those round the English lakes . . . do not look as if they had been exposed to all weathers for more than 7,000 years" would not be accepted by any scientist as evidence that the Ice Age was "much nearer than they formerly supposed." The age of a rock cannot be estimated by its appearance.

I fail to understand the mechanism by which the rising of water 30 or 40 feet over a large area can cause considerable disturbance in the atmosphere in a mechanical way. The uprising of waters could not have been so sudden as to act like the piston of a pump upon the air above, and this I take it is what Col. Molony means.

I would like in closing to say how much I myself have enjoyed listening to a most interesting paper, and one which must have necessitated much thought and research on the part of the speaker, and I have great pleasure in proposing a cordial vote of thanks to him.

DISCUSSION.

Mr. H. W. BRYNING, said: Lieut.-Colonel Molony remarks at the end of the opening paragraph, that, "it seems possible, and even probable, that some record of the Flood was made by a member of Noah's family." He could have gone further, and suggested that the original record of the Deluge may therefore have been written by Noah himself. Because, I suggest, the knowledge of writing

may have been brought down the ages by the antediluvian patriarchs, and may have been taught to his grandchildren by Noah.

The next point that I would comment upon is at the bottom of the next paragraph, where he says, "to prove that Noah's Flood was universal, it would be necessary to prove that this submergence was simultaneous, and this, I believe, has never been done."

I wish to say here that it could be done, if the theory of ice ages was looked into and adapted to the teaching of geology, regarding the relation between glacial and interglacial periods, and their effect upon subsidences and upheavals of the earth's crust in the unknown past. For I feel sure that it may be conceded that all the "high hills under the whole heaven," together with the polar regions of the globe, may have been buried under vast ice-caps, at the time when the great Pleistocene submergence occurred. So that this great cataclysm was not confined to the northern hemisphere.

I therefore suggest, to those who do not believe that a universal deluge was possible, that the expression used in the narrative of the Flood in Genesis, defining the cause of the catastrophe, points to the cataclysm that obviously occurred at the end of the great Ice Age, through which the floor of the oceanic basin may have been shattered, thus accounting for the numerous volcanic islands and submarine vents; which, according to geology, suggests their relation to the most prominent features of the earth; and, I suggest, testify to the period when "*All the fountains of the deep were broken up.*" While such worldwide volcanic action may account for the universal rainfall, which lasted for forty days and nights.

I have only one more point to make, which, I suggest, will explain how Noah could have got the precise figure of *fifteen cubits* as the amount by which the flood-water *prevailed* above the *mountains* (not earth).

The Babylonian account of the Flood states,

"In the country of Nisir rested the ship; the mountains of Nisir stopped the ship, and to pass over it, it was not able."

This is surely evidence of a flood that was high enough to top what had remained of the highest hills at the end of the Ice Age. While the confusion of tongues at the Dispersion may suggest

the two names for the same region, where the Ark was arrested on the highest part of a mountain, and thereby marked the beginning of the Abatement of the Flood.

Now fifteen cubits is just half the total depth of the ark, which suggests the depth at which it had floated safely for 110 days before it grounded on the mountains of Ararat; so that the load-line, automatically marked by the water gave Noah the indication he wanted.

Before concluding my remarks, I may quote the highest testimony to a universal Deluge, which is in the book of the prophet Isaiah, chapter liv, verse 9.

In this text God speaks to the House of Israel, who were in captivity at the time, and separate from the House of Judah. These are the Lord's words to his people:—

“This is as the waters of Noah unto me: for as I have sworn that the waters of Noah should no more go over the earth; so have I sworn that I would not be wroth with thee, nor rebuke thee.”

Lieut.-Col. T. C. SKINNER said: Col. Molony has given us an interesting paper which if viewed mainly as tracing the cause of a local inundation of the Mesopotamian plain, must command appreciation and detailed careful study. He has been at considerable pains to work out a probable connection with Lake Van, and his thesis is well supported by recent experience of serious flooding of the Indus valley by the bursting of the Shyok ice dam.

We may even go with him so far as to credit Lake Van with the eight-foot band of clay lying like a damp-proof course between two civilisations at Ur, though in this connection it should not be overlooked that at Kish, about 120 miles north of Ur, there is the same evidence of a flood in a ten-foot band of clay between two quite distinct civilisations, and if the band be co-extensive with the Tigris valley, upwards of 700 miles long, as seems probable, the call on Lake Van must have been beyond its capacity to supply or even to distribute.

But when the author seeks to interpret the Biblical account of the universal deluge in terms of a local inundation, it is really to explain it away, and many must part company with him at

once on grounds not only scriptural but also scientific, even though he be admittedly in good company to-day.

It is not possible in a five-minute discussion to cite the mass of evidence for a gigantic flood far exceeding anything adumbrated in the paper before us. In another paper read before this Society by Col. L. M. Davies, M.A., F.G.S., on January 20th, 1930, very strong substantial evidence was adduced for submergence of the entire continents of Europe and Asia as well as others, within the life history of the human race.* It is true that the doctrinaires of uniformity, to whom cataclysm is anathema, have never recognised the evidence; their attitude closely resembles that of the preacher who said: "And now, brethren, having faced the difficulty, let us pass on to the next point."

This evidence our author seeks to discount on the assumption that submergences may not have been simultaneous; but I submit that it is for those who would dissociate the evidence of universal flood from universal tradition themselves to prove the disconnections.

Then on Biblical grounds the local inundation theory must also be rejected. It is true that by the appeal to figurative language and limited horizons, so beloved of the critics, a plausible case can be made out for restricting the narrative to the Mesopotamian plain; but there is open to any one who will apply it a very plain test of that method. Let him take a *Cruden's Concordance*, and, turning up all the passages dealing with the Flood, let him read them through conscientiously *ad hoc*. That done, I venture to say he will abandon the argument for a partial flood as totally inadequate to the plain sense of the inspired word. Let one illustration suffice:—Genesis ix, 14 and 15, "The bow shall be seen in the cloud: and I will remember my covenant which is between me and you and every living creature; and the waters shall no more become a flood to destroy all flesh." Floods in the Tigris valley, serious floods, are, I believe, a common occurrence. The paper moreover challenges, albeit indirectly, the entire question of the re-peopling of the earth after the Flood, which the Bible unequivocally attributes to Noah and his descendants

* Trans. V.I., vol. lxii, 1930.

with the subsequent confusion of tongues and dispersion at Babel. This question has been raised recently in another connection, and though it would not be in order for us to discuss it to-day, nor is there time to do so, it is clearly one that calls for full and frank investigation at no distant date. Either the Bible history of mankind is true or it is misleading, and we cannot let the challenge go by default.

One word of criticism of detail in the paper and I close. Our author says, p. 2: "Hence it is probable that Noah and his sons never saw a mountain in their lives." This of the most outstanding man of his time, and with Persian mountains less than 150 miles away! Contrast this with the statement on p. 7 (in explanation of the grounding of the Ark among the foothills 50 miles south of Lake Van or, alternatively, on Mount Nisir), that "Noah would naturally wish to avoid the Ark being carried out to sea. He may have rigged jury masts and sails, and anchored when the wind was northerly." Whence this sea-consciousness in a man who had never seen a mountain 150 miles away from his home? and how should he know when the wind was northerly, with neither compass, stars nor landmarks to guide him?

In conclusion, though unable to endorse our author's thesis, I feel our good comradeship is of too long-standing, and our soldier faculty for giving and receiving knocks too well established, for the encounter to end otherwise than in a handshake.

Lieut.-Col. W. B. LANE, said: I think that we are too apt to read into the simple Bible stories more than the plain narrative says and we do not sufficiently take into account the context and the changed geographical conditions of those far-off times. There is everything in lower Mesopotamia to account for a great flood, without calling in glacial epochs, earthquakes or a submergence of the whole world as we now know it. Up to the time of Abraham's trek from Ur of the Chaldees, there is no mention of any country outside Chaldea, apart from Cain going eastward to the land of Nod and the sources of the Gihon and Pison. The early history is solely of the Mesopotamian plain. That was the then known world.

The records of Egypt are thought to go back as far as, and by some farther than the Chaldean records. The late Dr. Hall of the British Museum told me that there is no mention of a great flood in these records, which he thought a significant fact. The universal story of a great flood is fully accounted for by the Dispersion after the building of the Tower of Babel.

In the British Museum is a baked clay tablet of the record of Sargon of Agade's campaigns, with a rough map to illustrate the country. There is also a reference to Utu-napishtim, the Babylonian Noah. The map consists of two circles and the space between them is the circular river surrounding the then known world. A double line running from the top to the bottom is the Euphrates, with Babylon at just above the centre of the circle. Sargon's date is c. 2650 B.C., but the writing is that of the Babylonian cuneiform of c. 2000 B.C.

Every year there is a fear of floods in the spring, and the banks of the rivers have to be built up and strengthened beforehand. The simple story of Cain the agriculturist and Abel the shepherd is repeated every year. The shepherd would like the water to extend over the land to produce a plentiful crop of grass, but it would spoil the crops of the former, hence the warfare between the two.

Colonel Molony's very interesting paper adds a possible cause of a very great catastrophe which must have engulfed the whole of an early civilisation, the memory of which has been carried round the world and passed on ever since.

I consider that there is no reason for going away from the Mesopotamian plain for the locality of the simple Bible stories down to the trek of Abraham.

G. WILSON HEATH: It is said that doctors differ with dire results to patients. Many indeed have been the attempts to explain the great "Deluge," and the subject has been before this Society more than once. From the conflict of tongues I return to Genesis vii, 19, and find that the Flood covered the ground under "*the whole heavens*," which I read to mean that it was *universal*. In the paper we have just heard this same flood is indicated as to have been limited in extent. I cannot believe that Lake Van ever contained

enough water to flood, to the death of everything, the great plain of Mesopotamia and adjacent lands; and then to be of sufficient volume to bear up the "Ark," the draught of which is stated to be 15 cubits, and the water to remain on the earth (the sandy soil of the desert) for 150 days (Genesis vii, 24).

Previous papers read before this Society indicated as proof of the universality of the "Deluge" that vast massed pockets of the bones of many animals have been found in Mongolia, North China, Siberia, Norway, America, North Africa, etc., all of them in and under such similar conditions and in such a widespread area that they suggested the death of this immense numbers of animals at *one and the same time*. In fact, a proof of a universal flood.

Does the Deluge explain the great gap in Egyptian history at about this time?

I cannot conceive how the "Ark," a three-storied structure, with such a serious depth below the water-line, could be navigated up from the south-east of the Euphrates to the foot-hills of Ararat and this against the suggested rushing torrent from Lake Van.

I believe the "Ark" needed no jury-mast. Jehovah was to it power, pilot, captain, and steersman.

Forgive me, but the latest measurement of the cubit is 17.5 ins., and of the sacred cubit 25 ins.

The paper is interesting but to me not convincing.

DR. J. BARCROFT ANDERSON asked Col. Molony whether he interpreted II Peter iii, 5, as implying that the land surface of the earth at the time of the Flood constituted one single continent, which was altered in the days of Peleg, as mentioned in Genesis x, 25.

Col. A. H. VAN STRAUBENZEE said: I submit it is not in accordance with the inspired Word of God to say that Noah's flood may be dated about 4500 B.C.

The records of dates and periods stated in the Bible are as much inspired as any other portion of it. Taking the number of years given as the lifetime of Adam, namely 930, it can be shown that from the creation of Adam to the Birth of Christ was 4,000 years—eighty jubilees—and that Noah's flood year was 2348-7 B.C.

Again we know that Genesis i, 1, indicates there was a long period of time between the creation of the World and its re-creation—in six days of 24 hours each. There are two words translated foundation—one of these “katabole” is always connected with “kosmos,” and without either of them having the definite article—and mean the upsetting, casting down, or ruin of that which had already been founded, as stated in Heb. i, 10. This event is clearly a great dividing line from *before* which and *from* which all time reckonings are ordered. The other word translated foundation, “themelios,” is never associated with “kosmos,” but occurs seventeen times in such expressions as when, Paul says: “I have laid a foundation.”

It is therefore submitted that Col. Molony’s date of 4500 B.C. may have seen a great flood which may also have been comparatively local—but it was not Noah’s flood which was nearly 2,000 years later.

Mr. W. E. LESLIE writes: The paper raises three points. (1) The purely Biblical statements. (2) The question whether it is proper to introduce extra Biblical factors. (3) If it is proper to do so, what is their effect upon Genesis vi, 7?

The Biblical language is very strong. May not the 15 cubits mean the height of the water above the hills rather than the mean depth as Col. Molony suggests? If we confine ourselves to the Biblical narrative there can be little doubt that we must conclude that the Flood was universal.

But there are extra-Biblical data which might lead to another conclusion. Are we at liberty to consider them? There may be a few isolated individuals who would confine themselves strictly to Biblical matter. There are, unfortunately, more than a few who seek to “run with the hare and hunt with the hounds.” On the testimony of geography they hold that there are not literally four corners of the earth, and on that of astronomy they agree that the earth goes round the sun. Similarly they welcome light from topography and archæology on a multitude of points. But in other cases they insist that the expositor must confine himself strictly to Scripture. Instead of seeking to show why this must be done in the particular case under discussion, they lay down the general

maxim that science must never influence the interpretation of Scripture. Such inconsistency borders on dishonesty.

If we are not prepared to rule out all extra-Biblical material we must be prepared to admit all that is relevant.

Now there are many extra-Biblical considerations which tell against the universality of the Flood. We see round us to-day an enormous number of living forms from the Arctic to the Tropics. If there has not been a second creation, and evolution be ruled out, then every one of these species must have been in the Ark from the largest down to those which are only to be seen under a magnifying glass. Collectors are still at work all over the world, and they are constantly finding new types. It does not seem probable that Noah made a better collection in the short time at his disposal. It will be noticed that there is no suggestion of miraculous intervention in this matter.

The details of Col. Molony's thesis may present difficulties, but he is to be congratulated upon a very ingenious attempt to throw light upon this great crisis in the early history of the human race.

The CHAIRMAN, in conclusion, commented on certain aspects of the discussion. He said: Mr. Bryning has mentioned certain effects of the Pleistocene glaciation outside the glaciated areas. The only effect of the general lowering of the temperature was to lower the snow line about 4,000 feet. I agree with Col. Lane that we are apt to read into Scripture all our modern science, and this may lead to mistaken interpretations. The account of the Flood is evidently that of an eyewitness, the whole heaven being the dome of the sky as far as eye could see. It is remarkable that the word translated "earth" in the account of the Flood, and interpreted by many to-day as meaning "world" is the same word which is translated "country" in Genesis xii, 1, "get thee out of thy country." (Cf. II Pet. iii, 6, "kosmos" went under the Flood, not the "geos.") Mr. Heath has said that the world-wide evidence of animal bones in caves proves that a universal flood took place. Before this could be accepted as evidence of such a thing, it would have to be demonstrated that the animals had been either driven there by a rising flood or that the bones had been washed in. This

has not yet been done. Animals go into caves to die, and this would account for the bones of animals which are naturally enemies lying together.

Lt.-Col. Skinner has had a tilt against the uniformitarians. Contrary to popular belief, uniformitarians believe in catastrophies.

All that is claimed is that the present is sufficient to explain the past. But the present has its catastrophies, such as the devastating floods of the Yangtse River in China, or the Mississippi in the U.S.A., violent volcanic eruptions such as that of Krakatoa, when a whole island was blown to fragments, a submarine deep being left where a mountain had been, and terrific earthquakes such as have occurred in historic times.

The Bible has become a much more wonderful and accurate book to me since I have looked at it in the light of modern geology, and I would make a plea for a place to be accorded to well-established scientific fact in the interpretation of Scripture, for after all the scientist is out to get at the truth in his science, usually has no axe to grind, and works in the knowledge that his followers will test his work. Finality has certainly not been reached in scientific knowledge, and I would suggest that some of our traditional interpretations, made to fit the science of a previous generation, are not yet final also.

AUTHOR'S REPLY.

Our Chairman has answered most of the objections to my contentions. Like him, I hold that the Biblical account of the Flood is that of an eyewitness who faithfully recorded what he saw. I was referring to the time before the ice finally retreated.

If, as I have shown possible on page 4, a 300-cubic-mile flood was sent down by Lake Van, it would have sufficed to simultaneously submerge every part of the great Mesopotamian plain to a depth of 44 feet, thus causing the Ark to float clear of mounds.

This flood would do 41 milliion million foot tons of work in raising the atmosphere. I submit that this would cause a wind to blow back to Lake Van; that is, from a warm to a very cold region. This would result in condensation and rain, probably beginning the same day as the flood, which is what the Bible implies.

But if the flood was caused by an earthquake under the Persian gulf, then the wind would have blown to the gulf, that is, from a hot to an equally hot region and there would not have been so much rain.

I think that Noah was not sea-conscious, but sail-conscious ; for there were probably large lakes near where he lived, as there are now. I picture him as getting sail on the Ark whenever the wind got warm or blew against the current.

My reply to Dr. Anderson is, that I take "divided" in Genesis x, 25, to refer to division among tribes or races.

I beg to thank Col. Lane, Mr. G. W. Heath, and others for interesting information.

I doubt if the Flood was a physical miracle, and if lions and tigers were taken into the Ark, but am convinced that God spake to Noah.

795TH ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, FEBRUARY 3RD, 1936,
AT 4.30 P.M.

THE REV. CHARLES W. COOPER, F.G.S., IN THE CHAIR.

Before proceeding with the ordinary business of the Meeting, the CHAIRMAN referred to the great sorrow felt by all Members and Associates of the Victoria Institute in the loss sustained by the death of our beloved Sovereign, H.M. KING GEORGE V, the audience standing in token of their deep sympathy with H.M. KING EDWARD VIII, QUEEN MARY, and the ROYAL FAMILY.

The Minutes of the Meeting of January 20th were read, confirmed and signed, and the HON. SECRETARY announced the following elections:—
Member: Dr. J. Barcroft Anderson; Associate: Rev. A. B. Miller, M.A., Ph.D.

The CHAIRMAN then called on Lieut.-Col. Arthur Kenney-Herbert to read his paper, entitled "The Problem of the Great Pyramid."

THE PROBLEM OF THE GREAT PYRAMID.

By LIEUT.-COLONEL ARTHUR KENNEY-HERBERT.

PART I.

THE FACTORS OF THE PROBLEM.

Divine or Pagan.

1. EGYPT is a land of pyramids. Some are large, some small, some are built of brick, some of masonry. One or two have outstanding features, otherwise only the expert could distinguish between them. They all serve the double purpose of tomb and monument. They all have a central subterranean chamber where the body might rest in peace awaiting reincarnation. The only approach to this chamber was by a narrow, descending passage. The superstructure was solid, designed with a given rise on a given base. The gradient varied from 14 over 9 to 14 over 15.

2. The Great Pyramid was different to all the others. It is an open question whether it could ever have been intended to be a tomb, for the subterranean chamber was never prepared to receive a sarcophagus, and the upper chambers were closed during construction.

In at least two important features the Great Pyramid is unique.

If the other pyramids had any story to tell, that story merely stressed the certainty of man's final destination—the realm of death. No ascending passages implied an upward road to God's favour restored.

No other pyramid had been designed at that particular slope which involved so many geometrical relationships interesting to the mathematician. Relationships which convey a spiritual meaning; for it has been recognised that the circle symbolises the infinite of heavenly things, and the square the finality of earthly things. To square the circle is to restore the relationship between the spiritual and the material, to define the infinite in the terms of the finite.

Isaiah xix, 19, 20.

3. It has been suggested that the monument referred to in Isaiah xix, 19, 20, is none other than the Great Pyramid itself. This text says: "In that day shall there be an altar to the Lord in the midst of the land of Egypt, and a pillar at the border thereof. And it shall be for a sign and a witness unto the Lord of Hosts in the land of Egypt."

The situation described is so peculiar that I doubt whether such a site could be found in any other land—both "in the midst of the land" and also "at the border thereof." Nor would this be possible in Egypt if we understand the name to include all the land lying within the recognised political frontier of the country.

The Geographical Position.

4. We must first determine the true application of the word Mizraim (which has become in Arabic Misr), here translated Egypt. Strictly speaking the ancient name for Egypt means the black land—the rich soil annually deposited by the Nile in flood—the cultivated land. (*See Enc. Brit.*, Eleventh Edition—Egypt.)

This cultivated land, on the map, resembles a fan with a long handle. The Delta or Lower Egypt is the fan ; the Nile, with its fringe of cultivation, the handle. " A line corresponding with 30° N. latitude, drawn just south of Cairo, divides the country into Lower and Upper Egypt." (*Enc. Brit.*, Eleventh Edition.)

The Great Pyramid is five miles from Cairo and about one mile south of latitude 30° N., so it stands at the political centre of Egypt to-day. It is also central in longitude. If Port Said marks the east and Alexandria the west of the Delta, the central longitude would pass about two miles west of the Great Pyramid.

If Mizraim signifies the cultivated land, then its borders are the two great deserts lying east and west of the Nile. To satisfy the text, we must search the desert for a site as close to latitude 30° N. as may be. Incidentally, a rock foundation is essential, for drift sand could not support any monument. As the eastern desert is too far east of the central longitude, we must confine our search to the western border of cultivation. There is only one such site. It was selected more than 4,000 years ago for the construction of the Great Pyramid.

The Text Analysed.

5. The fact that the Great Pyramid occupies so unique a position, exactly defined in Isaiah xix, 19, constitutes a *prima facie* case for identifying it with the monument mentioned in the passage. If so, Isaiah xix, 20, will tell us why this monument was built, and will therefore furnish us with the terms of reference delimiting the scope of our inquiry.

The passage contains four clauses. In Hebrew usage, these clauses present two thoughts connected and contrasted. Here 1 and 4 may be read together and contrasted with 2 and 3. Read thus, the text describes a building which will fulfil a double function : (1) an altar of witness and (2) a monument of sign or wonder. The word translated pillar or monument is *Matstsebar*. The Arab has a similar word *Mastaba*, but the t and s sounds have been transposed. *Mastaba* means a pyramid with steep sides.

The Altar of Witness.

6. As a witness to Jehovah of Hosts, how can the Great Pyramid give its evidence ?

In the first place, the Great Pyramid is essentially a geometric design indicating the mathematical relationships of squares, triangles and circles, having equal areas and equal circumferences. The ancient philosophies recognised a spiritual symbolism in geometric shapes.

In the second place, a right vertical section, drawn in the axis of the entrance passage, shows a design of passages and chambers presenting an obvious allegory; but the obvious is often misleading. Therefore, in the third place the interpretation of this allegory is not a matter of spiritual imagination but is defined by the numbers which measure the bases and perpendiculars of the various passages and chambers, if these numbers are given the significance which they apparently carry in the biblical usage of numerics.

Lastly, the design can be used as a chart or graph on which chronologic lines may be drawn.

This witness, therefore, can give its evidence in four ways: (1) in the symbology of geometry, (2) in the allegory of the graph, (3) in the language of numbers, and (4) in the chronology embodied in the design.

As the Pyramid dates from the dawn of history, such a chronology must be an anticipation of the future possible only to Him Who has said: "I am God and there is none like Me, declaring the end from the beginning, and from ancient times the things that are not yet done, saying, My counsel shall stand and I will do all My pleasure." It is the test which God Himself directed us to apply. In point of fact, the hierarchies of ancient paganism adopted the other three methods of expressing the secrets of their doctrines in order that the deeper teaching might be hidden from the general mass of the people while easily understood by the initiated. See "The Computation of 666."

The conclusion is that the true interpretation of the allegory lies in the right use of the language of number, and the proof of the inspiration lies in the prophetic chronology delimited by the graph.

A General Description.

7. Our available space forbids any attempt at a general description. The exterior is well known to us all. The interior is shown in the sketch diagram.

Perhaps a brief note on the accuracy of the workmanship, especially of the lower courses, is advisable. Flinders Petrie

says that stones, with a side area of over 35 feet, were trimmed to within one-hundredth of an inch of true surface. These stones, some weighing 16 tons, were placed in perfect contact, making a joint of about one-fiftieth of an inch. More wonderful still, cement was run into the joint.

PART II.

THE PYRAMID THAT IS.

The Survey.

(See Diagram, p. 79.)

8. Before we can examine these different ways in which the pyramid can tell its story, we must be certain that we are dealing with a pyramid which really exists, not with a theoretical ideal of what the pyramid ought to be. Most of the books and pamphlets connected with pyramid literature give their own measurements of those features of the building, which substantiate the theories advanced. These measurements, however, must be received with caution; for the theories were adopted before the measurements were accurately known. Strangely enough, there are many who prefer the old theories, although the measurements on which they depended have been very generally disproved. What was really needed was a genuine survey, carried out with scientific accuracy, by an experienced surveyor accustomed to archæological research.

Sir William Flinders Petrie undertook this survey, and published the results of his labour in 1883 (*The Pyramids and Temples of Ghizeh*). The Royal Society, recognising its scientific value, made him a special grant in aid of publication.*

The survey gives all necessary data, so that the reader may verify every calculation if he should want to do so. It is evident that the interior has suffered from subsidence and earthquake. Has this materially affected the original intention of the design? Are we justified in altering the given measurements on this

* Additional data may be found in *Life and Work at the Great Pyramid*, published in 1867 by Professor Piazzi Smyth, late Astronomer Royal, Scotland. *The Pyramids of Ghizeh*, published in 1840 by Colonel Howard Vyse, has also been regarded as a standard work.

account? Personally, I believe not; for the evidences of sinkage have been noted and due allowance made.

Again, it is impossible that any survey can be absolutely accurate. There must always be a margin of uncertainty which must increase as the work proceeds. This uncertainty is stated as a plus or minus quantity, sometimes called the margin of error. Actually, any measurement with its stated plus or minus quantity means that it is an even probability that the true measurement lies within the extreme limits indicated.

Luckily, it is evident that the design has been controlled by four principles which have governed the construction. These principles can be used for the reconstruction of any doubtful measurements, and, in conjunction with the original unit of measure employed in whole numbers, such a reconstruction should eliminate even the margins of error of the survey.

The Original Unit.

9. To apply the language of numerics to the dimensions of the Great Pyramid, we must know the numbers which these dimensions suggested in the mind of the architect or designer of the plan; for it is his numbers which must be interpreted. To be able to see the quantities as he saw them, we must know the exact length of the unit in which he designed his plan. Whether these numbers were intended to convey any particular meaning is another question, to which there can be no answer so long as we think in terms of the wrong unit.

It is impossible to argue the point in the space at our disposal. Piazzi Smyth devised a Pyramid inch which he said was one five-hundred millionth of the earth's Polar axis. Davidson showed that, as such, the equation should be 1 Pyramid inch (P.I.) = 1.0011 British inches (B.I.). Whether this claim be justified or not, I have found that this unit gives excellent results.

Where the Egyptian cubit is used, the equation becomes 10 Egyptian cubits = 206 P.I. = 206.23 B.I.

The Four Principles Governing the Design.

10. If the pyramid has a message, it is reasonable to suppose that this message was intended to be read sooner or later, and therefore that any principles governing the design should become evident once an accurate survey was undertaken.

Three such principles have been recognised and generally accepted : The principle of whole numbers ; useful in correcting long lengths. The principle of the π ratio ; useful in determining proportions. The principle of equal areas ; useful in fixing important levels.

To these I would add a fourth : the vertical angle indicated by "the plug." This angle defines the limits of the ascending passages and chambers.

Whole Numbers.

11. In his *Inductive Metrology*, Sir William Flinders Petrie concludes that the longer measurements of monuments and buildings were designed in integral or whole numbers of the unit. Given a sufficient number of measurements, the length of the original unit can be determined with close approximation to exactitude. This aspect of the problem no longer concerns us ; we have adopted a unit which gives practical results. But we may use this principle of whole numbers to eliminate the margins of error.

There is only one way to survey steep, narrow passages. Beginning at a fixed point of the survey (in this case a triangulation station at the entrance), the surveyor observes the horizontal and vertical angles of the passage and measures the length with a chain or tape. Obviously, it is impossible to measure the perpendicular and the base which in reality determine the passage angle, for they are buried in the mass of masonry, and these are the measurements which should be whole numbers. But if we know the vertical angle and the length of the passage within the limits of a small margin of error, we can calculate what the base and perpendicular should be, also within the limits of proportional margins of error.

If the principle is correct, it should be found that the calculated bases and perpendiculars of the pyramid passages, converted from British to Pyramid inches, are so close to whole numbers that the adjustment required to make up the difference is well within the margin of error of the original survey.

Using these adjusted bases and perpendiculars, it is easy to calculate what the angles of slope and the lengths of the passages were intended to be. If each stage of the work be so adjusted

to accuracy, any uncertainty due to the margins of error is eliminated.

Readjusting Flinders Petrie's bases in this way, the final result is striking :—

From the north face to the north wall of the King's Chamber horizontally, by the survey	4,865	± 0.9 B.I.
This converted to Pyramid inches is..	4,859.74	± 0.9 P.I.
Sum of corrected bases	4,860	P.I.

Total difference is 0.27, or one-third of the admitted margin of error of 0.9 of an inch.

The π Ratio.

(See Diagram.)

12. Summarising possible theories, Sir Flinders Petrie says :
“ For the whole form the π ratio (height is the radius of a circle equal to the circumference of pyramid) has generally been accepted of late years, and is a relation strongly confirmed by the presence of the numbers 7 and 22 in the number of cubits in height and base respectively, 7 to 22 being one of the best-known approximations to π . . . The profile used for the work being thus 14 rise on 11 base.”

He traces the π proportion in the exterior form of the pyramid, in the dimensions of the passage section, in the King's Chamber, and in the Coffin.

If a pyramid be designed with a rise of 14 on a base of 11, many mathematical equations result.

(1) Using the pyramid height as a radius, the circle described with this radius would have as many inches in its circumference as there are inches in the four sides of the base added together.

(2) The quadrant of such a circle would have the same area as the pyramid section.

(3) If we reduce this area to a square, then the side of this square can be used as the radius of another circle, and this circle will have the same area as the base.

In two different ways the design of this pyramid solves the problem of “squaring the circle.”

The Principle of Equal Areas.

13. The application of this principle determines the level of the floor of the King's Chamber and also of the passage leading to the Queen's Chamber. It is applied as follows :

There are two theoretical heights of the pyramid design (see Diagram). The first and apparent height is the level of the apex above the pavement. The second height is the level of the apex above the Pit Passage level.

If the areas of these two sections are bisected, then the King's Chamber floor is placed at the level of the upper bisection (first half area level) and the Queen's Passage floor at the level of the lower bisection (second half area level).

The Plug Angle.

(See 3 on Diagram.)

14. At the entrance to the Ascending Passage, there is a strange feature which demands attention. During construction, probably just before the roof of the Grand Gallery was closed over, three large granite blocks, which had been prepared for this purpose, were allowed to slide down the Ascending Passage to its entrance, thus effectually closing direct access to the passages and chambers beyond. These three blocks are called the Plug.

Evidently the Passage had been designed to stand the strain caused by the accumulating force of these huge blocks, weighing many tons, sliding down into position. For it was built of girdle blocks—that is, huge blocks through which the Passage itself was cut. There were, therefore, no side walls to be displaced, nor could the original section of the Passage be altered by the process of blocking.

Once these blocks were released, they came to rest at the exact point designed and prepared to receive them, wedged at the *predetermined angle*, and rigidly held there by the vertical and horizontal pressure of many thousands of tons of solid masonry.

So there these blocks remain to this day, and the angle at which they have come to rest is probably the most certain of all the measurements we have to deal with.

If this plug angle be carried upwards, it will intersect the corner where the roof and south wall of the King's Chamber meet.

It thus defines the extreme limits of the system of ascending passages and upper chambers.

Ancient Mathematics.

15. It must not be forgotten that the ancients used letters and not figures in their calculations. There was no letter to represent zero. Decimals and logarithms were not possible under these circumstances. They probably carried out their angular calculations by a system of whole number gradients, with an arrangement of allowances or corrections if the accruing error became too large.

Under these conditions, ancient mathematics conveniently suited the requirements of the language of numerics, for a long string of decimals would not lend themselves to systematic and consistent interpretation.

PART III.

THE INTERPRETATION.

When I undertook to write a paper on the Problem of the Pyramid, my trouble was to deal with so large a subject within the narrow limits of four or five thousand words.

My first thought has been to help the prospective student by stating the main features of the problem. These features took me some time to find out, for they are not to be found in the general mass of pyramid literature which treats the subject in a traditional manner. These traditions originated in the writings of Mr. John Taylor (1858-63), one of the pioneers of the British Israel theory.

Unfortunately, I have already exhausted about three-quarters of my space.

The Principles of Interpretation.

I believe that the true key which unlocks the symbology of the Pyramid is the language of number, and I do not know any other writer who has employed this key.

We may summarise the principles which have governed this symbology as follows :

Every sloping passage is, mathematically speaking, a right-angled triangle, consisting of the slope, the horizontal base, and the perpendicular.

The dimensions of all horizontal measurements (including the bases of the passage slopes) define the characteristics of the period or dispensation concerned, from man's point of view.

The dimensions of all vertical measurements (including the passage perpendiculars) define the spiritual consequences of God's action and man's reaction during the period indicated. This is God's point of view.

The slopes of the ascending passages determine the lengths of time, allotted in God's plan, for the development of each of the two stages or dispensations included in the Allegory of the Ascent.

In addition to these, there are certain lines which may be drawn on the graph joining structured points of different levels. These also measure God's purposes chronologically.

Time is recorded in the Great Pyramid at the rate of 1 P.I. equals 1 mean solar tropical year.

There must be some point where God's revealed prophetic time ceases. For there is a date which, like the tree in the middle of the garden, represents to us forbidden knowledge. Obviously the pyramid, if it really is God's witness, cannot supply material which would help us to calculate this forbidden date.

I think that I can show that this point is defined by the south end of the Grand Gallery (marked 6 on Diagram).

The Language of Number.

16. At this stage of his inquiry, the student will have to suspend his pyramid study until he has acquired some knowledge of the language of number. I had to do this myself. I found Bullinger's *Number in Scripture* a great help

The Chronology of the Bible.

17. The true chronology of the Bible is the next difficulty to be overcome. Remember, we are not concerned with ordinary secular chronology. There are so many different Bible chronologies to be had for a few pence that there is only one thing for the

consistent student to do. That is to construct one for himself. I began with Anstey's *Romance of Bible Chronology* and tested every step. On the whole, it has been an excellent guide, which in my opinion embodies a great deal of fact and very few important errors of judgment.

But I want to state one thing in this connection most emphatically. The chronology which I did adopt was published in 1927 and was in no way influenced by what I already knew of the pyramid; when I put this chronology and the pyramid measurements side by side, they corresponded as closely as seven-figure logarithms could work out the sum. That is to say, that periods requiring 6 or 7 figures to measure in days were within a day exact.

Results.

I will conclude with the interpretation of a few leading features.

The core masonry base, defined by the planes of core masonry, expresses the first thought in the Bible—"In origin God." This was hidden when the casing was completed.

The circuit of the socket corners is a multiple of the gematria, or figure value of the Hebrew letters, of the first verse of Genesis: "In the beginning God made the heavens and the earth." The vertical height is equal to the Greek for "good news" multiplied by 10. The fullness of the Gospel. Various useful astronomical measurements are defined by the exterior dimensions.

The entrance symbolises the story of Genesis iii; the total fall to the pit level is a principal factor of the Hebrew of Genesis iii, 1-7. The base of this descending passage (between 1 and 2 on Diagram) is 3,700, the gematria of the Christ our Passover, here ignored.

This 3,700 is the vertical height of the perpendicular at the south end of the Ascending Passage (marked 4 on Diagram). As such it closes the period of the Law and opens up the period of the Light. I call it the Christ perpendicular.

The base of the Ascending Passage (from 3 to 4 on Diagram) is the gematria of the Law of Works. Its perpendicular is 7×97 , and 97 is the principal factor in the "revelation of Jesus Christ" and also in Son of God.

The slope measures the period from the covenant of Sinai to the day when the Daily Offering was sacrificed for the last time. This period is exact.

The base of the Grand Gallery is 813×2 . 813 is the gematria of "And God said let there be light, and there was light," and also of "And God divided the light from the darkness." The perpendicular to the foot of the step (marked 6 on Diagram) is 803 or 73×11 . The thought suggested by 73 is connected with the work of the Lord. The full slope carried to the south wall of the Grand Gallery defines the day when Great Britain declared war with Turkey, a date which led to the termination of the treading down of Jerusalem.

In addition to the measured slopes of the Ascending Passage and of the Grand Gallery, other structural lines can be drawn on the chart:—

(1) Defining the date of the Fall and the date of the Resurrection.

(2) Defining the date of the Promise of Genesis xiii, the date of the passage of the Red Sea, and the date of the Day of Pentecost.

(3) Defining the date of the Covenant with Abraham (Genesis xv), the date of the Day of Pentecost, and the date when the German armies crossed the frontiers of Luxembourg in 1914.

My time is exhausted. Space forbids that I should complete the list of the things which I have discovered, and there is more to be worked out.

Space also forbids that I should attempt to prove the facts I have brought to your notice. If you are interested in the question, I might mention that I have just published a little book on this *Problem of the Pyramid*.* My book ends thus: "I have tried to present the evidence which has convinced me as simply and impartially as I can. But this evidence rests on three foundations: the survey, the language of number as used in the Bible, and the chronology of the Bible. All these foundations, in the present state of our knowledge, are open to question.

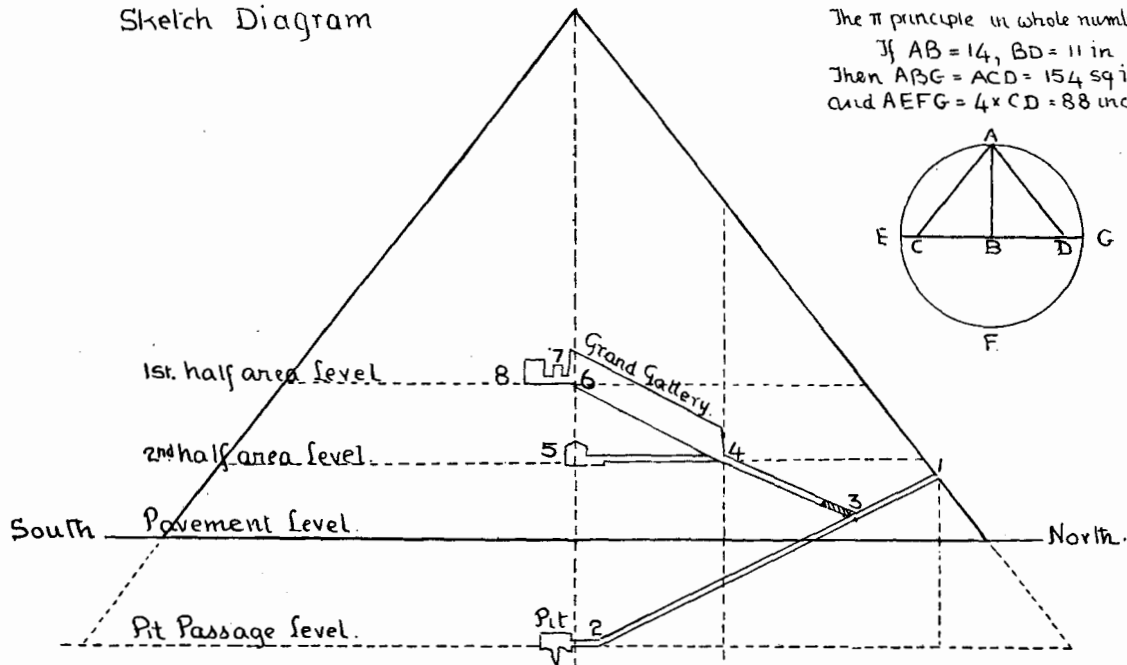
The accuracy of the survey is limited by its admitted margins of error. Its absolute accuracy as evidence depends on the value of the four principles of construction.

The language of number was certainly an ancient method of expressing thought. The revival of this method is still in the pioneer stage.

*Published by Marshall Press, Ltd., Milford Lane, Strand, W.C.2. Price 6/-.

Sketch Diagram

The π principle in whole numbers
 If $AB = 14$, $BD = 11$ in
 Then $ABG = ACD = 154$ sq in
 and $AEFG = 4 \times CD = 88$ inches



- | | |
|-----------------------------------|-------------------------|
| 1. The entrance. | 5. The Queen's Chamber. |
| 2. The SEnd Descending Passage. | 6. The Step. |
| 3. The intersection Point & Plug. | 7. The Ante chamber. |
| 4. The SEnd Ascending Passage. | 8. The King's chamber. |

The chronology of the Bible is a matter of the right interpretation of a few passages which are capable of more than one meaning. No one can at present establish beyond question that his own interpretation is consistently correct throughout.

Can evidence built on such foundations be convincing? Naturally not; for "God does not coerce faith—the evidence for the supernatural is just short of the coercive." God's order is faith, then knowledge; as Peter said: "We have believed, now we know"—not now we know, therefore we believe.

DISCUSSION.

The Chairman, REV. CHARLES W. COOPER, drew attention to the question which had been raised in the paper as to whether the symbolism of the Great Pyramid was of Divine or pagan origin. The essence of the latter theory, as he understood it, is that the Pyramid is a pagan tomb. Strangely enough, that is the view set forth in the British Museum Guide Book (1930), page 291. To his mind all available evidence goes to prove conclusively that it was neither built nor ever used as a tomb.

The entrance to the first ascending passage was entirely closed by the granite plug, built into the structure during construction, proving that the upper chambers were never intended to receive the dead. Again, the nature and state of the lower empty chamber, with its topsy-turvy form, consisting of a ceiling built in orderly fashion and a floor of chaotic formation, prove at once that the tomb theory is untenable. If any additional proof were needed, it could be found in the fact that this Pyramid has a perfect system of ventilation which is contrary to all laws and practices for preserving the bodies of the dead. The only rational view is that so marvellous a structure, built over 4,000 years ago, embracing so many astronomical, geometrical, and other facts, in complete accordance with modern scientific knowledge, can be nothing less than a building with a symbolism, the origin and significance of which is Divine.

The Chairman further pointed out that it was of special interest to listen to the findings of a scholar, whose conclusions, that this Pyramid had a Divine significance, had been reached through a channel of knowledge such as is possessed by very few, viz., the

significance of numbers. The paper may therefore be regarded as of special value, as being an additional evidence that this Pyramid has a Divine message for this generation.

In the course of the discussion which followed, Mr. Cooper remarked that it was very striking that Lieut.-Col. Kenney-Herbert had, by the study of numerics, come to the same conclusion as Mr. David Davidson with regard to the dates of the Great War (1914-18). He also inquired as to the reason why the writer of the paper assumed that later dates, based on the same evidence, should be regarded as forbidden speculation.

Mr. Cooper also referred to the use of the British inch as equivalent to the unit of measurement used in the actual construction of this marvellous monument of antiquity. He drew the inference that the message of the Pyramid was intended for the nation possessing the same unit of measurement.

Mr. H. W. BRYNING said : From my knowledge of Piazzzi Smyth's work on the Great Pyramid, I cannot but feel that he was Divinely guided to adopt an earth commensurable unit to interpret the true mathematical ratios that were enshrined in its structure ; so that the wise should understand it to be a witness to the Lord of Hosts in these days, when the truth of the Bible has been challenged by modern criticism.

Without this unit, which he saw would have been the original Sacred Cubit, the measurements that he took such pains to secure at the site would have been of no value. But when he saw that a cubit measuring 25.025 inches was the ten-millionth part of the earth's semi-axis of rotation, and found that the conversion of British inches into " pyramid inches," at the ratio of 1.001 British inch to one Pyramid inch, rendered the solution of the problem possible, he obtained most of the knowledge that is now available for interpreting the Divine Message to man in a language that can be understood by the people of any nation.

However, he encountered much opposition, and some of his critics could not accept his value for the Sacred Cubit, alleging that the unit of length, or " Scale " upon which the dimensions were worked to, should be found in the structure to support the assumption of

a Pyramid inch. It was then that the most remarkable discovery was made by one of the readers of his book. For he mentions in his Third Edition, that Capt. A. U. Tracey, R.A., suggested that the "boss" on the granite leaf in the ante-chamber supplied the evidence of such a scale in a Pyramid manner, for it is five inches broad and projects just one inch from the surface.

Further investigation showed that the centre of the boss is eccentric in its position, being just one inch from the centre of the ante-chamber, and 25 inches from the groove in the east wall of the chamber in which it is fixed.

Further evidence of the Builder's Scale, or 25-inch Cubit, was found in the Queen's chamber through the eccentricity of the only feature in that room. I refer to the "niche" with a gable top in imitation of the slopes of the ceiling of the chamber, where the perpendicular distance between them is just 25·025 inches.

Now it should be evident that such confirmation which was attested by Dr. J. A. S. Grant, of Cairo, and Mr. Waynman Dixon in 1874 and 1875, before the Third Edition went to the press in 1877, cannot be called in question. So that Colonel Kenney-Herbert is justified in accepting the Pyramid inch as being equal to 1·001 British inches.

Before concluding my remarks, I should like to say a few words upon the philosophical revelation on the Pyramid chambers. The Queen's Chamber appears to point to a people who ceased to ascend, spiritually, after the Crucifixion of the Lord Jesus Christ; because the level path to the chamber takes off the place where the Diagram indicates the date of the Nativity.

The King's Chamber suggests to me the protection that is offered to God's people in the "Last Days," and, therefore, supplies the last prophetic date in world history. See Isaiah xxvi, 20, where it is written,

"Come, my people, enter thou into thy chambers and shut thy doors about thee: hide thyself as it were for a little moment, until the indignation be over past.

"For the Lord cometh out of his place to punish the inhabitants of the earth for their iniquity: the earth also shall disclose her blood, and shall no more cover her slain."

Lieut.-Col. A. G. SHORTT said: I would like to make a few remarks on this paper.

It is doubtful if the builders had any knowledge of longitude. Every Egyptian pyramid was placed at the edge of the cultivated arc as far to the west as possible in accordance with the universal cult of "the West."

I cannot agree that the π ratio in the Pyramid was, as Petrie thinks, 22 to 7. It can be definitely said that they made it 3·14159 or 3·1416.

The lecturer says that the ancients had no system of numbers. The Egyptian hieroglyphics had a complete system on a decimal basis—see Guide to British Museum Egyptian Collection, pp. 266–7. He underrates also their accuracy, although he pays tribute to it at the end of Part I. They were so accurate that it is difficult to see how it can be maintained that they dealt in whole numbers. In angular measurement also it is the same. The angles of the base are correct to within 15 seconds of arc.

The connection of the Pyramid with numerics, therefore, appears unjustified, and, in any case, a few selected measures unconnected with each other applied to the numbers of Biblical texts are not convincing.

Frankly, I was disappointed in the paper. A distinction is drawn between the two kinds of cubit, and no attempt to get down to the core of the subject. The question of who Khufu was, and how and why he built this particular Pyramid is not touched on. Yet there is more evidence about the builder and his religion than is generally recognised.

Lieut.-Col. MOLONY said: Our lecturer says on page 3, "The proof of the inspiration lies in the prophetic chronology delimited by the graph."

I take this to mean that he does not claim that the mathematical truths embodied in the Pyramid are any evidence of Divine inspiration. In this I agree, for those truths, though difficult to arrive at by pure mathematics, are easy to get by practical methods.

As regards the prophetic chronology on page 6, he gives five cases of its agreeing with pyramid measurements, but he only defines

the first two. The other three are presumably given in full in his book to be published very shortly—but we now have to criticise the paper, not the book.

He says at the foot of page 8, "The evidence rests on three foundations," but that all "in the present state of our knowledge are open to question."

On page 8, with pyramid measurements which he claims were inspired, he mixes up seven measurements which correspond to the gematria of Hebrew and Greek texts. Now the Great Pyramid existed in Moses' day. Are we asked to believe that Almighty God dictated those texts so that their gematria might agree with the existing pyramid measurements? One cannot help suspecting that, if one made a list of pyramid measurements, and set it alongside another of text gematria, a number of coincidences might be claimed.

My difficulty lies in believing that God inspired anything in this heathen pyramid. If He *did*, the usefulness of such inspiration cannot be compared with the usefulness of predicting the 70 years' captivity in Babylon, still less with the messianic predictions; and with this the lecturer will doubtless agree.

Mr. G. BREWER said: The subject brought before us this afternoon by Col. Kenney-Herbert in his excellent paper is full of scientific truth and symbolic teaching. He has shown that the design, shape, and construction of the Great Pyramid, both external and internal, present such remarkable coincidences that any unbiassed mind must be convinced that they are the result of far-reaching and settled purpose.

It is said to be the oldest, largest and most substantial stone monument ever erected by man, and of the seven wonders of the world known to the ancient Greeks, is the only one still standing above ground. That such an erection, computed to contain 5 million tons of huge square stones, should have stood for about 4,000 years, revealing geometrical perfection and symbolising in its external and internal measurements truths connected with this earth and its relation to the sun and other heavenly bodies; the chronology of human history, and an outline of God's purpose as revealed in Holy Scripture, is indeed wonderful.

The question naturally arises, who built this wonderful structure ? That it was planned and erected under Divine guidance, as the opener has affirmed, would appear to be self-evident.

Among the companies scattered from the plain of Shinar after the confusion of tongues, were the descendants of Mizraim, one of the sons of Ham, who appear to have settled in Egypt, soon forgot God, and fell into the bestial worship of which all their monuments and records testify. For nearly 400 years there is little reliable information as to their history, until the Fourth Memphite Dynasty, when the first monarch of this line was Senefru or Soris, and it was in the reign of his successor Khufu or Cheops, that, according to Herodotus, the Great Pyramid was built.

He procured his information from an Egyptian priest, and, according to him, Cheops closed the temples and forbade the Egyptians to offer sacrifices to their gods, compelling them instead to labour in his service in building the Pyramid. He stated that, during the reign of Cheops and that of his successor, who built the second pyramid—a period of about 100 years—the temples remained closed, and that the Egyptians so detested the memory of these kings that their names are not even mentioned. They commonly call these two pyramids after Philitis, one of the Hyksos, or Shepherd kings, who from Arabia or Palestine made a peaceful invasion into Egypt, and it was under the influence of Philitis that Cheops was constrained to build it. Thus the name of shepherd became an abomination to the Egyptians.

According to Herodotus, 100,000 men are said to have been employed for 30 years, and at the end of this time, Philitis and his people to the number of 240,000 left Egypt and went to Judea, where, Manetho says, they built a city and called it Jerusalem.

If Philitis built Jerusalem after the Great Pyramid, he must have been contemporary with, though much older than, Abraham, whose birth is supposed to have been about the time the Pyramid was commenced ; and about 50 years after its completion, we find the King of Salem, as Melchisedec priest of the Most High God, blessing Abram after his victory over Chedorlaomer. Some think that Philitis and Melchisedec were the same person, and that as head of the tribe or family and father of the race of which Abram was born, he would be priest of the family and dispenser of justice

among his descendants, in all probability the patriarch Shem, who was living at the time.

Shem, having no doubt been his father's chief assistant in the building of the Ark, would be well fitted to superintend the great work of building the Pyramid, the scientific structure of both having much in common.

The identification of the patriarch Shem, who had emerged in resurrection from the judgment of the flood, with Melchisedec is supported by the fact that no mention is made of any sacrifice being offered at his meeting Abram, a fitting type of Him, who is the Resurrection and the Life, and Who, having offered one sacrifice for sins for ever, became God's High Priest for ever after the order of Melchisedec.

The characteristics and position of the Great Pyramid would certainly seem to fulfil the prophecy of Isaiah xix, 19-20, that in the coming day, there shall be an altar to Jehovah in the midst of the land of Egypt, and a standing monument near the border thereof to Jehovah. The absence of the top stone would also seem to point to that stone which the builders rejected, one day to be manifested as the Head of the Corner.

Rev. ARTHUR W. PAYNE read the full passage dealing with the subject, Isaiah xix, 19-22, and then remarked that both an Altar and a Pillar were mentioned and seemed to be definitely distinct, neither of them being a Pyramid. Forty-three years ago he was both in and on the top of the Great Pyramid. During that visit to Egypt he met Sir Flinders Petrie. With regard to the *Pillar*, some had thought a reference was made to the Pompey's Pillar which is indeed at the border of Egypt.

The doubt as to whether the Pyramid was a Tomb or not seemed to be answered by its position among the other similar structures. The speaker then read Job iii, 13, 14 R.V. in that connection ("For now should I have lain down and been quiet; I should have slept; then had I been at rest; with Kings and Counsellors of the earth which built up waste places for themselves 'margin' built solitary piles.").

He had seen much literature dealing with the question of the cubit and its link with the British inch; but always there was some

slight fractional discrepancy ; and that discredited a Divine plan in the Pyramid for God's mathematics are always absolutely accurate. The finding of the record of Creation, the Fall, the Death and Resurrection of the Lord Jesus, as well as the date of the end of the Great War seemed fantastic. He remembered reading Captain Crossley's *Wonderful Numberer* on which he found the date of the Battle of Waterloo and his own name in cryptic form on this very Pyramid. It seemed to the speaker better to study carefully the prophecy of Isaiah and other Scriptures in the original than to have the sad epitaph of Thomas Chatterton, who wasted his life and energy "in the fabrication of a lie."

Mr. PERCY O. RUOFF said : There is sufficient material within the scope of the lecture to refute its main contentions. So far from the position of the Great Pyramid constituting a *prima facie* case for identifying it with Isaiah *xix*, 19, this very passage makes such identification quite impossible, for the Pyramid is not and never was, either "an altar to the Lord" (which necessarily involves sacrifices), or "a pillar." Moreover, such a suppositional witness is quite foreign to the methods of God's revelations given in the Bible.

The lecturer speaks of the evidence of the Pyramid being given in four ways (1) symbology of geometry, (2) the allegory of the graph, (3) the language of numbers, (4) the chronology in design. There can be little doubt that many structures other than the Pyramid would give similar so-called evidence. With a selected basic measurement the Crystal Palace would doubtless give some astonishing results along these lines. Some years ago, when it was claimed that from the Pyramid could be shown dates of important historical events, a priest wrote to a daily paper demonstrating that similar results could be shown taking as a basis certain measurements in Westminster Roman Catholic Cathedral.

The most unsatisfactory part of the paper appears at the end under the heading "Results." It might be asked, why should it be necessary to resort to "a multiple of the gematria." It appears to be a juggling with figures. If a multiple is introduced to produce certain results it looks as if the bare basic measurements are not sufficient to provide evidence. Indeed, it is recognized by the

lecturer himself that "all these foundations, in the present state of our knowledge, are open to question." Before venturing interpretations of the measurements, will it not be safer and more convincing to produce a scheme which has some semblance of reasonableness.

Dr. H. C. MORTON said: Perhaps the lecturer will be so good as to answer a question:—viz., How is it that the Pyramid unit is the British Inch, and that the coffer in the King's Chamber is a multiple of the British Wheat Quarter Measure? I remember also that it was put on record during Lord Wolseley's campaign in Egypt that, when the Egyptians heard our soldiers singing "For he's a jolly good fellow," they said that that was the Egyptian national anthem, or words to that effect.

About six years ago I spent some hours in the passages of the Great Pyramid, specially for the purpose of making some slight test of the proposition that the pyramid inch, up to the Great Step, represented for each inch one solar year. One impression was made very strongly upon my mind, viz., that the workmanship was too rough for such small and exact measurements as an inch to a mile to have been intended. So much of the passage ways appeared to have been hacked with a mighty mallet and chisel, and left rough. It seems so much more likely that any building intended for such exact measurements would be finished with carefulness and left smooth.

WRITTEN COMMUNICATIONS.

Mr. W. E. LESLIE wrote: The Pyramids are legitimate objects of archaeological interest to a philosophical society such as the Victoria Institute. Unfortunately, one of them is also the object of a cult. It is not for the Institute to follow the vagaries of that cult unless it be to point out the dangers of placing a pyramid, or the Egyptian Book of the Dead, in any way on a level with Scripture as a special Revelation from God.

The author believes that the Great Pyramid contains an allegory. He does so apparently on the strength of Isaiah xix, 19. But this scripture speaks of a "pillar" and an "altar." A pyramid is neither. The only altar of witness mentioned in Scripture is that

which caused the trouble recorded in Josh. xxii. Had it been in the form of a pyramid it would not have been necessary to point out that it was not intended to offer sacrifices upon it!

In attempting to explain this alleged allegory, the author says, "it has been recognized that the circle symbolises the infinity of heavenly things, and the square the finality of earthly things. To square the circle is to restore the relationship between the spiritual and the material . . ." Recognised by whom, and, much more important, upon what evidence? Again we read "The ancient philosophies recognised a spiritual symbology in geometric shapes." But how do the superstitions of the dark ages help us?

It is true that certain numbers are used symbolically in Scripture, but attempts to establish a spiritual arithmetic appear to rest on a slender inductive basis. The same may be said of gematria.

The Victoria Institute has an Apologetic outlook. If any of the Pyramids can afford evidence of the truth of Christianity, by all means let it be produced. But it will require an objective treatment, and a strictness of argument which are unfortunately absent from the present paper.

Col. ARTHUR VAN STRAUBENZEE wrote: I have come to the following conclusions:—

(1) Isaiah xix, 19, given many centuries after the work was in existence, refers to a fulfilment recorded by Josephus, when Omar, the High Priest, asked permission from Ptolemy and Cleopatra to build a temple in Egypt like that at Jerusalem and to appoint Priests and Levites of his own nation (Jews). Thus we see how, at the time of the Nativity, the Israelites in Egypt had the light of truth, whilst the rest of the people suffered from spiritual darkness.

(2) God has seen fit to give us three ancient monuments of His existence and power.

A. The Sphinx.—It consists of the junction of a woman's head with a lion's body. This structure speaks of the Father. It instructs us how to read the heavens beginning with the Babe in the Virgin's lap, and finishing with the Lion of the Tribe of Judah,

B. The Great Pyramid.—Its message centres in God the Son. Shem, who was a believer, constructed it after the Flood. It

symbolises the great fundamental "Rock of Ages," on which man must trust, or it will grind him to powder. The exterior speaks of the Creator, while the interior witnesses to the Redeemer, the seed of the woman (sealed until these last days).

C. The Scriptures of Truth.—These testify of God as Spirit. They were given to Moses about six hundred years after the building of the Pyramid. Was the latter God's principal witness in these six hundred years?

(3) The late Colonel Garnier published a book on the Pyramid prior to 1900, in which he draws attention to 1906, 1913, and 1917, as being important dates. Against the upward end of the Queen's Chamber he prints in his diagram the year 1959. In the text he is silent as to what this might indicate. May not some light be thrown upon the significance of this date by the fact that $1917 + 42 = 1959$? 42 is a number connected with Antichrist, the end of whose career is 42 months (6×7). Six is the number which indicates opposition to the Divine Will, whose symbol is seven. Forty-two young men mocked Elisha at the beginning of his prophetic ministry, an interesting sidelight on the spiritual significance of that number. It should also be noted that 1260 can be resolved into 30×42 .

AUTHOR'S REPLY.

The discussion has raised a point: What is the exact force of the conjunctive *vav* in Isaiah xix, 19? The dictionary gives a possible range of eight shades of meaning depending on the context. These are:—and, but, because, that, to the end that, though, then, even. Which of these gives the true thought of the context? Is there to be "an altar *and* a monument, or an altar *even* a monument? As the next verse, continuing the thought, begins "And *it* shall be" and not "And *they* shall be," it seems to me that the interpretation of the passage, adopted in the paper, is within the exact meaning of the wording of the original.

The next point is the true meaning of *Matsebar*. Our A.V. translates it pillar. The French Bible renders it monument. The noun is derived from a verbal root meaning to set up or erect. Nouns derived from this root have a wide range of meaning, such as:—a handle, firmness, strength, a statue, a pillar, a monument,

an officer, a military post, a garrison. In Matsebar, therefore, we get the thought of a monument which is strong, solid, and able to resist. I am no Hebrew scholar, but I have not met any other word more suited to convey the idea of a pyramid than Matsebar.

I am inclined to agree with the Rev. A. W. Payne. I do not think that the witness of the Pyramid was designed for those who possess the Bible, though if we understand its meaning we shall profit thereby. The passage implies that Egypt in her distress will be encouraged by this monument to appeal to Jehovah.

Col. Molony accuses me of not proving my assertions. How could I compress an argument involving some 80,000 words into the 4,000 or 5,000 words allowed to each paper?

Those who are interested in geometric symbology will find that "The Computation of 666" throws considerable light on the subject.

In conclusion, I ought to add that I have never regarded the Pyramid as the peculiar possession of any particular cult. I have come to the conclusion that it does contain a Divine Message which Jehovah Sabaoth intends shall be read and understood in the latter days. Personally, I believe that the only way to solve the problem of the Pyramid is by using the Biblical significance of number to translate its dimensions into modern language.

796TH ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, FEBRUARY 17TH, 1936,
AT 4.30 P.M.

DR. A. S. YAHUDA IN THE CHAIR.

The Minutes of the Meeting of the 3rd February were read, confirmed, and signed, and the HON. SECRETARY announced the election of Rabbi E. Munk, Ph.D., as an additional correspondent.

The CHAIRMAN then called on Mr. A. Cowper Field to read his paper entitled "The Evidence in the Pentateuch of the Sojourn in Egypt."

A hearty vote of thanks was accorded to Dr. A. S. Yahuda for presiding, on the motion of the Rev. C. W. Cooper, F.G.S.

THE EVIDENCE IN THE PENTATEUCH OF THE SOJOURN IN EGYPT.

By A. COWPER FIELD, Esq.

BEFORE analysing the relation of the Pentateuch to early Egyptian religious thought and symbolism, there are certain wide differences between Egyptian and Semitic mentality and its expression and that of our own familiar English usage that I ought to make clear. We possess a language more flexible in grammatical construction than any other—certainly far more so than any ancient tongue—also the most copious vocabulary ever known, nearly every word possessing a precise significance and a narrow range of accepted applications.

Compare this with Hebrew or Egyptian, vague in grammatical use, the very tenses of the verbs—even the use of the various moods or voices in Hebrew—far from precisely defined; a very limited vocabulary, many of the words used each to cover a wide range of different meanings, and many of these also vague. Egyptian is often even more vague as to exact meanings, especially in allegorical passages.

We, with our enormous vocabulary, can easily use one large series of words for actual objects; quite another range for their properties, qualities, characteristics—or our ideas about them; another wide series for figurative or symbolical expression; another for abstract ideas, philosophic terms, scientific concepts, etc.

Neither in Hebrew nor in Egyptian is there any attempt thus to categorise the use of different ranges of words; their vocabulary was not adequate for this—and the same word is often used for verb, adjective and noun; for an actual object, its character, or its use; as a symbol, a figurative expression, an allegorical significance; as an abstract term or ideologue, and even in a special spiritual signification. (*E.g.*, “Guide thee with mine eye,” “Under His feathers,” “Set me upon the rock that is higher than I.”)

With this brief preliminary introduction, let us now consider the influence of the sojourn and slavery in Egypt on what we find in the Pentateuch.

When first I commenced to make an analytical study of the Hebrew language as we find it in the Old Testament, I soon realised that it seemed to be taken for granted by almost all commentators and students, whether Jew or Gentile, that Hebrew was a homogeneous tongue: *i.e.*, that the language grew up, developed its grammatical uses, and expanded its vocabulary by forming fresh words and word-modifications almost totally from indigenous “roots” or primitive word-formatives, probably monosyllabic.

I soon saw that this was a primary mistake; at the root of many a wild assertion made by those who had studied Hebrew much as one would a modern Continental language.

The records of ancient Hebrew speech that have come down to us are almost entirely contained in the writings of the Old Testament. And, of course, these Old Testament books are themselves all of one type, both as to the subject-matter recorded and the point of view or mental outlook of the writers—alike predominantly religious, ethical, spiritual-minded. Add to this the evident fact that the phraseology, the very vocabulary, of the subsequent books is largely based on an habitual, even studied, practice of quotation from the older ones (*i.e.*, Job, the Pentateuch, Joshua, and Judges), very few really new “phrases” being met with—except in poetry—until the later

Prophets, and we shall realise how restricted is the scope—as a literature—of the writings actually extant of ancient Hebrew speech.

This evident effort on the part of the subsequent writers to express themselves (usually) with reasonable closeness of language to the phrases already used in the Pentateuch, appears to have early become a traditional practice; how early we cannot tell, except by noting the result in the books before us. Obviously, this fact quite destroys all possibility of any extensive “editing” of the Pentateuch by the aid of subsequent books, the writers of which used the Pentateuch as *their* model, never vice versa.

Nor can we tell how early or to what extent the colloquial Hebrew of everyday use—Aramaic—became divergent from the strictly literary or “classical” form and vocabulary permitted in writing the religious books based on, or in continuation of, the Pentateuch and immediately subsequent writings.

And what do we find *is* the language of the Pentateuch? As we might have expected, that it is *not* a homogeneous language at all! When we note, in English, that

handicap, handicraft, handily, handiness, handyman, handiwork, handle, handkerchief, handmaid, handscrew, handsome, handsturn, handspike, handwork, etc.,

all derive from one Saxon word “hand,” we recognise a closely kindred group, all from a true Saxon source; and when we come to “manicure” instead of “hand-care,” or “cheiropody” in place of “hand-and-foot,” we know we are astray from our Saxon fount, and dealing with borrowed distortions from Latin and Greek respectively.

Similarly, in Hebrew, we find many groups of words all denoting things of close association, all showing an evident relationship; but there are many words—some for very familiar ideas—which seem to have no near kindred elsewhere in the true Hebrew. Most of these seem clearly to show that they are borrowed from an external source in another tongue, and in most instances we can now identify this source with considerable confidence. An analysis of all the words in the Old Testament, taking the vocabulary of each book of the Pentateuch and onwards *separately*, and grouping the words in their natural series according to their *Hebrew* sense and Hebrew “roots,” leaves a very

considerable mass of words and a good many phrases which cannot be so classified. Studying these further, we find :—

1. These borrowed words nearly always occur, in their first instance, in passages where the narrative itself indicates pretty clearly some clue as to the probable reason or source.

2. Pursuing this further, we find frequent Egyptian words—not only appellations—and Egyptian forms of expression in the narrative of events in Egypt (Genesis and Exodus); in Numbers we find many words taken from the speech of the various races with whom the narrative tells us Israel were then from time to time in contact or conflict—we believe most of these had disappeared from Palestine or become merged before the death of David! We can trace Kretan (Philistine) words in Joshua and Judges; and a good many occasional words may be recognised here and there as borrowed from some other alien race then before us in the narrative, or in whose speech some previous account of the events may have been recorded and thence become known to the Hebrew writer.

3. But there are other “foreign” words—whole series of them—early used in connection with religious ordinances, dress, ritual, etc., specifically enjoined under the Mosaic code, where the narrative affords no hint of *contemporary* association with any other race or speech to explain their occurrence, nor is any reason given why *they* are thus employed. We recognise at once that nearly all the details as to ritual, tabernacle, and ornament, etc., are symbolical or figurative—and yet by no means Semitic!

But no explanation is offered *why* these particular symbols, etc., are employed nor—usually—of their significance, nor yet of their evident special relationship to each other. Why? The only possible explanation can be that to those to whom they were first promulgated, for whose guidance they were first enjoined, these very words and symbols, details of tabernacle furnishing, priests’ dress, breastplate, ark, table of shewbread, etc., would seem natural and appropriate, being already so well known as to call for no “explanation.”

And when we trace the close similarity of many of these words, and the closer correspondence in detail after detail of the things themselves, with those in use with similar significations in the Egypt of Moses’ early days, we realise how conclusively

this determines both the only possible (1) date of these ordinances and (2) of the record of them in such words : since *only* to those who, like Moses, had been long *familiar* with these very words and objects and their accepted significance in the land of Egypt *could* it thus be natural to use them more readily than true Hebrew words, Semitic symbolism, objects, etc., whilst to them alone—again—would it appear natural to make use of this symbolism, ornaments, etc., of *Egyptian* worship of the period *before* Khu-n-aton as appropriate to inculcate these more spiritual truths now set forth by Moses.

4. And all this furnishes a further clue (though not to the full spiritual significance implied) for many of the elaborate minor details so strictly enjoined in Leviticus, Deuteronomy, and elsewhere in the Pentateuch.

5. It is to be noted that in many instances we *are* given some explanation as to the spiritual significance or underlying meaning of an ordinance or even of a detail of ritual, ornament, or dress ; but we are usually *not* told why that particular symbol or detail assigned was selected as appropriate—often so very different from any usual Semitic idea of what would be so. Again, the parallel to the ideas and practices of Egypt—Egypt *before* the Exodus—will usually furnish the clue. While outwardly enjoining the use of articles and practices closely similar to those with which centuries of sojourn in Egypt would have made them familiar, Moses' teaching is directed to emphasising a deeper underlying spiritual conception of the nature and attributes of God. It is instructive to note exactly *what* of outward form and symbol he adopts, what he adapts or modifies, and what he rejects. For example, on a strikingly critical occasion, the power of faith in the Divine Wisdom is emphasised by the use of exactly the same symbol—a bronze snake's head—long familiar in Egypt as an ideograph to represent this very concept. An *exact* adoption.

(I here use the term ideograph to denote a pictorial figure, emblem, or hieroglyph used to indicate an *idea*—a mental concept—not necessarily conceived of as having any actual material form. Some Egyptologists have formerly assumed that, from the snake's head (termed uræus) being so usually pictorially represented on the forehead of the living Pharaoh, of the deceased, of deities, and other pictographs of concepts as showing that, as one eminent scholar wrote me : “ such objects

were commonly worn." Of this, however, there does not appear to be really any sound indication. The halo, often shown in our own pictures of apostles and saints, is not usually understood as meaning that such was a normal part of their apparel! This will also apply to many other symbolic objects often depicted in association with deities, divine principles (conceived of as living entities), *e.g.*, in the "Judgment of the dead," etc.).

The table of shewbread (literally "bread of faces") is a considerable modification of the "tables of offerings," depicted in the wall-paintings of Egypt, whereon are shown various types of gifts symbolising *things* offered to God; the Pentateuch enjoins instead the use of "presence-bread," symbolising the offering to God of *ourselves*, as "being always before Him"—a continuous self-dedication. An *adapted* adoption.

In the case of the golden calf, however, Moses definitely rejects the use of the familiar Egyptian symbolism in any such material form (he uses the very idea it signified!), although his own brother Aaron had evidently deemed it quite an appropriate symbolic object to reassure the dejected Israelites of the continual providence of God (Elohim, the Infinite Powers) being exercised as Shaddai—the Ever-sustaining One—on their behalf.

As to this part of the narrative, nearly all the commentaries that I have studied, Christian or Jewish (Rabbinical), are so woefully wide of the mark that a simple and correct analysis may be useful.

Moses, their great leader, the visible human centre of their hopes and enterprise, had gone away—had been absent some time. With the sudden despondency—the rapid excitement to exaltation or discouragement of an Eastern race—they began to murmur their disaffection; Aaron decides on a spectacular celebration with a visible emblem to remind them of the ever-continuing Providence of God: in Hebrew, Shaddai; in Egyptian, Hathor, which symbolises exactly the same idea. *This* aspect of God's provident care which Aaron now wished to emphasise was but at the *outset*, so to speak, of its exercise on their behalf; the fulfilment of the great promises to Israel lay still ahead—so he fashions, not a full-grown cow, but a calf (termed 'geh-gel, apparently from an Egyptian word), gold typifying the deity and sovereignty of God. Why did Moses reject this symbol with such aversion? "Thou shalt not make to thyself . . ." etc. We can now see all the more reason for

that prohibition to Israel, just released from a land where birds and animals, men and women, statues, rivers and rocks were alike often regarded as in some loose sense divine, enshrining an indwelling God or gods, or as themselves actual individual gods or goddesses. So Aaron's well-meant expedient had to be banned.

Modern archæology now enables us with considerable precision to follow this sifting process of Moses' in those far-off years in detail after detail. Of course, there are many words in Egyptian and Hebrew obviously, from both sound and sense, either derived alike from a common older source or borrowed by one language from the other, and we cannot always say which; we can only form our opinion which view the linguistic evidence and other data indicate as the more likely, *e.g.*, is Ptah, the (Egyptian) divine Opener or Unfolder = the revealing Source of All, from the Hebrew pathah, to open, reveal, or *vice versa*?

I have found over seven hundred Egyptian words, ideas and details in Genesis and Exodus alone!

Sometimes the very forms of the hieroglyphs used in writing an Egyptian word, or a comparison of those used for related words, will afford illumination as to the original symbolism implied; more often, the wall-paintings or other pictorial representations in temples or tombs give a clearer clue to the symbolic uses and meanings. It is also important to note that many of the hieroglyph signs used in the recorded narratives are constantly introduced as pictorial details into the "scenes" in these wall-paintings but, since these paintings are not intended to portray an event or narrative in any *literal* way (they are not meant as depicting actual sights as a photograph would), the hieroglyphs are here used in a purely *symbolic* sense, not in a literary use at all. The two systems, using identical figures or symbols, existed side by side for many centuries; it is surely irrational to suppose that such dual uses could have been continuously independent! Many of those associated with the figures of "deities," aspects of God, of divine "principles," or of deceased human beings must be understood in this way; *e.g.*, the bronze snake's head, so often represented on the forehead of a deity—even of a living Pharaoh—merely *symbolises* the Divine Wisdom; the circle shown on the head of a deity emphasises eternity or self-completeness; a pair of horns indicates power—often sustaining power, etc.

And so with the actual forms or characters symbolic of the deities or "divine qualities" themselves. Hathor (= the Hebrew Shaddai), depicted as a cow, typifies perpetual sustenance; sometimes bearing a circle to typify Eternal Deity, often with the hieroglyph for utchat (provision) marked under the eye to emphasise the Divine Providence. Thus, too, Heru (the hawk or eagle) typifies the Supreme Being (heri, chief, president, master), the Over-all One; in Hebrew Elyon, Most High. Was the hawk or eagle symbol originally chosen to indicate the far-seeing or wide-ranging activity of God, much in the sense of our word "overseer"? It seems probable.

There are many ideas associated with particular Egyptian conceptions of God, with which the Israelites must have been long familiar in Egypt, which we meet—some repeatedly—in the Pentateuch; although of the Egyptian names for these deities or of their *general* character as conceived in Egypt there is no trace. We can usually see why; we have but to compare that *general* character, as obtainable from Egyptian records, with these special "phrases" in the Pentateuch to realise that Moses is retaining and incorporating every familiar word, every phrase and idea of divine things helpful to the fuller revelation that he safely can; and rejecting very far more than he retains.

Let us now consider a few more of these Egyptian ideas of God or gods, and the use Moses makes of them. For brevity, I omit the many he rejects.

Amon, the worker; the secret or hidden One, *i.e.*, the Invisible God. Often, as Kheper-Ra, denotes creative power. He rejects the names but adapts the teaching.

Bast, represented with a cat's head, doubtless originally typified the "god of the home" (*cf.* Lares and Penates), of whom the home-loving cat was a familiar symbol. In Christian homes, one still sees sometimes a wall-card: "Christ is the Head of this house, the Unseen Guest at every meal, the Listener to every conversation," etc. It seems a tremendous jump to *that*, but the underlying conviction is in essence much the same.

Ra, power, the source of all life, etc., is typified by the sun, the great vivifier in Egypt as elsewhere. Without the sun, there could be no life, as we know it, on the earth at all. (Ra: regal, royal, rule, reign, roi, rex, ré, ras, raj, rajah, realm—

the languages of Europe, Asia and Africa still witness to the widespread power of this primitive formative element, in the same sense—the putting-forth of *active* power.)

Ra, in another aspect, represented with a hawk's head, is the All-seeing One. Horus, as an alternative aspect of Ra, the Life-giving Sun. Both concepts rejected as unsuitable.

Thoth, truth; represented with the head and long beak of the ibis, to typify the "searcher-out of secrets." Again, Moses rejects the *name* but merges the teaching in Elohim. Cf. "the God of truth," "he trieth the very secrets of the heart" (in Hebrew, lehb, Egyptian, ab).

Maat, law, righteousness, right judgment. Cf. "just and right is he," "shall not the Judge of all the earth do right?" Name not used.

Anubis, death; represented with the head of a dog or jackal (a "dog runs everywhere"); regarded as divine because inescapable and therefore eternal and infinite. No such conception in the Pentateuch.

In the earliest Egyptian civilisation of which we can trace any clear records, we find several great temples in different districts, each with its own college of priests, its own local code of religious teaching, emphasising varying series of doctrines concerning different gods—or different aspects of the same God. The attributes associated with one Divine Being are often ascribed to another. Thus the Egyptians, as a whole nation, seem never to have decided whether to believe in a number of separate deities or in one Supreme God, manifesting his powers, his activities and himself in many different aspects—each separably distinct and alike divine; perhaps they regarded such positivism as an impious presumption. Moses has no such uncertainty.

Khu-n-Aton, soon after the Exodus, seems to have sought to unify the Egyptian religious beliefs in the worship of One Supreme Illimitable God, whose visible symbol is the sun—the source of all vital phenomena on the earth. Execrated as a heretic by the numerous long-established priesthoods, each upholding a different conception of Deity—or deities—and by their followers, Khu-n-Aton was slain, his teaching proscribed, and a rigid sectarian worship speedily established, with "local" gods and doctrines, differing in each temple district throughout Egypt down to the days of the Cæsars. Did they regard his "heresy" as an

impious seeking to define the Indefinable, to "formulate" the Incomprehensible? I wonder!

The Egyptians had another concept of Deity: the Ennead (or Godhead), even more vague. Sometimes the Ennead seems to be a Supreme Divine Essence or Being—undefined because illimitable, infinite, transcending all—of which (we should say, of Whom) all the distinctively *named* conceptions of deity are but separate presentations (or Persons), sometimes it seems merely an assemblage of different gods, like the Olympos of the Greeks. Most Egyptologists, having usually absorbed a good deal of Roman and Hellenic mythology while still at school, *i.e.*, numerous separate deities with a home or family meeting-place on Olympos, naturally fall into the latter reading of the references in the Egyptian texts; but that there *was* a monotheistic conception of the Ennead or Godhead as One Supreme Deity, at all times before Khu-n-Aton widely held by many thoughtful believers, there is abundant evidence in many of the oldest Egyptian texts and hymns.

Here, then, lies the explanation of what had long seemed to me so unexplained. Why did Moses, supremely concerned to teach Israel the true belief in One God—and only One—in place of all the vague, confused ideas they had known in Egypt of many deities or separate divine manifestations, yet himself make use of so many diverse words to denote the different activities or relations of God: Elohim, Ehl, Eloah, Olam, Paghad, Elyon, Tzoor, Ruach, Adonai, JHVH, etc.? All this is now clear; Moses is now endeavouring to present his faith and religious conceptions in such a way, and using such terms and details, as Israel, just released from Egypt, could most readily understand, and, for the most part, in the very Egypto-Hebraic words so long used there by them.

With this key, it becomes easy to identify each of these Hebrew terms employed in the Pentateuch, each denoting one special aspect or activity of God's Being—and invariably used of that *one* activity only—with the particular Egyptian concept which had served to prepare the minds of Israel for the fuller, clearer truth. We can also now explain the reason for a *plural* word for God in exercise of Supreme Power, Elohim with a verb in the singular; and even perceive why, in three Early passages, the word is specially treated as a true plural; we can also see why, to Adam *unfallen*, alone is God represented

as communing in both the Personal and Transcendant aspects on every occasion—JHVH Elohim, Lord God. Of no one else in the entire Pentateuch is this ever said. Moses is building on what the downtrodden, enslaved Israelites, now at last freed, already understood, so far as he can safely use it. Our Lord did very much the same many centuries later.

Nearly all the words relating to divine things or worship are Egyptian in origin, more or less thinly veiled with a Semitic pronunciation or clad in a loose-fitting Hebrew garb. Let us take the words used for God in the Pentateuch; they are all to be found in Genesis :—

Ehl (in our versions, God): the One, the Infinite Being; corresponding to the undefined (because Infinite) God of so many Egyptian hymns. A Semitic word.

Eloah (in our versions, God): God in the exercise of *one* of His infinite aspects or powers, like the powerful Amon or Amon-Ra. A Semitic word.

Shaddai, the Nourisher, the All-sustaining One (wrongly rendered Almighty in our versions); corresponds to Hathor, already explained. It is really the same word expressed in the respective pronunciations.

Elyon (Most High): the Being over-all; Heru, the All-seeing, already explained.

Tzoor (the Rock): Tcheseru in Egyptian; mass as an "abstract," the foundation, the basis or source of all; the First Cause. Cf. "the Rock that begat thee."

Ruach: the Spirit, the breath of God-giving Life. Egyptian: ruh, ruha, rest after effort, evening; akin to Ra, source of Life.

Adonai, adon (in our versions, Lord): a Syrian word for master. (Cf. Egypt: aton.) Olam, the Eternal, an attribute of God. (Cf. Egyptian ankh, eternal Life, as an attribute of Deity.)

JHVH, the LORD in our versions. Built up from the far older Semitic Jah, Jeho or Jahu, plus vayeh, abiding (*i.e.*, a continuous Personal Presence in blessing).

We can now see why Elohim, *all* the powers and aspects of God, united in some great purpose—the fullness of the Godhead (Col. ii, 9.)—is a true plural; but the verb is in the singular,

since He Who wields these "powers" is One. And the context in each of the three passages referred to as exceptions explains itself. When man is to come into being, "created in image of God"—not a material or physical resemblance, of course, since man's material body is stated to be "formed of the dust of the ground," *i.e.*, of earthy matter—but endowed with a *nepheesh* (another Egyptian word), a life-force, suitable and capable of imaging, reflecting or responding to every aspect or "power" of the Godhead revealed to him, *all* the relations of God to man: to the Israel of Moses' day, with the conception of the Ennead—the fullness of the Godhead so long established in their minds, Moses builds on this to emphasise the tremendous greatness of man's relation to God, if he respond aright to every form and aspect by and through which, material, natural, and spiritual—physical, mental, and moral—God renders Himself *evident*, revealing Himself and His inexhaustible, universal activities. Thus, too, "the man would become as one of us," aspiring to ape *one* of the Divine powers—Omniscience. And similarly in the Babel-building incident, where another of the "powers" (omnipotence) is indicated as being imitated.

Let us look at some further examples:—

1. The breastplate or pectoral of the High Priest. The chief priest, or "celebrant," of an Egyptian temple frequently wore a pectoral, of which several types or forms are known. Sometimes these were very beautiful in design and of most elaborate workmanship, often also embellished with enamel or precious stones. Their ritual import or symbolic significance does not yet seem clearly ascertained; the Egyptian term, *usex* (perhaps connected with *usr*, power), rendered into Hebrew as *goh-shem* (probably from Egyptian *xu*, glory, and *shem*, priest), may well have had a ready significance for Israel, like the names, and perhaps also the colours, of the various stones which, being known *at that time* to all concerned, is nowhere explained by Moses, and is now apparently lost. We also note that no hint is given *why* a breastplate (not a customary Semitic ornament) is to be used, nor why it is to be set with special stones; this also being presumably already understood. What *is* explained, very fully, is the special religious significance now to be symbolised thereby, since this is new for Israel. Similarly of the table of shewbread, the table is not explained; the new symbolism of the loaves is.

2. The ark of the covenant. It is when we come to consider the "ark of the covenant" that we obtain the most complete and elaborate example of what we are observing: the unexplained adoption of a familiar accessory of worship, also (by implication) of part of its accustomed significance and symbolism, but with a considerable modification in form and detail, all fully explained—and with a new signification, use, and purport also very fully set forth—an object-lesson to enforce a higher, purer conception of the continual Presence of God, vouchsafed in a special manner to Israel alone. It is surprising that the resemblances and differences between the ark of the Mosaic ordinances and the ark (or shrine) used in Egyptian religious ceremonies have not long since been worked out in detail; but I cannot trace any previous account of this being even attempted.

At the outset, we may note that the word used in the Pentateuch for the Ark (ah-rohn) of the Covenant is first used for the "coffin" (or sarcophagus) to contain the embalmed body of Joseph (Gen. 1, 26); and from its first use (in Exod. xxv, 10) for the Ark of the Covenant is thereafter restricted throughout the Old Testament to that one application alone, until we come to 2 Chron. xxiv, where alone it is used for a chest made, we are told, for a special religious purpose, and probably therefore fashioned with some resemblance to the Ark then in the Temple.

In Egyptian temples it was quite usual to have a movable box-like shrine, with a door which concealed from view the symbolic figure of the deity within; which, when the shrine was opened, was disclosed to view. The precise symbols and attributes appear to have been those proper to the particular deity or conception of God chiefly worshipped at the temple specially dedicated to him. The shrine, *kara* in Egyptian (and written with a special "determinative" symbol, conventionally depicting it), is the original of the "Ark" ordained by Moses in its rough outline, but in little else. Instead of a contained symbolic representation of a deity, the Ark of the Covenant was designed (1) to contain the Divine commandments; and (2) to typify the ever-abiding "Presence," not to be revealed or concealed at the will of man, for the Ark had no movable door; and (3) to be borne among Israel in their journeyings as the visible emblem of the Divine guidance—the "focus," as it were, of the Divine Presence as JHVH; when they halted, to be placed in the tabernacle in their midst until they should settle in the

Promised Land, when it was to come to rest "in the place the Lord thy God shall choose, to place His Name there," *i.e.*, in the locality chosen as a centre for the teaching associated with "His Name"—that is, His nature as revealed and indicated to Israel as JHVH.

Instead of the occasional or periodical processions of the Egyptians, in which the "shrines" were borne along on festival occasions on special boat-shaped carriages; we have now the journeyings of the ark, carried only on staves, without festival or ritual ceremonial, save only the enjoined prayers: "Rise up, O Lord, and let thine enemies be scattered," "And let them that hate Thee flee before Thee" (quoted by David, Ps. lviii, 1), when the Ark set forward; and "Return, O Lord, unto the thousands of the thousands of Israel" when it rested and Israel halted in their journeyings.

The "shrine" of the Egyptians, with a door at the side or in front, had a canopied top; the Ark of JHVH, without a door, being closed in all round, had a cover which, with the two cherub-figures over it at either end, was called the mercy-seat, a conception we cannot trace in Egyptian worship; although an Egyptian concept (Kheper, create, cause to be, come into being) seems to have profoundly influenced the words (kah-phar, kip-poo-reem, kap-poh-reth) used in relation thereto and somewhat the ideas signified. As regards this verb-root kheper, it is very suggestive that this seems to be originally conceived as a *mental* activity, and not in any sense a physical process or manual act.

In considering the mercy-seat of the Ark and all that it typified, we approach the heart—the very arcana—of the spiritual teaching and significance of the ancient faith and worship of Israel. There was an ancient formative element, chaph (innocent, guiltless), which we can trace in Job xxxiii, 9; in the verb chah-phah (to cover, in a material sense); in a symbolic meaning, *e.g.*, Deut. xxxiii, 12; in chah-phas (to search out); in choph-shee (to go free), be released; and elsewhere. The mercy-seat (kap-pohreth) typified the release from sin, the making guiltless or innocent, the "covering" of sins committed (Ps. lxxxv, 2, etc.), on the penitence and atonement of the sinner (kahphar)—when the ritual atonement (kippooreem) called kippoor was celebrated. The sincere penitent, desirous of leading a "*new life*" was given a fresh start (*cf.* Ps. li, 10: "*create in me a*

clean heart, O God"). In all this it is impossible not to see the influence of the Egyptian conception of Khepera, He who created all; and when we are further told that the Divine Presence would abide between the cherubim (= Egyptian gherui, Assyrian kiribi), with outstretched wings over the mercy-seat, and thence converse with Moses, we can see how these symbolic figures would remind Israel of the long-familiar "orb with outspread wings" so often used in Egypt over the doorways of temples, tombs, shrines, etc., to symbolise the very same conception.

We must also realise that Israel, in Egypt, would have learned much as to the shrine in the inner sanctuary of the temple (as well as when borne in procession) being regarded as hallowed by a divine presence, represented by the symbolic figure contained therein. Though the Ark in the inner sanctuary of the tabernacle contains no "graven image," yet the Divine Presence, "abiding between the cherubim" (Exod. xxv, 22), is worshipped in a unique ceremony at the "Atonement," when He frees, renews and "re-creates" penitent Israel. Compare the following, from an early Egyptian hymn, "Worship to Thee, RA (Omnipotent), Lord of Right, secret (hidden) is his shrine. Lord of the gods, Khepera (creator) on his way."

And if the first part of the word expressed the idea of the Creator (Khepera) to those Egyptianised Israelites less familiar, as yet, with the more Hebraicised words (and meanings) used by Moses and others more acquainted with Semitic speech, what would the latter part of the word convey to them? Probably het (or heth), house or sanctuary, *i.e.*, Kheperheth, house of God the Creator; orāat (zone or standard), *i.e.*, Kheper-āat, place (or standard) of the Creator. We must note that the hieroglyph used to denote āat as "place of" or "zone of" was also used in representing the "shrine" of the deity in Egyptian temples. Further, that the promise that the Presence of the Creator would *thence* commune with Moses ("from between the Cherubim") "of all the things which I give thee in commandment to Israel"—a spiritual "creation" in the deepest sense—is made and promulgated to the people, *before* the Day of Atonement had been made an annual observance (xxx, 10), which, after the frequent "communing" had ceased, would more and more come to dominate the conceptions associated with the "dwelling between the cherubim," Ps. lxxx.

It has often been pointed out that Gen. xli (Pharaoh's dream, Joseph's promotion, etc.) is full of details recorded in precise agreement with Egyptian customs, formalities, court etiquette, etc., as we now know them to have been; but this by no means exhausts the matter. The remaining chapters are also full of Egyptian details, Egyptian forms of expression and turns of speech and phrase, and even many actual Egyptian words thinly veiled in a Semitic dress or rendered in a Hebraicised pronunciation. As a few examples:—

1. It is Joseph's steward who, on their arrival in Egypt (Gen. xliii), releases Simeon, and *before* the other brothers enter Joseph's house—in accord with Egyptian etiquette. 2. Joseph's command, "Set on bread" accords with Egyptian custom, and reminds us of the great variety of "bread," cakes, etc., for which Egypt was renowned and which often formed the chief part of a meal; though the phrase "eat bread" (with anyone) does not always denote that other "baked foods" were not included (*see* Gen. xl, 17; xlvii, 12, etc.).

3. Note (v. 32) another strict observance of Egyptian etiquette: there is no common table or eating together. Joseph, because of his rank, eats "by himself"; the Egyptians, of another race and inferior social status, "by themselves"; and his "brethren," though his guests, also "by themselves."

4. Joseph's knowledge of his brethren's respective seniority, and his observance of it, also in accord with due etiquette, causes them to "marvel." (This I take as the meaning of v. 33.)

5. Another touch, characteristically Egyptian; after the meal "they drank and were merry with him"—abundant wine, leading to "merriment" (if nothing more!) was a feature of Egyptian hospitality. 6. So also, the "divining," after drinking wine, alluded to in xliv, 5, 15, is an Egyptian practice. 7. Judah's phrase, "thou art even as Pharaoh" (v. 18), is no mere fulsome adulation but an exact acknowledgment of Joseph's titular status. 8. Also when (xlv, 1) Joseph says God has made him "a *father* to Pharaoh, and lord of all his house (*i.e.*, executive administration), and ruler over all the land of Egypt" (but *not* "King of the two Lands," or "King of the North and South," the exclusive titles of the Pharaoh himself).

9. Again, the peculiar construction of v. 12: "Behold, your eyes see that it is my mouth (Hebrew, *peh*; Egypt, *rea*) that speaketh unto you"; a solemn declaration in strict Egyptian

form. 10. The very word rendered, "wagons" (probably ox-wagons), seems a compound of the Egyptian for "going" or transport, and "ox" (agolta, Erman.). 11. "Joseph shall put his hand upon thine eyes" (Gen. xlvi, 4), *i.e.*, shall close thine eyelids after death (*cf.* v. 30), reminds us of the custom of Egypt, nowhere else indicated in the Bible.

12. In chapter xlix, Jacob's dying blessing, it is notable that the "Egyptianisms" of Joseph are absent; Joseph had gone into Egypt when a lad, and had long been accustomed to the use of Egyptian speech, ways, and habits, with little occasion for Semitic idioms or uses. Jacob had come comparatively recently, as an old man, and had continued to be surrounded by his family—Hebrews. From the very different verbiage of this chapter, it seems reasonably probable that the exact words spoken by Jacob were carefully committed to memory and handed down—most likely actually recorded in written form. "Embalm," gahnat (an Egyptianism), is *only* used of Jacob and Joseph (Gen. l).

In Genesis, we find a few words of such ancient lineage that we can trace them back through the Egyptian to an older Babylonian (or even Accadian) source, *e.g.*, ehd, mist or dew, from the primitive edu—a word-formative we meet again in Eden and elsewhere. There are about forty others, but they lie outside our present purpose.

I have already indicated more than once the virtual certainty of the existence of records in several different languages, dealing with much that we find recounted in the Pentateuch, extant before the time of Moses. Indeed, some few have come down to us, often probably much distorted from their original accuracy; but many more would have been extant in the Egypt of Moses' day. Many of these, in Egyptian, Babylonian and Hebrew—for the Pentateuch itself affords ample proof that its writer understood these three tongues—must have been known to Moses. The wider his knowledge of such older records, the greater the evidence of Divine guidance enabling him to select what *was* reliable, worthy of preservation, and necessary to his purpose from so much that was not.

Studying the Pentateuch in the light of Egyptian archæology and linguistics, we are enabled to understand many ideas and details therein far more clearly. For example, we can form some fairly clear view as to the religious beliefs of Israel while still

in Egypt, *i.e.*, before the Exodus; *e.g.*, we see that the several "names" for God (*i.e.*, for distinctive concepts of Deity, in Egyptian often used for different "gods," in Israel for distinctive aspects or "relations" of the *same* God) were already so familiar as to call for no further explanation. Especially should we carefully observe the great distinction almost invariably drawn between Elohim, the Powers (of God); Ehl, the Being (*i.e.*, God Himself); and Jah, Jeho or JHVH—this last used to denote successive perceptions or revelations of the Divine Presence in Blessing, the *full* expression, JHVH, being (after Exod. vi, 3) closely restricted to Israel.

Exod. xix, 4: "How I bore you on eagles' wings," here the word rendered eagle's (*nehsher*) reminds us of the Egyptian *nehui* (*nehu*) used in the same meaning, often with a definitely religious allusion to the oft-depicted symbol mentioned earlier (the cherubim).

Of close kin to the Egyptian, we may note especially the following:—

Tzelem, image. Egypt: *senem*, to fashion; *senen*, image (Pepi I).

N'shamah, breath (soul, spirit). *Cf.* Egypt: *axem*, *asem*, *ashem*, sacred form or image (also symbolical).

D'mooth, likeness. Egypt: *tema*, *tem*, *temu*, to make perfect, *i.e.*, like.

Nahsheem, wives (*fem.*, pl.), Gen. iv, 19, etc. Egypt: *na em hemt*, wives.

Nehtz, blossom, Gen., etc. Egypt: *nexeb*, a shoot.

Nehtz, hawk or eagle (Job, Levit.), Egypt: *neh*, hawk.

Nehsher, eagle (Exod.). Egypt: *ner*. *Cf.* eagle-sign for *netter*, divine.

Chah'y, living creature, living, life. Egypt: *ankh*, similar sense and range of uses.

Chahyah (verb), live.

Rahah, to see (? *yahrah*, teach). Egypt: *hru*, face, look, *see* (symbolic).

Yahrehs, thigh. Egypt: *xeres*, thigh, haunch.

Shehm, name. Egypt: *shems*, *shem*, to follow, follower, successor. In the Egyptian sense, Shem is the "follower on" of Noah; in the Hebrew sense, "in his name" sustaining his character, *i.e.*, he continues it.

Thus Israel (Gen. xviii, 16): "Let my name be called upon them and the names of my fathers Abraham and Isaac," means not so much "Let them be called Israel after me" (*all* his descendants were thus "named") or after Abraham or Isaac, as "let them show the same *character*."

As names, Shem is the Egyptian shem, priest; Ham is the Egyptian hem, slave.

I had completed almost the whole of my comparative analysis of the ancient Hebrew and Egyptian languages, ritual, worship, divine law, and many other details before I became aware of Dr. Yahuda's *Language of the Pentateuch in its Relation to Egyptian*, covering part of the same ground; and I have been confirmed in my views by finding that, wherever he has investigated the same actual details as I have, in nearly every case he has formed much the same conclusion. His book deals with many points to which I had not specially addressed my own studies; in the case of many others, which have alike engaged his investigations and my own, he has elucidated them with such force and clarity that any further exposition of mine would be superfluous. I have therefore confined this brief essay mainly to specific subjects other than those so fully dealt with by him; and, in the case of some subjects of major importance, to aspects of these less completely set out by him.

It remains now to summarise the conclusions at which I have arrived chiefly as a result of categorising the entire vocabulary used in the respective books of the Pentateuch; and comparing each word analytically with its Egyptian counterpart or equivalent. I had hoped to append a short list of about 250 Egyptian and Hebrew analogues, which could very probably be doubled—or even trebled—by further analytical study, but space forbids.

1. It seems quite clear that early Semitic races, from whose history, traditions, or records most of the earlier narrative is derived, had *already* adopted the use of distinctive or descriptive terms by which to designate different aspects or activities of Divine Power. Since it is evident, from the linguistic material of the text itself, that Genesis was written *before* the subsequent books and by the same writer (or his scribes), we see that—*whatever may have been the original form of these differing "Divine appellatives"*—we find them from the very commence-

ment of Genesis throughout the Pentateuch expressed by (1) Semitic words to denote the Powers (of God), the Being (of God), and the Presence of God (Elohim, Ehl, and JHVH respectively); and (2) for the other conceptions of the Deity or Divine Power we find the monotheistic Semitic conceptions each rendered by the Egyptian word most nearly expressing the same idea transliterated as closely as it could be rendered in the Palestinian (or "Moabite") alphabet on a Hebraic pronunciation.

2. Not only are the vocabulary, phrase-forms, grammatical constructions, verb-uses, even when scarcely suitable, strictly adhered to, as a rule, by the writers of the subsequent books, with little relaxation until we come to the later Prophets, but throughout the Old Testament the various words denoting God (or Divine activity conceived of in different aspects or relations) are used in exactly the same distinctive significances and with the same discrimination in their use as in Genesis, Exodus, etc.

3. There are about forty words in Genesis and in Job (which I regard as still preserving in the text an older language or earlier form of Semitic speech than even Genesis) which seem closely related to Assyrian words (or even Accadian), though not directly taken from them; from their differences in meaning, they are in such cases probably derived severally from common "roots" in a still earlier tongue.

4. It is evident that we must enlarge our conception, not only of Semitic but also of Egyptian mentality. Many of the symbols and other things we see so constantly represented on the wall-paintings and elsewhere are conventional ideographs, representing attributes, qualities, functions, ideas, powers, etc.; they usually are not meant as depicting actual objects at all, and the sooner we realise that the better.

(Joseph's interpretations of "dreams" (in Gen. xl, xli) should, surely, have long ago afforded a sufficient clue to any person of average intelligence who, having read *that* narrative, subsequently considered such "pictures" as the Judgment of the Dead, and other ideographic designs!)

5. From a study of Egyptian religious texts, hymns, etc., it has become quite clear to me that there were, even from very early times, both the monotheistic conception of One God, manifesting Himself (*i.e.*, evidencing His activity or power)

in many ways or forms, and also the polytheistic idea of many distinct divine beings or "gods."

Moses, even during the period of his Egyptian education, may well have been reared in the monotheistic belief, which would render his use of so many different Divine "names" the more natural.

6. The whole Pentateuch is permeated with Egyptian mentality, with Egyptian words, Egyptian phrases, Egyptian symbolism, imagery and allegorical or allusive ideology; naturally resulting from the long period of Israel's stay in Egypt and continuous familiarity with every detail of Egyptian life and thought.

7. In my judgment, it is clear that Job, Genesis, Exodus, and Numbers are the work of the same writer (or scribes); and probably written or compiled in that order. Leviticus may have been compiled—at intervals—during the period covered by Exodus and Numbers; and Deuteronomy a few years later: many repetitions in Leviticus itself and the close parallels to several passages in the other two books somewhat suggest this. I see no reason to doubt—but, on the contrary, much *detailed* evidence to support—the view that Moses himself is the actual author, either inditing in person or employing a scribe to do so at his dictation, in accordance with the common practice of Egypt.

As to the general results given above, further research and comparative analysis will doubtless amplify much that I have only been able to outline, and will probably modify some of the details as to which I have expressed merely tentative views; it cannot alter the ascertained facts.

This paper has had to be so drastically curtailed—the original draft was more than twice as long—that it has been found necessary to omit my lists of several hundred words, details of symbolism, etc., all illustrative of the above conclusions.

Only at the very period indicated by the internal evidence of the Pentateuch; only in the circumstances therein recorded, could its words, its ideas, conceptions of religious and spiritual teaching, its very words for the Divine activities, have been familiarly understood by any Semitic or "Hebrew" race. Only by one long steeped in Egyptian etiquette, Egyptian life and thought, Egyptian advanced ideas of divine things—not the

crude notions of the vulgar—could its contents have been *thus* written, and only at just that period.

Whilst only to those recently come out of Egypt after a long sojourn therein would *all* these things seem natural, appropriate and calling for no explanation. The evidence, now abundant, corroborates almost every detail, every idea, every word—most of them minutely and precisely; and it is all inescapably focussed at one brief period of time, and only then.

DISCUSSION.

The CHAIRMAN, Dr. A. S. YAHUDA, referring in appreciative terms to the wide scope of the paper and the industry and laborious investigation it evinced, proposed a vote of thanks to the Lecturer, which was carried with acclamation. To the discussion, in which several took part, the Chairman himself added a criticism of considerable length.*

Dr. BARCROFT ANDERSON asked the lecturer if it were his belief that the Book of The Law was of Mosaic origin, expressing his own belief of its being of Divine origin, and citing in support Ezra vii, 6, where the Law is stated to have been given by Jehovah, God of Israel. He added a further conviction that Hebrew was the original language, from which all others were derived at Babel, where speech was subjected of God to confused pronunciation; and also that each Hebrew letter represented an idea, words being built up of combinations of ideas.

The Rev. HAROLD C. MORTON, B.A., Ph.D., said: I want personally to join with special cordiality in the vote of thanks to Mr. Cowper Field for his very striking paper. I have known for years that he has been unweariedly pursuing this line of investigation. Just as no one knows enough about Hebrew to criticise the Hebrew of the Old Testament, so no one knows enough about Egyptian to be very dogmatic about it. The almost endless variety of translations,

* Owing to prolonged absence abroad, the Chairman's written remarks were only received late in the year. They are accordingly shown as a communication.—[ED.]

and even of transliterations, among those who have devoted their lives to the study of Egyptian, shows that we are only beginning to understand that ancient tongue. In its interpretation there is inevitably no small measure of personal opinion and hypothesis, and therefore much liability to fall into subjectivity and error.

We have a great scholar in the Chair to-night, and for lecturer a keen and unbiased student, as free from the fetters of any school as it is possible for mortal man to be, giving to us what appears to me to be a valuable but a daring paper. For, if I understand him aright, Mr. Cowper Field goes much farther than Dr. Yahuda, and claims not only that the Israelites took up many Egyptian words into their vocabulary, but that Hebrew, as we know it to-day, was literally in the making during those 430 Egyptian years, and that Hebrew religious ritual was very largely Egyptian religious ritual modified and purified.

Dr. Yahuda has been warning us that the same root consonants in Egyptian and Hebrew do not necessarily argue identity of words, and that we must carefully study the usage of the two languages. But must we not also bear in mind how many different meanings the same root bears in different connections?

Gesenius will reveal to anyone who spends half an hour with his pages that a Hebrew root in different connections passes through a most bewildering variety of meanings. The same root, for example, which in Ps. ix, 11, is translated "dwelleth," in Ps. xvii, 12, has taken on the meaning of "lurketh," and in Ezra x, 2, has reached the sense "take a wife, marry." Yet it is the same word.

I should like to express the hope that Mr. Cowper Field will find opportunity to publish in much more extended form the results arrived at by these long years of study in this important realm.

WRITTEN COMMUNICATIONS.

Dr. E. CECIL CURWEN wrote questioning the connection between RA, the Sun-God, and such words as rex, etc.

Dr. A. S. YAHUDA wrote :—Although a chairman is not expected to utter but words of praise and is allowed to make some criticism, I feel somehow reluctant to use the Chair for such a purpose especially

as my own work, to which the lecturer has alluded, is involved. I feel sure, however, that in fairness to the lecturer and to my work, as well as out of consideration for the audience, I am bound to make some remarks.

Mr. Cowper-Field said that he arrived to the same conclusions as I have, before he became aware of my book *The Language of the Pentateuch in its relation to Egyptian* (Oxford, 1932), and that the results of my studies have only confirmed him in his own views. I should not like to discuss this point as it is not so much a question of priority rights as it is a matter of methodical procedure and of the correctness and exactitude of the linguistic and archaeological parallels adduced from Egyptian, which can only be based on genuine and first-hand knowledge of Hebrew and Egyptian and other languages concerned. I do not belong to those who, to use the expression of Job xii, 2, think of themselves that "wisdom dies with them." Now if I venture to say a few words of criticism I hope that they will be regarded as a contribution towards the efforts made to find the right path to the right end.

First of all I must observe that almost all the parallels from Egyptian mentioned by the lecturer have been suggested many years ago by other scholars, and are to be found on a much larger scale and with a greater amount of illustrative details in the works of Brugsch, Ebers, Heyes, Kyle, Knight-Smith, Mallon and others quoted in my book *The Language of the Pentateuch*. Some comparison of words and phrases have been known long ago from Biblical commentaries, dictionaries and encyclopedias. The same is the case with the identifications of Hebrew words as being Egyptian loan-words; they are also taken over from other books mostly of a speculative character without proper preparation for the purpose.

Unfortunately, a great part of the material utilised by the lecturer for the formulation of his conclusions is not sufficiently substantiated and some of his linguistic identifications are utterly untenable. His assertion that he "found over seven hundred Egyptian words, ideas and details in Genesis and Exodus alone" (p. 98) goes far beyond the limit. Also from a list sent to me by the lecturer some time before the lecture for my full information, containing hundreds of alleged Egyptian loan-words in Hebrew which he accepted as such,

I saw that a great number is taken from Budge's *Hieroglyphic Dictionary*. Now, as Sir Wallis Budge had always too many irons in the fire, it was physically impossible for him to control and collate all the references from the Hieroglyphic tests quoted by him and still less to establish the correctness of the reading of each word. Some words were for a long time wrongly read and many others were only vaguely understood. Thus, his dictionary contains the most extraordinary mistakes and blunders and sometimes causes despair to the student, especially when not one of four references is correct. In some cases words registered in his dictionary as Egyptian have never existed in Egypt. In some other cases he has divided one Egyptian word into two and thus figuring in his dictionary as two different words. He also confused many words belonging to different roots and put them together deriving them from one and the same root and ascribed to them meanings which can actually be found nowhere. Similar criticism must be applied to his identification of Egyptian words with roots and words from other languages, especially from Hebrew. Hence a great number, if not all, of the Hebrew words accepted by the lecturer as being akin to Egyptian words, must be rejected either because the supposed Egyptian words only exist in Budge's dictionary, like the supposed Egyptian word *ruh*, *ruha*—rest after effort, evening—associated with the Hebrew *ruach*—breath of life—(p. 102), or because they are of different roots which have nothing to do with each other, for which dozens of instances could be adduced.

Many other "loan-words" or roots "akin" to Hebrew are taken over by the lecturer from the antiquated dictionary of Brugsch and from works of other Egyptologists, who either did not know enough Hebrew or have done only dilettante work with their Hebrew-Egyptian investigations; all these words are no less doubtful than those collected from Budge's dictionary. Of course, many loan-words are undoubtedly correct; but they are mixed with all the others and thus making it evident that the lecturer was not able to distinguish between the right and the wrong and to separate the grain from the straw.

Furthermore, all the Egyptian words quoted by the lecturer are, without exception, transliterated in the antiquated fashion, and in

many cases they are not even correctly written and reveal little knowledge, if any, of their origin and their Hieroglyphic form. The same is the case even with common Hebrew words mentioned by the lecturer. He seems to have had the sound, but not the actual lettering and forms in mind; otherwise it would be inexplicable how he could identify (p. 105) the Hebrew *kap-poreth*, "the cover of the ark," or the "mercy-seat" as it is interpreted, with the Egyptian *kheper*, "create" and with Hebrew *chapha*, "to cover," each of which belongs to a different root, and have nothing in common either in their morphological or etymological origin. Such and other associations suggested by the lecturer are utterly misleading, particularly for readers who do not know Hebrew or Egyptian. The combinations based on such identifications can best be illustrated by supposing that someone, who is little or not at all acquainted with the origin of English words, would construe a whole theory based on the association and even identification of the words bud, bead, bid, bad, bed, bath, both, booth, boat, boots, bet, bit, bat, etc. Of the twelve Hebrew words taken by him as "kin to Egyptian" words (p. 109 *seq.*) not one is tenable, and many of the Egyptian words are here too so wrongly transliterated that it is difficult to verify them.

There are other points in the lecture which are open to challenge. For instance, the tendency of the lecturer to identify divine attributes in the Pentateuch to the Egyptian gods or to introduce typically Egyptian conceptions in the Hebrew attributes of God. One of the most misleading and unfortunately widely accepted ideas is that Akhenaton, the reformer of the Egyptian religion, had distinctly monotheistic tendencies. But the discussion of this question would make it necessary for me to dig much deeper into the foundations of this view and to analyse the Hieroglyphic texts on which it is based; an undertaking which would take me too far away, as would also the discussion of some other points connected with this problem and referred to by the lecturer.

In conclusion, I should like to stress again the necessity of first-hand knowledge of Hebrew as well as of Egyptian. A mere study of dictionaries and books dealing with these questions, or of translations of Egyptian texts will never serve the purpose of

establishing a better understanding of the Biblical Egyptian relations.

· AUTHOR'S REPLY.

TO DR. ANDERSON :—I would just remark that we cannot regard “Hebrew,” as we find it in the Bible, as being in *any* sense “the original language of humanity.” Many early Hebrew and Babylonian words and word-forming elements (or “roots”) clearly evidence a common original source, though descending through subsequent divergent streams; even Accadian or Sumerian “roots” can be traced; and the wholesale adoption of Egyptian words, symbolism, etc., is clearly shown in the long lists of words and symbols which were only omitted from my Paper for considerations of time—and space. I agree that alphabet-signs were, earlier, syllabic and originally represented actual objects, animate or inanimate.

As to the primary source of The Law, I regard it as, in essence, given by Divine revelation and mediated for human guidance and observance by Moses. The use of familiar Egyptian “forms” to convey it would not alter its true Source. How far its every detail is of Divine revelation and how far modified or adapted by human inadequacy to express its full meaning—or by other human limitations of mind, etc.—I cannot presume to say. Our Lord accepted it, fully and simply, as the Law of God given through Moses; and that for me is final.

TO DR. CURWEN :—I had tried in my Paper definitely *not* to imply any necessarily direct borrowing; but rather the persistent recurrence, in many languages long widely separated, of this “primitive formative element” or root, as still active in our languages of today.

It may be helpful here, and I have been asked to explain something of the difference in method between “comparative” and “analytical” philology. Usually the former primarily takes note of general resemblances and relationships between two (or more) contemporary languages; and elaborates from this. Analytical philology seeks to trace out—and back through the earlier stages—the formative elements (often called “roots”) used to express

simple ideas, and their combination into words for more complex ones. The "comparative" school, like Sayce, Budge, Erman, and others, finding a similarity in word or phrase in two different languages, then see if there be any common idea linking them or other traceable connection. This is often fairly productive; but it can rarely take us very far.

The "analytical" student, like Max Muller, Skete, Morris, Swete, first takes the *ideas*, and then notes the correspondence—where traceable—of the respective words used to express these in the two languages; this, owing (often) to considerable phonetic change or "decay," is not always obvious (*e.g.*, orange, from the Portuguese naranja, calico from the Hindi kalkut). Hence my comparing Semitic words and symbolism, where these had no evident near kindred in Semitic speech and thought, led easily to my finding over 900 correspondences in Egyptian; whereas Dr. Yahuda told us he had found "only 50 or so" by the other method.

As an example of roots combined into words, take the Semitic BA-RA and BA-NA, which will prove helpful in understanding early narratives in Genesis. BA, as an element, means beget, bear, bring forth, cause to be; RA, the putting-forth of power (already explained); hence BARA means to beget or cause to be by *power* (not a *material* operation; Gen. i, 1, John i, 1, etc.), *i.e.*, create. NA is the primitive element for knowledge, skill, craftsmanship; it is still heard in (Greek) nous, (Latin) nosco, (Semitic) nahash, (Gothic) konnan, (English) ken and know, etc. Hence BANA means to make, form, fashion—by skill—from some material *already* existent: a most important difference.

Accordingly RA, the Egyptian term for the God of Power, or the Power of God (to their mentality much the same concept); whose visible emblem—or manifestation, if you like—is the Sun, the cause of all vital phenomena in Egypt, as elsewhere. Let us take this, from an ancient hymn:—"O thou called Harakhti (ariser, arouser, or stimulator) when thou arisest"; RA (the Power—another variant gives Aten, the Disc "shining in his strength") when thou shinest; Atum (closer, or putter to rest) "when thou settest," etc., etc. Here the full power is denoted by RA; like our use of sunrise, sunshine, sunset. Even in this latitude, where the power of the sun (see how we still use the old ideas!) is so feeble,

we yet use different terms for these stages of the sun's daily journey. One would not say "Look, what a glorious sunshine" for either sunrise or sunset. Or, "Come into the sunrise or sunset" for "Come into the sunshine." So the influence of RA still rules our phrases.

To the CHAIRMAN :—Dr. Yahuda belittles and discredits the work of many able scholars, especially one from whom I formerly received much kindly help, Sir Wallace Budge, and (on Feb. 17th) yet another great student, Dr. E. Naville. The works of all of these he dismisses as "mostly of a speculative character," "without proper preparation," asserting that Dr. Budge's great *Hieroglyphic Dictionary* "contains the most extraordinary mistakes and blunders," and that "not one of four references is correct."

I am well content he should rate me in the same category as these others.

As to my own work, Dr. Yahuda makes numerous misquotations, and several specific accusations—all false; some few of these it may be worth while to refute.

1. He first suggests that, in my Paper, some work of his own is involved; this charge I sufficiently refuted in February, before it was subsequently made in December. He then proceeds to misquote what I said in reference to his book.

2. He next accuses me of having "taken over" "almost all the parallels" I adduced from "the works of other scholars." This is totally untrue, as any careful perusal of my Paper (wherein I sufficiently explain the method adopted) will make evident.

And most of the books he accuses me of "cribbing" from I have never even seen, Brugsch's dictionary, for example.

3. I had sent to Dr. Yahuda (as to other students) some considerable time before my lecture a few of my lists of words, inviting his comments thereon; but without receiving any reply, though he now asserts—nine months after he had returned them—that they contained "hundreds of Egyptian loan-words in Hebrew which I accepted as such." Now I was at some pains to emphasise, both in that abbreviated list and when reading my Paper, that the "borrowing" appeared to have been sometimes in one direction, sometimes in the reverse, that often similar words in both languages

for analogous ideas were more likely to be alike derived from a common older source, and that in many other instances the existence of a similar-sounding word in Egyptian to a Semitic one already in use for a somewhat similar idea *must*, in time, have led to an approximation in sound and use of one or both. This fact is so familiar to philologists that one need hardly stress it.

4. He then asserts as a fact that, in my lists, he saw "that a great number is taken from Budge's *Hieroglyphic Dictionary*." In sober truth, not one is so "taken." The only use I made of Dr. Budge's Dictionary was, *after* I had got out all my Pentateuch vocabularies sorted into categories, to check my renderings of Egyptian words (*i.e.*, sounds) by the well-established standards of that work. I took no "list of words" from either the Egyptian-English or the English-Egyptian section. Dr. Yahuda is good enough to admit that many of these loan-words are undoubtedly correct; but he at once goes on to assert—again without a scintilla of evidence—that I was not able to distinguish between the right and the wrong.

5. He is quite right in believing that I paid more attention to the *sound* of words—and their *meanings*—than to precision of spelling, which is so often variable, as he has himself shown in his book. In any race, at any time, there are always far more persons able to pronounce their language correctly (or they would not be understood) than are able invariably to spell or write *all* the words with precise accuracy. This is true, even in England to-day, and of course was far more so in earlier ages.

6. As to the transliteration from Egyptian, it is usually in accord with the great standard dictionary of Dr. Budge; which I observe, though he calls it "antiquated," has been adopted almost in its entirety by Dr. Yahuda himself in the tables of equivalents he gives in his book. So I do not know why he blames me on this score.

7. His allusion to what I had to say as to *kap-poreth* (mercy-seat), Egyptian *kheper* (create) and the ancient Semitic formative element *chaph* totally mis-states what I *did* say. Evidently, he has failed to grasp its meaning; though I had hoped it was quite clear. He seems so often to confuse quite obvious "relationships" of sound

and/or sense with "identity"; they must be carefully distinguished; so perhaps this explains *his* words on "the association and even identification of bud, bead, bad, bid, bed, etc.," of which, otherwise, I quite fail to see the point.

As to "actual lettering" (or spelling), I purposely did *not* strain any distinction based on the words *chaph*, *chah-phah*, *choph-shee*, etc., beginning with a *ch*, and *kap-pohreth*, *kah-phar*, *kipoor*, etc., with a *k*; though this might have seemed a strong argument for the "influence" of the *Khepera* conception. As is well known—indeed, it has often been stressed to me by learned Jews, *really* versed in these matters—we cannot be quite certain that, in turning over the Pentateuch, word by word, from the older (Phœnician or Palestinian) alphabet into that from which the present one was developed, no changes of such consonants were made to accord with the pronunciations then current. Indeed, some such seem very probable; so it is utterly unsafe to dogmatise as to *chapha*, *kah phar* originally "having nothing in common" as to origin; and therefore I did not do so.

With Dr. Yahuda's concluding paragraph I am in entire agreement; and I can only regret that, after ten months to consider my Paper, and such ample opportunity to consult the long list of authorities he cites, he did not make a more helpful "contribution towards the efforts made to find the right path to the right end" announced by him as his objective.

It remains to add a few words of reply to the late DR. MORTON'S observations, though such cannot reach him now. He has correctly summed up the broad general conclusion of much of my work in a few clear, simple phrases. Not only Hebrew, but very much else, embedded in the Old Testament, was "in the making" during the long Sojourn in Egypt; and I hope, ere long, all this will become available to Bible students in a book, phrased in as simple language as the subject will permit me.

And if, after much patient investigation by really painstaking philologists, it shall be found that the speech of Israel on leaving Egypt consists of but a small proportion of pure, untainted Semitic words; of many Semitic words modified and more or less Egyptianised during the centuries of the Sojourn; of very many

borrowed and much modified while there ; and a considerable number of those last borrowed only slightly altered ; need that very greatly surprise us ? I am not, yet, asserting that it is so ; but it is certainly at least probable ; Dr. E. Naville realised this, when he discussed it many years ago. Israel entered Egypt as a mere handful of seventy (Gen. xlvi, 27) and left—430 years later—a vast multitude (Num. xxii, 5, 41, xxiii, 13), by no means wholly Semitic in race (Ex. xii, 38). Our own English speech contains large contributions still remaining from *all* the waves of race that have come hither ; Goidels, Ivernians, Brythons (often all grouped, vaguely, as “ ancient Britons,” but probably each “ wave ” of a different speech)—possibly even earlier immigrants—Romans, Saxons, Danes, Normans and others.* Is it reasonable to suppose that Israel, increasing from “ seventy souls ” to a “ vast multitude ” would preserve their original local Semitic dialect unchanged throughout all those centuries ? Was there the least reason why they should ?

* See Earle's *Philology of the English Tongue*.

797TH ORDINARY GENERAL MEETING

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, MARCH 2ND, 1936,
AT 4.30 P.M.

BRIG.-GENERAL F. D. FROST, C.B.E., D.S.O., IN THE CHAIR.

The Minutes of the Meeting of February 17th were read, confirmed, and signed, and the HON. SECRETARY announced the following Elections:—

As Associates: The Lady Sydenham of Combe and J. P. Lane, Esq., and the Administrator, Maison de la Chimie, Paris, as Library Associate.

The CHAIRMAN then called on Lieut.-Colonel C. C. Robertson, D.S.O., to read his paper "On The Track of the Exodus."

ON THE TRACK OF THE EXODUS.

By LIEUT.-COL. C. C. ROBERTSON, D.S.O.

THE NARRATIVE OF THE EXODUS.

Exod. ii, 15.—"Moses fled from the face of Pharaoh, and dwelt in the land of Midian."

Exod. iii, 1.—"Now Moses kept the flock of Jethro his father-in-law, the priest of Midian; and he led the flock to the backside of the desert, and came to the mountain of God, even to Horeb" (or Sinai).

Migration Ordered from Egypt to Midian.

Exod. iii, 10.—"I will send thee unto Pharaoh, that thou mayest bring forth my people the children of Israel out of Egypt."

Exod. iii, 12.—"When thou has brought forth the people out of Egypt, ye shall serve God upon this mountain."

Preliminary Movement Eastward to Etham.

Exod. xii, 37.—"And the children of Israel journeyed from Rameses to Succoth, about six hundred thousand on foot that were men, beside children."

Exod. xvi, 38.—"And a mixed multitude went up also with them; and flocks, and herds, even very much cattle."

Exod. xviii, 20.—"And they took their journey from Succoth, and encamped in Etham, in the edge of the wilderness."

At Etham—Advance Eastward Prohibited.

Exod. xviii, 17.—"God led them not through the way of the land of the Philistines, although that was near; for God said, Lest peradventure the people repent when they see war, and they return to Egypt."

Exod. xviii, 18.—"But God led the people about, through the way of the wilderness of the Red Sea; and the children of Israel went up harnessed out of the land of Egypt."

At Etham—Order to Turn.

Exod. xiv, 2.—"Speak unto the children of Israel, that they
TURN

(Order to Encamp by the Sea.)

and encamp before Pi-hahiroth, between Migdol and the sea, over against Baal-zephon: before it shall ye encamp by the sea."

The Purpose of the Order.

Exod. xiv, 3.—"For Pharaoh will say of the children of Israel, They are entangled in the land, the wilderness hath shut them in."

The Effect Intended.

Exod. xiv, 4.—"And I will harden Pharaoh's heart, that he shall follow after them; and I will be honoured upon Pharaoh, and upon all his host;

(The Motive.)

that the Egyptians may know that I am the Lord."

Completion of the Order.

"And they (the Israelites) did so" (verse 2).

The Effect.

Exod. xiv, 8.—"And the Lord hardened the heart of Pharaoh king of Egypt, and he pursued after the children of Israel . . .

Exod. xiv, 9.— . . . and overtook them encamping by the sea, beside Pi-hahiroth, before Baal-zephon.”

The Crossing of the Sea.

Exod. xiv, 21.—“ The Lord caused the sea to go back by a strong east wind all that night, and made the sea dry land, and the waters were divided.”

Exod. xiv, 22.—“ And the children of Israel went into the midst of the sea upon the dry ground : and the waters were a wall unto them on their right hand, and on their left.”

Destruction of the Egyptian Army.

Exod. xiv, 23.—“ And the Egyptians pursued, and went in after them to the midst of the sea, even all Pharaoh’s horses, his chariots, and his horsemen.”

Exod. xiv, 28.—“ And the waters returned, and covered the chariots, and the horsemen, and all the host of Pharaoh that came into the sea after them.”

Movement to Elim.

Exod. xv, 22.—“ So Moses brought Israel from the Red Sea.”

Exod. xv, 27.—“ And they came to Elim.”

From Elim to Sin.

Exod. xvi, 1.—“ And they took their journey from Elim, and all the congregation of the children of Israel came unto the wilderness of Sin, which is between Elim and Sinai.”

From Sin to Rephidim.

Exod. xvii, 1.—“ And all the congregation of the children of Israel journeyed from the wilderness of Sin, after their journeys, according to the commandment of the Lord, and pitched in Rephidim.”

From Rephidim to Sinai.

Exod. xix, 1.—“ In the third month, when the children of Israel were gone forth out of the land of Egypt, the same day they came into the wilderness of Sinai.”

Exod. xix, 2.—"For they were departed from Rephidim, and were come to the desert of Sinai, and had pitched in the wilderness; and there Israel camped before the mount." (Horeb, or Sinai, *Exod. iii, 1.*)

From the narrative certain deductions may be made.

- (1) When Moses was ordered to go to Egypt he was at Horeb (or Sinai) in Midian.
- (2) He was told to bring the Israelites out of Egypt to Horeb (or Sinai) in Midian.

The terminus of the Exodus was in Midian. Midian comprised the whole of the El Hesma country, east and north of the gulf of Akaba. Midian territory north of Akaba was bounded on the north by the as-Sera range of Mount Seir (Edom), and on the west by the Araba rift depression, extending from Akaba to the Dead Sea.

The southern portion of the Araba was the wilderness of Sin, or Zin. This lay between Elim on the west and Sinai on the east. Sinai therefore was located in the northern territory of Midian, eastwards of the Araba, and south of Edom.

There is no indication in the narrative that the Israelites as a nation ever penetrated the Sinai peninsula.

Mount Sinai was not a great mountain but a low hill, probably a spur of the as-Sera range of Mount Seir.

The idea of the Israelites being "in flight from Egypt" is contrary to the narrative.

THE NILE INFLUENCE.

The rise to power of the foremost kingdoms in early history, those of Egypt and Babylon, resulted from their similar control of a great river highway with its outlet to the sea.

Commerce was then, as now, the main factor in national prosperity; and where trade was water-borne commerce flourished exceedingly. But the great river highways served more especially the purposes of national defence. By their means only could large forces be moved with rapidity over the whole extent of the kingdom, to meet attack at any threatened point.

The rise to power of Egypt may be attributed to these two great sources of national prosperity, commerce and security, afforded by the Nile. But to further safeguard the kingdom,

and to obtain access to the southern seas also for their commerce, a ship canal was constructed joining the Nile with the head of the gulf of Suez.

In Breasted's *Records of Ancient Egypt*, vol. ii, p. 102, he deals with the voyage of Queen Hatshepsut from Thebes to Punt (c. 1494 B.C.), wherein the same ships which sailed from Thebes down the Nile appear also on the voyage down the Red Sea. Breasted infers the existence at this early period of the ship canal joining the Nile with the gulf of Suez.

In *Egypt and Syria*, by Sir J. W. Dawson, a clear appreciation may be gained of the value of Goshen to the Israelites. "The land of Goshen where Jacob and his sons settled extends eastwards from the Nile to the Red Sea. One of the numerous branches into which the Nile divides in the Delta ran eastward along the Wady Tumilat.

"In this district the Israelites had not only a rich agricultural country but open pastures on either side, and were in a position to control much of the trade and intercourse of Egypt with the East, and to act as carriers between the former and Palestine and Arabia."

"The recent surveys of the British Military Engineers also render it certain that this valley once carried a branch of the Nile, which discharged its waters into the Red Sea. This branch, or a canal representing it, must have existed at the time of Moses."

By their settlement in Goshen the Israelites had access to the Mediterranean Sea by the Pelusiac branch of the Nile, now non-existent.

According to Prince Omar Toussoun, who has made a study of the ancient branches of the Nile, the Pelusiac branch crossed the line of the Suez Canal about 12 miles north of Kantara.

Through communication was thus possible between the Mediterranean and the Red Sea, by means of the Wady Tumilat Canal linking the Pelusiac Nile with the Gulf of Suez.

The Israelites had every opportunity to develop a fishing fleet both in the Mediterranean and in the Gulf of Suez, of which the upper waters came within their territory. They were in a position to carry on overseas trade, north and south, to the full extent of what maritime enterprise they possessed.

Life on the Nile Delta meant for them a complete change from that of a nomadic people concerned mainly with flocks and herds. If the Israelites failed to become a great nation under

such favourable conditions for expansion, the cause could not lie in any territorial disadvantage.

MAIN TRADE ROUTES.

There were two main trade routes from Egypt to the East.

The northern trade route followed generally the direction of the northern coast of the Sinai peninsula, crossed the frontier near El Arish, and led northwards through Canaan to Damascus, or alternatively south of Edom into Babylonia.

The southern trade route led by caravan to the Egyptian ports on the western shores of the Gulf of Suez and the Red Sea; thence by sea to Tor, Akaba, Modiana, the Arabian coast ports, and to India and the far East.

These two trade routes exist to the present day, substituting road and rail for caravan and eliminating the vanished ports of ancient days.

Tor was formerly a port of great importance to the Red Sea trade bearing commerce from China, India and Arabia. Tor only declined in importance following the discovery of the Cape Route by the Portuguese. In the British Museum the Map Room has a chart of the sixteenth century, "done by order of the Kings of Portugal," showing Tor with a breakwater covering the whole harbour and a fort for its defence.

The Tor crossing was strategically of great value to Egypt, enabling her to maintain and reinforce the garrison at Serabit el Khadem from Thebes. There must have been a harbour, and a fortress for security of the trade route, on the western shore opposite Tor.

We are not familiar with the idea of great shipping activity in the Gulf of Suez at the period of the Exodus, but we should be.

In *A History of Sinai* Miss Lina Eckenstein, quoting Raymond Weill, says with reference to the tablets found at Serabit el Khadem: "These tablets mention some of the dignitaries which took part in the expedition. That of Dadkara named the ship captain Nenekht-Khentikhat; that of Pepy I the ship captain Ibdō; a further one of Pepy II, the ship captain Benkeneph. This shows the Egyptians approached the mainland by water." So we have ships in the Gulf of Suez a thousand years before the Israelites.

The subject of trade routes is dealt with in the official guide to Egyptian Collections in the British Museum. From p. 19 we gather that the Red Sea trade with Puenet or Punt was carried on from the earliest time. Punt is identified with the Somaliland region, and was visited by Egyptian ships centuries before the time of Hatshepsut, whose expedition, 1494 B.C., is the best known. P. 150: "The craft of the boat builder was very important in a country where a river was the main highway. Flat-bottomed boats and punts for the canals; boats for carrying merchandise on the river; and great Nile boats for official, religious or war purposes. Fleets are mentioned in the war against the Hyksos. The Egyptians had the equivalents of the modern broad ferry boat, barge, lighter, etc., worked with oars or 'sweeps' and sails. We have representations at Thebes of the great ships which conveyed Hatshepsut's expedition down the Red Sea. Foreign merchantmen entered the Nile and came up as far as Thebes. Sixty ships were constructed in a year by King Snegeru (3000 B.C.) to fetch wood from Syria." P. 339: "King Thothmes III, 1501-1447 B.C., was the first to utilise sea power intelligently. He undertook fifteen campaigns in Western Asia, basing himself on the coast and his ships in Phœnicia."

It is evident that the Egyptians had developed into a maritime nation long before the Exodus of the Israelites. The effect on the Israelites of close association with the mariners of Egypt for two centuries must have been to develop in them the habits and instincts of seamen, and to render them familiar with the two main trade routes from Egypt by land and by sea.

At this early period the Mediterranean trade routes were undeveloped and, to Egypt, of minor interest. The Minoan empire of Crete held the sea power. For Egypt the Red Sea was of supreme importance. Her overseas commerce depended on the southern trade route.

LIFE OF THE ISRAELITES IN EGYPT.

Gen. xlvii, 6.—The repeated references in Exodus to the Israelites dwelling in houses, not in tents, shows the transition from their nomadic life in Canaan. They were given "the best of the land," which must have meant for them the choicest agricultural and pasture country.

Thenceforth they dwelt in towns and villages in the cultivated region with wide pasture lands (Wilderness) extending eastwards over what is now desert. Here doubtless they maintained their tents, where thousands of them could encamp in charge of their flocks and herds.

The Egyptians had no use for that country, shepherds being to them "an abomination." Pharaoh placed his own cattle in charge of the Israelites.

Gen. xlvii, 27.—"And Israel dwelt in the land of Egypt, in the country of Goshen; and they had possessions therein, and grew, and multiplied exceedingly."

The land of Goshen lay on the eastern side of the Delta, either traversed by the Pelusiatic branch of the Nile or with this great water highway for its western border. The Wadi Tumilat canal joined the Nile with the Gulf of Suez.

Eastwards there was practically no limit for expansion as the rapid increase in population required.

Thus for two centuries before the Exodus the Israelites had been in the Egyptian Delta, living the life of the Delta, entirely different from the nomadic life of Canaan; and continually founding new colonies to relieve congestion from within the bounds of their original settlement.

The climate and the physical geography of any and every country determine the life, activities and customs of its inhabitants.

The Israelites had no choice but to follow this law of racial development, as did their Hyksos predecessors. They led the life of the Delta, very similar to that of Holland. In Goshen they were no longer concerned solely with flocks and herds. They developed into a water-side, agricultural and pastoral folk, engaged in shipping, commerce and industry, with easy access to the sea. The fishing and agricultural industries are indicated in *Num. xi, 5*.

In the course of two centuries of Delta conditions, they had time to acquire the habits and instincts of sea-faring people. Their display of maritime activity following immediately on their conquest of Palestine must have had its source in Egypt. This familiarity in Palestine with everything concerned in shipping and seamanship was no sudden acquisition. It could only have accrued from generations of sea-faring experience, habits and customs.

In addition to their fishing, agricultural and pastoral pursuits, it is evident that the Israelites of Goshen were expert carpenters, metal workers, weavers, tanners, tent makers, silversmiths, artisans of all arts and crafts. These trades are all indicated in the construction of the tabernacle, certain craftsmen being named as excelling in design and workmanship.

The conclusion drawn is that the conscription of labour during the period of bondage in Egypt, however severe, did not involve the whole manhood of the people.

THE ROUTE OF THE EXODUS.

The Exodus, like any racial migration, had to follow some well-defined route.

The preliminary concentration was on the border between Goshen and Etham, which lay to the east of the line of the Suez Canal.

The Israelites were prohibited from advancing direct across the Sinai peninsula by "the way of the Land of the Philistines," or the northern trade route.

In other words, they were forbidden to cross the line of the Suez Canal; at Etham they were ordered to TURN and to encamp by the sea. They could turn in two directions only—northwards or southwards. It follows that they adopted the southern trade route for the migration from Goshen to Midian. This involved a sea-crossing, and a fleet of ships and barges was an essential factor. The Exodus appears as a combined land and sea migration.

At the beginning of the twelfth century B.C. a similar land and sea migration was accomplished by the Philistine confederacy from Crete, along the coast of Asia Minor, down through Syria and Palestine to Lake Serbonis; where they were defeated in a great land and sea battle by Rameses III about 1192 B.C.

From *The Philistines, their History and Organisation*, by R. A. S. Macalister: "The inscription regarding the war of 1192 B.C. is engraved on the second pylon of the temple of Medenit Habu, near Thebes. The inscription records how the Northerners were disturbed and proceeded to move eastward and southward, swamping the land of the Hittites, Carchemish, Arvad, Cyprus and other places in the same region.

"We are thus to picture a great southward march through Asia Minor, Syria and Palestine. Or, rather, we are to imagine a

double advance, by land and sea; the landward march which included two-wheeled ox carts for the women and children; and a sea expedition, in which no doubt the spare stores would be carried more easily than on the rough Syrian roads. Clearly they were tribes accustomed to sea-faring who thus ventured on the stormy Mediterranean; clearly too, it was no mere military expedition but a migration of wanderers accompanied by their wives and families and seeking a new home."

What was accomplished in the migration of the Philistine confederacy could have been effected in the migration of the Israelites from Goshen to Akaba, by the southern trade route.

The procedure would have involved:—

- (a) A combined land march and sea voyage from Suez to Arsinoe near the mouth of the gulf.
- (b) The sea-crossing from Arsinoe to Tor.
- (c) A combined land march and sea voyage from Tor to Akaba.
- (d) A land march from Akaba to Horeb, or Sinai, in Midian.

The Tor crossing was interrupted by the sudden attack of the Egyptian army of chariots and horsemen. The sea was divided. The Israelites made the crossing on dry land.

That the Israelites did actually adopt the southern trade route with the Tor crossing appears in the narrative, and is included in this paper under the heading "On the Trail."

The subsequent stages of the Exodus cannot be dealt with in the time available for the paper to be read. These are "The Crossing of the Sea of Reeds," "From Tor to Akaba," "From Akaba to Sinai in Midian."

If Members so desire, these stages might be taken as extra to the paper, but the time allotted for discussion intervenes.

ON THE TRAIL.

Exod. xiv, 2.—The first indication of a possible solution was gained from a commentary by David Davidson, LL.D., published in *The Comprehensive Family Bible*, by Blackie and Sons, Edinburgh, in 1855. Instead of taking Pi-hahiroth, Migdol and Baal-zephon as the names of cities, these are given their actual meaning as translated from the Hebrew.

1. Pi-hahiroth—"a strait or passage between mountains, or a bay, perhaps the opening of the Gulf of Suez."

2. Migdol—"a tower, may have been a fortress for the protection of Pi-hahiroth."

3. Baal-zephon—"Lord or Master of the Watch."

In order to verify these equivalents recourse was made to modern scholarship.

1. Pi-hahiroth. Bishop Wordsworth's commentary gives "mouth of passes or rocky straits."

Dr. Cheyne, Oriel Professor of Interpretation, Oxford, gives "entrance to the gulfs."

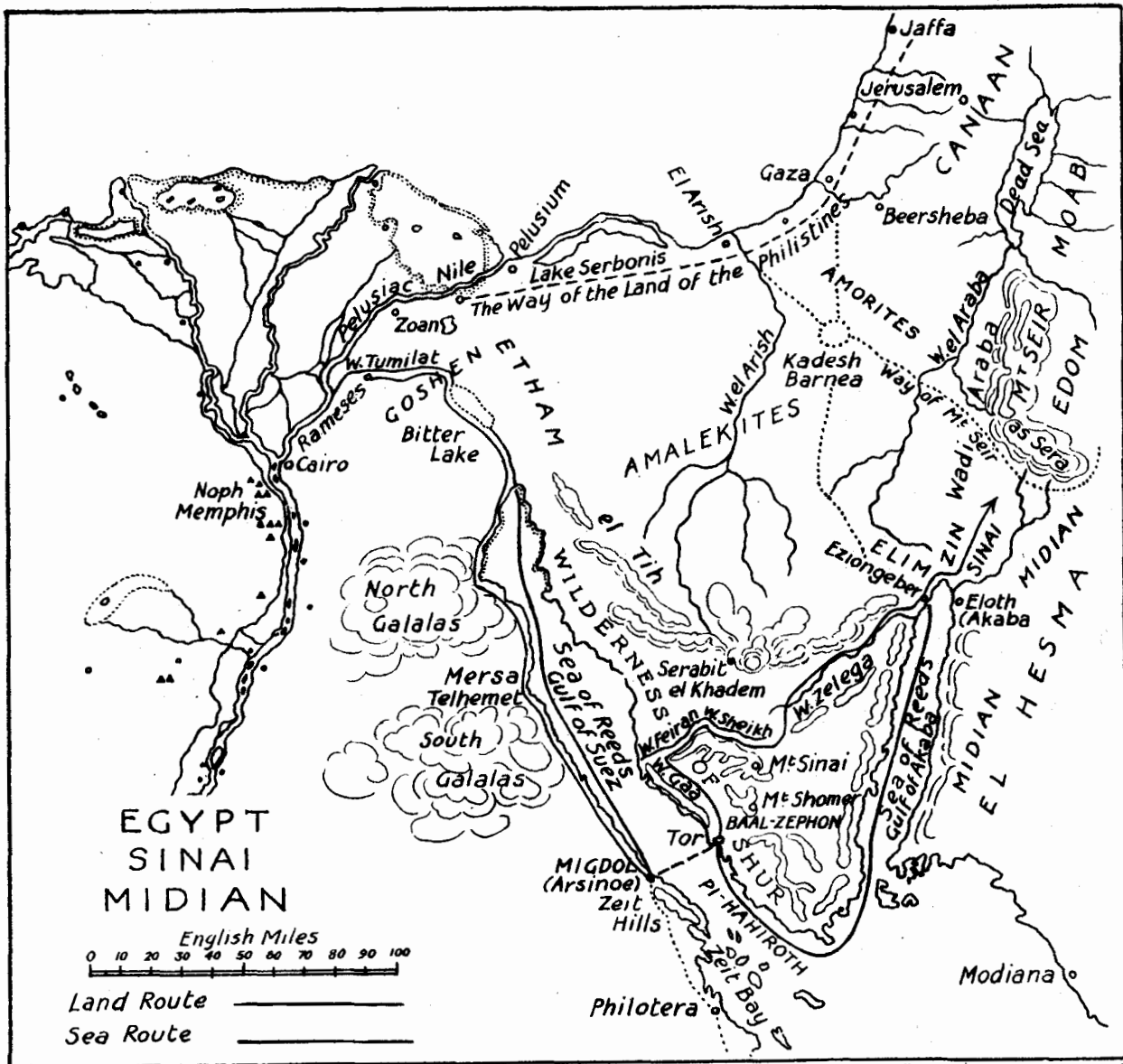
The word evidently means the entrance to a defile or pass by land; the entrance to a strait or gulf by sea.

2. Regarding Migdol, Professor Peet says this is a Semitic word meaning "a tower." The name was adopted by the Egyptians and given to several cities and towns. There were six Migdols in the Delta alone. It also means, and generally implies, a fortress.—*Egypt and the Old Testament*, by T. Eric Peet.

3. Baal-zephon gave some trouble, but in the Authorised Version of the Bible, published with Concordance and Index to proper names, the meaning of Zephon is given as "a looking out." Baal-zephon would then mean "Lord of the look-out," suggesting either a high mountain or some prominent landmark. The Hebrew lexicon gives Zephon—"North." The explanation given by a Hebrew scholar for the rendering of Zephon as "a watch" or "a looking out" is that both Zephon and Mizpah (also "a watch" or "looking out") are from the Hebrew root *tsafah* "to watch" (or *Zaphah*, as it would be rendered in English Biblical transliteration); and the word Zephon meaning "north" may bear *from the root* the alternative meaning of "a watch" or "a looking out," as given in the two commentaries referred to. The north being the constant point for "the watch" or "the look out," these meanings are in association.

Thus we have to find some prominent landmark which may bear the title "Lord of the Outlook," "Lord of the North," or "Lord of the Watch," in close association with Pi-hahiroth, "The mouth of the straits."

By giving their equivalent meaning to the three key words Pi-hahiroth, Migdol and Baal-zephon we can now put the executive orders which Moses received into more intelligible form.



From "On the Track of the Exodus"

“Yam Suph” is given its true meaning, “sea of reeds,” instead of Red Sea, and “pasture lands” substituted for wilderness. The result is as follows:—

Exod. xiii, 18.— . . . “God led the people about, through the way of the pasture lands to the sea of reeds.”

Exod. xiv, 2.— . . . “Speak unto the children of Israel that they TURN, and encamp before ‘the mouth of the straits,’ between the fortress and the sea, over against the ‘Lord of the Watch’: before it shall ye encamp by the sea.”

Note the emphasis on Baal-zephon—“over against” and “before it.”

Exod. xiii, 20.—Now we must follow the trail from the concentration at Etham “on the edge of the wilderness.” This implies that the Israelites were now encamped beyond the populated area, facing east.

At Etham they receive orders—to TURN, and (by following “the way of the pasture lands to the sea of reeds”) to encamp before “the mouth of the straits.”

It is clear that they could turn in two directions only; northwards to the Mediterranean Sea, or southwards by the Gulf of Suez.

This order “to turn” corresponds with the phrase “led the people about” in *Exod. xiii, 18.*

The direction now given to the migration must have been southwards; and the immediate suggestion is that, the northern trade route being ruled out, Moses resolved to conduct the migration by the alternative southern trade route with the Tor crossing.

Let us assume, however, that hitherto no indication has been given as to whether the migration was to follow the eastern or the western side of the gulf. We merely note the destination given—“the mouth of the straits.”

Migdol is required to define the limits of the encampment—“between the fortress and the sea.”

The key to the actual position of the camp now lies in the identification of Baal-zephon.

The name itself, Baal-zephon, suggests that this “Lord of the Outlook,” “Lord of the North” or “Lord of the Watch,” must be some landmark altogether outside of Egypt, where certainly no worship of Baal existed. The name is Semitic and might be connected with some temple of Baal worship in Sinai,

possibly in the neighbourhood of Serabit el Khadem where the worship of Baal was established. But no amount of research among ancient maps shows this name Baal-zephon in Sinai. We only know for certain that the camp was to be pitched "over against" Baal-zephon—that is on the *opposite* shore to this landmark. Taking into consideration the perils of the route by the eastern shore, and the security offered to the migration along the western shore, the possibility of Baal-zephon being on the Sinai side of the gulf is suggested. It is noteworthy that the temples of Baal were sited always on the summit of a mountain or a hill.

Let us, then, in imagination follow this route down the western shore, and endeavour to locate some Sinai landmark so prominent that no doubt could arise as to our being "over against" it. The "Lord of the Outlook" suggests the highest peak of the mountain range of Sinai. Consulting the latest ordnance map of Sinai, this is found to be Mount Shomer (8,530 ft.), over 1,000 ft. above Mount Sinai (7,450 ft.).

From its dominating position Mount Shomer would certainly be the most conspicuous landmark of the Sinai peninsula. Its prominence is clearly shown by the panorama sketch in the Admiralty chart, as viewed from opposite Tor. The title "Lord of the Outlook" seems well bestowed.

The still more striking appearance of Mount Shomer viewed from the south in mid-ocean is given on the panorama sketch by C. Muller, 1855, accompanying his interpretation of Agatharchides, 120 B.C., in the British Museum, Map Room.

Mount Shomer shows over the top of Gebel el Thebt.

This great mountain is visible to mariners coming up the Red Sea, to whom it would be known as the "Lord of the North"

The question now is whether Shomer can have any association with "Lord of the Watch." The English Bible gives Shomer as a Hebrew name in II Kings xii, 21 and in I Chron. vii, 32. The root is shamar, "to watch"—Shomer means "one that watches," and so "The Watchman"—bearing close relation to "Lord of the Watch."

These three alternatives, Lord of the Outlook, Lord of the North, and Lord of the Watch, seem, in conjunction, to apply sufficiently closely to Mount Shomer as to render its identification with Baal-zephon not unreasonable.

Thus in *Exod. xiv, 2*, the Israelites are ordered to TURN, and to encamp before the mouth of the straits, between the fortress and the sea, over against the highest mountain of the Sinai peninsula; known to the Egyptians as Baal-zephon—"Lord of the Watch"—and later bearing the Hebrew name Shomer—"The Watchman"—by which it is still called.

The encampment "over against" The Watchman must have been on the western shore of "the sea of reeds," and immediately opposite Tor at "the mouth of the straits."

We may now conclude that Moses did actually adopt the southern trade route for the conduct of the Exodus from Egypt to Midian. There must be some vagueness in our appreciation of the exact position of "the mouth of the straits." This is described as "before" the Watchman in *Exod. xiv, 9*, and *Num. xxxiii, 7*. This was a local consideration and would require no closer definition for Moses to determine the location of the camp. He was further guided as to its limits—"between the fortress and the sea."

In this passage the open sea is referred to, not the "sea of reeds." This fortress must have been "over against" The Watchman and so directly opposite Tor. It guarded the western side of the Tor crossing, in the position shown as Arsinoe.

The camp was to extend from this point towards the open sea. The left of the camp was thus definitely fixed and its right depended on the frontage required, possibly five miles. This is an important point to note, because the formation "by the sea" must have been in line of tribal divisions facing the sea, not in column.

They were in this line formation when they became aware of the approach of the Egyptian army. The Gulf of Suez was "dried up" near its mouth. The Israelites crossed over to the Tor side, in line of divisions.

Exod. xv, 27.—The Egyptians, in their attempt to overtake them, were drowned by the sea "returning to his strength."

Several months may have elapsed before Pharaoh and his government recovered from the shock of the death of all the firstborn in Egypt. This period covered the concentration at Etham and the march to Pi-hahiroth. The Egyptian government must have been kept informed of the progress of the migration southwards. They probably expected this to follow the coast

of the Red Sea, out of Egyptian territory into Nubia. The encampment at the mouth of the straits would appear to them to be a check, due to the physical difficulties of the country—"the wilderness hath shut them in."

The decision to attack seems based on this misapprehension. To the Egyptians it seemed that the God of the Hebrews had deserted them. Now was their opportunity.

The destruction of the Egyptian army was determined. The governing motive appears in Exod. xiv, 1-4 : the order, v. 2 ; the purpose, v. 3 ; the effect, v. 4.

The conclusion—"That the Egyptians may know that I am the Lord"—was the motive.

DISCUSSION.

Lieut.-Col. F. MOLONY said : As I prepared the maps for this paper, and also for Mr. Mitchell's paper on the same subject last May, there is a matter which I ought to bring to your notice.

The Bible implies that Pi-hahiroth, Migdol and Baal-Zephon were close together, but there is very little evidence as to where they were situated. Both Mr. Mitchell and Col. Robertson place them at the bottom of their maps, so that you may think that they corroborate each other. This, however, is not so, because Mr. Mitchell's map does not extend nearly as far south as Col. Robertson's. It is known that the Red Sea extended at least as far as the Bitter Lakes in Moses' day ; but the part between Suez and the lakes must have been very shallow. The Bible says that it was a strong wind that dried the passage, and experienced men know well that wind can have a surprising effect on a long stretch of water. If the wind changed suddenly at half-flood tide, the water may have come back like a bore or moving wall ; but the mention of "wall" in Exodus xiv, 22 and 29, probably only means "defence."

It seems that we shall be wiser to invite the rising generation to believe that a great mental miracle was worked (inasmuch as Moses was told where to move the Israelites to, in order that they might be in a position to take advantage of what God was going to do). That is better than asking them to believe in a great physical marvel, like the drying out of one of the deep parts of the Red Sea.

To turn to another subject, our Lecturer maintains that Sinai must have been in Midian, and therefore north-west of the head of the Gulf of Akaba.

But there are very strong arguments in favour of the traditional site, Jebel Musa Sufsafeh. These are well given in Palmer's book on Sinai, revised by Sayce (S.P.C.K.). They argue that the Midianites had right of pasturage up the Jebel Musa, where the climate is known to have been wetter in Moses' day than it is now.

We noted in South Africa that, after a dry summer, when the grass on the lowlands was parched, there was still luscious grass in the cups or depressions on the mountains. We expect to find rocks, snow and moss on mountains, but dwellers in tropical and sub-tropical regions expect good vegetation on mountains up to 8,000 feet high.

When Moses was keeping Jethro's flocks, he probably noted that the grass on the lowlands was getting useless. Accordingly, he enquired whether there was better grass on the mountains to the south-west or north-east, and heard that it was best near Sinai. He then moved his flock 95 miles to there, and afterwards described it as moving them to the backside of the wilderness.

The Rev. H. C. MORTON, B.A., Ph.D., said : I join most heartily in the thanks to Col. Robertson, who has given us a most interesting paper on an important Bible topic.

May I first venture to suggest that the route of the Exodus is one question, and the position of the Mount of the Law quite another : and it would be better not to deal with them together ?

As to the route, I feel obliged to differ from the Lecturer. That Moses should have led the people 100 miles south into the southern third of the great mountain mass of the Sinai Peninsula, where they would have been in dire peril of Egyptian attack, seems entirely unlikely. Col. Robertson suggests that Moses led them down the west side of the Gulf of Suez and then crossed the sea opposite Tor : that then they proceeded, partly by sea, up the Gulf of Akaba north again, and then proceeded to Mount Horeb in Midian.

Two or three years ago, I went down the Gulf of Suez and stayed up almost all night to view the Peninsula through my glasses from the earliest rise of dawn. A very keen navigation officer pointed

out the features of the coast and the mountains. We passed many, many miles of mighty jumbled rocky mountains before we reached the site of Tor. It would have been a terrible journey for the vast host of men, women and children down the west side of the Gulf, and then when the sea was crossed they would have been in a most perilous position. It seems an utterly unlikely route.

But one record seems finally to settle the matter. Exodus xv, 22, actually gives us the route, and it is quite different from the one Col. Robertson gives. It says: "So Moses brought Israel from the Red Sea; and they went out into the Wilderness of Shur, and they went three days in the Wilderness, etc." The Wilderness of Shur we know. It is the Wilderness of the Wall, and the Wall ran from the Mediterranean to the head of the Gulf of Suez. It lies due east, not south at all. From there they went on to Elim, which the Colonel identifies with Ezion-Geber, at the head of the Gulf of Akaba. The route down the west side of the Gulf of Suez to a point opposite Tor would have necessitated retracing the three days' march back to the west side, crossing the sea or the Wall again, and then 100 miles down the west side. This is unthinkable.

But to me it seems most probable, if not certain, that the Mount of the Law was not in the Peninsula but in Midian. The Colonel has the late Prof. Sayce on his side in this contention. Not that the Rock of Oreb in Midian (Isaiah x, 26; Judges vii, 25) is the same word as Horeb. The first consonant of Oreb is "Ayin," and of Horeb is "Cheth," and they cannot be identified. Nor do we know of a Mount Horeb in Midian. That is a perplexity upon which perhaps Col. Robertson can cast some light—for one would expect the Mount of the Law to be famous. But at least three passages of Scripture seem to shut us up to Midian, and to shut out the Peninsula of Sinai.

First, Deuteronomy xxxiii, 2, says: "The Lord came from Sinai and rose up from Seir unto them." That appears clearly to fix Sinai in Mount Seir, which was far away from the peninsular site.

Second, Exodus iii, 1, tells us that Moses led the flocks of his father-in-law, the priest of Midian, "to the mountain of God, even to Horeb." Now, it is so unlikely that Moses would have led the flocks 100 miles away from Midian and far into the territory of Egypt—for Egyptian dominions extended at this time right across

the peninsula and up through Canaan and into Syria—that it is really impossible. We are shut up to the conclusion that the Mountain of God was a Horeb in Midian.

And third, Exodus xvii, 6, where God says : “ Behold I will stand before thee upon the rock in Horeb.” That would be a most strange utterance if the Horeb had been in the Peninsula. The Peninsula is a great mass of rocks. “ *The rock in Horeb* ” could hardly have any meaning there. It is all rocks. It must have been elsewhere : and the whole history of Moses and of God’s revelation to him, apart from Egypt, centres in Midian.

Col. A. H. VAN STRAUBENZEE wrote : I think that the lecturer has over-estimated the time taken from leaving Egypt until the crossing of the Red Sea. The details of these days, as given in *The Companion Bible*, are as follows :—

“ Month of Nisan.

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|----|------|--|
| 14 | Day. | Passover lamb killed in the evening. |
| 15 | „ | Removed from Rameses and pitched in Succoth. |
| 16 | „ | They took their journey from Succoth, Exodus xiii, 20; Numbers xxxiii, 5. |
| 17 | „ | On the way to Etham. |
| 18 | „ | Encamped in Etham in the edge of the wilderness, Exodus xiii, 20 (Pursuit begins). |
| 19 | „ | They remove from Etham and turn again. |
| 20 | „ | Unto Pi-hahiroth between Migdol and the sea, Exodus xiv, 9. |
| 21 | „ | (7th day). An Holy Convocation. The Pillar of Cloud goes behind Israel and stood between them. |
| 22 | „ | (1st day of Second Week). Jehovah troubled the Egyptians. Exodus ends. Moses’ song of praise, Exodus xiv, 24, 27, 30.” |

The spiritual significance of this calendar of events is full of interest to the student of Holy Scripture. The number 6 is man’s number—7 the Divine number—8 the resurrection number. Six days they marched. They rested on the seventh day, and came forth to resurrection ground on the eighth.

One speaker inquired as to whether God had to cause a further miracle to feed such an army during the Exodus. In Exodus xiii, 18, we are told that they went up harnessed (armed) out of the land of Egypt. Again, in Exodus xii, 38, it is stated that a mixed multitude went up also with them; and flocks, and herds, even very much cattle. Thus every provision appears to have been made for the journey.

In the paragraph, "Life of the Israelites in Egypt", the lecturer observes, "the period of bondage, however severe, did not involve the whole manhood of the people." The 430 years was divided into two periods of 215 years each. The first 215 years were "sojourning," meaning a residence in a foreign land without the rights of citizenship. The second half, on the other hand, was a dwelling fixedly among the inhabitants, and as the bondage came at the end of this period, at the hands of a Pharaoh of another dynasty, it probably may not have lasted more than one generation of 30 years.

AUTHOR'S REPLY.

I much appreciate the kindly spirit in which these criticisms are directed. To the points raised I reply, very briefly, as follows:—

1. Col. A. H. van Straubenzee. The *Companion Bible* treats the migration as a tourist party, not a race movement. No one experienced in movements on a large scale, with consideration of supply and transport, would suggest that the successive stages of the narrative were taken on consecutive days.

There is no indication of how long the Israelites were within Egyptian territory before the crossing of the sea. The detail of the "Exodus week" given in the *Companion Bible* is bad imagination, compiled under the idea of some spiritual significance with no regard whatever to practical possibilities.

Questions of supply and transport must have been arranged for before the departure from Goshen. Provision of manna daily began only on the conclusion of the migration.

The 430 years covered the whole period from the departure of Abraham from Ur, to the Exodus. The Israelites were in Egypt for 210 years. I agree that the "severe affliction" occurred in the last generation.

Lieut.-Col. F. Molony. The key to the whole problem lies in the identification of Pi-hahiroth, Migdol and Baal-Zephon of Exodus xiv, 2. Col. Molony makes the assumption "that the Red Sea extended at least as far as the Bitter Lakes," as if this were a known fact. I am perfectly aware of the theory but can find nothing to support it. It makes the miracle "easier" for the Almighty certainly, and explains it away to the satisfaction of those who cannot take the Bible narrative as it stands.

From the Guide Book to the Egyptian Collections in the British Museum, p. 5, we learn—"Lake Timsah (*i.e.*, Crocodile Lake) and the Bitter Lakes which were originally mere swamps, came into existence with the making of the Suez Canal." Timsah was certainly a fresh water swamp in ancient times, as crocodiles do not inhabit salt water.

Strabo (xvii, 25) says that the canal to the Red Sea, from the Nile passed through the Bitter Lakes and made them fresh. There is absolutely no evidence that either the Gulf of Suez or the Gulf of Akaba extended northwards beyond their present limits.

Most Bible maps show the "Itinerary of the Exodus" as passing through the Bitter Lakes, and then down the eastern shore of the Gulf of Suez into southern Sinai. The absurdity of this solution needs emphasising. If Moses intended to conduct the migration from Etham down the eastern shore of the Gulf, what purpose would be served by encamping west of the Bitter Lake, and thus placing an impassable obstacle between his camp and his line of march? Obviously his route would be round the north end of the Bitter Lakes, with no obstacle to his passage southwards.

Contrary to Col. Molony's preference for a great "mental miracle," whatever that may be, I hold strongly that the great physical miracle did take place, as recorded—"in the depths of the sea"—at the mouth of the Gulf of Suez, and on a frontage of at least five miles.

As regards the arguments in favour of the traditional site. The Arab historian Makrizi states that the Feiran district was originally the headquarters of the Amalekites. If any "grazing rights" existed, the Amalekites held them, not the Midianites on the eastern side of the Gulf of Akaba. Moreover, the Midianites had every variety of altitude for grazing pasture within their own territory, extending northwards to the *as Sera* range of Mount Seir, or Edom.

The idea of Moses moving the Midianite flocks and herds out of Midian, over 100 miles of rugged mountainous country into the Feiran district is simply fantastic, and entirely loses sight of the thousands of armed tribesmen and followers engaged in safeguarding the flocks and herds, which constituted the sole wealth of the nomadic Midian nation, of which Jethro was the "priest" or chieftain.

As to the location of Sinai in Midian; this is supported by Beke, Wellhausen, Sayce, Moore, Shede, Gall, Gunkel, Meyer, Schmidt, Gressman, Haupt, and Alois Musil in *The Northern Hegaz*. Sir Richard Burton, writing in 1883, summed up the various sites supposed to be Mount Sinai as follows:—"The so-called Sinai (Jebel Musa) is simply a modern forgery, dating probably from the second century A.D.; the first Mount Sinai (Jebel Serbal) was invented by the Copts, the second (Jebel Musa) by the Greeks, the third (Jebel Musa) by the Moslems, and the fourth (Jebel Susafeh) by Dr. Robinson."

I can find no support worth considering for the traditional site of Mount Sinai, which is shown clearly in my book to have been a low hill in close proximity to the camp, and *not a great mountain* as is generally supposed.

Rev. H. C. Morton. I am unable to follow Dr. Morton's criticism. He appears to have interpreted my route in a sense quite other than the one I have endeavoured to set forth. But as misunderstanding may easily have arisen from my omission of the latter part of the verse in quoting Exodus xv, 22, I will now rectify this. The "wilderness of Shur" comprised the western coast belt of the Sinai peninsula, the region "over against Egypt" as defined in 1 Samuel xv, 7.

Dr. Morton makes the assumption—"The Wilderness of Shur we know. It is the Wilderness of the Wall, and the Wall ran from the Mediterranean to the head of the Gulf of Suez." He presents this assumption as an accepted historical fact. But it is theory only, and I am well acquainted with it. There is, however, no evidence of the existence of this Wall, and Dr. Morton quotes no authority to support his assumption.

Shur certainly means "wall." On the theory of an artificial wall extending from the Mediterranean to the Gulf of Suez, Sir J. W.

Dawson, in *Egypt and Syria*, says: "There is an antecedent improbability in the name Shur being derived from any such erection," and attributes the name to the sharp escarpment of the Tih range. C. R. Condor says: "Shur was the coast region under 'the wall' of the Tih." (*Int. Bible Ency.*, p. 3065.)

The coast belt "over against Egypt" extended from the head of the Gulf of Suez to the apex of the Peninsula. This was the line of retreat taken by the Amalekites after their defeat by Saul, affording them the only way of escape into the mountain region of Feiran, which the Arab historian Makrizi says was originally their tribal headquarters. This district is inaccessible from the central plateau, except by two very bad tracks allowing camels to pass in single file, but impracticable for large numbers.

And the Amalekites most certainly did not retreat on to an artificial wall between the Mediterranean and the Gulf of Suez!

By the crossing of the sea at Tor the Israelites arrived within the "wilderness of Shur." Then followed a march of three days; on the third day they found no water, having arrived at the watershed separating the el Gaa from the Wadi Feiran. Thence the track lay across the Peninsula to Elim, by the Wadi Zelega. This landward march was practicable only for men, and the flocks and herds. The main body of the migration must have had ship transport to Elim.

Sinai, however, which was on the farther side of Sin (or Zin) from Elim, and was therefore within the land of Midian, constituted the real terminus of the exodus. For lack of time I was only able to discuss the first part of the journey, but if any are interested to pursue the subject to its conclusion, they will find it more fully treated in a book under the same title—*On the Track of the Exodus*—which was published in October.

798TH ORDINARY GENERAL MEETING

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, MARCH 23RD, 1936,
AT 4.30 P.M.

SAMUEL H. WILKINSON, ESQ., F.R.G.S., IN THE CHAIR.

The Minutes of the Meeting of March 2nd, 1936, were read, confirmed, and signed, and the HON. SECRETARY announced the following elections:—

As a Member: R. A. Laidlaw, Esq.; and as Associates, the Rev. F. J. Liebenberg, B.A.; James Cuthbert, Esq.; and James Ryley, Esq.

The CHAIRMAN then called on Dr. Gaster to read his paper entitled "The Present Position of the Jews in Relation to World Events."

THE PRESENT POSITION OF THE JEWS IN RELATION TO WORLD EVENTS.

By DR. M. GASTER.

THE world is witnessing with indignation and surprise the sudden outburst of mediæval barbarism, the victims of which are the Jews. A mighty nation which claims to stand in the vanguard of civilisation is venting its strength and trying to crush and oppress a small minority. Excuses do not now concern us; we are dealing with facts. Yet no one has yet tried to probe the problem to the depths, to realise its symptomatic character, to study its psychology and background, and to draw conclusions from the implications of history. It is not an easy task; but this phenomenon has appeared over and over again, and in the unbroken history of the Jews during the past 3,000 years many a page can be read where similar occurrences have been chronicled. It may be a truism, yet it is a fact, that the events of to-day are the offspring of yesterday. We must therefore turn to Jewish history not with the hope of finding a complete solution of this problem, but of drawing from it such lessons as may illustrate these events. It is not only a question of how far these persecutions and oppressions in fact affected the Jews, and whether the blow aimed at them has in

the long run the desired result, it is also necessary to envisage the effect it had upon those nations who singled out the Jews as victims of their wrath or frenzy.

The Jews have remained; many of those nations have perished, and what has happened to the Jews was merely a prelude to what happened to the others. The Jews, ever since the Dispersion, have been a minority and as such they were always exposed to bear the sins of the majority. The Jews were always on the defensive; they have never taken the offensive. They knew their weakness but also their strength. And if it were not for that the history of the Jews would have been a closed chapter long ago. The Jews were conscious of the Divine selection. Whether rightly or wrongly, that was their profound belief; it was written large in their sacred books and their prophets proclaimed it with no uncertain voice. Though scattered, they knew they were knitted together by unity of faith, unity of culture, and above all by unity of hope in a great future not only for themselves but for mankind. Let us therefore give here a scant survey of incidents like those which we are witnessing to-day and study from them the results which have accrued to the Jews and to the other nations. I am not starting from the Bible, for the historical record there is rather scant, but rather from the Maccabees.

It was after the time of the Maccabees that the Jews saw the beginning of the fulfilment of those hopes gradually extinguished by the contact with heathen nations. Shortly before we have the first conflict; on one side, the pleasure-loving Greek worshipping his idols, following the pleasures of the body, and on the other the stern, moral Jew with the law of God in his heart, believing in the one God and not in the thousand gods and goddesses and whose highest aim was to cleanse the Temple from all impurity. When he succeeded, he felt that God was near and that he had a mission to fulfil: to spread the light. Comparing himself with the hedonist Greek, the Jew was strengthened in his belief that he was really the chosen of God. It may have been a superarrogation, it may have been a presumption; but it has persisted and has indeed often been the cause of misunderstanding and animosity from one side or another.

Now the Jews found themselves the only Chosen People; they felt themselves superior to the morals and manners of the Greeks and, later on, of other nations which stood at a lower

level of spiritual achievement and which adopted grosser manners of life.

The Jew believed himself to be chosen for a definite purpose ; to be, as the prophet said, a light to the nations—a spiritual light. He did not deny to other nations the privilege of being chosen each for other purposes—the Greeks for art, the Romans for administration, etc. Thus a kind of cleavage was created, and this has endured for so long as the Jews found themselves face to face with similar institutions of an ungodly character, in faith, in justice, in scholarship and in humanity. Then already the Jews had acquired the power of being the only nation that was bilingual, speaking or understanding two languages. Wherever the Jew lived he knew, on the one hand, Hebrew, on the other the vernacular. He was bound to learn the language of the people because his material life depended on it. But for his spiritual life in the first place a knowledge of Hebrew was required. Every day he had to repeat his prayers in Hebrew, the morning prayer being especially long. He had more or less to understand what he was praying. On the Sabbath and on festivals he listened to the lessons from sacred scriptures, all in Hebrew. There was more or less absolute uniformity among the Jews throughout the world : they all knew Hebrew. Long before the Mohammedan or the Christian nations were able to write in their own language, the Jews wrote Hebrew and occasionally also the vernacular, though with Hebrew characters.

In one form or another unity of religious practice was also established ; by this knowledge of Hebrew and by the fact that all drew information and inspiration from a common source, viz., the worlds of the Bible and of the Mishnah. This communication between Jews in various parts of the world has continued uninterrupted. When Christianity came into the world, when a new light dawned upon the heathens, those who carried the message among them, the Apostles, followed the track of the Jewish messengers who had gone before, and wheresoever they went, they went first to the Jewish colonies and Jewish settlements.

The political aspirations of the Jews had been killed already at the time of the destruction of the Temple by the Romans and by their final Dispersion. The relation of the Jews to the Gentiles then depended not so much on the Jews as on the temper, outlook and disposition of the other nations towards

the stranger in their midst. There has never been a real point of contact between the one and the other (save in social intercourse whenever possible) except at such times as the spirit of forbearance, of mutual tolerance and desire of mutual understanding had first shown itself. The situation of the Jews changed then for the better. They were able to co-operate with the best and to help in enriching the nations both materially and spiritually.

With the adoption of Christianity as a state religion by Constantine a spirit of fanaticism was introduced into the Church which was borrowed from the ancient Greeks. The Jews withdrew to their tents. Similarly, in the Empire of the Sassanids a spirit of intolerance was created, unknown before, and thus the Jews began to experience again a difference which became very acute. With the growth of Islam the situation of the Jews in the East became more satisfactory. The difference between the Jews and the Mohammedans was not so great, there was no problem of the Messiah, nor a doctrine of the Kingdom of Heaven, nor any fundamental principle to divide them, and the Koran was not considered as a continuation or fulfilment of the Bible. The Jews, who were very willing pupils, at once joined the Mohammedans in the development of their rich literature. This has always been a characteristic feature of the Jew. He was and remains willing to accept the truth from whichever quarter it may come and to collaborate in the search after it.

There has never been a barrier to knowledge nor have the Jews been troubled overmuch by heretical sects, except in olden times by the Samaritans—a schism both of a political and religious character—and later by the Karaites (tenth to thirteenth century)—a schism which did not affect Judaism to any appreciable extent. In one way it fructified it, for it stimulated a deeper study of the Bible.

At each turn one can see in the situation of the Jews a perfect reflex of the intellectual, political, religious and economic life of the nations. With the persecution of the Jews a downgrade movement is at once visible; it is the premonitory sign of other changes of a much deeper nature often convulsing the inner status of the nation. This can be seen on a larger scale, and this repeats itself on a smaller scale. Whenever there was peace and security the Jews contributed their full share to the

rapid development that took place. When order changed into chaos and injustice came to be practised instead of justice, and when persecution took the place of tolerance or of freedom, then we find the Jew chafing under a persecution which he realises to be a return to barbarism, and everywhere he becomes the protagonist of liberty. Whether it is political or social or spiritual, the memory of Egypt becomes alive and to break the fetters of Pharaoh becomes a powerful incentive to action. The Jew becomes more conscious of his belief in being the chosen people. He protests with might and main against any attempt to dispossess him or to reduce him to a lower level than those in whose midst he lives, and of whose inferiority or at least mere equality he is painfully aware. We find among Jews in all ages the outspoken champions of that revolt against tyranny of the spirit, which was first exemplified by the Maccabees in their struggle against the Greeks.

And here comes in the point of unity of culture which I have mentioned in the beginning. The Jews could not be kept up in an equal struggle unless they felt their unity. But there was something much more important at stake ; by maintaining a high level of cultural development. It may be asked how could the Jew living in some remote corner of Europe or in some place in Asia or anywhere be raised to any high level, considering that he lived among the most unlettered and ignorant people ? The answer is a very simple one. There was that perfect intercommunication between community and community which is exemplified by tens of thousands of letters which are still in existence. It is that immense literature which is called the *Responsa*, *i.e.*, questions and answers. The contents of these letters are often of a legal character. This correspondence between the various communities can be traced back to the fifth century and even earlier—it reminds one of the Epistles of the Apostles—and has continued to this very day. Much of it is of a legal character, much of it affects the religious life of the people. Its chief vehicle was the Hebrew language. Yet not only the letters themselves but—and this is what created the unity of culture—every great work written in Hebrew by a scholar, philosopher, man of science, physician, etc., was therefore carried from country to country, from place to place. In this way the Jews were able to maintain a very high level of culture, raising them above their immediate neighbours.

Whatever was thought or spoken of in Babylon on the one side, in Spain on the other side, or in one of the towns of the Frankish empire became soon the property of the whole of Jewry everywhere, and thus the bonds of all parts of Jewry were tightly knit together. They were given not only life and teaching but strength and courage.

The closest analogy to the use of Hebrew is that of Latin in the Middle Ages. This, however, was known only by the monks and a few scholars whereas Hebrew was accessible to all. Thus the advent of better times and of more friendly relations in one part of the world was easily communicated to those living in distant quarters, whilst when the adverse happened it was recognised elsewhere that the sun had begun to set upon one or another particular country.

Europe became disintegrated and broken to pieces when the Crusaders in passing through it left a trail of blood behind them. For centuries Germany was not able to recover. It was broken into small states. Internecine war was carried on between one place and the other. The Thirty Years War and the Black Plague continued the destruction, and it is just at this time the Jews were most bitterly persecuted, most fanatically oppressed by the thousand-and-one feudal lords who divided the country between them.

With the Crusaders, the darkness of the Middle Ages settled also upon Central Europe. The torch that lit the first *auto-da-fé* was destined to burn the whole of Spain, and the final expulsion of the Jews at the end of the fifteenth century was at the same time the death-knell of the Spanish Empire. It has never recovered since; its great power was broken, its economic life came to a standstill, and where there was originally affluence and riches, poverty and misery took its place. From a great and mighty power it sunk to be one of the most insignificant ones. Yet at the same time when Turkey opened her gates to the refugees the power of the Turkish Empire began to grow. Whatever one may think of the interlacing of these events the facts cannot be denied. Let any philosopher of history try to interpret them, there they are writ large on the pages of history "that he who runneth may read."

The Jews have always formed one portion of the population, a limb of a great body, and to endeavour to poison that portion has always had a deleterious or sometimes dangerous effect

upon the rest of the system. The Jews themselves could easily recover, but only so long as they kept up a unity of faith and culture. The moment one had gone the other was weakened or disappeared. Internal disintegration then took place.

Again I revert to ancient history in order to find analogies. The Jews settled in Alexandria had so much identified themselves with the Greek spirit and Greek language that they almost forgot the Hebrew alphabet, that very strong link in the chain which unites their people. In order, however, to read the sacred scriptures they translated the Hebrew or wrote it with Greek letters. Later they gave up even this and wrote and spoke Greek only. The result was that they disappeared.

Coming back to modern times, the situation of the Jews had undergone a favourable change from the time of the French Revolution in 1794. It did not come at once, but gradually. Slowly the old walls, both of the Ghettos and of the Burgs, were destroyed and closer acquaintance of Jew with non-Jew was the result; not so much from the social point of view as from the spiritual point of view; that very high cultural level fostered among the Jews made them eager and ready to absorb as much as possible of the further cultural development that had taken place in Europe and from which through the decline elsewhere the Jews had been cut off for some time. A gap had been created in that cultural development with the expulsion of the Jews from Spain towards the end of the fifteenth century. Something of the humanities, it is true, kept percolating from Italy and from the East, but the poverty and misery which had overtaken the communities, and the political and economic chaos in the midst of which they lived and struggled gave them no breathing space to attend as heretofore to their intellectual development. The greater, therefore, was their hunger for the new knowledge which they knew was awaiting them outside the gates of the Ghetto.

A further barrier had been created by the difficulty of language. Most were prevented from acquiring the language of the Eastern nations of Europe, *e.g.*, Polish, Russian, etc.; nor were they desirous of knowing, since they conveyed in their eyes nothing of any spiritual value.

The Jews never came in contact with the so-called aristocracy; there was then practically no middle class, and the only people with whom they could have mixed were the peasants. These,

however, had nothing to offer, and although the Jews in those parts of Europe, unlike their brethren in Germany itself, knew nothing of a visible Ghetto immured between walls and closed in with gates, they were perforce creating by their very isolation a kind of spiritual Ghetto or seclusion.

With their final entry into Western civilisation there set in an inner ferment which profoundly affected both the unity of faith and the unity of culture. The external situation of the Jews became not only different from what it had been shortly before, but affected also their internal relationships among themselves, as also their position *vis-à-vis* the nations into whose midst they had come. The impetuosity with which they threw themselves into their new life carried them often far within the national boundary. The development and the change seemed frequently to have been too slow; they wanted to make up for the lost three centuries. Thus a gradual process of disintegration set in. Knowledge of Hebrew began fast to disappear, as seeming to belong to an antiquated period now left behind. With its disappearance, the unity of culture was broken up. Jews began to depend upon the new culture and thus to destroy what had previously linked them together. Many of the old traditions were thrown overboard, and a new situation was created, the real outcome of which they have failed even now to realise.

Lacking any sort of political education they judged events by the sufficiency of the day, without ever anticipating the future. Thus a somewhat unparalleled situation has been created for the Jews. Whilst they had in ancient times and in the Middle Ages to face political and especially religious problems, now other problems have arisen, scarcely of a political but far rather of an economic character. It is in this way that present events have slowly ripened to culminate in what we all deplore.

The situation of the Jews on the whole has become very serious. One cannot help feeling that some hydra of the past is again raising its many heads. The old arsenal is again being opened and depleted; weapons which one believed to have become rusty with age are again brought out and burnished. Those, moreover, who wield them are not conscious that they have surrendered much of the heritage of the last few centuries and that they are going back to a period of disintegration and

of chaos. The old spirit of envy again prevails, destroying mutual confidence and co-operation, and a certain insanity of ultra-nationalism has seized upon many nations. It represents to a certain extent the insane fervour of the Crusaders. There it was of a religious character, but in the present case it is of a so-called nationalist stamp, and claims have been put forward which in the face of science cannot be justified and yet are proclaimed as the fundamental principles of national life.

We are witnessing to-day among various nations of Europe the marked growth of religious prejudice, political unrest and economic pressure. Upon these are grafted a quasi-mystical, but utterly baseless, teaching of blood and soil. It scarcely needs to be pointed out at this time of day that there is, in fact, no nation in Europe which can boast purity of blood or everlasting tenure of the land on which it happens to be living, yet the slogan is sufficient to inspire an impatient youth and a dictatorial oligarchy with mediæval fanaticism and ruthlessness. The first victims are inevitably the Jews, for it is upon them that those who sit in high places will always turn the fury of an inflamed mob, when they themselves begin to sense difficulty or danger. The Jews are used, so to speak, as lightning conductors or safety-valves; but in the long run even this fails, for the wires are really alive and the shock recoils.

History moves in cycles. "The thing that hath been, it is that which shall be," and even if the times and circumstances seem different those who are able to read the pages of history learn not only the events of yesterday but also to understand the events of to-day and maybe to forecast those of to-morrow. It is the same story now as then. On the one side, a small weak minority, outraged, victimised and oppressed; on the other, a majority misled, dragooned and sometimes whipped to frenzy. The situation of the Jews now gives cause to great anxiety, it is more serious than is apparent.

Of course, it would be difficult to describe here in detail the exact situation of the Jews in every country in modern times. Those who have suffered for centuries under oppression and misrepresentation are always the first to embrace ideas of liberty and justice, even though they appear in distorted and exaggerated form, assuming quite an extreme aspect. At the same time the Jew dreams ever the Messianic dream, and those who realise that a proper understanding of Messianic hopes means that the

proper salvation comes to the world, with a new life of brotherhood, of unity, of friendship, or peace, deem no sacrifice too high or too heavy if they can but hasten the golden age. No wonder, therefore, that there are also Jews among the extreme political parties. These, however, are not working for themselves; they know that they are working for the great mass of the oppressed, for those who suffer like themselves either from political or economic pressure. At the one end of the pole is the extreme religious Jew, wrapped entirely in his old belief, unshaken in his conviction that the Divine protection will never fail them, and at the other the political extremist who believes that it is only in man's own active combat that God fights His way to the Kingdom. In all ranks of political life, therefore, Jews will take their share. In not a few cases, indeed, carried away by warped ideals, they will at the same time slowly relax the bond which binds them to the House of Israel.

Nevertheless, to the world without, the Jews appear to be still a united nation. The world is scarcely aware that much of the old unity of faith has been loosened and that the unity of culture is on the point of disappearing. It may not be considered a great loss to substitute one culture for another; in fact, some believe it to be a gain. The result is, however, that the uniformity of progress is broken down and that the culture of Jews in one part of the world lags behind that of their brethren in another. The Jews in Germany, for instance, have identified themselves with the German culture, in France with French and in England with English, with the consequence that many of the ties which formerly bound them together into a common unity have now been severed. Nevertheless, that inner unity being broken, Jews soon find that what they have received in its stead brings them ultimately disaster rather than satisfaction. Their neighbours whose cultures they have tried to assimilate, and for which they have surrendered their own, turn in the end upon them and regard them as strangers and intruders. The situation is tragic enough. In place of hope, there is now the bitterest disappointment and a complete revulsion of feeling. Living as it were in a dream, the Jews have now been rudely awakened, to find to their anguish that people who dream lose their sense of reality. On the other hand, however, this very tragedy has had an unexpected result not foreseen by those who dream at noon. It has reawakened in

the Jewish people the consciousness of a unity of faith. Jew has begun to cleave more closely to Jew, and whilst others take out of the dusty armouries of the Middle Ages the rusty weapons of attack, the Jew has also opened again the armoury of his past and taken from it weapons of the spirit. The Jew to-day is accoutred for the battle and wields in his hands those same weapons which stood him in such good stead on former occasions of popular upheaval and murderous attacks. To-day a revival of the Hebrew language has taken place. It is no longer a mere literary but a living tongue, expressing by word of mouth the inner movements of the spirit. What is more, a gathering of the nations is beginning to take place. Palestine, derelict for centuries, is becoming again the Holy Land of Israel and in tens of thousands Jews are "going up" once more, buoyed up by the great hope of a national home as of a future nationhood in the land of their fathers. These are signs which cannot be overlooked and the importance of which cannot be over-estimated.

All lies in the womb of the future. It is for us to try to read the signs as they appear on the wall, for as in the days of Belshazzar there are indeed signs upon the wall and the fate of nations is weighed in the balance. All the upheavals of to-day are so many ominous portents of the end of the second millenium. The Jews may be sufferers for a while, but they will outlive the present persecution. Yet what of the nations? These persecutions are a sign of inner decay, of moral disintegration. Is the world travailing for the birth of a new order of things; are these indeed the "pangs of the Messiah"? Will the darkness which now is deepening lift one day for a new sun to dawn upon a world reborn?

All which is happening is a warning, a signal to those nations who do not yet realise that we may be standing before a cataclysm—a new flood sweeping the world and effacing all things. And will the world at the end of it again behold a rainbow, spanning the heavens for a token of peace—a rainbow whereon, as the legend has it, the angels cross and come down to earth?

DISCUSSION.

The CHAIRMAN (Mr. S. H. WILKINSON) proposed a vote of thanks to Dr. Gaster.

Colonel F. A. MOLONY seconded and, in doing so, said : I beg to assure Dr. Gaster that the Council welcome the presence of Jews at these meetings, because there are so very many subjects which Christians and Jews can discuss together in a friendly spirit. And we must all admire the moderation of Dr. Gaster's language. His expressions are strong in places, but those who know history will admit that they are none too severe.

Jews have rendered great services to the British Empire, and we deeply sympathise with them in the very harsh treatment now being meted out to them in Germany.

I expect we shall all agree in what I take to be Dr. Gaster's main contention, that Almighty God blesses nations which try to deal fairly with the Jews.

Rev. ARTHUR W. PAYNE remarked that the story of Israel was : sin brought suffering ; suffering led to repentance ; and repentance brought mercy. He had much enjoyed Dr. Gaster's paper, and recognised that what the Chairman said about the persecution of the Jews being Satanic was true. One has said that the great object of Satan is to rob God of His glory and men of their souls. He could hardly agree that the historical record of the Bible is scant with regard to results that have accrued to the Jews ; and when the Doctor said : " I am not starting from the Bible," he asked : " Why not ? " was not the special object of the Victoria Institute to seek to reconcile Science, History and Philosophy with the Bible ? Referring to paragraph 1, page 149, he regretted that the Jews were more willing to learn from the Koran than the New Testament, in reference to the statement " that they were willing to accept truth from whichever quarter it may come."

On page 156 we have the statement about Palestine becoming again the Holy Land of Israel. We well know the Zionist slogan, "*Arez Israel le am Israel*" (" The Land of Israel for the People of Israel "). How could they, however, have Immanuel's Land without Immanuel? What, after all, is a true Israelite ? Jacob became Israel when he wrestled with God at Jabbok all night in prayer, and was called a Prince with God. So an Israelite is a man of Prayer. We have also in Psalm xxii the statement : " Thou art holy that inhabitest the praises of Israel." So an Israelite is a man of *Praise*. Again,

on Psalm lxxiii, we read : " Truly God is good to Israel to them that are of a clean heart." So an Israelite is a man of *pure heart*. Jehūdah Ha Levy, the Hebrew poet, said once, we are told : " The Jewish nation is the heart of all nations and the diseased heart, too," but one rejoiced to remember Jehovah's promises to give them a new heart.

In these days, one realises it is more than ever necessary, while standing for the truth, to follow the Apostle Paul's injunction, and to " give no offence to the Jews, nor to the Gentiles, nor to the Church of God."

The Rev. F. W. PITT said : Dr. Gaster is much too modest in his claims for what the Jews have done for those among whom they have settled, and he is too lenient in his denunciation of the cruelty of those who have persecuted them.

But the learned doctor seems to take pains to go round what lies at the root of Israel's age-long sufferings.

One of their own prophets writes : " Hear this word which the Lord hath spoken against you, O children of Israel, against the whole family which I brought up from the land of Egypt, saying, *you only* have I known of all the families of the earth, therefore will I punish you for all your iniquities. Can two walk together unless they be agreed ? " (Amos iii, 1-3.)

Again it is written : " And I will bless them that bless thee, and curse him that curseth thee." (Gen. xii, 3.)

Do not these two passages, which concentrate the general teaching of the Hebrew Scriptures on the subject, explain Israel's condition in the world to-day ?

That Israel was chosen by Jehovah, there can be no doubt. No lover ever lavished on the choice of his heart more affectionate terms than those expressed for Israel in the Psalms and in the Prophets. Greece and Rome were never chosen as Israel was. God only chose one nation : " He hath not dealt so with any nation, and as for His judgments they have not known them." " *You only* of the families of the earth have I known."

But privilege entails responsibility, " *therefore* I will punish you for all your iniquities"—that punishment has been meted out with terrible and inflexible severity through the ages. Can the Baby-

lonian captivity be explained in any other way? And why are the chosen people scattered to-day? Was it not because of their rejection of Him of "Whom Moses in the law and in the prophets did write, Jesus of Nazareth?" the long-promised Messiah, who nearly forty years before the destruction of Jerusalem, said: "These be the days of vengeance that all things that are written may be fulfilled" . . . "for there shall be great distress in the land, and wrath upon this people, and they shall fall by the edge of the sword and be led away captive into all nations. And Jerusalem shall be trodden down of the Gentiles till the times of the Gentiles be fulfilled." If He were not the true Messiah. He was at least a prophet, the truth of whose words is proved by the nineteen centuries of Israel's affliction.

This same Prophet also said: "It must needs be that offences come, but woe unto them by whom they come," agreeing with the promise to Abraham: "I will curse him that curseth thee."

Isaiah said: "O Assyrian, the rod of Mine anger and the staff in their hand is Mine indignation. I will send against him an hypocritical nation, and against the people of My wrath will I give him charge to take the spoil, and to take the prey, and to tread them down like the mire of the streets. Howbeit he meaneth not so, neither doth his heart think so; but it is in his heart to destroy and cut off nations not a few. . . . Wherefore it shall come to pass, that when the Lord hath performed his whole work upon Mount Zion and on Jerusalem, I will punish the fruit of the stout heart of the king of Assyria, and the glory of his high looks." (Isa. x, 5-12.)

The unparalleled sufferings of the Jews are the fruits of apostasy, but though Spain, Germany, Russia, and other nations may be the rod of God's anger, they will not escape punishment any more than did Assyria and Babylon of old. "I will curse him that curseth you." Whatever the motive of Israel's enemies may be, and even if they are implementing the vengeance of God, they shall not escape.

The world owes everything under God to the Jews, "in thee shall all the families of the earth be blessed," and if Israel as a nation and for a time, lightly esteemed this privilege, it was Jews as individuals who founded Christianity, gave it its literature and its Saviour; and none can say that Christianity which, as Lord Beaconsfield said, is full Judaism, has not been a light to lighten the Gentiles and the

glory of My people Israel through that Christ who came unto His own and His own received Him not. Dr. Gaster's paper, it seems to me, omits all this.

Mr. DOUGLAS DEWAR said: I emphatically disagree with the Chairman's analysis of the present situation, but have no time to criticise it.

Dr. Gaster is of opinion that the Jews have proved a blessing to the various nations among which they are scattered. I beg to differ. While gladly admitting that this talented race has made valuable contributions to the culture of such nations, I believe that such contributions are heavily outweighed by the harm done by the Jews. It is my belief that the condition of the peoples of Europe and North America to-day would have been far better than it is had no Jew ever entered either continent. As God's chosen people the Children of Israel were endowed with intellectual and material advantages over the Gentiles. But the Israelites not only habitually disobeyed the commandments of God, but behaved abominably, and thus repeatedly incurred the wrath of God. The only result of any punishment, no matter how severe, seems to have been a short-lived improvement in conduct. This applies to the united Israelites and the later kingdoms of Israel and Judah. God said of the Jews (Judah) (Jeremiah xxiv, 9): "I will deliver them to be removed into all the kingdoms of the earth for their hurt, to be a reproach and a proverb, a taunt and a curse in all places whither I shall drive them." This prediction has been fulfilled and is still being fulfilled to the letter. As examples of the harm done by the Jews in recent times (I refer to the Jews as a whole; the community includes many good individuals, possibly some better than any Christians), let me cite that done by the Jew Karl Marx, who is largely responsible for the growth of Communism and Bolshevism, and the even greater harm done by the Jews, Wellhausen, Strauss, Keunen and Hirtzig, the originators of the so-called Higher Criticism of the Bible, which, though devoid of foundation, has done so much to undermine the morals of Christendom. This, and other mischief for which the Jews are largely responsible, are set forth in Merton Smith's pamphlet entitled "Israel." On the balance the Jews have used their remarkable powers for evil. Let me quote two Jews on this matter.

Dr. Hertzl, the founder of Zionism, wrote : " When we sink, we become a revolutionary proletariat, the subordinary officers of the revolutionary party, when we rise there rises also the terrible power of the purse." The Roumanian Jew, Marcus Eli Ravage, thus delivered himself in the *Century Magazine* for January, 1928 : " We are intruders. We are disturbers. We are subverters. We have taken your natural world, your ideals, your destiny, and played havoc with them. We have been at the bottom not merely of the latest great war but of nearly all your wars, not only of the Russian but of every other major revolution in your history. We have brought discord and confusion and frustration into your personal and public life. We are still doing it. No one can tell how long we shall go on doing it. . . . Who knows what great and glorious destiny might not have been yours if we had let you alone ? " Portions of Ravage's article are reproduced in *The Fascist* of January, 1936. It is noteworthy that England's rise to greatness under Queen Elizabeth took place at a time when Jews were not allowed in England.

Dr. Gaster writes : " The situation of the Jews on the whole has become very serious." I am inclined to agree with him. It seems to me that the most hopeful way of remedying this state of affairs would be for the " moral Jews with the law of God in their hearts " to get together in every country, expose the machinations of the subversive Jews and unite with their Christian brethren in an effort to check these machinations.

Mr. W. J. JACKSON said : We have listened to an excellent reading of a well-written paper, but to my mind the point of the paper is not sufficiently clear and therefore its usefulness is impaired. Dr. Gaster commences his historical survey of the Jews from the Maccabees because it is the only possible starting point for him to adopt. The time is the first/second century B.C., and the Jews, as we understand them to-day, did not rise to any position of power until some time after the return of the communities from captivity under the decrees of Cyprus and Artaxerxes, 546-457 B.C. All mention of the pact of mutual assistance which the Jews entered into with the Roman power, as stated in 1 Macc. viii, has been omitted and a considered explanation of the term " Jew "—about

which there is so much misunderstanding generally to-day—would have been helpful and of interest to many.

The genealogy of Abram is clearly set forth in the Bible, and Genesis xiv, 13, refers to him as "the Hebrew." He was essentially a Semite and all that it implies. He lived c. 2000–1900 B.C. There is no mention of the "Jew" amongst the 12 tribes of Israel, and it is not until about 740 B.C. in 2 Kings xvi, 6, that we find the first mention of the word "Jew" in the Old Testament. In general terms, the meaning of the word as used there is "a part" or a "remnant" in the sense of an apostate remnant or a remnant apart from the true faith, and this first mention is perhaps significantly placed because 11½ books of Biblical record precede it and bear testimony to others. In this passage the King of Israel and the King of Syria are spoken of as besieging the King of Judah (the Kingdom of Israel was taken away from Judah and made a separate entity after the death of Solomon about 980 B.C., 1 Kings, xi), and it mentions the King of Syria having driven the Jews out of Elath as though they were but one small elemental community, as indeed they were, amongst the many of which Judah was composed. The Israelites were finally taken captive by the Assyrians about 720 B.C., 2 Kings xviii, and lost but Judah (or those remaining after the various captivities), taken captive to Babylon about 587 B.C., 2 Kings xxiv/v, partly returned to Palestine at a later date under the decrees of Cyrus and Artaxerxes, and it is to the leadership of these returned communities that this Jewish element aspired and later built up the nation of the Maccabees. It is thus and on this basis that the Jews falsely claim to be Judah and even Israel itself, despite the fact that no Jewish king was of the Royal House of David.

Israelite and Jew are not therefore necessarily the same, neither are all those of Judah necessarily Jews. Christ was of Judah, but of the Royal House of David. To my mind Israelite, Jew and even Judah appear as being distinctly apart throughout the Old and the New Testaments, and even to-day a clear line of demarcation certainly exists between the two congregations, the Sephardim and the Askenazim. Professor Hrozny, Oriental Lecturer at a Czeck University, says, "the Jews, often regarded as being Semitic and of Semitic origin owing to their speaking a Semitic tongue, can

in reality be traced back to an earlier race which predominated the Orient at a much earlier period," and Ezekiel xvi, 3, seems to confirm their non-Hebrew origin. Genesis xv, 18, indicates that Palestine alone did not constitute the promised land, Matthew xxi, 43, infers that the kingdom which Judah had lost by misuse and which the Jews had usurped should be taken from them and given to another, and in Matthew x, 6, and xv, 24, it is stated that Christ came to the Lost of the House of Israel. Why, therefore, should the Jews regard Abram or Abraham, the father of many nations, as theirs alone, and be so conscious of divine selection, regard themselves as being the chosen race or look upon Palestine as being their own particular land of promise? I doubt very much whether the fact that thousands of Jews are returning to Palestine, unscriptural in design as it is, is making it "The Holy Land of Israel," but their return is certainly a sign of the times which cannot be overlooked or overestimated.

In my opinion it is to be regretted that the present situation of the Jews in Germany is tacitly referred to in a paper at a meeting of this Institute, because it raises deep political issues. Any action which wrongly nullifies or curbs the individual free will or liberty or causes undeserved individual hardship is distasteful to a Britisher, whether such action takes place in Germany or in Russia, and the Jews are far from being blameless with regard to what has happened in Russia since the close of the Great War.

To understand these problems one may read mythology and the writings in allegory and legend, always realising the relationship existing in the individual between :—

1. *Thinking* as Abstract Reason or Science expressed nationally in terms of organisation, machinery and money (*i.e.*, gold).
2. *Feeling* as Art and Beauty or Emotion (*i.e.*, silver).
3. *Willing* expressed nationally as power or passion through the medium of Politics or Religion (*i.e.*, iron).

Nations may be said to typify the extreme development of or the specialisation in one or more of these great faculties of the human make-up and in no other way can the outstanding differences between an Englishman, a German, a Russian, or a Latin, be understood, and the fact that the Jew seems to fit in nowhere, be explained.

Hence we get disagreement amongst peoples, wars between nations, and neither Germany, Russia, nor the Jews are any exception to the rule.

We in this country, as a people of freedom, are consequently not given to violence or legislative discrimination against a class or individual but there are certainly some who regard with uneasiness the rising tendency of Jewish influence in all spheres of our national life today, more especially in finance and industry, and in their ally "politics." Some maintain that the "P.E.P." (Political and Economic Planning Group) is connected with Jewish aspirations because it advocates the application and extension of the principle of monopoly and rationalisation and of the various boards (such as Transport, Electricity, Milk, etc.) to other branches of the nation's industry, agriculture and public services. Such organisations bear a striking similarity to those existing in Soviet Russia to-day for like purposes and carried to the same extremes, they represent an excess of abstract reason or science, as expressed by organisation and machinery at the expense of something else which may be regarded as being more worthy and therefore of value and necessity to the individual advancement and happiness of mankind. The "Industrial Reorganisation (Enabling) Bill," with its far-reaching provisions, innovations and possibilities, was designed to assist the rising tendency towards monopoly in this country, and its defeat in the House of Lords was therefore welcome. Taking one more example, it must be acknowledged that the Jews support charity, yet already there are murmurings against the Jewish proposal of last week to raise £2,000,000 in order to further the settlement in Palestine of Jewish refugees from Germany, not because we have an unemployment problem of our own in this country as yet unsolved, but mainly because a too rapid Jewish concentration in Palestine might influence adversely the affairs of nations and consequently the lives of individuals. This is neither physical fear nor petty envy but an expression of opinion by a free people against any possibility likely to affect the free will and general advancement of mankind.

The reasons for Jewry being closer to the Mohammedanism of Arabia than to Christianity present no problem. Few really think about those reasons just as they fail to realise the basic relationships

of the various nationalities. The Jews understand the great laws of nature and of the human body, and their origin, training and upbringing have developed or perpetuated in an especial way a great mental activity, in which field they undoubtedly show great strength. Hence, labourers amongst Jews are not so common as amongst the other peoples, and it is not surprising, therefore, to find Jews contributing largely to all branches of learning. A Phœnician built the Solomonic temple which was without any outstanding artistic feature, but Solomon paid for it. Is not this the story of the ages and even of to-day, and does it not explain the present position of the Jews in relation to world affairs ?

Powers of mind have been devoted by the Jews to the sinews of economies for purposes of defence and attack in place of the vulgar cannons of war, and thus nations have prospered or failed precisely in the measure of their treatment of the Jews. It is hardly true to say that nations "intolerant" towards the Jews have disappeared from history altogether, when one looks at Germany, Italy, Spain, or Greece even to-day, but it can be said that in the past the comparative prosperity or world leadership of those nations, as measured in terms of the economic system prevailing at the time, has waned in such instances. To-day, a troubled world anxiously waits to see whether the closer acquaintance of Jew with non-Jew from a spiritual point of view is going to save it from the dread calamity of a final clash, before anything approaching a general millennial era can be entered upon.

In 1914, under the leadership of the British Empire, now a Commonwealth of free British nations, the world resisted an attempt at world domination by a power representing the rule of physical might. Since 1918 the emotional Russians have been dominated and decimated by those representing the deification of the national power of excessive abstract reason. To-day in Germany the world is witnessing physical might ruthlessly attempting to remove any possibility of that power being extended to Germany from an outside source as the first step in an attempt at world domination, or it may be they desire to ensure against any attempt to introduce alien blood or other element foreign to the supreme worth of the soul and blood of the Nordic race which they seek to deify. Let us all hope that to-morrow will not see an extension of this struggle or

even a terrible world death struggle by these godless and anti-Christian powers, fighting between themselves but in conjunction with a deified corporate state as the Roman power, chiefly against all those who value and defend freedom against any form of tyranny because such a struggle seems to be foreshadowed in Ezekiel xxxviii.

Huxley stated that "No human being and no society composed of human beings ever did or ever will come to much unless their conduct was governed and guided by the love of some ethical ideal." We need only alter the word "ethical" to read "spiritual," or better still "Christian," and with this truth we may well leave the world of to-day to examine its own conscience.

Whilst regretting that I cannot deal with this paper more fully and at greater length, I hope that Dr. Gaster will not take anything I have said as being in any way personal nor that anyone will think that I support any kind of tyranny or persecution against any class or individual, whoever they may be, for there are good and bad, rich and poor amongst all races of men. There will be no real and enduring peace in the world until the Jewish question and all that it implies is finally settled, and this can only be brought about at present by a mutual understanding and by the proper balancing of the human faculties of thinking, feeling and willing in a perfect unit of harmonious love which does not rule but raises. This is the rainbow token of peace which the angels can cross and thus, even upon earth is a kingdom like unto heaven open to all men of understanding and goodwill.

Surely this is the great lesson of the New Testament, the lesson of love as the essence of Christianity, as opposed to the Jewish Messianic Ideal of World Domination and its methods and consequences, and surely too it is the meaning and purpose of the beautiful example given to us by the divine-human life which ended in the final scene on the hill of Calvary, only to shine forth again in the infinite and dazzling brilliance of a glorious resurrection at the dawn of a new day, which we know as the first Easter morn.

Lt.-Col. SKINNER said: The Jews have come in for both praise and blame to-day. May I direct your thoughts to that wonderful epitome of Jewish life and character we have in the story of Jacob,

their great progenitor. Jacob was a man appointed of God unto a great destiny, but we all know how, at his mother's instigation and with his own too ready acquiescence, he sought and obtained the appointed ends by wrong means. From that time forward his life was that of a fugitive. Thrown back upon himself he lived by his wits and prospered only by outwitting others. It is not a likeable portrait we get of him. The character displayed—that of Yacoub the Shuffler, the Supplanter—is not a lovable one. Indeed our sympathies are more readily drawn out towards his sportsman brother with all his obvious defects. Nevertheless, throughout Jacob's early career, there are not wanting flashes of inspiration, hints of better things; and long years afterwards we are told of conflict with the Angel of God when, in brokenness of body and will, he ceased from his own resource and strivings and clung thenceforth to God for all his help and strength. From that moment there was a great change. No longer was he "Jacob the Supplanter" but "Israel the Prince," endued with power—"power with God, and with man, to prevail."

And are not the Jews of to-day passing through some such experience? Did not their forefathers take the wrong turning long ago, and have they not suffered ever since? A people scattered and peeled, how should they subsist to-day if not by their wits? We may not like them for it, but what else can they do? Have we not analogy in the desperate case of the Armenian nation? I sometimes hear it said, by those who have had to do with them, that the Armenians are this and that and no better than they should be; but after so many hundred years of bitter persecution unto death, what can you expect of poor hunted creatures but that they should live as best they can?

Is that the whole story, then, as regards the Jews? Thank God, no! In His mighty providence there is a day coming when in utter brokenness of heart and pride, forsaking all their own resources and devices they will cast themselves back upon God and be restored to the Divine favour, to fulfil in His counsels the purpose of the ages. Thank God that day is not far distant. It will come to Israel—it is coming even now—as with grace and supplications they look upon Him whom they have pierced and mourn for Him as for an only son.

Major E. F. HOLLAND wrote : The world has also witnessed the exposition of the Christian teaching that nations who take the sword shall perish by the sword—in the declension of great nations who have persecuted minorities.

Almost a year ago I had the opportunity of discussing with an influential German journalist the present position of the Jews—he informed me that his Government when dealing with this question had very logically rejected Christianity on the grounds that it supports the Jewish claim as put forward by Dr. Gaster in this paper.

In an attempt to restore interest in the Christian faith, I invited my friend to consider the obvious alternative to this school of thought—that the adherents to the Jewish faith do not constitute in a historical sense the fulfilment of the purpose of God, revealed in the Scriptures—such purpose being vested in Israel (of which Judah was part), the nation which, in confederation with King Pekah of Syria, gives us the first *recorded* instance of Jewish persecution (in the time of Ahaz, King of Judah). That this was more than a family quarrel is confirmed by the record in the Bible that the division between the Northern Kingdom of Israel and the Southern Kingdom of Judah was in accord with the will of God.

LECTURER'S REPLY.

To Mr. Dewar, I wish to reply very briefly. Before rising to criticise here, he ought to have known at any rate the facts. With legends we cannot deal. A man who can tell us that Wellhausen, Keunen, and Strauss were Jews puts himself outside the range of any argument. In addition, to pick out one single sentence from the Bible of condemnation by the Prophet, as against hundreds and thousands of passages praising the Jews, also shows a way of arguing which one cannot follow. In all his sweeping statement, there is not one single grain of truth. There is no answer to fantastic arguments. Nobody denies that there are bad Jews as there are bad Christians. A man who cannot see that Ravage writes in an ironical strain, showing the absurdity of the accusations which are hurled against the Jews, and takes these words seriously, is not

open to any reasoning. One can only pass by with a shrug of the shoulder and regret.

Concerning Mr. Jackson's remarks, I am sorry to say they are so rambling and disconnected that I find it impossible to reply to them unless one takes each section separately, for which there is neither time nor disposition. His reading of the Bible is so curious that I cannot understand what kind of argument he is deriving from it. The passage in 2 Kings proves nothing; and the reading there is doubtful. Some old texts and various manuscripts read instead of "Aram" "Edom." Elath was a place fortified by Azariah, King of Judah, who placed there a garrison of Judeans, and so it became part of Judea. Mr. Jackson has not adduced a single argument to prove that the Jews are a mixed people; it is a mere *obiter dictum*, and we must leave it at that. I certainly cannot follow him into his economic lucubrations. Here again he has failed to show that only Jews had anything to do with the creation of those various Boards. Even if it happened that a Jew were on any of them, he would be one among a large number of managers and directors of pure English blood. I do not understand why he finds fault with our collecting £2,000,000 for settling Jews in Palestine. I think that he should be grateful. So far as charity is concerned, all those present here will easily bear witness to the generous support which we Jews are giving to every charitable institution and charitable undertaking. But what are £2,000,000, even if distributed among the unemployed here—a sum, remember, which has to be collected within the next five years? It would only mean a few shillings per head. The Jews have taken their part in all the great undertakings which are benefiting the country, and they have placed their minds and their energies at the disposal of every work from which the inhabitants of the country were likely to benefit. An increase in the industrial development, helped by Jews, can only result in giving more labour to the people, and in bringing more money into the country. Where is the wrong? Why make this a reason for adverse criticism? On the contrary, I should have thought that the more the Jews are contributing either to the spiritual or to the economic wealth of the country, the more should they be supported, and the more should they be appreciated. None has yet shown that the advent of the Jews into

any country did not contribute to its prosperity. The reverse is always the case. This can be seen here also, but I do not wish to dwell upon this economic problem, which lies outside the sphere of our consideration. Nor can I accept the legend of the Jews having taken a large share in those changes which have taken place in Russia. There were a few prominent Jews among the leaders ; but they are also lost in the mass of the others who are the prime workers and representatives in the movement. Everything else is a mere legend. I fully concur in the condemnation of the new paganism which is growing up in Germany and manifesting itself in such a ruthless manner, reminding us of the barbarism of its earlier inhabitants, the Goths and the Vandals. But leaving all these points aside, far from taking amiss the other remarks of Mr. Jackson, I readily accept the statement that, as a man who loves freedom and justice, he will also see to it that the privileges of equal rights and equal duties, of absolute freedom of conscience and political and civil liberty be granted to the Jews.

As to the remarks of the Rev. F. W. Pitt, I can only say that to me, as a believing Jew, it is impossible to follow his interpretation of the Scriptures. There are two ways of reading them, and merely to pick out certain sentences, and to draw conclusions from them, is neither convincing nor illuminating. I still believe that the promise made to Abraham has always been fulfilled and will be fulfilled in the course of time : " In thee shall all the families of the earth be blessed."

To the Rev. A. W. Payne, who introduced the apparent difference between Jew and Israelite, I am bound to remark that we recognise no such difference ; those who claim to be Israelites fail to be recognised by us as such. Only those are real Israelites or Jews who have in their flesh the sign of the covenant of our forefather Abraham.

As to the character of Jacob, I am afraid Lt.-Col. Skinner and others have misunderstood the Bible. What Jacob had obtained from his father was not of any material value. It was only the spiritual blessing which God had given to Abraham, and then to Isaac. Anyone who reads the Bible carefully, and without bias, will find that the blessing, which Isaac gave to Esau, is, in substance, precisely the same as that given to Jacob, but with the addition

of material power and wealth. Nor did Jacob's tribulations come to an end and when he had become Israel. Biblical history must be read in a different light.

I have been asked by many of the speakers why I have started my survey from the period of the Maccabees, to the exclusion of the Bible. My answer is very simple. The situation, of which my lecture was to have been a survey, only began after the conquest of Asia by Alexander the Great. It is from that time onwards that the Jews have been finally dispersed among the nations, and that situations had been created for them which has continued to this very day, and my endeavour has been to show that the Jew of to-day is the result of the vicissitudes through which he has passed and of the oppression and persecution of which he had been the victim century after century, and which we are witnessing in our days again in a more virulent form. On the other hand, we draw the lesson from it that those who curse the Jew in the long run remain accursed, whilst blessing falls upon those who bless the Jew.

Finally, I can only express my gratification at the almost unanimous condemnation by everyone of the speakers of the treatment to which the Jews are exposed now in Germany, and the hope, which they all expressed, that these dark days may soon pass away and that the principles of freedom, justice, and equality may be shared by all. I have endeavoured to restrain my language since no purpose will be served by strong expressions. I prefer to listen to the high level of the sentiments expressed by the members of this institution, which are in keeping with its fine tradition. Almost everyone here, I am glad to see, agree that only blessing can come from freedom and justice, from mutual forbearance and from the spirit of love and mercy, for only in such way the Divine Blessing promised through the seed of Abraham will be fulfilled.

799TH ORDINARY GENERAL MEETING

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, APRIL 6TH, 1936
AT 4.30 P.M.

DOUGLAS DEWAR, ESQ., B.A., F.Z.S., IN THE CHAIR.

Before proceeding with the business of the Meeting, the CHAIRMAN made reference to the death on March 29th of the Rev. Harold C. Morton, M.A., Ph.D., one of their most valued Members, and read a Resolution which had been passed by the COUNCIL at their Meeting that afternoon as follows :—

Resolution.

“The President, Vice-President and Council of the Victoria Institute hereby record their great regret and sorrow at the death on Sunday, March 29th, 1936, of the Rev. Harold C. Morton, M.A., Ph.D.

Dr. Morton, who had been a member of the Society since 1925, served also on the Council, his mature, wise judgment on many matters being held in high esteem by his Colleagues.

In addition, he placed the Society as a whole under great obligation by contributing many invaluable papers on Philosophical subjects and by participating from time to time in the discussions.

They desire to add an expression of their very deep sympathy with Mrs. Morton and her family in their irreparable loss.”

The Resolution was then endorsed by all Members, Associates and friends present standing in silence as an expression of their sympathy.

The Minutes of the Meeting of March 23rd were then read, confirmed and signed, and the HON. SECRETARY announced the following elections :—
Associates : Dr. W. Thomson Walker ; Col. N. M. McLeod, D.S.O., M.C., late R.A.

The CHAIRMAN then called on Dr. R. E. D. Clark to read his paper, entitled “The Present Position with Regard to the Origin of Species.”

THE PRESENT POSITION WITH REGARD TO THE ORIGIN OF SPECIES.

By R. E. D. CLARK, M.A., Ph.D.

THE advance of science in recent years affords indications that a theory of special creation of species may once again hold the field. But such a theory is not likely to become a part of science, for it is becoming universally recognised

that science cannot make use of the idea of creation. The aim of science is to find relations between events, and this means that for every event science wants to discover a cause. But God and creation cannot be thought of as caused; if they are invoked the string of causes must cease. It is the same with the conceptions of purpose and mind in living creatures. Most people agree that these exist and religion and philosophy must take them into account; but they must not enter scientific textbooks. It is not sufficient that a fact should be true in order that it may form a part of science.

A little consideration will show that this is no novel outlook. There are many cases in which perfectly true ideas must not be allowed to influence our method of living. The Bible recognises this. It tells us that no Christian is free from sin, but that we must live without allowing this belief to influence us: we must seek to be perfect as God is perfect. It would be wrong to say: "Since I cannot be as perfect as God, I need not seek perfection." Large numbers of other examples could be given. Thus there is a definite place for ideas which, though true, must never influence practice.

Science is akin to practice. It stands, not for a complete system of all knowledge, but for a method of attack—in short, for experiment. Thus it is natural that there should be certain ideas which it cannot use. It can use no ideas which do not suggest experiments.

It is for this reason that it cannot find a place for God, and so cannot interest itself in special creation. Science could almost be defined as the study of that part of nature which goes by itself and does not need God or even the minds of human beings. An example may make this clearer. An engineer builds a bridge and calculates that it will withstand such and such a stress. He finds that it collapses under a lesser stress—his science cannot explain why. If he is a Christian man he will not say "Science cannot explain this, it must be the hand of God." Instead, he will go through all his workings again in the hopes of finding a mistake. He may believe strongly in miracles, but that belief must never influence his actions in such a case as the above. No one could expect him to listen quietly to arguments proving the existence of miracles, as though this were relevant to such a situation. It would be absurd to tell him that he was fighting facts, or that it was his duty to sit down quietly and accept the

breakdown as a miracle. It is equally absurd to ask science to listen to the evidence of the working of God. Such ideas do not belong to science, though they may very well belong to the scientist in another capacity. It is this which Christians have so often failed to realise.

If, then, a belief in special creation is ever to become accepted again among biologists, it must be accepted by them as men, not as a part of their science. Their science will have to go on doggedly looking for causes, pushing things back farther and farther. When it reaches a stop it will not be interested any more. That is what has happened in physics and astronomy. We can push the universe back between a billion and ten billion years, but further than that it is not possible to go. What happened then was an event which looks very like creation by a mind, but science can only be interested in what happened after that event. Moreover, the scientist holds that the universe must be about the age mentioned, for it is only then that the idea of cause fails, and science must find causes as far back as possible. Yet common sense says that if there was a miracle a billion years ago, there is no improbability in the view that the miracle took place in much more recent times. It is only science as science which cannot allow such speculations.

Evolution has been studied a great deal in recent years, and evidence is slowly accumulating that if it is pushed back far enough it will reach a position very like that of astronomy. People used to point to the fossils and see in them a gradual evolution. The ancestor of the horse started off the size of a dog, and by and by it grew in size and its toes decreased in number. In the course of ages a creature of modern dimensions resulted. Several well-marked series of shell-fish showed a similar story. Sometimes these evolutions are gradual, each generation differing from the last in a hardly perceptible way, but often there are sudden jumps. The horse is gradual with regard to its size, sudden in the diminution of the size of its toes. This sudden type of change was not recognised at first. When it occurred it was easily explained away—the evolution might have been continuous in some other part of the earth. But now both types of evolution are recognised.

These records from the rocks suggested that all life must have sprung from the lowest forms. Aristotle's observation that the foetus in the egg goes through stages resembling lower forms

of life seemed to favour such a view. Then widely different creatures were found to be built upon the same general plan, so much so that human anatomy could be taught from the bodies of animals. There were parts of the animal frame which seemed to serve no useful purpose, but corresponding organs were useful in lower forms of life. These things also gave colour to the above theory. There seemed no alternative save evolution or the view that the devil hid the fossils to deceive, if it were possible, the very elect. Most people accepted evolution. Many Christians embraced the idea and sought to reconcile it with their faith. Generally they abandoned the first chapters of Genesis and decided that Christ was severely restricted by the errors of His age.

But in recent times science has only gone to confirm what common sense indicated all along, that evolution cannot explain the origin of species. Reproduction of living things, or rather of the *physical parts* of living things (for science has no knowledge of the soul), is a mechanical process. The mere fact that monstrosities result and can be produced experimentally long suggested that this was the case. The irradiation of the nuclei of cells by X-rays produces perfectly random changes, and investigation has gone to show that these changes are precisely the same in character as those which take place in nature. The fossil records confirm the same absence of design. Race after race changed in ways which resulted in their extinction. There was no evidence whatever that the hand of God was ruling these changes in "evolution," as many of the theologians had supposed.

Experimental and mathematical work in genetics have gone to confirm the existence of the two types of evolution, the gradual and the sudden—both occurring without design, at random. The gradual is determined by survival of the fittest, as Darwin supposed, the sudden by changes in the cells similar to those produced by artificial means. Thus evolution on its *physical* side is not the result of miracle, but is subject to the laws of physics and chemistry like the inorganic world. That, at any rate, is the natural conclusion from these and many other facts, and it is the starting point of biological research. A few philosophically minded biologists have disagreed, as have the modernist theologians, yet their views command no respect among most scientists.

If this purely mechanical outlook is wrong, there is room for miracle—though some would like to hide it under the cloak of more difficult words. But if it is right, it is now becoming obvious that causes can only be pushed back a certain way. They cannot be pushed back to protoplasm or the primæval slime which generated protoplasm as our fathers had supposed. It is only possible to push them back to some ready-made species, and there the cause becomes baffling. It is like the problem of astronomy repeated. At some point the uniformity of nature went wrong, and science can get no further. It must go on asking for causes in vain, for it cannot allow miracle. Yet, just as in the case of astronomy, there are good grounds of analogy for supposing that creation of living creatures must have taken place. This idea is outside science in the sense that it must never influence science, yet it appears to be none the less true.

The evidence has come in the following way. *Cytology* (the study of cells) has shown that every cell contains a number of small particles called chromosomes. When the cell divides these particles reproduce themselves so that every cell in the body possesses identical particles. It has been found possible to connect various changes in the chromosomes with changes in the grown-up individual, so that as a result of direct experimental work it has become tolerably certain that the form, or at any rate the detailed structure, of an individual is determined by the structure of the chromosomes. These facts were first suggested by Mendel's observations on garden peas, where it seemed certain that there must be some structures in the cells which made plants tall or short. The chromosomes in some species are sufficiently different from one another to allow them to be distinguished easily. In such cases they can often be mapped out. This means that the structures in the chromosomes which are connected with the various characters, such as tallness, eye colour, hairs in different parts of the body, number of facets in the eye and so on, can be shown to exist in a definite order in the various chromosomes. The methods by which this can be done need not detain us here. The units in the chromosomes are known as *genes*. They must consist of complicated organic structures. The smallest of them appear to be at least a million times as heavy as a hydrogen atom.

It is now generally agreed that changes in the genes themselves, and in their positions with respect to one another, afford

the raw material for evolution. The evidence for this is good. Examples of the main changes which have occurred in the rocks can be produced in the laboratory. Take the case of an animal the size of a dog becoming one the size of a horse. Exactly the same kind of result has been observed repeatedly in plants where it may take place in different ways. By purely artificial means the number of chromosomes in the cell may be doubled, and this results in a large and sudden increase in size. A similar result might easily take place during long periods if natural selection were picking out the fittest. The records of fossils do not show any phenomena which are inconsistent with the experimental science of genetics. A far greater period has elapsed in geological time and, as would be expected, there has been greater opportunity for profounder external changes to result; but there does not appear to be anything radically different in kind.

Suppose, then, that orthodox views—natural selection, the correctness of the series of fossils, and so on—are accepted. Does that lead to abandonment of the special creation doctrine? In the past people have answered in the affirmative, but it is now becoming abundantly clear that that answer is incorrect. All that is observed in genetical experiments, and all that is observed in the rocks, appear to be nothing more than chance variations of already given structures. This can be called evolution if evolution merely stands for change, but it is not the kind of evolution which could make an animal out of dead matter. It is not constructive evolution. The variations are often large so far as the external form of an animal may go—but both in the rocks and in the laboratory they are more often destructive, and end in extinction, than constructive. How did the original chromosome structures arise? One authority calculates that the chances against any particular arrangement of the genes in the chromosomes must be 10^{1000} at the minimum,* and it is probably much higher. But that is only for the arrangements of the genes when formed. The actual building of a gene in a particular way must involve an enormous number of possibilities, probably at least as great as the above number. This

* Sewell Wright. "The Roles of Mutation, Inbreeding, Crossbreeding and Selection in Evolution," International Congress of Genetics, Ithaca, 1932, vol. i, p. 356.

means that the production of a chromosome by random movements of molecules involves that this occurrence will happen once in not less than $10^{10^{85}}$ times.

If the matter is not considered from the point of view of a chromosome being built up suddenly, but natural selection is allowed to work all the time, so that a given chromosome structure can become more and more complicated through the course of ages, the chances are of course greatly reduced; but the power to which 10^{10} must be raised is negligibly reduced. $10^{10^{45}}$ is enormously greater than $10^{10^{84}}$, but that makes no difference to the present argument.

It is impossible for natural selection to result in more and more complex structures unless the number of individuals is greater than the number of the chances against the constructive change, and on the most liberal basis it is impossible to get the chances low enough. The number of electrons in the entire universe is only about 10^{79} * and the chances against the formation of these structures in the chromosomes are unimaginably greater. Thus the whole situation suggests that differing kinds of species were created at remote epochs: first the simpler forms of life, later the more complex. That is what geology indicates, but with the evidence at present available it would look as if arguments that an evolutionary connection existed between them should be viewed with much suspicion. No doubt the number of species created was small, and each gave rise to many others in the course of time.

Lastly, it must be emphasised again that creation is not a scientific idea. Science can only go back to the moment of creation and reach an *impasse*. It has reached that *impasse* in the problem of the creation of the universe, and it appears to be in the same position in the case of biology. What happened before the point to which science can look back was in each case something suggesting mind and purpose—unscientific ideas, it is true, but none the less real. And philosophy and religion must be founded upon the whole of reality, not merely upon the parts with which science can deal.

Thus it looks as if the long controversy with regard to evolution and Christianity might soon close. The Christian has been perfectly right in demanding a special creation, and the scientist

* A. S. Eddington, *The Expanding Universe*, 1933, p. 68.

has been equally right in denying that such an idea ought to constitute a part of science. Evolution *may* be a perfectly necessary idea for science, but on viewing the world as a whole it must be seen to have the same kind of meaning as in such an expression as "the evolution of the petrol engine." The truth to which the evolution of science points may be an evolution of the ideas in the mind of God, rather than any direct physical connection. But since science cannot deal with God it must rightly ignore such possibilities.

DISCUSSION.

The Chairman, Mr. DOUGLAS DEWAR, B.A., F.Z.S., said : Dr. Clark has given us a valuable and suggestive paper—one eminently suited to a philosophical society.

He shows himself greatly in advance of modern scientific opinion in that he boldly says there are indications that a theory of special creation of species may once again hold the field. He describes with admirable clarity what he holds to be the correct attitude of the scientific biologist. I do not agree with him that this is the right attitude. I do not accept his contention that it is not sufficient that a fact be true in order that it may form a part of science. In my view science ought to take cognisance of *every fact*. It is the business of the biologist to survey the living world, or some corner of it, and try to discover how plants and animals are made, how they live, their relations to one another and how they have come into being. The biologist ought to set out on this quest with an open mind, not wedded to any theory, though willing to consider all hypotheses advanced. This survey shows that, despite the great variety of animals and plants, each species can easily be fitted into a scheme of classification based on morphological grounds. The biologist ought to try to discover why this is so and how each of these species originated, whether each from the beginning exhibited its distinctive features, or is descended from a very different kind of ancestor. In other words, one of the chief aims of the biologist should be to discover whether the great variety exhibited by the organic world is the result of separate acts of creation, or of a process of evolution or transformation, or of both.

Unfortunately for the science of biology, this method has not been adopted. A belief that all species are the result of evolution has been adopted as a creed on *à priori* grounds.

Had biologists adopted the correct scientific procedure they would, when considering origins, have taken the species, the smallest of the recognised natural groups of organisms and asked themselves: Is the species a group of animals or plants enclosed within an impassable barrier? In order to be able to answer this question, much time should have been spent in (a) trying by breeding operations to change one species into another and (b) in trying to discover whether in nature any species has been transformed into another. If, as the result of experiment and observation, it were found that the species is not a group circumscribed by an impassable boundary, the genus should have been the next group to which similar tests were applied. If it were found that the barriers that separate genera are not impassable, then, and not until then, would the theory of evolution have something approaching a scientific foundation. In that case the family should be dealt with in the same way.

The rejection of the scientific method and the acceptance of the theory of evolution as a fact, without proof, has had disastrous results. Much time that ought to have been spent in experiment and observation has been devoted to the weaving of fantastic theories as to how evolution has been effected; this is to try to cook the scientific hare before it has been caught!

Nor is this the worst; instead of taking nature as they find it, biologists persist in seeing it as they think it ought to be, and, in order to make facts fit in with their theories, have mishandled these. Only discoveries that appear to be favourable to the concept of evolution are attended to; all others are set aside; all lines of investigation that seem to lead to results not in accord with transformism are abandoned, and only those that appear to lead to a conclusion favourable to it are followed up.

Nor is the excuse usually given for this abuse of scientific procedure, viz., that the admission of the possibility of special creation would stifle scientific inquiry, a valid one. Indeed, the failure to admit this has in fact tended to stifle inquiry, particularly in the matter of origins; no attempt has been made so far to try to discover the units of creation. Some branches of biological science have been

more adversely affected than others by this abuse of the scientific method. Among these are anatomy and physiology. The body of every animal contains a large number of organs and structures ; the utility of most of these leaps to the eye ; but the use of others is not immediately apparent. Instead of setting himself laboriously to discover the use of such, the average biologist is quite content to regard them as useless legacies inherited from supposed remote ancestors to which they were useful, because the habits and form of these are supposed to have been very different from those of their present-day descendants.

Professor Vialleton closes his monumental book on the limbs and girdles of quadruped vertebrates with the remark that, properly dealt with, morphology, which is supposed to be exhausted because it has been turned rashly from its proper course to be made to illustrate a premature conception, will, when properly handled, recover a new vitality, rich in the promise of luscious fruits.

Dr. Clark states that "creation is not a scientific idea. Science can only go back to the moment of creation and reach an *impasse*." This is unfortunate from the scientific point of view, but surely it is better for science to face facts than to work in a world of make-believe, and to waste time in trying to discover the undiscoverable. In any case, biology has a long way to go before it will be able finally to determine what were the units of creation in the organic world. The determination of this is sufficient to tax to the uttermost the resources of this and many future generations of biologists.

In conclusion, I should like to emphasise that the criticisms I have made are against the methods of modern biologists, not against Dr. Clark's paper, which I have no hesitation in saying is of the greatest value, the more especially as it stimulates thought, and I propose a hearty vote of thanks to him for an invaluable contribution to the transactions of the Victoria Institute.

MR. PERCY O. RUOFF said : The remarkable and interesting claim, in the opening sentence of the lecture, that a theory of special creation of species may once again hold the field receives rather scant treatment for so great a thesis. It is a matter of supreme importance in connection with the Bible account of creation, and

more evidence supporting Dr. Clark's claim would be welcomed by Bible students.

It is no doubt true, as the lecturer points out with clear distinction, that creation cannot strictly be brought within scientific survey, but belongs more properly to the domain of philosophy and religion which embrace the whole of reality. This, however, is only a question of accurate classification. It does not mean ignoring facts of creation, but identifying them with their proper sphere.

When Dr. Clark seeks to draw a parallel from life, and illustrates the point that true ideas must not be allowed to influence our method of living, he appeals to the Bible to support the view. But his illustration is unfortunate and fallacious. The Bible is a book of truth, and so far from teaching (as he supposes) that we must live without the belief that the Christian is not free from sin to influence our living, it takes full cognizance of the fact that sin is present, and provides the antidote side by side with this fact, viz., "He that abideth in Him sinneth not."

Col. T. C. SKINNER said: May I associate myself with the cordial vote of thanks to the author for his interesting paper this afternoon. As one who has not a little to do with embodiment of the papers and discussions in the Transactions, I would like also to compliment him on its brevity, and commend the same to our fellow-Members and Associates as a pattern worthy of more general adoption. Indeed, our author might well have expanded at greater length without the least fear of tiring his audience, and I hope he will view this first effort as a *ballon d'essai* and renew the benefit later on.

Turning to the theme of the paper, the position adopted by science has been clearly stated and is patent to all; there can be no question as to the fact. But with the legitimacy of that position we may well concern ourselves, and I desire to comment on one issue only, viz., the rigid exclusion from scientific thinking of the operation of a Divine Creator and of His subsequent intervention in human affairs.

The words "must," "must not," "cannot," "must never," "cannot allow," etc., etc., run through the paper almost like a slogan, and without doubt they do reflect the attitude assumed by a great

many scientists, perhaps the majority, towards things spiritual as affecting their particular quest, geology, astronomy, biology, or whatever it may happen to be. But why this imperative? Who has decreed it? Scientists, in common with all other humans, are endowed with free will—initially at all events—freedom of choice as to what line they shall take; and if to-day they are failing to exercise that birthright freedom, to the extent of binding themselves to this rigid rule of exclusion, does it not suggest that they are no longer free agents, but are under some form of hypnotic obsession, a “blindness in part”?

I take as reasonable our author’s postulate that “science stands not for a complete system of all knowledge but for a method of attack—in short, for experiment.” But surely this does not comprehend the whole business of science. Is it not the business of science to collect facts and correlate them, with a view to tracing the causes at work and forecasting the trend? All facts of observation are therefore germane to science, and if we are to draw a vertical line and say that facts on one side of that line are to be considered, while those on the other may not be entertained—must not such a method inevitably issue in theories at once lopsided and untrue?

Now I submit to your judgment that the facts of spiritual experience are not a whit less capable of demonstration and investigation than are any material facts you like to name. It is impossible to read the life of a George Muller, for example, without deriving convincing evidence of Divine intervention, while the records of missionary societies the world over abound in such evidence, in fulfilment of the Divine command and promise.

Turning in direction opposite; trickery apart, do not the manifestations of spiritism afford proof of working of a spirit of evil sufficient to demand recognition; or at least to call for investigation by competent men, themselves not ignorant of the devices of Satan, who can keep their heads and not lend themselves to the working of error as some have done? Alike with the phenomena of dæmon-possession familiar to many trained medical men in Africa, India and the far East.

But if these things fail to convince, then what of the devilry of war, repudiated by everybody and indulged in by all? How explain this phenomenon of race annihilation on any other supposition than

that of an arch-enemy, bent on destruction of mankind, a personal power of evil, for whom, without Divine aid, science is no match ?

Moreover, is not the line between *material* and *spiritual* becoming more shadowy every day ? and are not some of our best thinkers in science, to-day, the least hide-bound in this matter ? What of Jeans, of Eddington, of Fleming ; of a host of devout scientists who recognise that it is not possible to push Almighty God out of His own universe and yet hope to solve its mysteries ; who, if they provisionally accept the self-imposed rule, do so in full realisation that it is nothing more than a convention sooner or later to be abandoned if real progress is to be made.

Granted that it would be wrong and absurdly unscientific to invoke miracle where phenomena can be adequately explained by natural causes, and that a scientist's first quest is for such ; is it not at least futile to close the eyes to obvious evidence of Divine intervention in answer to believing prayer ? Does it not betray lack of sincerity, or of scientific thoroughness, or of both ?

Writing to *The Spectator* in November, 1927, on "The British Association and Darwinism," I used these words :—

" A science that ransacks the universe for material facts, yet ignores the facts of faith, is working in blinkers, incapable of shaping a true course, and must sooner or later finish up where it began, on the rocks."

We seem to be nearer the rocks to-day than we were eight years ago.

Mr. GEORGE BREWER said : When scientists ask us to accept their theory of Evolutionary Descent, the least that can be required is that some evidence should be forthcoming.

True science is the knowledge of facts ascertained by observation or experience reduced to an orderly system ; but much of what is now popularly called science is pure speculation, the evolutionary theory of descent being based on supposition and assumption and unsupported by any real evidence.

Charles Darwin says himself in *Life and Letters*, " When we descend to details we cannot prove that a single species has changed." Professor Virchow, who was for 30 years president of the Berlin

Anthropological Society and once a pronounced advocate of the evolutionary theory of descent, said in his lecture on "Freedom of Science," "It is all nonsense. It cannot be proved by Science that man descended from the ape, or any other animal. Since the announcement of the theory, all real scientific knowledge has proceeded in the opposite direction." And later, at Vienna, he said, "The attempt to find the transition from animal to man has ended in total failure. The middle link has not been found and never will be."

Dr. Etheridge, the fossilologist and curator of the Natural History Museum, says "In all this great museum there is not a particle of evidence of the transmutation of species; nine-tenths of the talk of Evolutionists is sheer nonsense, not founded on observation and wholly unsupported by facts. The museum is full of proofs of the utter falsity of their views."

This theory, which cannot be treated as science, but rather as philosophy, and admitted by its adherents to be incapable of proof, is held tenaciously as being the only alternative to special creation. Thus it becomes a refuge for the natural man, who desires to exclude God and reject the revelation contained in His Word, and can therefore only be regarded as the delusion of Satan.

In Gen. i, 12, we read, "And God brought forth grass and herb, yielding seed after his kind, and the tree yielding fruit, whose seed is in itself, after his kind." (v. 21) "And God created great whales and every creature that moveth, which the waters brought forth abundantly after their kind, and every winged fowl after his kind." (v. 25) "And God made the beast of the earth after his kind, and cattle after their kind, and every thing that creepeth upon the earth after his kind."

In Acts xii, 26, Paul on Mars Hill declared "God hath made of one blood all nations of men"; and in his first epistle to the Corinthians, chapter xv, stated, "All flesh is not the same flesh; but there is one flesh of men, another of beasts, another of fishes, and another of birds."

While the Evolutionary theory cannot dispense altogether with a First Cause, it puts that First Cause, which we know to be God, so far back as to be altogether removed from human responsibility,

thus fulfilling the words of Psalms xiv, 1, "The fool hath said in his heart 'No God.'"

WRITTEN COMMUNICATIONS.

The President, Sir AMBROSE FLEMING, D.Sc., F.R.S., wrote: This paper by Dr. Clark has in it much that is interesting and suggestive. On some points, however, I am not quite in agreement with him.

First, as to the definition of what constitutes science and the scientific method. Science is not merely experiment. We gather the raw material of science, viz., the facts, by experiment, observation, or deductive or inductive reasoning. But our chief object is to correlate them. We do this by hypothesis or theory. We make a guess at some form of machinery which may show us the observed phenomenon as a consequence of some more general or fundamental principle and we test our guess by comparison with other facts. To do this we have in general to make measurements or quantitative assessments. Hence, Lord Kelvin once said "Science is measurement." The facts and measurements may be a permanent possession, but the hypotheses as to their connection or cause are in a continual state of flux. The history of science is a long story of discarded theories; for instance, in chemistry that of phlogiston, in physics those of caloric and the elastic solid æther and in astronomy the Ptolemaic theory.

The unscientific public are, however, prone to mistake the theory fashionable for the time being as scientific knowledge, especially if they have insistent statements by those they regard as eminent, that such and such explanation is accepted by all men of science. Moreover, science, as Dr. Clark contends, has its proper and limited field of operation, which is the collection of facts as regards the phenomena in Nature, the deduction by strict logical reasoning of inferences therefrom and the application of such knowledge for the use and benefit of mankind. When it goes beyond this and attempts to deal with or discuss final causes it may lead to error rather than truth and obscuration instead of illumination.

Also the strictest definition of words or categories is essential and much confusion and wrong thinking is due to the use of the same word in different senses by those who use it.

Especially is that the case with the magic word "Evolution." It can be quite appropriately employed to describe a process, as when we speak of the evolution of wireless telegraphy, for instance, as its gradual improvement. But if it is used to imply a self-acting or automatic agency, impersonal and yet having attributed to it originative powers which can only be postulated of Mind, it is a misleading word. It has to be recognised that there are limits to the region in which the ratiocinative powers of the human mind can usefully act and that outside these limits other faculties of our human nature have to come into play.

We have no right to say that we can attain to no truth other than that reachable by the human intellect.

Science cannot, therefore, deal with final causes or with the beginnings of things because there observation, experiment or measurement are impossible. It is for this reason that much modern use of the word Evolution is pernicious. It tries to substitute for a Personal, Purposive, Creating GOD who is a Spirit, the idea of an impersonal agency which, operating on a supposed uniformly diffused material, the origin of which is not known, and by actions or methods the source of which is also not known, has in course of vast time brought into existence the material Universe and provided this earth with an almost infinite variety of vegetable and animal life in forms due to accidents and a struggle to keep alive ; above all, has populated it with human beings possessing rational minds capable of appreciating the adaptations and beauty of it all.

This evolutionary theory is, therefore, atheistic in its tendency. What we are entitled to infer is that Divine Creative Power has proceeded by stages and is purposive in operation but also to recognise clearly that the details of that operation are not capable of being discovered by the unaided powers of the human mind.

Lieut.-Col. Sir F. E. FREMANTLE, O.B.E., M.D., F.R.C.S., wrote : I regret that a Parliamentary engagement prevents my attending the meeting next Monday for the discussion of Dr. Clark's paper.

While thanking Dr. Clark for his effort to reconcile Science with Religion by establishing an unbridgeable gulf between the two, I would venture strongly to disagree with his proposition. Dr. Clark

makes the common mistake of regarding Creation as the industrial output of the Divine factory, each unit of it as separate from its Creator as a Ford motor car is from Mr. Ford. On the contrary, it is surely clear that each living unit is not only fashioned after the outward likeness of God but contains in itself the essential qualities of its Creator in varying degree.

The right view, at least to a biologist, is that of creative action as continuous and particulate, appearing historic and miraculous only when summed up in space and time and propounded in imaginative and symbolic language.

Science is either comprehensive or false. It cannot consider biology without reference to the life which is in essential contact with or even is an essential part of the Godhead, branches of the one Vine.

Christ showed us the connection, both between God and Man and between the living and the inanimate Creation. The Incarnation is not confined to Jesus of Nazareth but in Him is symbolised as illustrating the Divine principle which is found in all living things and is at the root of all scientific biological study. The inductive approach to God is, to the scientific mind, a most helpful aid to a true religious appreciation of the Divine reality.

Mr. ALAN STUART, M.Sc., F.G.S., wrote: I would like to say first of all how interesting and stimulating I have found Dr. Clark's paper to be, and believe that it is a timely reminder of important things which are liable to be ignored by Christian apologists who often have hard things to say about scientists and their science, when the findings of the latter are apparently antagonistic to some belief or interpretation.

As to the first point raised by Dr. Clark. It is true that science *qua* science finds no place for Creation in its scheme of things. This is not because of the obtuseness of scientists, but because of the character and methods of science itself. These are largely confined to (1) technical experimental means by which phenomena are studied, and (2) logical and mathematical treatment of the results of observation and experiment in order to discover the nature and relations of the phenomena studied. For example, all

attempts to produce life from inorganic material in the laboratory have failed, and it is scientifically true that all living things have their origin in other living things. It is therefore only logical for the scientist, simply as a scientist, to conclude when viewing the ordered sequences of fossil forms from Cambrian to Recent times, that they are somehow genetically related. *Scientifically* no other conclusion is possible. When, like the physicists and astronomers mentioned by Dr. Clark, the biologist or palæontologist gets back as far as he can go causatively, his science cannot help him, and if he then falls back on the idea of creation as an ultimate cause he does so not as a scientist but on philosophic or religious grounds. It has been very interesting to notice recently the excursions of physicists and astronomers into philosophy, because they have been forced to interpret things from an idealistic or spiritual point of view. This is not science discovering God as many think, but that science, being unable to investigate ultimate causes, forces the scientist, because he is also a man, to answer the questions raised on other non-scientific grounds.

Again, it is recognised that science is limited in its scope because it can only study abstractions or selected properties of things. The weight or acceleration of a body are only parts not wholes. A Bach fugue or a joke may be analysed scientifically but the analysis does not produce the same emotional effects, because only certain selected aspects of the phenomena are presented. So science is rigidly limited in its scope and really only provides the raw material for the philosopher to work upon. Philosophy may be regarded as man's unaided effort to explain the riddle of the universe, but religion in general takes into account the existence of a Creator and the possibility of a revelation from Him to His creatures. In the search for ultimate truth science is only the first step upwards, and next come philosophy and religion, and science is now not in a position to deny that ultimate reality may be spiritual. Next, observation shows that many related series of phenomena follow one another by a series of alternate crises and processes, and whereas miracle finds no place as such in science, crises do. Take, for example, the crisis of conception, the process of gestation, the crisis of birth, the process of growth, the crisis of death; the

alternate processes of growing stresses in the earth's crust and the crises of earthquakes during the growth and decay of mountain ranges; the process of the work of the Spirit of God upon an individual, the crisis of conversion, the process of growth in grace and knowledge of the Lord Jesus Christ, the crisis of the freeing of the spirit from the body, the crisis of resurrection, etc. It would appear that science may investigate certain aspects of some processes and relate them to definite crises, but many crises have eluded explanation. In Genesis, chapter i, certain crises stand out and are denoted by the use of the word *bara* (create), for the creation of matter (v. 1), lower animals (v. 21), and man (v. 27). Where *asah* (make or develop) is used, a process *may* be indicated.

I tend rather to disagree with the author when he says that "the fossil records confirm the same absence of design." The orderly sequence suggests purpose and design to me, and the development of certain extravagant forms which paid the price by extinction, and the appearance of carnivores in Palæozoic times, suggest to me that even before man appeared an attempt was being made to frustrate God's purpose. This I put forward, however, not as a scientist but as a possible interpretation of the facts based upon what I believe God's will to be as revealed in Scripture, that He did not intend nature to be "red in tooth and claw," but that the lion should lie down with the lamb.

To sum up, science because of its nature and methods cannot know God or miracle, but a scientist can believe in both God as Creator (the Living One from whom all life takes its source), and therefore in miracle. The two are not antagonistic but complementary. Certain anti-religious scientists will always use what knowledge they may gain against religion, and anti-scientific Christians will always cavil against scientists who come to conclusions which appear to run counter to their beliefs, but on both sides honest inquiries are beginning to compose some of their differences. The evolutionist who explains mutations in species by the action of some cosmic ray which may produce analogous changes in the chromosomes to those made experimentally by X-rays, may (and often does) believe that God is the controlling power behind the ray, and says "evolution does not get rid of God, it shows His manner

of working." This is a great advance on the old materialistic evolutionary teaching, and shows that the evolutionists are rapidly reaching the *impasse* to which physics and astronomy have come. Science may answer the question "how?" at times, but can never answer "why?" The scientist, like any other mortal, must humbly await God's revelation as to this.

AUTHOR'S REPLY.

I should like to thank those who have taken part in this discussion, especially our President and Mr. Alan Stuart, whose contributions have greatly enhanced whatever value my paper may have possessed.

The other speakers have, between them, raised so many points that it is impossible to reply to them adequately. I should, however, like to make a few brief comments.

1. Several speakers appear to agree with Sir F. E. Fremantle that "science is either comprehensive or false." Now no one would assert that religion is false because it does not deal with the working of dynamos, and I cannot understand why anyone should suppose that science is false because it does not discuss the working of God. It is surely obvious that we have different attitudes towards the outside world and full truth is reached by employing them separately. The attempt to mix them must, so far as I can see, lead either to an anti-religious or an anti-scientific frame of mind. So far from hearing how this dilemma may be met we have heard several vehement condemnations of current science.

2. Col. T. C. Skinner lays stress on the idea that the line between the material and the spiritual is becoming more shadowy every day. With all due respect to Col. Skinner and Prof. Eddington this, so it seems to me, is quite untrue. Matter is not turned to spirit by thinning it! I question whether 1 per cent. of scientific workers would endorse such an opinion.

3. I do not quite understand how Mr. Ruoff's objection to my illustration of "methodology" drawn from the Bible disproves what I said. But supposing he is right, Hans Vaihinger in *The Philosophy of As If* (Trans. C. K. Ogden. London. 1924) has collected hundreds of other examples of the principle in question, any one of which might have served for my argument.

4. Sir F. E. Fremantle further criticises me for being a Deist, and I admit the charge. If each living unit is indeed "fashioned after the outward likeness of God," it is clear to me that God has no moral character, for evil as well as good becomes an expression of His activity. But a perfect God could create machines which, for various reasons, might fail to function properly—just in the same way (to use a well-worn analogy) as a good watchmaker might make a watch which eventually goes wrong. This, to me, is all but conclusive in favour of Paley's original argument. It does not solve the problem of evil, but it seems to show that no solution is possible save on Deist lines.

5. Mr. Alan Stuart rightly remarks that gene mutations do not *necessarily* exclude God if they can be explained mechanically. Yet it is surely a legitimate inference that God is not at work (I speak as a Deist) if we find that the result of such a process is very much what we should expect if the units were merely "shaken up in a hat." But this is an inference only and mind might be at work just now and again—so rarely that statistical averages are not altered.

Of course this is an extremely materialistic position which few will be disposed to follow. It is, in fact, just what the rationalist scientist of to-day would like. But what I have sought to show in my paper is that, even if we go to the last resort in thinking of reproduction and evolution materialistically, we shall still be forced to believe in God. Though I have not had time to develop the theme, I believe it can be shown that the God we must postulate under these circumstances is, in all essentials, the God of Christianity.

I would even go further than this and claim that not a few rationalist writers have guessed the truth of what I have said. This accounts for the retreat into unintelligible mysticism which we find, for example, among Communist philosophers who do their very best to pretend that they are anti-materialists. The same attitude is found, however, among scores of other anti-religious writers who, forty or fifty years ago, might well have been thoroughgoing materialists.

The fact is that when anyone thinks clearly, either along religious or scientific lines, he must end up by believing in God. But if an

atheist has already decided what he does not want to believe in, he immunises his reason by mixing his religious (or it may be philosophical—it all depends upon the definition) and his scientific attitude. It is thus that dialectism, instinct, monads, zell-seelen, élan vital, holism, evolution (in one of its senses), emergent evolution, organicism, vitalism, hormism, “gods, demons (Maxwellian or otherwise), signalmen, locomotive drivers, archæi, souls, entelechies and all kinds of little beings hidden in the stuff of life” (Needham) come to be dragged into science falsely so-called. And when once this has been done (with the aid of a well-sounding word) matter has been discreetly endowed with properties akin to mind and would-be philosophers start regretting that there is such a thing as the second law of thermodynamics or (like Sir Arthur Keith on a recent occasion) quietly ignoring its existence.

Such mysticism is only to be expected as science advances. The evidence for the existence of a transcendental God is becoming so enormously enhanced with every fresh discovery of the complexity of nature and every fresh confirmation of the great general law (of which the second law of thermodynamics is but one small aspect) that order does not increase of its own accord, that it is only by muddled thinking that the inevitable conclusion can be avoided. But since this is the case it seems to me a great pity that so many Christians support these curious combinations of philosophy and science.

800TH ORDINARY GENERAL MEETING

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, APRIL 20TH, 1936,
AT 4.30 P.M.

Owing to the unavoidable absence of LIEUT.-COL. LANE through illness, THE CHAIR WAS TAKEN BY LIEUT.-COL. ARTHUR KENNEY-HERBERT.

The Minutes of the Meeting of April 6th, 1936, were read, confirmed and signed, and the HON. SECRETARY announced the following elections :— Member: the Rev. H. A. Edwards, L.Th.; Associates: John Arthur Thompson, Esq., M.Sc.; H. R. Kindersley, B.A.; J. D. Bradley, Esq., Ph.D., D.D.

The CHAIRMAN then called on Mr. G. R. Gair, M.A., to read his paper on "The Races and Peoples of the Early Hebrew World."

THE RACES AND PEOPLES OF THE EARLY HEBREW WORLD.

By G. R. GAIR, M.A., Director of the Institute of Anthropology,
Edinburgh.

INTRODUCTION.—THE ENVIRONMENTAL SETTING AND CONTROL
OF RACIAL AND NATIONAL CHARACTERISATION IN THE
MOST ANCIENT EAST.

THE regions constituting the world to the first ethnographer located somewhere in the "Fertile Crescent" were those that stretched, so far as thought and rumour could penetrate, either to the Northern Mountains, or westwards to the Great Sea, and its island peoples, or to the eastwards and the mountains which encircled an ancient homeland, mystically enwrapped by tradition and peaks of snow amidst wastes of desert plains as well as lands of Eden, or else to the south, on the left hand, the mouths of great rivers pouring outwards and encompassing with the ocean the whole lands of Arabia, until

they appear, on the right, in the Gulfs of Suez and Akaba, beyond which was Egypt and the romantic land of Punt. This, then, was the ancient world of the Mesopotamian, Babylonian, Syrian, and Hebrew for many ages, until eventually Cretans, then Phœnicians, Greeks, Macedonians, and finally Romans enlarged it by a series of gigantic adventures.

Physical environment so affects the lives of men, modes of life, family, and national individuality, that, we must realise, the world of ancient man was a thing not inseparable from himself. Therefore we cannot hope to appreciate the national, racial and cultural phenomena without attempting a regional understanding of the material basis which must ever lie at the root of any truly ethnological survey. Arid mountains, devastatingly hot winds, rivers of sudden regimen, hot marshes, genial pastures and all the other phenomena of nature affect man considerably as individual factors; but in their sum total they go to make regions of character which act as a mould in which the elements of race and culture solidify into ethnic units.

The ancient world, as we have already indicated, may be thought of as being composed of several well-defined regions which we can name:—The Northern Mountains; The Eastern Mountains and Irania; The Fertile Crescent, including Palestine and Babylonia; Arabia; Egypt and the Eastern Sudan and Somaliland. That is to say, we have: the centre—the plains and valleys of the Tigris, Euphrates and Orontes, and the coastal zones of the West and East; around these heartlands, starting from the north and turning clockwise—The Anatolian Mountains of the North; Irania and its mountains, the sea, and then Arabia, then the sea and then Africa, and again sea—the Great Sea, with its islands and coastlands.

The Northern Mountain system includes what is loosely termed Anatolia (Asia Minor and Western Armenia) and the Caucasus. Beyond that lay the Russian Steppe, with its barbarous peoples, and, to the westwards, Thrace and the Ægean, and, beyond that again, the Danubian lands. But all these lands of the beyond were but dimly seen and known. This zone of mountains straddled all the northern horizon of dwellers in the south, for it was a region of great mountains and extensive plateaus, with a general east-west trend, making movements difficult from the south, and cutting off any really intimate links with the Black Sea and the Southern Russian

steppelands. The *Ægean* and Thracian lands were in more intimate contact with Anatolia, for the mountain trend, so exclusive to southern contacts, gave access, up the western valleys, to the interior from the coast.

Responding to these conditions is the vegetation. Mediterranean plants grow along the coasts of southern Anatolia, but in the interior there is a plateau steppeland, mainly treeless, with here and there, where there is a stream or river, a fringe of sorry-looking willows. The interior is thus a pastoral country, supporting, in 1927, 10,000,000 sheep, 11,000,000 goats, 7,000,000 cattle, 1,000,000 asses and mules, and 500,000 horses, while the coastlands have all manner of Mediterranean and sub-tropical activities, localised into definite regions—olives here, tobacco there, and figs at another place. This resulted in the growth of small states from early times along this coastal zone.

From the earliest times minerals must have formed an attraction of no mean value, and Anatolia does not lack these. Copper, so essential to the earliest chalcolithic and bronze cultures, is mined with great success at Arghana Maden, in the south-east of the plateau, and it is also known near Trebizond in the Taurus. Silver and gold are found at Bulgar Maden (near Konia), while silver, lead, and zinc occur at Balikesir.

In striking contrast to these mountains and plateaus are the low-country regions lying to the south, for which the Taurus, anti-Taurus, the Armenian complex, and the Mountain of the East, form an encircling arc. Here we have the "Fertile Crescent" of ancient times, and to-day much of the Asia of the Arabs. To the south of this zone of great fertility, in parts homogeneous, in language and religion, there is an inner arc formed by the higher land of the great plateau of Arabia. Thus the lands of Israel, Syria, Assyria, and Babylonia form a narrow zone from the Western Sea to the Persian Gulf, sweeping in a northern arc between great mountains, on the one hand, and a desert plateau on the other. This is a land of transit and movement, in spite of the great civilisation it has raised, since it is a corridor between two regions of sterile necessity. Starting from Babylonia one passes along the crescent through Mesopotamia, into the plains of Aleppo, and the steppe of Syria, which gives way to Central Syria and finally to Palestine.

To the east of these lands there rises up the great plateau of Irania, comprising Persia, Baluchistan and Afghanistan. The

northern edge is formed by the lofty Elburz Range, which drops sharply to the Caspian and merges eastwards into the Alla Dagh and into the mass of Afghanistan, which drops just as sharply to the lowlands of Turkestan. The southern and western edge is formed of parallel ranges which rise sharply from the plains of Mesopotamia and Chaldea, from the Persian Gulf, the Gulf of Oman and the lowlands of the Indus. Between these edges of north, south and west, there lies the tableland of Irania.

Beyond Irania, to the northward, lies Turkestan, through which the Oxus and the Syr Darya flow from the mountains. There is a country of desert-like lowlands, fringed by a green belt at the immediate foot of the mountains, and where the rivers provide artificial irrigation. Indeed, the part that forms the Caspian littoral can be said to be the only part of Persia with a dense vegetation. On the steppes of Turkestan, agriculture is entirely dependent on irrigation, and rain is rarely seen. Here, and on the Iranian plateau, the climate is rigorous; January temperatures are below freezing, and over 80° F. is experienced in July, while the rainfall ranges between 3 and 6 inches for most parts.

Of the mineral resources of Irania, excepting the great petroleum reserves, little is known. Copper is, of course, found in the Hindu Kush, lead in Hazara, and lapis lazuli and rubies in Badakhshan.

Here, then, to the east, is another land of towering mountains, wide plateaus, salt deserts, and, here and there, wooded slopes like islands in the general desiccation, with ribbons of fertility along watercourses, in valleys and in oases. Such a region might well limit the perspective of dwellers in Mesopotamia and be the end of their world eastwards.

To the south of the "Fertile Crescent" lies the great plateau of Arabia in all its broad million square miles. This is as much an individual region as Anatolia or Iran; indeed, probably more so, and the inhabitants are justified in calling their homeland "The Arabs' Isle." In spite of the scarcity of rains Arabia is not entirely desert, much of it being rather steppeland, with oases here and there, as in the Nejd, and even more so in Yemen. On the steppes the people follow their camels from hollow to hollow where coarse vegetation is found, or from water hole to water hole in the manner of the true Bedouin life. In

the innermost parts of Arabia, surrounded by deserts, are a number of almost contiguous oases, Jebel Shamar, watered by the drainage of two mountain systems, and maintaining towns and villages. There is a peripheral zone of the "Isle" consisting of Yemen, Hasra, Oman, and parts of the southern littoral which, owing to the monsoons and mountainous hinterland, were the true Arabia Felix of the ancients.

This Arabia is the breeding-ground of wild tribes which have poured constantly upon the civilisations in the centre of the ancient world, and has been torn by internal internecine tribal warfare and feuds for wells, oases and other causes. Yet a region not entirely bereft of civilisation, for it was from an Arabian culture the Queen of Sheba came to commune with Solomon, one of the kings of the heartlands.

Lying beyond Arabia, across the Red Sea, is Egypt, the regions of the Upper Nile, and the lands of coloured men. Yet not really beyond Arabia, in an absolute sense, since these countries are hinged to the western end of the "Fertile crescent," and have intercourse, if they choose, through the Isthmus and across the Gulf of Suez, and along the shores of the Mediterranean from the Nile Delta to Palestine, Syria and even farther afield. This direct access to the spheres of Babylonian cultural influence is plainly evident from the flow and the ebb of Egyptian conquests to and from the Euphrates. The old world knew of four main African lands; Egypt or Misraim, the Libyan coasts, the Red Sea coasts, and Ethiopia. Of these Egypt claims priority of attention as an historical culture and a geographical unit. Egypt consists of the Lower Nile basin from the Wadi Halfa, to the east of which are the Red Sea coastlands and Sinai, and to the westwards the Libyan Desert. The Egypt of history is located mainly upon the cultivated lands in the northern half of this valley and in the Delta. This remarkable country is bounded by cliffs of limestone for its upper part as far as Cairo. These cliffs rise to 1,500 feet and the valley is constricted within as narrow a space as one and a-half miles in some parts, and nowhere is it more than six miles wide. This is nothing more than a rift valley through which flows the Nile. Rainfall is of little value to agriculture and the life of Egypt is symptomatic with the movements of the Nile.

Excepting for good building stone, Egypt, to-day at any rate, is almost devoid of minerals, while wood hardly exists.

The whole economy of life in all ages has been dependent upon the agricultural resources of the valley and delta, and upon communications. Alexandria is but a modern representative of the trading communities and ancient nomes of the Delta, and from the mouths of the Nile trade was maintained with Palestine, Syria and Egypt, and inmost Africa. Cairo, at the apex of the Delta, represents the focus of the internal trade routes, from which the caravans departed to the interior. The Nile from the Delta to the First Cataract, the traditional boundary of Egypt—a distance of 750 miles—was the ancient highway. Here, at Elephantine, was the typical border market of Egyptians and Ethiopians under the control of the northern power. Its governor (2600–2000 B.C.) was known as the “Keeper of the Door of the South.” Through this outpost there was admitted into Egypt gold, silver, ostrich feathers, ebony, and skins and ivory from the Sudan. From the lands of Punt, on the shores of the Red Sea, came gums, woods, myrrh, and spices. In the opposite direction there passed punitive expeditions, traders, and conquering Pharaohs, who succeeded in establishing their sphere of influence as far as the second cataract, 140 miles farther south.

The sterile Delta, the eastern and western deserts, and black Africa made Egypt so self-contained and isolated a unit, that, although they first helped to make her a great consolidated state, they bore within themselves the germs of her decay, by producing an intensely unprogressive isolationism. As a consequence, Herodotus remarks that the Egyptians “observe their ancient customs but acquire not new ones” (*Herod.*, xi, 79). This separation from the rest of the world was really so complete that, although able to maintain constant intercourse with the Mediterranean and Syro-Mesopotamian worlds, the Egyptian culture formed no continuum with the outside, except on rare occasions, when under the influence of strong imperialistically-disposed Pharaohs. On the other hand, Egypt had another contact, by way of a back door to Chaldea and the Most Ancient East; or was it the original front door? This was by way of the Red Sea ports. Myrrh, spices, indigo, tin and bronze came from the Orient by their means. Indeed, tin was known to the Egyptians by the Aryan name of *Kastira*, which may be an indication of the source of the metal supplies—although some would look to Malacca. Anyway, it would seem certain that

Oriental objects entered Egypt, not so much from the north, as from the piedmont country skirting Abyssinia, and thence by the Atbara river to the Nile. This route was being plied busily by the time of Pharaoh Sahure, 2750 B.C., whose fleet sought out ancient Punt—or modern Somaliland. It was from Punt itself, or the goods assembled at its *entrepôts*, that ivory, gold, spices, perfumes, woods, apes, myrrh, trees, and peacocks came. But, in spite of all these contacts, they were those of merchants or middlemen and occasional travellers, and not so much the intimate acquaintance of one or more mercantile peoples. Six days' journey over deserts was an insurmountable barrier, even with the existence of an excellent Egyptian road and State-cleaned wells, to the establishment of a zone of cultural transition.

Farther to the west of Egypt there was Libya—the Phut of the early Hebrews and the Syro-Mesopotamians. From the Delta to the Atlas, there stretches 1,600 miles of a coast ill-supplied with villages, anchorages or ports—a coast consisting of a dreary and monotonous shore-line unrelieved by headlands, estuaries, bays, or lagoons, and affording but precarious roads for shipping. These were coasts which were feared by early navigators, so much so that Marcus Cato preferred the difficulties of an overland march to the coastal voyage. This coast is in the track of the arid trade winds, and, owing to its low relief, the resulting aridity is intensified, except in Cyrenaica and around Tripoli, where higher land causes a certain precipitation.

These, then, are the countries which comprised the world as it was understood by well-informed men in Assyria, Babylonia, Egypt, and Palestine. Yet this world, as it was known to them, was not wholly as it is at present. Climates and conditions have been modified, often to a very considerable degree, since those far-off days. The modern geography but forms a skeleton to the environments of old, and before we can fully appreciate the habitat of the peoples we must understand better the conditions prevailing at any given stage of history. Thus, in the heart of our ancient world we have stories of the Noachian Deluge and the Babylonian Epic, and what is more, repeated evidences of flooding discovered by archaeological work at Kish and at Ur. And this flooding is on an abnormal scale as measured by the modern regimen of these rivers. Parallel stories come from Greece and Persia as well; while throughout this region

the remains of former civilisations, in desert surroundings, witness far more strongly than theoretic discussions to the once greater pluvial conditions in the Mesopotamian and Babylonian plains, and the hill regions to the north and east from whence their rivers flow. We find old lake strands, desiccated springs and former trade routes through what is now impossible country, or roads around former obstacles (such as lakes or rivers) where now none exist. Ruins of ancient civilisations merely illuminate this conception. For example, there are the ruins of Palmyra, now in the Syrian desert, and only able to support one-tenth of its former population. Yet this Syrian desert, from the Mediterranean to the Euphrates, was once as populous as the rural parts of England. In the arid and irregular range of limestone heights, between the Orontes valley and the Euphrates, there are remains of the walls of former fields, terraces of masonry, roads, and ruined buildings and small towns. Perhaps the most forceful picture is to see these rock-strewn hills of Syria, almost devoid of soil and unable to support any vegetation, and yet all around ample evidence of ruined oil and grape presses, while the names of the places and the inscriptions speak of wells and springs where none exist to-day. Much the same sort of thing is true of arid Northern Mesopotamia; there, in ancient times, existed the by no means inconsiderable power of the Mitanni, while throughout the whole of Mesopotamia and Babylonia there is no more eloquent document of the present desolation of the Near East than the contract tablets relating to the sales, mortgaging and letting of fields and gardens where there is nothing at all. To the east of Jordan in Moab we read of civilisation in what is now desert. There is the case of the King of Moab, Mesha (2 Kings iii, 4, 5), who paid the King of Israel an annual tribute consisting of the wool of a hundred thousand lambs and a hundred thousand rams. In a Nabataean inscription from the rock-hewn tombs in a Wādy debouching into the Wādy Mūsa, very near Petra, the capital of ancient Edom, we have similar indications of change, for it talks of the gardens, and the feast-garden, and the wells of water.

THE NATIONS OF THE ANCIENT WORLD.

Against this background of physical environment, modified to some degree by different climatic conditions, moves the races

and peoples of ancient times. Amidst these surroundings we must locate the earliest peoples known to the Hebrews and surrounding peoples as contained in that ancient account in Genesis x, and any parallels.

This is the earliest Hebrew document purporting to be an ethnological survey, and as a result gives us a clear insight into what really was their world. The great importance of this document moved Sir William Ramsay (*Asiatic Elements in Greek Civilisation*, Gifford Lectures, 1915-6. London, 1927, p. 1) to refer to this account in his Gifford Lecture in Edinburgh, by saying—"More than twenty years ago, writing (in 1915) to a great European scholar, I said that the chief problem which now lay before us as historical investigators was to answer the question, Who were the sons of Yavan, the old-Ionian, who represented the Greek race in the early Semitic tradition (Genesis x, 4)?"

Within this document, which is but a chapter of moderate length, we obtain a clear impression of what were the vital ethnic realities to the ancient mind. The presentation is made by the genealogical method, and there are few superior vehicles for expressing relationships, whether they be genetic, or of neighbourhood, or but of culture, or, as is more likely in ethnology, an intimate blend of all. The linking of sons together as the offspring of the father implies within the very sonship some vital relationship to each other and to the parent stock.

The narrative unrolls itself in three great sections—the sons of Japhet-Gomer, Magog, Madai, Javan, Tubal, Meshech, and Tiraz; the sons of Ham—Cush, Mizraim, Put, and Canaan; and the sons of Shem—Elam, Ashur, Arpachshad, Lud, and Aram. This is the main structure of a survey which intends to analyse the relative congenity of many peoples known to the ancients.

This account purports to be ancient and that can only be tested by the validity of its contents. It should be remembered that the date of its construction and the accuracy of its story is not in any way limited by theoretical strictures of *textual analysis*, based upon the use of particular forms of speech, words, or dialect. But it can only be judged by the reliability of the account which it seeks to convey. Prof. J. L. Myres has adopted a similar position in his analysis of Greek Folk Memory (in an excellent chapter—the 6th—of *Who Were the Greeks?*). What

he says is equally applicable to this case: "If the result is coherent, it must be so for one of two reasons, either amazing ingenuity among the sixth century chroniclers 'must be postulated,' in which event we have still to ask how they knew on what historical assumption to proceed, or a living, accurate folk-memory of ancient times. And if the result coheres also with sources of information quite beyond the knowledge of those chroniclers, the conclusion seems unavoidable that Greek folk-memory was historically trustworthy; that it enables us to explore aspects of Greek antiquity for which we have not yet other evidence, and, in particular, to select the right localities wherein to look for such evidence as Schliemann selected Troy and Mycenæ, and Sir Arthur Evans selected Cnossus" (J. L. Myres, *Who Were the Greeks?* California, 1930, p. 307.) If the Biblical story is accurate for the ethnology of the second millenia B.C. or earlier, then it is reliable, whether the account is due to an accurate transmission by folk-memory, or derived from earlier sources still, and cannot be the redaction of seventh-century B.C. editors, who had no other means than this, and its parallel versions, of knowing what were the ethnic relationships.

There is, of course, always the possibility of accretions—the result of the degeneration of an intelligent understanding of the narrative, due to the archaism of its meaning, and the subsequent "modernisations" of over-zealous editors. These do not, however, destroy the value of the tale, and such inconsistencies as are due to such a course are not valid criticism against the whole. Therefore the date of the writing down of the completed text concerns us much less than the period to which the account, as a whole, relates. The date and value of the account can only be ascertained by the degree of accordance, or otherwise, that is displayed with the facts of ethnology and its related sciences.

There are many points which lead to the placing of the narrative in its true place in racial history. First of all it is manifestly old—no such date as 500 B.C. will serve, but rather some date between 1000 and 2000 B.C., or perhaps even earlier. Its own claim supports such an early dating for the principal facts of the story. Again, its nomenclature, as will appear, is definitely ancient. For example, it implies that Javan inhabited Asia Minor and the Greek coastlands in very early times. Yet there is no trace of these old-Ionians (but for the survival of the name in one of the Greek states) during the historical times of Greece

and Israel. Further, "Ionian" to the Greek world had a very limited extension as compared with its meaning in these passages and in the usage of the Hebrews, Persians and Assyrians, where the original meaning was retained. Prof. Myres,* naturally following the usual view, which has been held up till now purely upon "critical" grounds, states that the document belongs to the seventh century B.C., and implies that the name Javan is only introduced to the Hebrews (and presumably other Eastern peoples) at this time by the spread of Ionian settlers eastwards along the coasts of southern Asia Minor. Yet he admits that there is no reason to believe that they had any such hold on these districts to justify the ascription of them to the "Children of Javan." This admission seems to destroy completely the whole theory, if that is not already destroyed by the established use of the name by the Assyrians a century earlier.

From Gomer, brother of Javan, comes Ashkenaz, whom we would conclude should belong to the same sweep of peoples as the "Ion" group. Sir William Ramsay† points out that Ashkenaz is an eponymous hero of Asia Minor, and therefore must typify the general mass of the people. Jeremiah (li, 27) uses the same expression for a part of Asia Minor in the triplet: Ararat, Minni and Ashkenaz. Which serves to make clear the Hebrew location of this people in the Anatolian group of nations along with Ion. This ethnic unit would appear to be an old one, and its occurrence here seems to be no mere lingering on of a mere archaism. For if it were we should expect to find it interlarded with a matrix of later ethnological facts. In this there are, for instance, no Achæans or Dorians blended with Javan, and no Phrygians with Ashkenaz. Thus Homer (who wrote, according to Ramsay, about 820 B.C., or, according to Sayce, about 1000 B.C.) evolved such a jumble of old and new when he produced Askanios as an ally of Priam and Troy, and enemy of the Achæans.

Facts such as these set an early date upon portions, if not the whole of the narrative. At the least they show the use of a very early series of names combined with an ignorance of later events. Thus, for instance, there is a significant omission of Tyre among

* *Who Were the Greeks?* California, 1929, p. 137.

† *Asiatic Elements in Greek Civilisation.* London, 1927, p. 2.

the states of Palestine, although Zidon, Gerar, Gaza and other places are mentioned. Now Tyre was founded in the thirteenth century B.C., and by the tenth century was a mistress of commerce under Hiram. She eventually fell under Assyria in the eighth century. Again besieged, by the Babylonians between 585-572, later subjugated by the Persians in 538 B.C., she was at last reduced by Alexander in 332 B.C. From the thirteenth century this state made some noise in the world, so that no Israelitish scribe could fail to note her among the peoples. Indeed, those that were anything like contemporary with her spent much time denouncing her—"O thou that dwellest at the entry of the sea, which art the merchant of the peoples unto many isles," etc. (Ezekiel xxvii). No, they knew all about Tyre; and Zidon and Arvad faded into insignificance before her magnificence. The omission of Tyre in the early Hebrew ethnography means clearly that she had not yet risen to her world-importance. Therefore that account must be prior to the tenth-century exploits of Hiram.

Among other evidences of antiquity is the delightful story of Nimrod. "And Cush begat Nimrod: he began to be a mighty hunter before the Lord: wherefore it is said, like Nimrod a mighty hunter before the Lord. And the beginning of his kingdom was Babel and Erech, and Accad, and Calneh, in the land of Shinar. Out of that land he went forth into Assyria and builded Nineveh, and Rehoboth-Ir, and Calah, and Resen between Nineveh and Calah (the same is the great city)" (Genesis x, 8-12). This story is unknown at present in any other ancient piece of literature. Rationalising the elements we find that from the people or State of Cush there came a "mighty hunter" or conqueror, Nimrod. He subdues Babylon, Erech, Accad, and Calneh—states of Chaldea on the lower Tigris-Euphrates, and, at that time, situated close to the shores of the Persian Gulf. Then, marching northwards, the "Cushite" Nimrod subdued what came to be known as Assyria. The older idea that this Cush is the later "Ethiopian" Cush is entirely erroneous. Judging by the name of the state and its location in the narrative, the simplest identification is with Kish. The history of that state is so closely parallel to the elements of the Nimrod episode that all doubt is removed. Kish was one of the old Semitic states (and it will be found that the "Hamites" of chapter x are ethnically Semites) and

was probably the cradle of the Semitic peoples in Babylonia. Near Kish itself is Jemdet Nasr, which witnesses the same early development. There, painted pottery of an early period has been found, and this is taken to imply a period preceding the second period of Sumerian civilisation, and so witnesses to the early occupation of this neighbourhood. According to the dynastic lists of the Sumerian kings, the First Dynasty after the "Flood" ruled at Kish, and this dynasty is earlier than the first at Ur in the south. The bas reliefs from Kish illustrate bearded men in decided contrast to the shaven heads of the southerners at Al Ubaid. This indicates a Semitic stock in the neighbourhood of Kish; and to the south lay non-Semites. This early importance of the region of Kish and its Semitic character, as expressed by statuettes and dynastic lists, seems to rest upon undoubtedly solid foundations. For we now find, as has already been pointed out,* that the most archaic pictographs at Kish support the traditions embodied in the dynastic lists. Further, if any more evidence is required, the names of this first dynastic period are Semitic, and the towns of the north of Babylonia, Kish, Sippar, Akshak, Opi, and Agade (which latter gave its name in the form of Akkad to the whole of Northern Babylonia) were traditionally the homes of Semite rulers.

Thus we learn of the very early development of Kish, with its earliest known wheeled vehicles, and of the oldest written documents from Jemdet Nasr nearby. The expansion of the Kish group first embraced Babylon, then spread to the south, and, finally, expanded northwards to include the later Assyria. This is a pure parallel of development as accurately outlined in this story. A great advance under a real or mythical leader, or leaders—"Nimrod"—carries the expansion of the small state of "Cush" to embrace Babylon, and then to march south to Erech and Akkad and Calneh, and finally northwards to Nineveh Calah, and Resen. Here, then, we have a relation of events so ancient, and so involved that they could not have found the parallel in the unwarranted creation of a seventh-century scribe. Further, at so late a period, no writer would have called any part of Babylonia by the name of Cush, since at that time Cush was generally used for a different region—Ethiopia. This story is evidently much earlier, and shares with the accounts

* By Childe. *The Most Ancient East*, p. 16.

of Javan and of early Palestine in days before Tyre all the unmistakable evidences of great antiquity. Consequently we can take such a document as an original source for our present knowledge of early Syro-Mesopotamian ethnology, and relate the main theme with what we actually know from our sources of ethnology in ancient times.

THE SYNTHESIS OF SYRO-MESOPOTAMIAN ETHNOLOGY.

The ethnological structure of this ancient account, if done into modern and scientifically precise language, is very concise and gives a clear insight into the relative position of the numerous peoples known to the ancients of the civilisations along the Euphrates.

Men are to be put in three divisions. All these men are of one original ancestry, in spite of the numerous differences among them. In the first place there is a northern group of peoples, who are located in the Anatolian mountains, and Armenia, and beyond to the isles and coastlands of the west. There are "Gomer, and Magog, and Madai, and Javan, and Tubal, and Meshech, and Tiras," and their subdivisions—all of which can be identified. Then there follows a second great racial and cultural group, which comprehends all the native stocks of Babylonia, Chaldea, Palestine, Egypt, and the Red Sea coasts, and inner Arabia. Indeed, the heartlands of the then known world including Palestine, the Red Sea lands, Egypt, and Libya beyond. Palestine receives most intimate treatment, whether at the hands of a later editor is hard to aver or deny, although, in the former case, the omission of the Hebrews altogether, in the enumeration, is a significant difficulty. We read: "And Canaan begat Zidon his first-born, and Heth; and the Jebusite, and the Amorite, and the Girgashite; and the Hivite, and the Arkite, and the Sinite; and the Arvadite, and the Zemarite, and the Hammathite; and afterwards were the families of the Canaanite spread abroad, and the border of the Canaanite was from Zidon as thou goest towards Gerar, into Gaza; and Gomorrah and Admah and Zeboim, unto Lasha" (Gen. x, 15-19). This concentration upon the cities of Palestine, and the equal intimacy with the ancient cities of Mesopotamia and Babylonia, locate the final collation in Syro-Mesopotamia.

The third group of nations are much less easily defined, both in this account and in history. Its distribution, while greatly influenced by geography, does not fall into any of the broad classifications, such as the Northern Mountain block of Japhet peoples or the plains, riverside and desert-dwelling Hamites. On the contrary, it lies between the two, and, in the west, is settled along the foothill zones south of the Taurus and north of the Syria steppes. From thence it was spread eastwards over northernmost Assyria, into the Iranian plateau. A closer study than present space allows would make this abundantly clear; but even at a glance this is partially apparent from the use of such names as Elam and Ashur for peoples in this third group. These are the people of Shem—a term used by the ancients in all innocence of the great confusion which theological notions, coupled with immature ethnology, were to create by its so-called "Semitic Race" which has very little real connection with the Biblical peoples of "Shem."

A tripartite division of the known peoples is the basic conception. A plainly distinguished block of mountain and sea states, non-Semitic in culture, Anatolian in affinities, presumable proto-alpino-Armenoid in race, and possibly with strong Hittite linguistic features. There is also an as clearly marked-off block of southern states located in north-eastern Africa, Arabia, and the "Fertile Crescent." Semitic in culture in the east, Hamitic in the west, in race probably all dark, slenderly-built whites approximating to Sergi's Eurafrican stock, and what is called "Semite" in the East and "Hamite" in Northern Africa, both of which are probably but different divisions of the southern white-brown race. From their location we are told that there was a third division lying between these Eurafrican and Alpino-Armenoids—a relatively smaller group which maintained itself only along the piedmont to the north of the "Fertile Crescent," but was more strongly represented to the east in Irania, and approximated to Iranian types; so that, it is probable that in the Shem group we are dealing with early proto-Aryans and possibly with a proto-Nordic racial strain. This assumption certainly seems to be justified from some of the detailed evidence which may be adduced from the study of the peoples of this region, especially as these peoples of the western piedmont, such as the Mitanni, have undeniable traces of Aryan antecedents.

It will be seen that ancient Hebrew ethnology was bound to be limited within the confines of those geographical regions which have been outlined : and that this ancient account does indeed limit itself to those regions. It is therefore within the mould of the physical environment of the "Fertile Crescent," and the piedmont to the north of it, Arabia, Egypt and Libya, and the Anatolian and Iranian mountain systems that the peoples developed ; and from this any knowledge of the intimate unity of mankind was conceived, or emphasised. The peoples outside of those habitats were scarcely known, and are not included in this description. As all the peoples of these regions were white, the story becomes an ethnographic survey of an important section of the "Caucasian" stock at an early period of the history. It is significant that chapter x ignores the existence of the Negroid and Mongoloid races, although to many of the civilised peoples of ancient times, one or the other of these coloured stocks were known.

DISCUSSION.

The Chairman, Liéut.-Col. ARTHUR KENNEY-HERBERT, said : Our subject, "The Races and Peoples of the Early Hebrew World," practically resolves itself into a study of Gen. x.

Mr. Gair's treatment of this subject may be considered in three sections :—(1) the geographical environment of the ancient world ; (2) the determination of the historic value of Gen. x ; and (3) the conclusions which he deduces from his examination of the chapter.

(1) The geographical environment is an essential detail of Old Testament study too often neglected. As an example of the importance of this aspect I might draw attention to a paper on the long day of Joshua, read before this Institute by the late Mr. Walter Maunder, the well-known scientist and astronomer. It was the geographical data, as handled by Mr. Maunder, which made his argument so convincing.

The geographical environment delineated by Mr. Gair forms a valuable basis for the further study of the ultimate distribution of the peoples and nations mentioned in Gen. x.

(2) The value of the record tested by modern methods.

A paper is entitled to the support of the Chairman. It is unfortunate that I was detailed at the eleventh hour for this duty, for I find myself utterly out of sympathy with the author in his handling of this section of his subject. It is, to say the least of it, painful to be told that Gen. x, to satisfy the modern mind, must be tested by the methods adopted by Prof. J. L. Myres in his analysis of Greek Folk Memory. To me this is like measuring the universe with a six-inch theodolite. The inference to be drawn, if the record on examination be found coherent, is even more startling. We have to thank the ingenuity of the compilers or the accuracy with which the data to be memorised was passed from generation to generation.

In fact, accuracy may be due to any cause but the real one. The passage dealt with in this paper is part of the Torah, of which our Lord Himself said: "Not one jot or one tittle shall pass away until all be fulfilled." Against our Lord's personal guarantee of the veracity of Gen. x, we may set modern opinion as summed up in the the paper—"the date and value of the account can only be ascertained by the degree of accordance or otherwise that is displayed with the facts of ethnology and its related sciences."

(3) The practical conclusion is that "we have a relation of events so ancient, and so involved that they could not have found the parallel in the unwarranted creation of a seventh-century scribe." Knowing this on our Lord's authority, I must confess that the results of modern methods are very disappointing.

Arguing as a fundamentalist, I assume that the knowledge revealed to us in Gen. x is necessary knowledge, revealed because man could not otherwise have found it out. In so far as revelation has not traced this history down to modern times, again I assume that man, if he sets about it in the right way, should be able to complete the intervening history, therefore special revelation is unnecessary.

But what can it advantage us to know the modern names of the peoples and nations once called Gomer and Togarmah, Meschech and Tubal? Ezekiel xxxviii and xxxix answers this question, and in view of the fact that the prophecies of these chapters may be fulfilled in the near future, it is important to recognise the nations which will combine to attack the Holy Land.

Some read in these ancient names Russia, Germany and Turkey. If it be so, here is a combination which the modern politician will have to reckon with. It is a pity if the Science of Ethnology cannot trace the past down to the present and thus throw valuable light on the coming European conflagration which so many leading statesmen wisely foresee and anticipate with dread.

It is a pity that the natural tendency to accept without proof the suggestions of eminent men should have invaded the citadel of true knowledge. We are building up a "totalitarian" science which must be supported even by the exclusion of individual opinion and by the suppression of the inconvenient. Therefore, although our Lord has vouched for this record of Gen. x, that it is the truth, the whole truth, and nothing but the truth, the last verse of the chapter must be swept aside to give place to modern theories about "the Negroid and Mongoloid" races.

I have much pleasure in proposing a vote of thanks to Mr. Gair for the information which he has collected for us in the paper which he has read so lucidly.

Lieut.-Col. F. MOLONY said: I gather that, in the latter part of Mr. Gair's paper, he sought to prove that the tenth chapter of Genesis was written at a very early date.

To me the most interesting part of this learned lecture is the detailed evidence, given on page 5, that Bible lands enjoyed a much wetter climate in ancient times than they do to-day. This must have very greatly facilitated the desert journeys described in the Bible: for instance, Balaam's, the exile to Babylon and the return, and that of the Magi.

Some fifty years ago a survey expedition was sent to Sinai, and all its members held that the Exodus followed the traditional route *via* Wady Feiran and Jebel Katerina. The large mass of animals which must have accompanied the Israelites could not be fed on that route to-day. And this fact has caused some to doubt the record, or suppose that the route must have been altogether different.

We read of no miracle having been worked to feed the animals; but in view of the probability that Moses knew the ground thoroughly, and of the evidence which Mr. Gair has given us of

change of climate, it seems probable that the Israelites had little difficulty in finding pasture as they journeyed.

AUTHOR'S REPLY.

The Chairman raises many questions which time and space will not allow me to answer except to say this : That I consider that he has completely misunderstood the paper ; that his remarks about science and ethnology are based upon an entire disregard of all scholarship ; and that his inference that my views are in opposition to the teachings of Our Lord is unwarranted as nowhere, in anything I have ever written, is such a view to be found.

801ST ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, MAY 4TH, 1936,
AT 4.30 P.M.

DR. J. BURNETT RAE IN THE CHAIR.

The Minutes of the previous Meeting were read, confirmed and signed.

The CHAIRMAN, paying tribute to the late Dr. Morton, presented the Schofield award to his son, Mr. J. Hendy Morton, who made suitable reply.

The CHAIRMAN, referring to the late Dr. Schofield, in whose memory the award had been made, called upon Colonel Molony to read Dr. Morton's paper on "The Supposed Evolutionary Origin of the Soul," and afterwards commented thereon.

THE SUPPOSED EVOLUTIONARY ORIGIN OF THE SOUL.

By the late Revd. Dr. H. C. MORTON, B.A., Ph.D.

Being the Dr. Alfred T. Schofield Memorial Paper.

EVOOLUTION has to account for everything, and it is one of the many puzzles offered to us by the advocates of that popular theory that the supreme feature of Man, viz., his spiritual nature, generally called his "soul," has absorbed so very small a portion of their writings. The common sayings about Man, e.g., that he is a soul and has a body, or that the soul of all improvement is the, etc., make the almost universal concentration on the body very remarkable. The reason, however, is not far to seek, and it is one of the main objects of this paper to make the reason plain.

What do we mean by "the soul"? I use the word to indicate the non-corporeal nature of man in general. I am not distinguishing "soul" as the moral and emotional part of our nature from the intellect. The essential meaning is personality. The *Century Dictionary* says: "A substantial entity, believed to be

that in each person which lives, feels, thinks, and wills." What Evolution has to trace is the emergence and development of that self-conscious, self-determining reasonable personality which we call "the soul."

We are not dealing to-day with any subtleties or theological and moral distinctions, but with that simple element of human nature called Personality. Our greatest need is to see it clearly, to display what is involved in it, and to note how quickly we come to the end of all possibility of analysis.

The Evolutionist has for the most part entirely shirked the supreme question of the origin of the soul. He deals with Man as a body and thinks his work is done when he has to his own satisfaction traced the progress of life and form from the unitary cell by endless transformism up to Man. He comparatively seldom deals with morals, and hardly ever deals with "psycho-genesis" or the origin of personality. To avoid this question is to admit the failure of Evolution.

There are three things which I desire in this paper to maintain. First, that such evolutionists as do not entirely shirk the question of the origin of the soul, merely beg the question by thrusting in at the beginning without explanation what they intend to draw out at the end. Second, that all attempts to trace personality upwards out of the lower forms of life into the human, beg the question because the only personality we know anything at all about is our own personality; it is this which we reflect downwards upon the lower animals, etc., and we must not first explain lower forms of mentality by our own consciousness and then explain our own consciousness by derivation from these same lower forms. Third, that our only *knowledge* is knowledge of our own self; everything else is at best inference and usually mere assumption: that the proper study of mankind is Man, and that a close study of our own self-consciousness reveals personality as an element, incapable of analysis into simpler parts, and therefore incapable of derivation, containing the essential quality of freedom, which again no sort of process is able to evolve.

It has often been pointed out that Evolution has jumped a number of deep gulfs which it has been quite incapable of bridging. It has always the wings of the wind to carry it, and bloweth just where it listeth, and over the deep unfathomable gulf of the origin of mind it has merely flown. It has never

even attempted to grapple with the problem. Sir Ambrose Fleming says: "Consciousness . . . cannot possibly be the result of the arrangements or motions of atoms of matter forming his (Man's) brain"; and all except one man in a million would agree that this is an indisputable statement of fact. But the evolutionist makes far more impossible claims than that consciousness is the result of the arrangement of atoms. He claims that consciousness and life are interchangeable terms, that life is never absent where there is matter, and that consciousness inheres in the atoms of which even every mineral is composed. He assumes the existence of what he calls "mind-stuff" which, being taken for granted, he proceeds to affirm that when the "mind-stuff" takes form the form is accompanied by consciousness. I will give quotations in a moment.

Now it is important for us to get clearly before our thought what is involved in all this daring evolutionary verbiage. "Mind-stuff," if it means anything, means "mind." Likewise when the evolutionist speaks of "consciousness," he is assuming the existence of mind. Mind and consciousness are impossible without personality. There is no such thing as thought by itself; all thought is the activity of a thinker. There is no "mind" existing in the air, neither is mind to be thought of as matter and called "mind-stuff." Mind is the essence of spiritual being; it is the substance of personality. That is the only meaning which the terms "mind," "thought," "consciousness" bear; and the assumption of the evolutionists is that there is personality in the atoms of a mineral. This ludicrous assumption displays the desperate straits to which Evolution is reduced by its inability to trace the origin of the soul.

Inasmuch as very few seem to realise the real question-begging character of the whole evolutionary speculation, it is necessary to give a number of quotations which reveal that they thrust in at the beginning what they draw out triumphantly at the end. May I take three writers as my illustrations? First Professor A. Meek of Durham, in his *Progress of Life: a study in Psycho-Genetic Evolution*; Messrs. J. E. Marcault and I. A. Hawliczek in their *Evolution of Man*; and Mr. J. H. Whittaker in his *Metaphysics of Evolution*.

Professor Meek professes to give us a study in "psycho-genesis" which means "the origin of the soul." It is exceedingly able and, as a piece of "sleight of hand," it would be difficult to

excel it. As you read his pages you pass from the bodily into the spiritual without any warning and without the vast change being marked by the quiver of a solitary stroke of his pen. Up to a certain point the page deals with the material side of things ; one line more and you are launched upon the infinite seas of intellect and personality. He says (pp. 93 and 94) : " The substance of the living body being dynamic, a progressive centre of change, becoming more and more complex, it could be argued that a morphology was already based on molecular structures, a physiology on molecular interaction, and a pathology due to errors and changes in environment." And up to this point one follows with an unmoved mind. It certainly can be argued. But the next words pull one up sharp : for he goes on " And a simple but effective *psychology* (my italics) of reflexes." Thus psychology is just postulated and assumed instead of derived. Psyche is brought on the scene, not obtrusively or noisily, but very quietly. Still, she was not there when the sentence began ; and she is there when it ends. There are just bodies at the beginning of the rather complicated paragraph, but the bodies are endowed with souls as the paragraph closes.

This is the only sort of psycho-genesis with which Professor Meek's book provides us. If he asks us what other sort he *could* provide, the answer is a most cordial " None at all." This is not psycho-genesis, and no psycho-genesis is in any sense possible except by creation. But we object to the pretence of evolving the soul when all that is done is to assume the soul's existence and to begin suddenly to talk about psychology. This is all that Professor Meek does. May I trace his course through twenty or thirty pages which profess to be dealing with the origin of mind ? On page 106 he tells us that : " It has been found that the oxidation of linseed oil with respect to light displays a property which may be compared to memory " (p. 106). Memory is one of the factors of self-conscious personality ; and, if the words quoted have any meaning, they are merely a simile. The gradual lighting up of the morning sky may be compared with the gradual illumination of the mind ; but this does not mean that the morning sky may be henceforward credited with mentality : neither does Professor Meek's simile mean that he is justified in his assumption that memory has dawned in oxidated linseed oil. But he then proceeds from oil to infusoria. *Vorticella* is a very lowly form of life, a genus of

vegetable infusoria, a bell-shaped body with a circle of vibratory cilia around the oral disc, supported on a slender contractile stem. He says: "The apparent (*sic*) history of vorticella implies a choice, and the power has not been lost" (p. 108).

He has already said on page 106 that "Protoplasm has not only a nervous capacity but may be modified along purposive lines." The "apparent history" specified seems mainly to consist in the ability "to develop a special locomotory band of cilia, which is resorbed when it becomes fixed again." Purposive modifications of protoplasm and choice in the vorticella! Purpose and choice are known to us absolutely and only as properties of free self-conscious personality. They bear absolutely no other meaning in human language. They are the essential things whose gradual evolution should be traced in a volume on psychogenesis; and here they are suddenly introduced, thrust in without explanation, and postulated as already existing in protoplasm and vorticella!

The best feature of Professor Meek's postulation of what he is professing to derive is that he is so clear and emphatic about it. He proceeds to speak about the individuality of vorticella functioning psychologically: "It may appear absurd to invoke the aid of memory in the case of amoeba and even unnecessary in that of vorticella. . . . But however diverse the shape and habit may be, a definite individuality is preserved which functions as a whole, and the adaptation is *psychological* (my italics) as well as morphological and physiological" (p. 108). This is just the blunt statement that vorticella has mind, individuality which functions psychologically; and on the next page we are told that in these minute organisms we see the genesis of soul: "It is evident that the strong urge of life is not merely to manufacture protoplasm, endowed with energy, but to preserve it and to maintain and increase its effectiveness. The variations are adaptative and originate by a process which, regarding psychology as including all the various manifestations of life, may be called psycho-genesis" (p. 109).

It seems hardly necessary to go farther. Professor Meek tells us that he has now traced the genesis of soul. What he has really done is just to record some of the movements and reactions of very lowly forms of living matter, and to thrust in without any explanation or justification consciousness, memory, purpose, choice, individuality, all that we mean by Soul.

From vorticella he proceeds to anthropoda, to crustacea, annelids, molusca, sand eels, flatfish, and then proceeds to insects, to birds, rabbits, etc., attributing to one and all of them the sense of satisfaction, of safety, reliance, comfort and stability. For instance (of crustacea, annelids, molusca, sand eels, and flatfish): "It is to be concluded (they) have each of them a psychological satisfaction in the accomplishment" of their purpose, *e.g.*, in the case of flatfish, the accomplishment of flatness (p. 118). And on page 119 we are told that "life histories which involve conspicuous and profound pathological change result likewise in a state of psychological satisfaction"; and on page 120 he is assured that whatever is the quality relied upon for protection it is "accompanied by an attitude of mind, by a sense of safety and reliance, and this feeling of dependence, of comfort and stability," which "has clearly played a dominant role" in Evolution.

All these assertions display that supreme evolutionary quality of imagination, but they do not display in any sense the genesis of soul. Soul is merely postulated by a mass of assertions and absolutely gratuitous hypotheses.

Footnote.—In these words a member of the French Academy explained "What has closed the doors of the Academy to Mr. Darwin," *viz.*, that the science of the *Origin of Species and Descent of Man* is "not science but a mass of assertions and absolutely gratuitous hypotheses." (Quoted by Mr. Douglas Dewar in his *Man a Special Creation.*)

At this point Dr. Morton was obliged to cease dictating, and in view of clearness of his argument, which his racy expressions so greatly enliven, we can scarcely regard the fact as less than tragic; but he left behind a number of notes on slips of paper, and, knowing something of the order in which he intended to use these, the following is an attempt to reconstruct the rest of the paper. It must be clearly understood that Dr. Morton was not responsible for what is hereafter printed in small type, which is only inserted to make the paper read more consecutively.

There are only two alternatives. 1. We say that activities of the lowly animal forms and of all up to men are mechanical reactions, inevitably simulating thought and choice. This is the probably true interpretation of beavers building a dam in a room. Or 2. We assume that the lower animals have a mentality and freedom like our own. But in this case, having first interpreted their activities by use of our own, we must not then turn round

and interpret our own nature in the "light" of the mentality of lower animals. This is a perfect circle. And, the great thing, we must make self the undisputed norm.

* * * *

To try to learn about ourselves from animals is only to confound thinking. It muddles what in itself is the crystal depth of self-conscious personality.

* * * *

But about them we *know* nothing, in the clear and certain manner in which we know ourselves: and we must determinedly beware of turning back upon ourselves and belittling our own personality by supposing it to be no more than animal.

* * * *

The following illustration may help to elucidate part of Dr. Morton's meaning. If I see my dog, who is ill, slinking about with his tail between his legs, I understand that he is afraid that he is going to be punished for something. But I must not gather that I only recognise as wrong acts that are likely to bring unpleasant consequences to me.

The Evolution of Man, Marcault and Hawliczek, p. 9: "The very atoms themselves are centres of vibrant power, so that there is indeed no such thing as "dead" matter. There is force, life, everywhere in the Universe, and therefore consciousness, "even in the atoms of which every mineral is composed." This is clearly to confound motion with life.

Page 12. (After letting Wells describe the earth when it was like the interior of a blast furnace) they say "in the real sense life is never absent where there is matter."

* * * *

Page 8 quotes Dr. Annie Besant: *A Study in Consciousness*, Theosophical Publishing House. "Consciousness and life are identical . . . We have called consciousness turned inwards by the name of life, and life turned outwards by the name of consciousness," p. 42. Page 15 (of Marcault): "It will at once become evident that the nature of consciousness is intimately related to the nature of the form through which the outward turned life is pouring."

All this is pure supposition; about *ourselves* we know, or may know, something; the rest is inference or imagination.

Page 19. Argues that if form is capable of manipulation, and responds to the touch of life and environment; that means that "form" has "the quality of sentiency" which is sheer assumption. They say: "The mineral kingdom is slowly developing this quality"!! They identify "responsiveness to impressions" with "sentiency"!!

Chambers's Dictionary defines "sentient" as (adj.) discerning by the senses: having the faculty of perception and sensation. (N.S.) Sentience, Sentiency.

Page 20. "The swelling of the seed, the growth of root and stem and flower, the opening and the closing of the petals, the production of the seed for the further propagation of the plant, all these are signs of the stirring of a power within the form, of a rudimentary consciousness which is capable of taking action appropriate to the exigencies of external conditions." This is simply a begging of the question of the origin of consciousness.

(We must resolutely refuse to allow our thinking to be confused. All the above "movements" within ourselves, or the parallels, are *not* in general a part of consciousness at all. Further, there is no likeness between plant and man. Further, the only consciousness we know is our own, and that is the prerequisite of rational free personality.)

The Metaphysics of Evolution. By Thomas Whittaker. The greatest "begging of the question" of all is in Whittaker's statement that mind-stuff only becomes consciousness by the assumption of form by elements of mind-stuff. That form is the body. So the body can say: "This consciousness is mine," whereas what actually happens is that consciousness says: "This body is mine."

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(Whittaker, page 37.) He starts with "mind-stuff"—which is merely fancy; then suddenly we read of "The individual mind"—which is merely assumption of what he cannot derive. (We need to know its origin.) Then he says: "Consciousness depends on the assumption of form by elements of mind-stuff"—which simply begs the question.

Readers may like to have the context of this important quotation. It reads thus: "Mind-stuff is not, as some critics have supposed, a substance combining physical and psychical properties, matter, according to Clifford,

is purely a phenomenon. The external world is a kind of 'dream' to each of us . . . To inorganic things correspond elements of 'mind-stuff' not ordered in such a way as to enter into a consciousness. Consciousness depends on the assumption of form by elements of mind-stuff; and, though all elements of mind-stuff have the possibility of assuming the form of consciousness, not all have actually attained that form."

The term "mind-stuff," like Herbert Spencer's expression, "The substance of mind," seems to be a contradiction in terms. "What is mind? No matter, What is matter? Never mind."

Sir J. Jeans, in *The Mysterious Universe*, says: "The old dualism of mind and matter, which was mainly responsible for the supposed hostility, seems likely to disappear . . . through substantial matter resolving itself into a creation and manifestation of mind."

But this is sheer confusion. Granted 1, that all matter, *e.g.*, in a block of stone or in man, is ultimately electrons making up vibrant power; or 2, that matter resolves itself into a manifestation of mind; yet there still remains the clear difference between the block of stone and the living body of men. There is often crystalline form in the mineral, but no one ever dreams of applying to it the language of life, let alone of consciousness, still the old difference between living and non-living stands, and is as clear as ever.

It is not Jeans's view that matter is "resolving itself into a creation and manifestation of mind" that is objected to, but that "The old dualism of mind and matter . . . seems likely to disappear."

CONCLUSION.

There are two extremes in the evolutionary camp. On the one hand are those who, consistently with their awful theory, regard man just of the earth earthy, a being of no account; coming, passing and leaving in a few thousand years no trace behind him worth noticing. The earth is a tiny and very unimportant speck in the illimitable Universe, and "Man is a little stir in the primeval slime, a fuss in the mud which means nothing."

That is true consistent evolutionism; but there is another school which tries to borrow all the great things which consciousness tells us about ourselves, all the great things which are confirmed by the Bible, and professes to derive these by slow stages from the slime and the mud. I really prefer the simple

consistent evolution which remains slimy mud, beastly from start to finish. That will betray hardly any decent people ; but the school which so illegitimately borrows from Man and Bible all the great qualities, and while deriving them from the mud and slime, admits their reality and glory, is utterly inconsistent, and is proving itself deadly and is covering all Christendom with poison fumes and death.

Man is free. Life is crowded with illustrations of unmistakable free choice, *e.g.*, we can go out into the garden and dig that bed and plant the cabbages ; or we can go to the club instead. At every stage we are free in thinking, deciding, acting, giving up the work.

Where did this freedom come from ? Evolution is mechanical and has no opening for freedom. Elan vital and all forms of vitalism are just blunt, blind, confused recognitions of person-ality, freedom, God.

DISCUSSION.

Dr. J. BURNETT RAE said : Ladies and Gentlemen, I feel honoured at being asked to take the chair on this occasion. For the sake of the visitors present, I should say that Dr. Schofield was for many years closely associated with the work of this Society. In addition to being a distinguished physician and psychologist, he was keenly interested in the relation of Science and Religion, and made notable contributions towards the solution of its problems. I accepted the invitation because of my interest in the subject to be discussed, and I looked forward greatly to hearing Dr. Morton. I had not the pleasure of knowing him personally but I remember his generous observations about my own Schofield Memorial Paper three years ago. I was struck then by some of his comments for they indicated to me a mind that was exceptionally keen and of no ordinary quality. I am told by Colonel Skinner that his contributions to the discussions here were always stimulating and helpful.

Since then I have read two or three of the papers which Dr. Morton gave to the Victoria Institute, and although I cannot altogether agree with his position, no one could fail to be impressed by the sincerity of his mind, and the lucidity of his expression. He was widely read and made one feel the significance and importance of the subjects which he treated. In fairness to him it must be

remembered that this Paper which we are about to hear was written on his death-bed and that it is unfinished. Had he lived, Dr. Morton no doubt would have revised its style and might have remoulded to some extent its form.

A Memorial Service to Dr. Morton was held in the Central Hall on Monday, the 27th, when the Institute was represented by Mr. Edwards. An appreciation by Sir Ambrose Fleming was read on that occasion.

I understand that it is usual for the Chairman to open the discussion and that he is expected in the interests of truth to be frank in his comments. I confess I feel diffident about this, as it seems unfair to criticise when the writer is not with us to reply or elaborate his point of view. But one feels that it would be entirely in line with his intention that we should make use of what he has written as a stimulus to our own thoughts and that we should state freely our own convictions. You will realise, I am sure, that as a psychologist I am more interested in the *fact* of the soul, and in those conditions which make for its health and development, than in the problem of its origin, of *how* it came to be. I am neither a biologist nor a metaphysician, and to estimate Dr. Morton's paper rightly one should have to be both these. I hope, however, that some understanding of the mind, and of its relation to other elements of our nature, qualify me to make a few remarks on this occasion.

Psychology, strictly speaking, is the science of the soul, but it has come to mean the science of mental behaviour. This need not—and should not—exclude consideration of that aspect of our mental nature which is concerned with spiritual things.

There are different schools of Psychology. Certain of these, as Dr. Morton has pointed out in other papers, base their Psychology on a materialistic view of things, the Behaviourists, for example, and I should include the pure Psycho-Analysts also. But there are others and I have no hesitation in saying that I notice in psychological thought to-day a definite trend towards a more spiritual interpretation of life.

This paper is unfinished, but from his other writings, more especially "The Concept of Evolution in the New Psychology," read in 1930, and "The Supposed Evolutionary Origin of the Moral

Imperative," 1933, we have a fair idea of Dr. Morton's general position. At the outset of the paper in our hands he clearly states the position he is concerned to establish. Briefly it is this, that our only real knowledge is of ourselves, everything else is inference and assumption, and we must not explain lower forms of mentality by our consciousness, and then derive our consciousness from them.

Up to a point this appears to be reasonable, but I would remind you that Science is based upon inference and upon assumptions, called hypotheses, which we submit to the test of experience. To exclude this method altogether would be to ring down the curtain as soon as it goes up.

It may be argued, for example, that no man could really understand the feelings of another man, or the way a woman looks at things; but if you tread on her toe and she behaves in a way that seems familiar and similar to how you would behave if she trod on yours, may you not legitimately infer that she has a feeling of pain not unlike your own, although you cannot prove it.

Now there is no doubt that in some respects animals are extraordinarily like human beings. We notice that the nervous system, the alimentary, circulatory, excretory, and reproductive system of animals have a close resemblance to that of man. And we notice also an ascending scale of development, not regular certainly often broken, that still is there, and no one I suppose will dispute that. In view of the facts, it is hardly surprising that we should ask whether these higher aspects of man's nature which are distinctive of him may not be found in embryo, in rudimentary form, lower down the scale. I am not saying that they can be, I only say that it is not illogical to inquire.

The existence of physiological and morphological features in lower forms of life does not seem to distress Dr. Morton, but he will not allow psychology in any shape or form. It is difficult to understand this position. I see no objection to speaking about the psychology of a dog or a hedgehog, provided you mean by psychology the science of mental behaviour. Animals have characteristic mental process and dispositions. It seems impossible to doubt, for instance, that they have memory—an elephant has a very long one: a dog can exercise choice, whether, *e.g.*, he will follow his master or a

stranger. They can play games with you, and to some extent stick to the rules! Their feelings indicate an intelligent appreciation of facts. Much of their conduct is no doubt imitative; but so is a child's; it does not appear to be entirely imitative.

It must be obvious, however, that there is an essential difference between animals and human beings which makes certain similarities of comparatively little account. My criticism is not that Dr. Morton draws a line of demarcation between man and lower animals but that he draws it in the wrong place. I accept his conclusions, but not his reasons for them. To base your belief in the unique character of man's soul upon the denial of mental capacity in the lower animals seems to me to be resting it upon a very shaky foundation.

What is the essential quality in man's nature? He has, or can have, what we call personality. The basis of this I discover in the fact that whereas the lower animals are under the compulsion of instinct, and cannot free themselves from this compulsion, man can detach himself from the stream of life. He has the power of reflecting upon his thought and feelings and activity. Animals know; they know their enemies, their masters, their young, nests and lairs—they exercise forethought and discrimination, but man alone knows that he knows. He has self-consciousness which is the basis of the intellectual and moral life. He attaches values to things and knows these belong to the unseen and eternal. He distinguishes in this way good and evil. He can use natural instincts and desires so as to make them serve a higher purpose than their natural use. He can even reverse the order of nature, so that things which in the ordinary course might do him harm may do him good. Man's field of vision, his range of interest, is infinitely greater than that of any other creature, but the essential difference between him and them does not depend on this difference, but upon man's power to reflect upon his life and choice. In this way he ceases to be determined by pure instinct, and is more and more influenced by the ideal; the man becomes less dependent upon his physical nature and environment. "Though our outward man perish, the inward man is renewed day by day." But if this faculty confers infinite powers and prospects it means also struggle and pain such as no

other creature can experience. "There is surely," says Sir Thomas Brown in his *Religio Medici*, "a piece of Divinity in us all, something that was before the elements, and which owes no homage to the sun."

Increasingly we come to realise that the soul has its home in a spiritual universe which gave it birth and which is necessary for its health and preservation. As the body is sustained by its environment and can only live in relation to it, so the soul lives and moves and has its being in God.

Ladies and Gentlemen, I apologise for speaking at such length. Had Dr. Morton been with us to-day it would not have been necessary, and probably I should not have been left with a certain question in my mind. Assuming the possibility of what is called Emergent Evolution, that is the creation of man as distinct from other forms of life at a definite epoch in a gradual evolving history of creation, would it be inconsistent with the Biblical account of Creation? and secondly, would it necessarily imply that evolution is anything more than a method of the Creator; not the cause of Creation, but the way of it?

Mr. GEORGE BREWER said: After reading the vain attempts of Evolutionists to account for the soul of man by a process of evolution, it is refreshing to turn to God's inspired Word, the first statement of which is "In the beginning God;" and in Gen. ii, 7, we read "The Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life, and man became a living soul."

The theory of Evolution, being pagan in its inception and teaching, as well as demoralising in its results, is admittedly held by some scientists as being the only alternative to special creation; and the endeavour of some professing Christians to reconcile the theory with the doctrines of the fall and redemption of man, is deplorable.

Assumption, supposition, speculation, and imagination; all comprised in that magical word, hypothesis; these are the materials upon which Evolution is founded and built up, and as one scientific observer has aptly remarked, "the present vogue of this theory in the popular and pseudo-scientific mind, may be likened to the continual, though dwindling, activities of a central commercial

'trust,' whose supporting subsidiary companies have all gone into bankruptcy."

The attempt to account for the origin of the soul of man, by a process of evolution, constitutes a kind of superstructure on the theory as applied to the physical realm; and as Dr. Morton has shown in his valuable paper, is reared upon the same sandy foundation.

Whatever may be said of the similarity of the framework of man to that of the lower animals, which of itself should prove that both are the work of an infinite creative mind, the moral consciousness, personality and free will of man, reveal characteristics which cannot be compared with the natural instincts, more or less mechanical, of the brute creation.

The universality of the moral imperative, called conscience, is revealed by the Apostle Paul in his Epistle to the Romans (chap. ii, 14): "When the nations, which have not the law, do by nature the things contained in the law, these having not the law, are a law unto themselves; which shew the work of the law written in their hearts, their conscience also bearing witness, and their thoughts the meanwhile accusing, or else excusing one another."

Moral consciousness, freedom of choice, and the inherent sense of right and wrong, of which no trace can be found in the lower animals, and which often cause man to act contrary to his natural desire for self-preservation, or self-interest, is shown both in Scripture and profane history, as well as in the experience of everyday life, producing a feeling of dependence upon, and responsibility to, a Supreme Being, having power to approve a right decision, and to inflict punishment for a wrong one.

Utter failure is the result of every attempt to bolster up the theory of Evolution as a process of ascent, whether in the inorganic, organic, or moral spheres; and as Mr. A. J. Pollock has observed in his excellent pamphlet *Evolution*, it is not only unscriptural, but unscientific; leading professors, contradicting one another on matters vital to the theory, have with their own tongues and pens dug the grave of the very theory which they seek to maintain.

Lieut.-Col. T. C. SKINNER said: I had not intended taking part in the discussion, but our Chairman, to whose remarks on the paper

we have all listened with great pleasure, has left with us a challenging question to which it would seem incumbent on some one of the audience to make reply.

If I understood it aright, the question was whether or not the Scripture account of human origin, or the origin of the human soul, might be held to consist with a theory of "emergent evolution." If so, I would venture very humbly to subject the challenge to a dual test, viz., of Scripture itself, and of Science.

First; whereas in the Bible we have the unmistakably clear statements that "God created man in his own image," and that "the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life, and man became a living soul," there is no hint whatever on which we might base any theory of man, or man's soul, having been derived from the lower animal creation by evolutionary process. Thus, I think, we must conclude that Scripture, at any rate, lends no support to the theory.

Second, as regards Science; while I make no profession of being a scientist, and can only accept the testimony of those who may rightly be regarded as such, it has been stated as a matter of scientific fact, and confirmed from this platform by Dr. Rendle Short,* that of all the elements known to science (90 or more) only 14 or 15 are found in rock or soil, and of these only 13 are found in the human body; there being no elements found in the body that are not found in the soil, those most plentiful in the soil being most plentiful in the body, and those scantily found in the one being likewise few in the other. The conclusion, therefore, seems irresistible that where it is stated in Scripture that "the Lord God formed man of the dust of the ground," and elsewhere, "Dust thou art, and to dust thou shalt return," we have declarations of unquestionable fact, confirming the accuracy of Scripture from the scientific standpoint and lending no support to any theory of man's gradual emergence from lower forms of animal life. If man's body came from, and, at death, returns to, the dust, whence came his soul? Surely not from the lower creation!

I submit, therefore, with all deference, that the answer to the Chairman's question must be no!

* V.I. Transactions, vol. lxvii, 1935, p. 264.

Dr. BARCROFT ANDERSON said : “ Mr. Chairman, Dr. Morton has made it quite clear in his paper that he uses the word soul to represent the entire person. In the remarks you have made concerning the soul and psychology, are we to understand you as using it with this meaning, or with the meaning the words *psuche* and *psuchikos* have in the Scriptures, as when Paul wrote :—“ The soulish man receiveth not the things of the Spirit of God for they are foolishness unto him, neither can he get to know them for they are spiritually discerned.” (1 Cor. ii, 14.)

802ND ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, MAY 18TH, 1936,
AT 5 P.M.

SIR ROBERT ARMSTRONG-JONES, C.B.E., M.D., D.Sc., in the
CHAIR.

The Minutes of the Meeting of May 4th, 1936, were read, confirmed and signed, and the HON. SECRETARY announced the following elections :—
Life Member: Ian Neville William Mackie, Esq.; Associate: Rev. C. Cooper, M.A.

On being called upon by the CHAIRMAN, the HON. SECRETARY announced Mr. William Henry Boulton as winner of the Langhorne Orchard Prize Essay, among nine competitors, subject, "Miracle a Necessary Adjunct of Revelation." Coming forward, Mr. Boulton was presented with the prize, a cheque for £20 and commemorative silver medal, and, receiving the congratulations of CHAIRMAN and Audience, made suitable reply.

After a few introductory remarks, the CHAIRMAN called upon Sir Ambrose Fleming, D.Sc., F.R.S., to deliver his Presidential Address entitled "Some Philosophical Conceptions of Modern Physical Science and their Relation to Religious Thought," and commenting thereon called upon Mr. Oke to propose and Lieut.-Col. F. A. Molony to second a cordial vote of thanks to the PRESIDENT for his Address.

The Vote was carried with acclamation.

ANNUAL ADDRESS.

SOME PHILOSOPHICAL CONCEPTIONS OF MODERN PHYSICAL SCIENCE AND THEIR RELATION TO RELIGIOUS THOUGHT.

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I—OBJECTS OF SCIENTIFIC RESEARCH AND ITS METHODS.

FOUR years ago in an Annual Address I attempted the presentation to you of a brief sketch of some then recent discoveries in physical science and conclusions from them.

At the present time there have been some more notable additions to our knowledge and conceptions concerning the physical Universe, and it may be acceptable to you if an attempt is made on the present occasion to summarise some of these new ideas in a non-technical form.

Very shortly we can include these novel conceptions under four or five headings as follows :—

- (1) The nature of Light and Radiation generally.
- (2) The relations of Space and Time, Matter and Energy.
- (3) The principles of Causation and Indeterminancy.
- (4) The expanding Universe.

And lastly in general,

- (5) Our present conceptions of the physical Universe and of its apprehension by us.

Apart from the discovery of new facts or their technical application, the chief object of scientific research is to ascertain the relation of observed phenomena and their metrical statement, and also to be able to view these in any department of knowledge as consequences of some general or more fundamental principles or facts and to confirm the assumptions made by proving that they enable us to predict or predetermine events and that their logical consequences agree with the results of further observations.

Broadly speaking, there are two modes of approach in this effort to unravel the phenomena of Nature. We may endeavour to make some mental picture or working model of the thing or event studied which will necessarily be built up of conceptions which have previously come into our minds through our senses or experiences. We then endeavour to deduce the logical conclusions to be drawn and note whether they agree with the results of our experiments or observations. Thus, for instance, we are well acquainted with spherical balls of all sizes, footballs, cricket balls, golf balls, and small lead shot. Hence we have no difficulty in picturing to ourselves a ball as much smaller than a small grain of dust as this grain of dust is smaller than the globe of our earth. Accordingly, a former mental picture of an atom of matter was to conceive it as an extremely small ball. When it was found that atoms were built up of still smaller particles it was again possible to visualise it as a sort of exquisitely small solar system in which little spheres of negative electricity revolve around a small central sphere of positive electricity. This conception must have a certain fragment of truth in it, as it enables us to account to a small degree for some properties of atoms. This process of visualisation or mental picture or model-making has a particular attraction for minds

of a certain practical type. But we shall see that there is a large range of physical phenomena in which it does not appear to be possible. All that we can then do is to endeavour to ascertain certain numerical facts or relations and embody these in suitable mathematical formulæ and follow out the consequences in accordance with the rules of mathematical analysis.

More and more our studies of natural phenomena are revealing to us a certain apparent duality in phenomena which creates a serious obstacle to any process of visualisation by mental images possible to us at present. It has become clear that we cannot make a picture of the structure of very small things, such as atoms, by considering them as made upon the pattern of visible large things. Hence another school of physical investigation abandons altogether the attempt to make mental pictures or models of the invisible things of the Universe. It ceases to try to make any "graven image" of these unseen and invisible things. Its efforts are merely to find a mathematical formula or expressions which when handled with the rules of mathematical analysis shall enable us to predict the nature and degree of various consequences and find them in agreement with actual observations.

II—THE NATURE OF RADIATION.

We can illustrate these two methods of elucidation in connection with the phenomena of Light.

When Newton directed his attention to optical facts he was led to try to explain them by the assumption that Light consisted of small particles he called corpuscles which were shot out from luminous sources in all directions. These he considered rebounded from material surfaces of various kinds, and he was able in this way to offer an explanation of the facts of the reflection of light by mirrors. He was also able to give an explanation of the refraction or bending of a ray of light in passing from one transparent medium to another such as air and water by the assumption that the denser medium exerted a pull or attraction on the corpuscles and quickened their speed. In the course of time new effects were observed which were quite inexplicable by Newton's assumptions.

If light from a single point source falls on a screen having two very small slits in it very near together and if there is another screen on the farther side, then if the light is monochromatic,

which means of one colour, we find on the second screen a series of bright and dark bands called an interference pattern. If we stop up one small slit the dark bands disappear. It is found then that under certain conditions of distance two rays of light can destroy each other so that light added to light can produce darkness. We cannot conceive of any way in which two sets of particles or corpuscles could annihilate each other. On the other hand, we know that two sets of waves on a liquid surface can destroy each other if one set is half a wave-length behind the other so that the humps or crests of one set fill up the hollows of the other.

Christian Huygens (1629-95) was one of the first to suggest a wave theory of light and that it consists of vibrations in a universal medium called the æther. It was first assumed that these vibrations took place longitudinally; that is in the direction of propagation which is the case in the vibrations of the air creating sound. Then again fresh discoveries called for fresh modifications of theory. It was found that a ray of light can assume a state in which it has different properties on its sides; that is, it is not symmetrical with respect to the direction of propagation. In other words, the vibrations of light must be transverse to or at right angles to the direction of propagation of the ray. But transverse vibrations of this kind can only be created in solid bodies which resist distortion as well as compression. Hence it was necessary to make the very artificial assumption that the hypothetical æther was an elastic solid.

Nevertheless, in the hands of great mathematicians such as Fresnel, Airy, Green, and Hamilton, this elastic solid theory of light was found to explain a vast number of optical phenomena, and it reigned supreme in the early part of the nineteenth century. Before 1865, however, James Clerk Maxwell set himself to translate into mathematical language some of the great discoveries of Faraday and Ampère. He proved that if a sudden change is made in the electric charge of a conductor this effect is not felt everywhere at once, but it propagated through space with a definite velocity, in the form of an electric wave. We know nothing, as a matter of fact, of any æther having density and elasticity, but we do know that through space, even empty space, we can propagate electric and magnetic forces, as they are called, in virtue of two properties of space called magnetic permeability and dielectric power.

Maxwell gave us two mathematical equations which express in symbolic language these facts and from them we can deduce a vast number of optical results verified by experience. Maxwell proved from certain available measurements that when a sudden change is made anywhere, even in empty space, in electric or magnetic force, this change is propagated outwards in all directions with the velocity or speed of light, that is about 186,000 miles per second or more nearly 299,000 kilometres per second. Nevertheless, we cannot make any conception in terms of anything simpler of the nature of magnetic or electric force. They have to be accepted as an ultimate or final conception like space and time. Maxwell therefore abandoned the attempt to form any mental picture of the structure of his æther or visualisation of the nature of an electric wave by means of mechanical ideas. This theory was held to be sufficient to account for optical and electrical phenomena until towards the close of the last century when the so-called X-rays were discovered by Röntgen. Later on it was proved these X-rays also were electromagnetic vibrations but of vastly greater frequency, even 10,000 times greater vibration rate, than visible light.

Then it was found that these X-rays when passed through air broke up or tore in pieces certain atoms of the gas, liberating from them electrons and leaving a remainder of the atom charged with positive electricity. The strange thing, however, is that it is not every atom which is so destroyed or ionised, and, moreover, the work or energy required to pull the atom in pieces may be very much greater than the energy falling on the surface of the atom if we make the assumption that the energy of the wave is uniformly distributed over its front.

These and other facts have led physicists to the conclusion that the energy in a beam of light must be concentrated in little drops or packets which are now called *photons*, so that a beam of light resembles a shower of rain comprising distinct and separate drops. It appears clear that when light gives up its energy to atoms, or when atoms radiate light, that energy can only be given up or sent out in certain definite amounts called quanta, but cannot be taken in or sent out continuously. Certain optical effects such as the interference just explained, and others such as diffraction are easily and completely explained by a wave-theory of light in which the energy is assumed to be uniformly spread or distributed over the wave-front. On the

other hand, there are other effects which seem to demand for their explanation that the light energy is concentrated in little packets called light-quanta or photons, in which the energy stored is proportional to the frequency or number of vibrations per second of that radiation multiplied by a certain constant. Thus when light falls on certain metallic atoms such as zinc, potassium or cæsium it breaks them up and liberates from these atoms certain small charges of electricity called electrons. For each kind of atom a certain energy is required, and hence for each electron which comes out a photon of a certain energy size and therefore frequency must fall on the atom, and no photons of less energy size will cause the emission. It may be illustrated as follows: To pierce the armour of a battleship we need to fire at it a shell of a certain mass and velocity, and no number of smaller shells with less energy will do the same damage as the single large one. Hence to effect this liberation of electrons, which is called the photo-electric effect, we must in each case employ light of a frequency greater than a minimum limit, and for a less frequency no photo-electric effect takes place by the impact of any number of photons of lesser individual energy. This proves that the light energy must be concentrated in photons and that the energy of a photon is proportional to the frequency of the light.

There is also something as yet quite unexplained about the propagation of light. In all cases of wave-motion in material media such as air or water the apparent speed of the wave is affected by the motion of the observer or the source. Thus if a very long airship had a man at the centre, who fired a pistol, and two men, one at the bow end and one at the stern at equal distances from the centre, if the airship was then stationary the two men would hear the bang of the pistol simultaneously. If the airship was in rapid motion the man at the stern would hear the sound before the man at the bow, because the former is moving towards the source of the sound and the latter is moving away from it. But strange to say nothing like this happens in the case of a ray of light. The earth is flying along its orbit with a speed of 18 to 20 miles per second. But if we measure the velocity of light by accurate methods we find the same value for it whether the ray is moving in the same direction as the earth or across it. In short, the apparent velocity of light is an absolute constant and not altered by the motion of the source of

light or of the observer. The full reason for this has not yet been discovered.

Another anomaly which is left unexplained by the simple wave-theory is the distribution of energy amongst the different wave-lengths in the radiation of a black substance when hot. If we form a spectrum or rainbow band by passing white light through a prism we find that the energy as represented by the heating power of the rays is small at each end of the spectrum, that is for very long or for very short wave-lengths, but rises to a maximum at some intermediate wave-length. This has only been rendered explicable by the investigations of Max Planck, who at the beginning of this century enunciated his ideas leading to what is now called the Quantum Theory of Radiation.

Modern investigations have shown that an atom of matter is an electrical structure comprising a very small body called the nucleus, having a charge of positive electricity and surrounded by groups of electrons which are point-charges of negative electricity. The peculiar fact is that these electrons can only exist at certain distances from the nucleus in so-called prescribed orbits. They can jump or be knocked from one orbit to another, but have no resting-place in any intermediate positions. Whenever an electron jumps from an outer to an inner orbit it loses some energy, and the difference is thrown out as radiation that is as heat, light, or X-rays. To lift the electron back or expel it from the atom we have to impart energy to it by radiation. But the atom can only give out or take in radiant energy in certain mouthfuls called quanta, and the energy of these quanta is measured by multiplying the vibration rate or frequency of the radiation by a certain small number called Planck's Constant. Hence large energy quanta have very rapid vibrations and small quanta have small rates. This explains why we can develop our photographic plates by *red* light, but they would be at once fogged if we admit any violet or white light into our dark room. The light photons are not therefore all alike. Some contain more energy than others.

In a mass of atoms which are radiating it is more probable an atom will give out a small energy quantum or photon than a large energy quantum, and it is this fact which explains the form of the energy curve of the spectrum of a radiating black body, because the total energy radiated at any wave-length is the product of the number of that class of photon by the energy

value of each photon. We may illustrate the result of this as follows: Suppose a collection was being made from a congregation in a very large church, say on Hospital Sunday. Everyone who gave anything would have to put in the plate a coin of a certain value, 1*d.*, 3*d.*, 6*d.*, 1*s.*, 2*s.*, etc., or even a £1 treasury note. Now it is far more probable it would be a small value coin than a large one. Yet even if 500 people put in 1*d.* each the total would only amount to about £2. At the other end of the scale there might be a few rich people who would put in £1 treasury notes, but as they would be few the total value would then only be small even though each donation is large. If however, we consider coins of intermediate value, say 2*s.* or 2*s.* 6*d.*, then if only 50 or 100 people put these in the offertory the total value would be much larger than that of the donations of 1*d.* or £1. Hence there is a maximum contribution in money corresponding to certain donations in one particular coin. The same things take place with the energy contributions made by atoms in the form of radiation. Corresponding to each frequency there is a certain energy value of the photon or energy packet, but there is a greater probability of its being a small than a large one. The high-frequency photons have a large energy and the low frequency a small energy. The energy of a photon of violet light has about twice the energy of a photon of red light, and that is the reason that violet and ultra-violet light can do many things in liberating electrons from atoms that red light cannot do. We have not, however, yet solved even a fraction of the secrets enclosed in a ray of light, but its duplex character of waves when transmitted through space and particles when entering or leaving an atom is paralleled by a similar structure of the ultimate elements of matter.

III—THE STRUCTURE OF MATTER.

We must next consider our present views as to the nature of material substance. Up to the present there appear to be *four* elemental particles which are the bricks out of which the physical Universe is made. These are:

- (i) The *electron* which is a centre from which radiates electric force. The electron charge is negative.
- (ii) Then next there is a similar particle of the same mass or weight but having a positive electric charge. This

is called a *positron*. It does not appear to last long. It comes into existence, endures for a short time and vanishes.

- (iii) Then there is a positively charged particle called a *proton* which has 1,840 times the mass of the positron or electron.
- (iv) There is finally a particle called a *neutron*, discovered by Dr. James Chadwick of Cambridge, which has a mass equal to the proton but no electric charge.

An atom of hydrogen consists of one proton with one electron revolving round it. It is like a very heavy fat man waltzing with a little girl. The nucleus of other atoms is built up of protons and electrons packed closely together and a family of electrons revolving round it.

Now it is found that the same kind of duality attaches to an electron as to a ray of light. The latter behaves sometimes as a set of waves and sometimes as a set of particles. The electron also appears in the same double character; it is a sort of Dr. Jekyll and Mr. Hyde.*

Professor G. P. Thomson has shown by a remarkable experiment that when a stream of electrons is shot against an extremely thin metal plate a photographic film placed on the opposite side records a set of concentric circular dark and bright bands forming an interference pattern, which could only happen if an electron is indeed a train of waves of some kind. The only suggestion I have been able to make to myself to account for this double character is that the motion of an electron is not a smooth, uniform motion like a billiard ball rolling along a table, but is a series of rapid jumps like a sparrow hopping along the ground. At each jump an electric pulse would be created in the electron field. At this point it may be well just to say one or two words about the process by which radiation in the form of dark heat, light or X-rays is produced. When a mass of material substance is heated, the atoms are set in rapid motion. They jostle each other and electrons are liberated from the atomic orbits. These electrons are dashing about with various speeds between the

* This duality seems capable of explanation in terms of what is now called "Wave Mechanics." It is, however, impossible to give the briefest sketch of it without the use of mathematical symbols, which is not suitable in the case of the present Address.

atoms, and are then drawn in to any ionised atom. If the electron happens to have small speed it may only penetrate a little way into an atom's family circle. If it has high speed it may push its way far in, or may even hit a nucleus. In any case it loses velocity and energy. The amount lost is transformed into a single photon of varying energy which, as already explained, determines the frequency of it. Electrons thus penetrating into atoms give rise to photons. Again if a photon with sufficient energy falls upon an atom it may liberate from it an electron. There are, however, great differences between photons and electrons. Photons can only move with the speed of light and have no existence when at rest. Electrons can move with any speed less than that light. Electrons have a charge of negative electricity, but photons have no electric charge. There are mysteries not yet solved concerning the nature of light and matter and their transformations. Electrons coming into an atom can eject photons and photons coming into an atom can eject electrons.

IV—THE RELATIVITY OF KNOWLEDGE.

This, then, leads us to consider some modern ideas of space, time, matter and energy.

Einstein first showed us that many of the conceptions in the science of 25 or 30 years ago were incorrect. Thus, for instance, he pointed out that two events which may appear simultaneous to one observer, such as two flashes of lightning, are not necessarily simultaneous to other observers in motion with respect to the first observer. Then time measurement is in the same way affected by motion of the observer. If an observer was flying away very rapidly from a clock with seconds pendulum he would notice that the time of each swing was lengthened out compared with that of a similar clock moving with him. In other words, a clock moving away from an observer appears to go slower than a quite similar clock close to the observer. It is also possible to show that if a rod moving away rapidly from an observer in the direction of its length would appear to be shortened to that observer at rest, compared with its length to an observer moving with it. The result is to show that measurements of time, length and mass are different to different observers

in motion with respect to, and those at rest with respect to, the events measured.

Einstein then went on to lay down a general principle which must govern all our outlook on the phenomena of Nature. It is that when we put into mathematical form any so-called law of Nature it must be an invariant; that means have the same mathematical form for all frames of reference and all observers, because no one observer can be considered as specially privileged. Thus, for instance, Newton stated his law of gravitation in the form that the force of attraction varies inversely as the square of the distance between the bodies. But then the question arises, Distance measured by whom? For it is different to different observers, moving in different directions in the respect to the length or distance in question. Newton's expression is not, however, an invariant. After much labour Einstein found a new mathematical expression for the law of gravitation which is an invariant. It enabled him to explain a motion of the orbit of the planet Mercury which had not been fully explained by Newton's law.

Moreover, he showed that we must abandon the idea of a "pull" or force of gravitation between material bodies. The earth revolves round the sun in a slightly oval orbit, not because it is subject to a pull or force of attraction but because the path of the earth is always along a geodesic or shortest path. The mathematical expression for the distance between two points in space of three dimensions is not an invariant. If, however, we consider a space of four dimensions in which time multiplied by the velocity of light is the fourth dimension then the interval, as it is then called, between two event points is an invariant. Einstein and Minkowski have therefore shown us that each observer in our present system of three-dimensional space and independent time sees a different Universe. It is the same as with the rainbow. When sun, rain, and cloud conditions are fulfilled we all see a rainbow; but the rainbow you see when at a distance from me is not the same rainbow that I see. We each have our own rainbow and if we run or motor along our own rainbow accompanies us. The only way in which we can eliminate the personal element in our several views of the physical Universe is to amalgamate our separate conceptions of space and time into a single space—time—unity—of four dimensions. But we cannot then form any mental picture of four-dimensional

space. We are born and bred in space which gives us through our senses a three-dimensional conception of it. We recognise up and down, right and left, forwards and backwards, and also separately what is meant by present, past and future in events as regards time. If, however, the Universe has an absolute existence apart from personal aspects for different human observers then this separation of space and time is only the outcome of our present limitations of thought and movement. We cannot identify positions in space as being the same at two different times, and we cannot assert that two events occur at the same time in different places. If, however, we ignore or are ignorant of the proofs of the truth of the above statement then we are able to deceive ourselves and think that the time interval between two events must be the same when observed at different places, and space intervals as shown by the dimensions of matter must appear the same at all times. The truth is that time and space are inseparably connected, owing to the absolute identity of the velocity of light to all observers. In addition to the inter-connection of Space and Time we have to notice that of Matter and Energy. When material substance is in motion it possesses the power of making physical changes and causing motion in other matter. This is called its kinetic energy and is proportional to the square of its velocity or speed. It imparts this energy to other matter it loses an equal amount itself. Hence energy is said to be conserved. If an electron plunges into an atom and loses thereby some kinetic energy, this loss is converted into a single photon whose frequency is equal to the lost energy of the electron divided by Planck's Constant. If the electron impinges on a positron the matter vanishes and a photon is created whose energy is equal to the mass destroyed, multiplied by the square of the velocity of light. In this manner our sun loses 240 million tons of its mass per minute to supply the light and heat sent out in the form of photons. The same in various degrees for other stars. The material Universe is thus melting away into radiation or photons. Also all the kinetic energy in the Universe is passing into the form of low temperature heat universally diffused. It cannot be gathered up so as to again produce kinetic energy of large masses of matter.

Matter can therefore be transformed into radiant energy and energy dissipated into uniformly distributed heat, but the reverse process does not take place so far as we know.

V—RADIO-ACTIVE MATTER.

We know that the nuclei of certain atoms such as radium, thorium, etc., break up as it were spontaneously. But we cannot tell why one atom should break up rather than another of the same kind. On the average half of the atoms of any mass of radium breaks up in 1,580 years and half of the remainder again in 1,580 years: we cannot predict the life of any single atom, but we can predict the average life for a large number of atoms. It is the same with human lives. We do not know how long each of us will live, but the life insurance societies who have statistics of large numbers of lives can fix very closely the expectation of life at any age and thus arrange the premiums on life policies. When the nucleus of a radio-active atom breaks up and sends out some part of itself a new kind of atom is formed which again in turn breaks up. The final result of a long series of such changes is to produce an atom of lead, which is stable and does not change. Thus an atom of uranium after two or three changes gives rise to radium, and this after many more is changed to lead. These transformable atoms are called radio-active elements. We are beginning to find out how to produce radio-active atoms from non radio-active elements by bombarding them with electrons or alpha particles moving with terrific speeds.

There are also high-speed particles moving through space in all directions and these give rise to what are called the *cosmic rays*, capable of penetrating through a wall of lead many feet in thickness or through water hundreds of feet deep. Their exact nature is not yet known.

VI—THE PRINCIPLE OF INDETERMINACY.

The German physicist Heisenberg has shown that we cannot fix both the position and the motion of a single electron. If we could know its motion we could not fix its position because it is continually moving, or if we could see it the very fact of light falling on it would change its position. The same may in all probability be true of a proton. But although we cannot determine both the position and the motion of single electrons or protons we can do so for vast numbers of them forming a visible mass of matter. Thus we can say exactly where the moon will be in the sky 10 years hence and in what direction it

will be moving in space. It appears, then, that events in the physical world may be divided into two great classes.

There are those connected with the position and motion of large masses of matter which can in most cases be predicted at least approximately. These are called macroscopic-phenomena.

But then, on the other hand, there are events connected with single atoms and electrons and protons which cannot be predicted. There is an element of *Indeterminacy* connected with them. They are called the microscopic phenomena. We cannot say, for instance, why one atom of radium should break up spontaneously rather than another. It seems wilful and irregular and appears to violate the idea of Causality.

It is possible, however, that the determining cause does not lie in the physical world at all but in the direct operation of Mind. It leaves room, therefore, for operations outside of the realm of physical causality and limits the action of that rigid determinism which was formerly held to have complete sway in the physical Universe and to prevent absolutely any deviation from a fixed and inviolable order of events.

VII—THE EXPANDING UNIVERSE.

Astronomical research shows that our sun, and attendant planets, is a member of a vast group of stars called "our galaxy." Its dimensions are so great that it cannot be measured in miles but only in light-years; that is the distance, equal to about 6 billion miles, which a ray of light travels in a year. Our galaxy contains probably 100,000 million stars distributed over a bun-shaped space about 250,000 light-years diameter and 40 to 50 thousand light-years thick. This stupendous mass of stars is probably in rotation as a whole. Outside of, and far distant from, our galaxy are other immense groups of stars called the extra-galactic nebulae at distances varying from 2 to 140 million light-years.

The extraordinary fact is that all these far-distant galaxies appear to be flying apart from us and each other with speeds, increasing with their distance from us, up to 10,000 to 15,000 miles per second. This is ascertained by noting the shift or displacement of the lines in their spectra towards the red end of the spectrum. This shift is called the Doppler effect, from the astronomer who first drew attention to it. Former ideas of

space permitted us to think of it as infinitely extended in all directions so that it would be possible to move forward for ever in a straight line without encountering any limit. On the other hand, we cannot admit that an unlimited space is filled with an unlimited number of stars or else the result would be that the sky would appear closely packed with stars. If, on the other hand, the number of stars is not infinite general gravitation would be drawing them together. Observation, however, shows that the far-distant spiral nebulae quite outside the region of our galaxy are flying apart from us and from each other with speeds which seem to increase proportionately to their distance from us.

This, then, has created the idea of a closed yet expanding space. We can derive some help in this connection by considering the surface of a sphere. This is space of two dimensions curved in a third dimension or direction. There is no boundary or limit to motion over the surface, yet the area of the surface is finite and can be measured up in square feet or miles. We cannot form any mental image of, or visualise the nature of space of three dimensions which is curved in a fourth dimension, but the above reasons almost necessitate the conception that our three-dimensional space is not unlimited, though it is unbounded and an important quality is therefore that called the Cosmical Constant, which determines the curvature of our space.

It has been suggested that this "running away" of the nebulae may be more apparent than real and that the shift of the spectral lines towards the red end in their case may be due to a loss of energy of the photons in travelling these immense distances which would reduce their frequency. The notion of a possible general curvature of space is, however, supported by the proof that Einstein has given that what Newton called gravitational attraction between masses of matter is, in fact, due to a local curvature in space produced by these masses, and the curved path of a planet moving round the sun is not due to any "pull" between them but to a tendency on the part of the planet to move along a geodesic or shortest path.

VIII—OUR PRESENT CONCEPTIONS OF THE PHYSICAL UNIVERSE.

The result of progress in our knowledge of the physical universe both in macroscopic and microscopic phenomena has

been to reveal a vast number of quantitative or numerical relations which cannot be the result merely of our own human thought but must depend upon metrical qualities imposed on the physical Universe by some Power other than our own. Scientific thought generally is realistic, that is it regards the physical universe as existing apart from our appreciation of it. Hence if any aspects of it appeal to our intelligence it can only be because they have been ordained by a Supreme Intelligence other than our own. Accordingly, the great modern accumulation of facts regarding the presence of number, weight and measure in the physical world have in the opinion of many persons destroyed the old materialism and presented the Universe to us rather as a thought than a thing, and thought implies a thinker. Furthermore, such effects as the dissipation of energy, the increase of entropy, the transformation of matter into radiation, and the spontaneous change of radio-active matter into non-radio-active matter, all support the truth of the conception that the physical universe had a beginning in Acts of Creation and was not self-produced nor infinite in past duration. Also that left to itself it will have an end. Moreover, this "running down" which is thus disclosed is the very opposite of any Evolution in the sense of a spontaneous advance. It gives denial to any assertion that the Universe is the result of a set of "happy accidents" or freaks or casual combinations or any mode of operations which dispenses with the necessity for belief in a creation and therefore in a Creator. It is somewhat strange, however, that whilst these ideas appeal mostly to those who study the inorganic part of the Universe, the biologists still seem in large degree to think in terms of self-acting mechanism and extensively hold a theory of species production which is based on mere accidental variation combined with a struggle on the part of living organisms to continue to exist. They accept for the infinite varieties in living organisms a process of production which they would themselves reject for the productions of mankind. There is a very remarkable illustration of this at present on view in the National Science Museum at South Kensington. On the ground floor there is on exhibition a series of splendid small and large models illustrating the growth and development of three great human inventions, the stationary steam engine, the steam locomotive engine, and the aeroplane. Along one side of the room are a series of glass cases with models

in them showing the gradual developments of man's artificial wing from the earliest gliders and motor-driven planes of the Wright Brothers up to the most finished passenger aeroplanes of the present day. At the end of the room there is another glass case containing examples of the wing in Nature, *e.g.*, the flying fish (*Exocoetus*) with its gauzy wings, the flying lizard (*Draco spilopterus*), the bat's wing of membranous tissue between its fingers, arms and legs, and lastly, examples of the feathered wing in birds such as the albatross and gannet. Ask a biologist of the Evolutionist School how this animal wing came into existence and he may tell you, by accidental variations in ova and germ cells and by a continual struggle to obtain food or escape from enemies over vast spaces of time evolving the wing. Take him to the aeroplane cases and ask him how man's artificial wing came into being and he must reply: "by countless experiments guided at each stage by the thought of intelligent originative human minds." Is there not a little inconsistency between these two sets of ideas? If the thought of a living mind was essential in one case why not in the other? If "every house is builded of some man," how can we evade the conclusion that there is thought of a mind other than our own as the source of the phenomena of Nature? It is true that our apprehension of that thought is imperfect owing to the limitations of our minds. We are, to use Plato's analogy, as given in the eighth book of his *Republic*, like persons endeavouring to guess from the shadows of unseen objects thrown on a wall what are the shape and true nature of those objects.

There is now a well-marked feeling in the minds of leading physicists that we are not yet in contact with absolute reality. Moreover, recent progress in analysis of phenomena has served to limit belief in the perfect determinism in physical events which left no possibility for any variation in the course of them as normally observed. It is impossible to deny the existence in the physical world of numerical and geometrical facts such as those exhibited in chemical combinations, in crystal forms, and atomic phenomena which require intelligence to appreciate and therefore a kindred intelligence to produce them.

We have no knowledge of any kind of order which is the result of chance or of the spontaneous action of non-living agencies, but always find it when traced to its ultimate sources to depend on the originative or creative operation of mind. Finally, we

can derive an argument against the truth of the dominant idea of Evolution from the fact that modern physics finds everywhere discontinuity and not continuity in Nature. The fundamental underlying idea of Evolution is that of perfectly continuous change by infinitely small steps. To borrow a phrase from Socialism, it is the "inevitability of gradualness" or universal prevalence of slow gradual change. But now the discoveries of physics everywhere contradict this assumption of perfect continuity in Nature. Everywhere we find discontinuity and not continuity; matter is discontinuous and cut up or composed of discrete molecules. Molecules are divided into atoms, atoms into electrons and protons, radiation into photons, and quanta, and the universal presence of Planck's Quantum or unit of action suggests that even Time and Space may not be infinitely divisible but composed of units.

Natural changes take place by jumps, and there is evidence that the order in Nature is at times interrupted by sudden catastrophies, all of which are antagonistic to Evolution. The assumption that living matter was in past time spontaneously evolved from non-living matter, which view has been put forward and agreed by many biologists, is a pure assumption and contradicted by experimental evidence not easily refuted. But if it has not been so produced it shows an unbridged gap which is inconsistent with Evolution. Also if a similar uncrossed chasm exists between the animal mind and the rational-human mind and spirit with its powers of free choice, origination, creation and worship, then the conception of Evolution has the ground cut from underneath it and we are compelled to admit as the only possible alternative that similar but infinitely greater powers than our own are the attributes of a Universal Spirit and Supreme Intelligence who has created all things and for whose pleasure they are and were created.

DISCUSSION.

The Chairman, Sir ROBERT ARMSTRONG-JONES, C.B.E., M.D., D.Sc., said: It would be an impertinence on the part of any Chairman to introduce Sir Ambrose Fleming and I think we might commence this meeting by simply offering to him our cordial congratulations on his vigorous and virile health, both mental and physical. He is phenomenally well and able. Time has not weighed upon him. The past

has not daunted or worn him out. The present is at his "beck and call" and is within his power. We hope he will enjoy a prolonged future of peace and happiness, the respect of his friends and the continued love of those dear to him.

After the reading of the paper, Sir Robert Armstrong-Jones added that in no department of thought does the intelligent reader get more pleasure than in reading the biographies of eminent men who have helped to make history. Sir Ambrose Fleming's life and work are well known to all of us. His scientific researches into wireless telegraphy owe more to him than to any other individual. Nor has he limited his investigations to practical facts. He has taken in addition the wider view of "How and Why," which are philosophical conceptions, and in his life's work he has not only been guided, but he has been comforted and helped by the earnest Christian's regard for the Bible, the revealed Word of God. He has introduced no doctrinal formulas into his papers, but he has been inspired by a spirit and feeling of deep reverence and a reliance upon Truth and Faith. He has always been a seeker after the higher verities, and his contributions have not only given us glimpses of the Divine Mind—the Universal Mind—but also the recognition of a Being, infinitely above human nature, yet infinitely regardful of it. We feel that when a great exponent of scientific thought declares his belief and devotion in the value of the spiritual life as interpreted by himself, he must be listened to with respect, even if we are not convinced by his argument.

May I state from the Chair, and Sir Ambrose Fleming will agree, that there has been a complete revolution in mental outlook and in scientific thought during the last 100 years. This has been stimulated, if not created, by advances in the knowledge of biology and geology. Geologists are agreed, for instance, that the age of the world must be regarded as having lasted for millions of years, during which organic life has existed and during which a regular succession of living beings has evolved, not by any immediate or sudden catastrophic process but slowly and gradually. We have to contemplate immeasurable antiquity in the development of living things totally different from those existing now and this change is proceeding at the present time.

The writer of the Pentateuch (the five books of Moses) has not claimed to be a scientist and no one to-day believes that the world is flat or that it was created 4,004 years before Christ, as was at one time taught. Let those who doubt the theory of evolution propound another more acceptable to account for the life we live and the world we live in. The educated man seeks the guidance of Philosophy for this purpose and earnestly seeks in Philosophy for an explanation of the natural phenomena of the physical universe, but Philosophy is a difficult subject to understand and some of us have to approach it warily, for has the Philosopher not been compared to a blind man, seeking for a black hat in a dark room—the hat in question not being there? Again, Philosophy has been described as a speculative luxury for idle people, because, they assert, it does not deal with the practical aspect of life, which is left to men of affairs, and not to those who are concerned solely with unpractical notions. But is this true? It is a fact that Philosophy as a study does not command the support of the populace. Its doors are not besieged by the crowd, but those who study it profitably are greatly benefited and enjoy the mental culture implied. One reason for its unpopularity is probably the fact that its devotees must possess an understanding above the average and it is the cult of a select few, and we may not be of this category. It is true to say that Philosophy is concerned with the life we live and the world we live in. It has concerned itself with the conception of matter and energy, with fundamental scientific questions such as the Quantum Theory of the atom, of Relativity, of Evolution, and probably with the result of experiments in the domain of Sir Ambrose Fleming's own researches, which are so well known. Philosophy is concerned with the exercise of the Mind, and scientific inquiry seems to demonstrate that there is one Great Mind working in Nature, the source of all Power, working through limitless space; not mechanically, but intelligently with perfect and unvarying uniformity by Evolution through the ages, according to what we call Natural Laws. The existence of one Great Mind, the Supreme Being, and our relation to Him, brings before us the subject of Religion, and this Society—whilst showing a sympathetic attitude to Religion—has always been in favour of scientific inquiry. Formerly there existed antagonism

between Religion and Science, because theological dogma tended to limit the range of scientific inquiry, with the result that some earnest students of science in search of Truth were driven into an atmosphere of disbelief, the theological doctrines not being conformable with their own intellectual intuitions.

We find, for example, a statement of the scientific views in relation to theology, held by Prof. MacBride, expounded in the January number of the *Hibbert Journal* for 1936.

It would nevertheless be right to add that in spite of doubt, disbelief and logical difficulties, thousands of earnest believers have voluntarily suffered torture and given their lives for their Faith, myriads have given their life-blood for their belief, whilst countless numbers have derived hope and courage from their religion, among them being kings and queens, courtiers, ambassadors, men of science and scholars—men and women of all ranks and of all ages. The Bible, whose inspiration is sometimes challenged, has elevated the character of innumerable men and women. Bible truths have cancelled their sorrows, lifted their doubts and guided their thoughts.

We have listened with interest and instruction to a great Presidential Address which is evidence of a wide erudition, great knowledge and a clearness of expression which we all admire and for which we are deeply grateful.

Captain B. ACWORTH, D.S.O., R.N., in referring to the remarks of the Chairman, expressed some astonishment that, at this time of day, he should refer to the theory of organic evolution as though it rested upon evidence instead of speculation. He referred to the fact that not a single example had ever been forthcoming of any change of species.

He referred to the recent discussion at the Royal Society of the present position of the theory of Natural Selection. At this meeting, he pointed out, the insufficiency of natural selection as a means to the evolution of species was abundantly demonstrated.

Professor J. B. S. Haldane now claims the theory of natural selection as the means, not of evolving new species, but of guaranteeing their fixity

Professor MacBride, he reminded the audience, treated natural selection as a myth no longer believed by well-informed scientists.

Referring, in conclusion, to remarks of the Chairman which seemed to indicate a view that in early Biblical times the inspired writers of the Bible had little knowledge of "science," he reminded the audience that the Psalmist, for example, so far from being a "Flat-earthist," had shown his extraordinary understanding of facts when he exclaimed: "He hung the round world upon nothing."

Captain Acworth concluded his remarks by deploring that the theory of evolution should continue to be treated as scientifically established truth, when it was in fact a theory now widely rejected by some of the most distinguished scientists of the day.

WRITTEN COMMUNICATION.

SIR AMBROSE FLEMING wrote that he desired to thank the Meeting for the kind reception given to his Annual Address, and particularly to offer to the Chairman (Sir Robert Armstrong-Jones) a grateful acknowledgement of his all too kind personal compliments.

It is not usual to invite discussion on the subject-matter of our Annual Addresses; and in the one under consideration the author has endeavoured to avoid as far as possible the introduction of questions on which differences of opinion might exist between Members and Associates of the Victoria Institute. Sir Robert Armstrong-Jones is doubtless aware that in the Session of 1935, and also in previous sessions, we have had given to the Victoria Institute many papers by very competent authors demonstrating in various ways the insufficiency and assumptions of the very popular Evolutionary philosophy; and that, broadly and generally, the Members have shown their agreement with the arguments put forward in these papers. Hence it is not possible to accept the opinion that the case for Evolution is unquestionable and settled. The writer therefore desires to express his thanks to Captain Acworth for voicing this attitude and his entire agreement with the statements Captain Acworth has made in his brief remarks.