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JOURNAL OF THE TRANSACTIONS  
OF  
THE VICTORIA INSTITUTE

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VOL. LXIV.

JOURNAL OF  
THE TRANSACTIONS

OF

The Victoria Institute,

OR,

Philosophical Society of Great Britain.

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VOL. LXIV.



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1932

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ST. MARTIN'S LANE.

## PREFACE.

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THE present volume of *Transactions*—the sixty-fourth in series—makes its appearance at a time when the publications of Learned Societies are struggling with peculiar difficulties. The financial stringency dominating the commercial world has been reacting with serious consequences, also throughout the whole region of education and culture, religion and philanthropy; and to the sincere concern of its friends the Victoria Institute has not escaped the pressure of the times.

The contents of the present volume will, we are sure, be held to reach the high standard maintained during many years past. Particular mention may be made of the Annual Address, delivered at the close of the session by Sir Ambrose Fleming, F.R.S., entitled “Some Recent Scientific Discoveries and Theories.” The general body of papers, moreover, covers a wide range of subjects, Biblical and Theological, Scientific and Historical; with Evolution theories treated under two aspects, and Assyriological research represented by studies that cannot but command the attention of Oriental scholars.

With the list of Contents before him, the reader will not require a recital of the titles of the several essays now presented to the world. Suffice it to remark that, from first to last, when read at meetings of the Institute, the papers were accorded a hearty reception by Members and Associates, and the public generally. Evidence of warm appreciation appeared in the discussions that followed upon the papers, and of these discussions careful summaries are supplied throughout the volume.

The peculiar difficulties of the time, already referred to, caused special responsibilities to devolve upon the Council. Among other

things, it was found necessary to reorganize the printing arrangements, in order to a due balancing of income and expenditure. The needful rearrangements were carried through with success; and while the Membership roll had lost some well-known names, through death and otherwise, there was realized an accession of encouragement by the increase of support from new quarters. For this the Council are profoundly thankful; and as a result, we are able to inform friends of the Institute that the time of greatest difficulty seems now to have passed.

Nevertheless, as in the past, friends are once more asked to introduce new supporters, to the end that the Institute may look forward to a steady continuance of service, with the hope of still further expansion. Certain it is that the special witness of the Institute continues to be in urgent demand, in order to a stabilising of thought, philosophical and spiritual, for the promotion in our day of "THE GREATER GLORY OF GOD."

JAMES W. THIRTLE,  
*Chairman of Council.*

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# VICTORIA INSTITUTE.

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## REPORT OF THE COUNCIL FOR THE YEAR 1931.

TO BE READ AT THE

ANNUAL GENERAL MEETING, MAY 23RD, 1932.

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### 1. *Progress of the Institute.*

The Council beg to present herewith to Members and Associates the 64th Annual Report of the Society. Though the smaller number of papers read—10 in place of the more usual 12—may in some sense reflect the straitened circumstances of the Institute, a glance at the names of the authors and the titles of their papers will suffice to show that there has been no lowering of standard, of which full appreciation has been evinced in the sustained numbers and interest of the audiences from time to time.

### 2. *Meetings.*

Ten ordinary meetings were held during the Session 1930-31. The papers published were :—

“Adaptation in Nature as Evidence of Purposive Thought,”  
by Sir AMBROSE FLEMING, D.Sc., F.R.S. (President).

Dr. James W. Thirtle, M.R.A.S., in the Chair.

“The Fifteenth Year of Tiberius,” by Lieut.-Col. A. G. SHORTT, B.A., late R.A.

Sir Ambrose Fleming, D.Sc., F.R.S., in the Chair.

“The Renaissance of Hebrew,” by the Rev. W. M. CHRISTIE D.D.

Dr. James W. Thirtle, M.R.A.S., in the Chair.

“The Influence of Christianity on Indian Politics,” by W. N. DELEVINGNE, Esq.

E. A. Molony, Esq., C.B.E., in the Chair.

“Demon Possession: Scriptural and Modern,” by JAMES KNIGHT, Esq., M.A., D.Sc., F.R.S.E., F.R.A.S., being the Dr. A. T. Schofield “Memorial” paper.

Dr. James W. Thirtle, M.R.A.S., in the Chair.

“History of Practical Astronomy,” by Colonel F. C. MOLESWORTH, late R.E.

Lieut.-Col. T. C. Skinner, F.R.Met. Soc., in the Chair.

“The Jewish Apocalyptic and its bearing on the New Testament,” by the Rev. DAVID M. M'INTYRE, D.D.

Dr. James W. Thirtle, M.R.A.S., in the Chair.

“Types in Scripture,” by the Rev. A. H. FINN.

Alfred W. Oke, Esq., LL.M., F.G.S., in the Chair.

“Climatic Changes since the Ice Age,” by C. E. P. BROOKS, Esq., D.Sc., Hon. Sec., R. Met. Soc.

K. G. K. Lampert, Esq., C.B.E., M.A., in the Chair.

Annual Address, “Light,” by Sir AMBROSE FLEMING, D.Sc., F.R.S. (President).

Dr. James W. Thirtle, M.R.A.S., in the Chair.

### 3. Council and Officers.

The following is a list of the Council and Officers for the year 1931:—

#### President.

Sir Ambrose Fleming, M.A., D.Sc., F.R.S.

#### Vice-Presidents.

Professor T. G. Pinches, LL.D., M.R.A.S.

Right Rev. Bishop J. E. C. Weldon, M.A., D.D.

J. W. Thirtle, Esq., M.A., LL.D., M.R.A.S., *Chairman of Council.*

#### Trustees.

Alfred William Oke, Esq., B.A., LL.M., F.G.S.

Lieut.-Colonel Hope Biddulph, D.S.O., late R.F.A.

William C. Edwards, Esq.

#### Council.

(*In Order of Original Election.*)

Alfred William Oke, Esq., B.A., LL.M.,  
F.G.S.

Sir Robert W. Dibdin, F.R.G.S.

H. Lance-Gray, Esq.

John Clarke Dick, Esq., M.A.

W. Hoste, Esq., B.A.

Lieut.-Col. F. A. Molony, O.B.E., late R.E.

Lieut.-Col. Hope Biddulph, D.S.O., late

R.F.A.

Avary H. Forbes, Esq., M.A.

Arthur Rendle Short, Esq., M.D., B.S.,

B.Sc., F.R.C.S.

The Rev. Harold C. Morton, B.A., Ph.D.

William C. Edwards, Esq.

Robert Duncan, Esq., M.B.E., I.S.O.

Louis E. Wood, Esq., M.B., D.P.H.

The Rev. J. J. B. Coles, M.A.

Lieut.-Col. T. C. Skiuner, late R.E.,

F.R.Met.Soc.

Sir Charles Marston, J.P.

Lieut.-Col. Arthur Kenney-Herbert.

W. N. Delevingne, Esq.

Rev. Principal H. S. Carr, B.D., B.Litt.

*Honorary Treasurer.*

William C. Edwards, Esq.

*Honorary Editor of the Journal.*

Dr. James W. Thirtle, M.B.A.S.

*Honorary Secretary, Papers Committee.*

Lieut.-Col. Hope Biddulph, D.S.O., late R.F.A.

*Joint Honorary Secretaries.*

William Hoste, Esq., B.A.

Lieut.-Col. T. C. Skinner, late R.E., F.R.Met.Soc.

*Auditor.*

E. Luff-Smith, Esq. (Incorporated Accountant).

*Secretary.*

Mr. A. E. Montague.

*4. Election of Officers.*

In accordance with the Rules the following Members of Council retire by rotation: Lieut.-Col. F. A. Molony, O.B.E., Lieut.-Col. Hope Biddulph, D.S.O., Avary H. Forbes, Esq., M.A., Arthur Rendle Short, Esq., M.D., B.Sc., F.R.C.S., Sir Charles Marston, J.P., and Lieut.-Col. T. C. Skinner.

*5. Obituary.*

The Council regret to announce the deaths of the following Members and Associates:—

F. J. Bramall, Esq., Col. J. E. Broadbent, C.B., Rt. Hon. Lord Dunleath, Miss E. H. Ebbs, C. H. R. Grant, Esq., L.D.S., A. Greenlees, Esq., Dr. H. P. Hadden, Miss F. H. Law, Miss A. Manson, Major R. A. Marriott, the Rev. F. E. Marsh, D.D., G. H. Payne, Esq., the Rev. S. B. Rohold, Alexander Ross, Esq., the Rev. E. Sealey, Henry M. Smith, Esq., Lieut.-Col. Stracey-Clitherow, W. Tytler, Esq., F.R.G.S., the Rev. H. M. Walter, M.A.

*6. New Members and Associates.*

The following are the names of new Members and Associates elected up to the end of 1931:—

LIFE MEMBERS:—Miss A. M. Hodgkin, Charles W. Pike, Esq.

MEMBERS:—Edgar A. Benjamin, Esq., the Rev. C. Leopold Clarke, the Rev. Principal H. S. Curr, B.D., B.Litt., Miss E. A. Everett, the Rev. A. H. Finn, the Rev. H. L. Jennins, L.Th., J. H. Clifford Johnston, Esq., L. Everard Jose, Esq., L. F. Marchant, Esq., the Rev. S. B. Rohold, M. A. F. Sutton, Esq., Mrs. A. S. Tresham, H. O. Weller, Esq., B.Sc., M.Inst.C.E., W. Williams, Esq., the Rev. H. Temple Wills, B.Sc., M.A.

**LIFE ASSOCIATES**:—The Rev. Joseph J. Brice, the Rev. Norman Dunning.

**ASSOCIATES**.—The Rev. H. E. Anderson, the Rev. J. H. J. Barker, the Rev. Arthur Body, M.A., the Rev. Barclay F. Buxton, M.A., the Rev. C. S. Carter, D.D., Pastor G. J. Cooke, G. E. Dancer, Esq., Douglas Dewar, Esq., F.Z.S., the Rev. Charles E. Edwards, the Rev. Charles C. Ellis, D.D., Ph.D., A. Ossian Gauffin, Esq., W. H. Hobbs, Esq., Mrs. E. Hardy, the Rev. E. P. Herbert, the Rev. A. E. Hughes, M.A., the Rev. G. W. King, D.D., Mrs. E. J. Kirby, B. W. Leeffe, Esq., the Rev. Alfred Mathieson, Mrs. C. E. Moilliet, Dr. H. Merrall, Colonel F. C. Molesworth, Mrs. Ronald S. Murray, James Payne, Esq., the Rev. Canon H. Rolph, the Rev. W. H. Small, C.F., D. Ramsay Smith, Esq., M.I.M.E., the Rev. Wilbur M. Smith, James F. Spink, Esq., Edgar Stark, Esq., the Rev. Russell B. White, M.A., the Rev. W. E. Woodhams Denham, B.D., F.R.G.S., Dr. E. McKillop Young.

### 7. *Number of Members and Associates.*

The following statement shows the number of supporters of the Institute at the end of 1931 :—

Life Members	...	...	...	16
Annual Members	...	...	...	111
Life Associates	...	...	...	50
Associates	...	...	...	269
Missionary Associates	...	...	...	11
Library Associates	...	...	...	31
Student Associates	...	...	...	3
				491

### 8. *Donations.*

Miss Agnes J. Grant, 10s. ; H. R. Kindersley, Esq., £2 2s. 0d. ; Professor T. G. Pinches, LL.D., £5 5s. 0d. ; W. R. Rowlatt-Jones, Esq., £9 9s. 0d. ; Major W. J. Rowland, £1 1s. 0d. ; Colonel W. H. Turton, £5 ; Cyril C. Van Lennep, Esq., £10 ; W. Williams, Esq., 10s. 6d. ; Henry Wilson, Esq., £2 2s. 0d.

### 9. *Finance.*

The financial position of the Institute improved somewhat during the past year. Considering the strained conditions so generally obtaining, such a circumstance affords ground for encouragement. Reductions of expenditure were effected on the one hand, and, on the other, there was appreciable growth of income from subscriptions and donations. As a combined result the adverse balance of £470, accumulated in preceding years, had diminished at the close of 1931, to £458. This is, however, a formidable total still to carry forward, and the Council trust that all good friends of the Institute will bear in mind the importance of continued effort to reduce or eliminate it. Toward an end so much to be desired no method can be more fruitful than the introduction, in increasing numbers, of new Members and Associates.

10. *Conclusion.*

In seeking direction for further effort the Council are impressed with the need at all times for a well-varied programme, to reach and interest an ever-widening circle. They are convinced also of the real and urgent necessity for a counter-offensive, more vigorous than ever, against the speculations of a "science" that is "falsely so called," and the extravagant *Modernism* that shelters behind its unproven pronouncements. Mere denials count for nothing, but the Council feel that papers by front rank scientists, prepared to stand on facts and reject speculation, are of great value at the present critical time. A third, and even more pressing need, is that of getting the invaluable literature of the Institute into the hands of those whom, above all, it is most necessary to influence—the students in our universities, colleges and schools; leaders of thought of the next generation in both Religion and Philosophy. It is an anxious problem, and the Council welcome any form of help on the part of Members and Associates toward its solution.

JAMES W. THIRTLE,  
*Chairman of Council.*



<i>Deduct :—</i>			
Prize, Dr. Pinches	....	....	20 0 0
134 9 4			
" LANGHORNE ORCHARD PRIZE " FUND			
( <i>per contra</i> )	....	....	200 0 0
Balance at 1st January, 1931	....	....	18 1 11
Add Dividends received <i>less tax</i>	....	....	8 0 10
Income Tax recoverable	....	....	1 0 4
			<hr/>
			27 3 1
SCHOFIELD MEMORIAL FUND ( <i>per contra</i> )	....	....	220 0 0
Add Donation H. F. Schofield	....	....	10 10 0
Dividends received <i>less Tax</i>	....	....	5 7 10
Income Tax recoverable	....	....	1 14 2
			<hr/>
			17 12 0
<i>Deduct :—</i>			
Amount voted to Dr. J. Knight	....	....	10 10 0
7 2 0			
RESERVE ACCOUNT	....	....	262 10 0
			<hr/>
			£1,925 14 5
			<hr/>

INCOME AND EXPENDITURE ACCOUNT :—

Balance at 1st January, 1931	....	....	470 5 9
Add Excess of Expenditure over			
Income for the year 1931	....	....	24 3 7
			<hr/>
			494 9 4
<i>Deduct :—</i>			
Donations received	....	....	35 19 6
			<hr/>
			458 9 10
			<hr/>
			£1,925 14 5
			<hr/>

I report to the Members of the Victoria Institute that I have audited the foregoing Balance Sheet, dated 31st December, 1931, and have obtained all the information and explanations I have required. I have verified the Cash Balances and Investments. No valuation of the Library, Furniture or Tracts in hand has been taken. In my opinion the Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the affairs of the Institute according to the best of my information and the explanations given to me, and as shown by the books of the Institute.

21, Old Queen Street, Westminster,  
London, S.W.1.

31st March, 1932.

E. LUFF-SMITH,  
*Incorporated Accountant.*





# THE ANNUAL BUSINESS MEETING

OF THE

## VICTORIA INSTITUTE

WAS HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,  
WESTMINSTER, S.W.1, ON MONDAY, MAY 23RD, 1932,  
AT 3.30 O'CLOCK.

DR. JAMES W. THIRTLE, M.R.A.S., IN THE CHAIR.

The following Resolutions were adopted :—

*First Resolution.* Moved by Mr. AVARY FORBES, seconded by the Rev. Dr. H. C. MORTON :—

“ That, in compliance with Section 3 of the Constitution, the President, Sir Ambrose Fleming, D.Sc., F.R.S., the Vice-Presidents, Prof. T. G. Pinches, LL.D., the Rt. Rev. Bishop Welldon, D.D., and Dr. James W. Thirtle, M.R.A.S., the Hon. Treasurer, R. Duncan, Esq., M.B.E., I.S.O., the Hon. Secretary, Lieut.-Col. T. C. Skinner, and the Hon. Papers Secretary, Lieut.-Col. Hope Biddulph, D.S.O., be and hereby are, confirmed and re-elected in office.”

The Resolution was adopted.

The Report submitted by the HON. SECRETARY was taken as read, and thereafter the

*Second Resolution* was moved by Dr. J. W. THIRTLE, and seconded by the Rev. PRINCIPAL CURR :—

“ That Lieut.-Col. Molony, O.B.E., Lieut.-Col. Hope Biddulph, D.S.O., Avary H. Forbes, Esq., M.A., Arthur Rendle Short, Esq., M.D., B.Sc., F.R.C.S., Sir Charles Marston, J.P., and Lieut.-Col. T. C. Skinner, retiring Members of Council, be re-elected, and that Mr. E. Luff-Smith be re-elected as Auditor, at a fee of Three Guineas.”

Resolution carried.

*Third Resolution*, as follows, was moved by the Rev. H. TEMPLE WILLS, M.A., B.Sc., and seconded by the Rev. F. W. PITT :—

“ That the Report and Statement of Accounts for the year 1931, presented by the Council, be received and adopted, and that the thanks of the Meeting be given to the Council, Officers and Auditors for their efficient conduct of the business of the Victoria Institute during the year.”

Resolution carried.

On interrogation by a Member, the auditor explained the somewhat improved financial position at the end of 1931, in contrast with that of the previous year, and, at the request of the Chairman, Colonel Kenney-Herbert explained in some detail the measures instituted in 1931, and now taking effect, for discharging the Society's liabilities, and for bringing expenditure in future within manageable proportions, the former by disposal of Capital Stock, and the latter chiefly by drastic revision of the rules as to length of papers, and of the procedure as regards printing and publishing.

In response to request of a Member for information, the Hon. Secretary explained the position with regard to the recently instituted class of Student Associates; that, though little progress was apparent, a good deal of intensive work was being done among Students in Universities and Colleges, resulting in an increasing distribution of the Society's papers. Undergraduates were slow to add to their innumerable commitments, but undoubtedly the real purpose, which was that of disseminating our invaluable literature, was being fulfilled. No large access of Student Associates need be looked for. As a financial proposition, there was, in any case, little or nothing in it, as the half-guinea fee virtually only covered cost of papers and postage.

On the motion of Lieut.-Col. SKINNER, seconded by Lieut.-Col. MOLONY, the thanks of the Meeting were conveyed to Dr. THIRTLE for presiding on the occasion.

## 749TH ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,  
WESTMINSTER, S.W.1, ON MONDAY, DECEMBER 7TH, 1931,

AT 4.30 P.M.

LIEUT.-COL. ARTHUR KENNEY-HERBERT IN THE CHAIR.

The Minutes of the previous Meeting were read, confirmed, and signed, and the HON. SECRETARY announced the following elections since the last Meeting. As a Life Member: Charles W. Pike, Esq. As Members: E. A. Benjamin, Esq.; L. Everard Jose, Esq.; W. N. Delevingne, Esq.; W. Williams, Esq.; M. A. F. Sutton, Esq.; Mrs. A. S. Tresham; and Leslie F. Marchant. As Associates: Rev. Wilbur M. Smith; Dr. H. Merrall; Douglas Dewar, Esq.; Rev. C. S. Carter, D.D.; Rev. C. C. Ellis, D.D.; Mrs. C. E. Moilliet; Mrs. E. J. Kirby; Director A. Ossian Gauffin; Dr. E. McKillop Young; James F. Spink, Esq.; Rev. G. W. King, D.D.; Mrs. E. Hardy; Rev. C. E. Edwards, D.D.; Rev. Barclay F. Buxton, M.A.; Rev. E. P. Herbert; Pastor J. G. Cooke; and as Corresponding Member, Mrs. Mary L. G. Griffiths.

The CHAIRMAN then called on Lieut.-Col. A. G. Shortt to read his paper on "The Chronology of the Kings of Israel and Judah."

---

### *THE CHRONOLOGY OF THE KINGS OF ISRAEL AND JUDAH.*

By LIEUT.-COL. A. G. SHORTT.

#### § 1.—THE ASSYRIAN EPONYM CANON AND BABYLONIAN CHRONICLE.

THE reconciliation of the reigns of the kingdoms of Israel and Judah, both with each other and with profane history, has always been one of the problems of Bible study; and it is one, moreover, which it is necessary to elucidate before we can arrive at any real chronology of the Old Testament. There is, however, a considerable body of testimony from outside sources and, before attempting to co-ordinate the figures given in the Books of Kings and Chronicles, it may be as well to examine these contemporary records in so far as they bear on our main enquiry.

The Assyrian Canon is a year-by-year record of Eponyms from 911 B.C. to about 650 B.C. The Eponym was an official appointed for the year, a year which began in Nisan, or March, and therefore, as it is practically complete, the name of the Eponym for each year being given, it is a most valuable document. The series is located in history by mention of an Eclipse in the month Sivan, which astronomers are agreed as being that of 763 B.C. Working back from this, we find that the Eponym for 854 B.C. was Dayan-Assur, and from the Black Obelisk of Shalmanezzer II in the British Museum, and from an inscription of this monarch at Kurkh, in Armenia, we learn that, in Shalmanezzer's sixth year, in the eponymy of Dayan-Assur, he fought and defeated Ahab at Qar-Qar. In Shalmanezzer's eighteenth year (842 B.C.) we find, on a Bull inscription *Cuneiform Inscriptions*, etc., vol. iii, p. 5, No. 6), that he enacted tribute from Jehu, son of Omri, who therefore was reigning in that year. Other connections between Assyria and Israel as found from the Canon and inscriptions are as follows :—

737 B.C. Memahem pays tribute in the 8th year of Tiglath Pileser.

734-2 B.C. Siege of Damascus, when Pekah was reigning.  
(See Isa. vii, viii.)

729 B.C. Death of Pekah.

722 B.C. Accession of Sargon II and capture of Samaria.

713 B.C. Conquest of Media by Sargon.

A convenient reference book is George Smith's *Assyrian Eponym Canon*.

The Babylonian Chronicle is useful in corroborating the dates of Sargon and Shalmanezzer IV. A translation of it may be found in R. W. Rogers' *Cuneiform Parallels to the Old Testament*.

## § 2.—THE CANON OF PTOLEMY.

A list of kings of Babylon, with notices of certain astronomical observations of eclipses beginning with the eclipse of February 26th, 747 B.C., and ending with the reign of Alexander the Great. It follows the Egyptian vague year, and thus the beginning of each year recedes one day in every four years. It is of great importance, but the reigns being given as whole numbers it is not as accurate as the Assyrian Canon, and may vary by a year



The Canon of Ptolemy is valuable as a check, but the method followed is not so accurate as either the Assyrian or the Greek, and may differ from these by a year or more on occasion.

### § 3.—GREEK EVIDENCE.

The Greeks had a system which was similar to that of the Assyrians in that they elected an archon for each year, beginning their year in midsummer. The names of these archons are obtainable from Diodorus and Dionysius of Halicarnassus, and have been collected by Clinton (*Fasti Hellenici*, vol. ii). They form an unbroken series from 480 to 303 B.C. The linking up of this series to chronology is effected by the eclipse which Thucydides (ii, 2 and 28) mentions as occurring in the first year of the Peloponnesian War, in the year after the archonship of Pythodorus, or, in other words, in 431 B.C. With this as a fixed point we have the following dates. Xerxes died in the archonship of Lysitheus, *i.e.*, 465 B.C., having reigned more than 20 years, and Artaxerxes succeeded, reigning 40 years (Diod. xi, 69). This gives 486 B.C. for the accession of Xerxes and 425 B.C. for that of Darius II.

After the summer campaign of the sixth year of the Peloponnesian War, ambassadors were sent to Artaxerxes, but, when they arrived, they found he had just died (Thuc. iv, 50). This confirms the death of this monarch in the winter of 425-4 B.C.

The battle of Salamis was in the archonship of Calliades (Herod. vii, 1, 3, 4) and therefore in 480 B.C. Marathon, Archon Phoenippus, was ten years before Salamis, and therefore in 490 B.C.

Marathon was in the 5th year before Xerxes (Herod. vii, 1, 3, 4), and therefore Xerxes succeeded in 486 B.C., confirming Diodorus, as given above. We have here, therefore, the dates of the death of Darius I and accession of Xerxes (486 B.C.), the accession of Artaxerxes (465 B.C.), and the accession of Darius II (425-4 B.C.), and a reference to Ptolemy's Canon shows how these dates are confirmed. These reigns cover the books of Ezra and Nehemiah.

### § 4.—THE CONTRACT TABLETS OF EGIBI AND SON.

The British Museum holds an enormous number of contract tablets of Egibi and Son, a firm of bankers in Babylon from the

reign of Nebuchadnezzar to that of Darius. They are dated month after month and year after year, and are of the utmost importance, as they give reliable evidence as to the chronology from the upper limit of the Greek records back to the fall of Jerusalem. The first and last tablets in each reign are the most valuable to us, and these are given in *Records of the Past*, xi, 87. They are as follows :—

Nebuchadnezzar	Access. yr.	7th Marchesvan	43rd yr.	11th Nisan.
Evil-Merodach	„ „	21st Tisri	2nd yr.	5th Sebat.
Neriglissar	„ „	27th Marchesvan	4th yr.	12th Adar.
Nabonidus	„ „	12th Tammuz	17th yr.	5th Elul.
Cyrus	„ „	16th Kislev	9th yr.	22nd Ab.
Cambyses	„ „	16th Elul	8th yr.	11th Tebet.
Bardes	1st yr.	20th Elul	1st yr.	11th Tisri.
Darius	„	(?) Nisan	36th yr.	5th Ab.

These tablets carry us back from the last year of Darius I, which we have seen to be 486 B.C., to the accession year of Nebuchadnezzar in 605 B.C., from where we can connect up with the Biblical line of Judah. They confirm the Ptolemy Canon in every particular except that the usurper Bardes is not mentioned by Ptolemy.

### § 5.—THE CALENDAR USED BY ISRAEL AND JUDAH.

It is usual to consider that the two Kingdoms used the same calendar, and the lengths of the reigns of the kings in each case are taken at their face value. In the case of Judah it is probably right to do this. If the attached table be examined we will see that Rehoboam, though he only reigned 17 years, was not succeeded by Abijam till the 18th Jeroboam, and he must have reigned, therefore, more than his allotted years. Abijam, however, who is given three years, only occupied the throne from the 18th to the 20th Jeroboam. It thus appears that the periods put against the kings of Judah were approximate, perhaps more, perhaps less, though we shall see that, in a series, they appear to balance out sufficiently correctly. That this was the method before the division of the Kingdom is shown by the length of David's reign, which, although consisting of two parts,  $7\frac{1}{2}$  and 33, is given as 40 years only. The building of the Temple also, which occupied  $7\frac{1}{2}$  years, is given as 7 years.

The Israel kingdom, however, used a different chronology, which was in later days adopted by the Jews, under which the

year of a king's decease was counted both to him and to his successor, and the result of this is that in each case one year has to be deducted from the figures given. This is clearly seen in the case of Nadab, who reigned two years, but who began his reign in the 2nd Asa and died in the 3rd. Baasha also began in the 3rd and died in the 26th Asa, yet he is given 24 years of rule. Elah, too, follows the same rule. We see it also in the case of Ahab and Jehu. Ahab, as we have already seen, was alive in the 6th year of Shalmanezzer II, and Jehu was reigning in that monarch's 18th year—12 years' interval. Ahaziah and Jehoram, who came between, reigned two years and twelve years respectively, which are two years too many, but by deducting a year from each for overlapping, it brings it exactly right.

Thus Ahab fought at Qar-Qar in the year 854-3 B.C., and died later in the same year, this year being counted to him. Ahaziah succeeded on Ahab's death, and the year was reckoned to him as well.

The question of the commencement of the year in the case of Judah is more difficult. We know in the account of the building of the Temple the first month was Nisan. But we also know that the Jews commenced their civil year in the autumn. Some colour is lent to this in the account of Solomon's two coronations. The feast which Adonijah made would seem to be a Passover, and when at its conclusion Solomon was made king there was no sacrificing of any kind. The necessity for a second coronation might thus have arisen from a feeling that it should be connected with one of the great feasts, and therefore it was repeated later, perhaps at the Feast of the Ingathering. A six months' interval also might explain the difference of half a year in the computation of David's reign, the one being to the joint reign and the other to Solomon's second coronation. On the other hand, "the ninth month" in Jer. xxxvi, 22, is clearly reckoned from Nisan.

In the case of Israel, however, we are on firmer ground. When Israel revolted, Jeroboam introduced the worship of the heavenly bull Taurus, making two golden calves for the people to worship. In addition, he ordained an annual feast of his own devising on the fifteenth of the eighth month. Now, whether Jeroboam himself was of Ephraim or not, Ephraim was the dominant tribe of the ten; it was equated to the constellation Taurus, and the month Zif was also connected with the same sign. Reckoning from Nisan as the first month, Zif was the second month of the year, but if we begin with Tisri it was the eighth, and the account



in 1 Kings xii, 25-33, makes it clear that Zif was chosen from its connection with Taurus. We can therefore take it that the beginning of the year, in Samaria at least, was in the autumn, Tisri being the first month.

### § 6.—THE KINGS.

We can now proceed to the examination of the Table of Kings, bearing in mind that the figures for Judah are accepted as given, and those for Israel are considered as overlapping. We have, in the period 854-42, a time, as has been shown above, which is rigidly fixed, since 854-3 was Ahab's last year and 842-1 was Jehu's first.

From the last year of Ahab up to the division of the Kingdom is a period of 79-80 years, whether we take it through the line of Israel or of Judah. The date for Rehoboam is thus fixed by two independent lines and must be put at 932 B.C., Solomon's accession therefore falling in the year 972 B.C. The corroboration of these two lines is important.

After the time of Ahab we are faced, in the case of Judah, with a series of joint reigns which destroy the value of its chronology down to the time of Hezekiah, since the amount of overlapping is not given except through the cross-references to Israel. We have therefore to turn to Israel, and here we find the remarkable fact that the direct line of the Kings of Israel is absolutely correct, in its upper stages, with that of Judah, and, below this, with the Assyrian records as far as Pekah, for, as shown above, Menahem paid tribute to Tiglath Pileser in his 8th year in 737 B.C., and Pekah is mentioned in his records in the year 734-3 B.C. This accuracy over seventeen reigns is an outstanding tribute to the general trustworthiness of the record, and a testimony to the correctness of the method we are using.

The reign of Hoshea is corroborated by the Eponym Canon, and the only error is in the reign of Pekah, with which we must deal presently.

We must now turn to Judah, from Asa to Hezekiah. All the figures in the Table are as given in Scripture, the B.C. dates for Judah being calculated from the cross-references from Israel, and certain points require to be noted.

Jehoram is shown as reigning three years before the death of his father. This is specifically stated in 2 Kings viii, 16, though the number of years of joint rule are not given.

## THE KINGS OF ISRAEL AND JUDAH.

ISRAEL.	Yrs.	B.C. dates.	Cross-references.	JUDAH.	Yrs.	B.C. dates.	Cross-references.
Jeroboam ...	22	932-910	—	Rehoboam ...	17	932-915	—
Nadab ...	2	911-909	2nd Asa.	Abijam ...	3	915-912	18th Jeroboam.
Baasha ...	24	910-886	3rd Asa.	Asa ...	41	912-871	20th Jeroboam.
Elah ...	2	887-885	26th Asa.				
Zimri ...	7 days	886-885	27th Asa.				
Omri ...	12	886-874	31st Asa.				
Ahab ...	22	875-853	38th Asa.	Jehoshaphat ...	25	871-846	4th Ahab.
Ahaziah ...	2	854-852	17th Jehoshaphat.	Jehoram ...	8	849-841	5th Joram.
Jehoram ...	12	853-841	18th Jehoshaphat.	Ahaziah ...	1	841	12th Joram.
Jehu ...	28	842-814	—	Athaliah ...	6	841-835	—
Jehoahaz ...	17	815-798	23rd Jehoash.	Jehoash ...	40	835-795	7th Jehu.
Jehoash ...	16	799-783	37th Jehoash.	Amaziah ...	29	798-769	2nd Jehoash.
Jeroboam ...	41	784-743	15th Amaziah.	Azariah (Uzziah)	52	784-732	27th Jeroboam.
Zachariah ...	6 mo.	744-743	38th Azariah.				
Shallum ...	1 mo.	744-743	39th „	Jotham ...	16	759-743	2nd Pekah.
Menahem ...	10	744-734	39th „	Ahaz ...	16	743-727	17th Pekah.
Pekaiiah ...	2	735-733	50th „	Hezekiah ...	29	727-698	3rd Hoshea.
Pekah ...	20 (5)	734-729	52nd „				
Hoshea ...	9	730-721	12th Ahaz.				

Fall of Samaria in Hezekiah's 6th year—722-1 B.C.

All figures are scriptural, the four cases of error being shown in italics.

The joint rule of Amaziah with his father is not actually stated except as worked out by the cross-references. In 2 Chron. xxiv, 25, however, it is said that before his death Jehoash was greatly diseased, and his son may have been raised to the throne on this account.

I have shown Azariah (Uzziah) as ruling with his father for fifteen years. The cross-references here—shown in italics—are necessarily wrong, and the account of Amaziah's last years is indicative of a joint reign. For Joash of Israel invaded Jerusalem and "took Amaziah." He afterwards "took the treasures of the King's house and the hostages and returned to Samaria"—2 Chron. xxv, 22-25. This was at least fifteen years before Amaziah's death and, if Amaziah had been retained by Joash and taken as one of the hostages to Samaria, Azariah would naturally have been raised to the throne in his place. This would account for the return references from Azariah to the Israel Kings from Zachariah to Pekah.

(It should be borne in mind that, as in the case of the Canon of Ptolemy, the method of reckoning in Judah may make the cross-references on occasion appear one or, in some cases, two years out.)

It is suggested that these errors in the time of Azariah are responsible for the excess of fifteen years in Pekah's reign, which is the only error in the line of Israel from the division of the Kingdom to the Fall of Samaria. No doubt Uzziah's long reign and the fact of his becoming leprous was the prime cause of the confusion, but it is eminently satisfactory that it can be narrowed down to so small a period, and that the rest of the chronology can be reckoned trustworthy.

#### § 7.—FROM HEZEKIAH TO ZEDEKIAH.

Hezekiah came to the throne in 727 B.C., it being in his 6th year that Samaria fell. There is an error in the account of his reign in that Sennacherib's invasion could not have been in Hezekiah's 14th year. Sennacherib did not begin his rule till 705 B.C., and his attack was in 701 B.C. We must expect to find errors sometimes in the history, and we are fortunate in that the mistakes are of a minor character and can be localized. Ahaziah of Judah, for instance, is said to have attained the throne in the 11th (2 Kings ix, 29) and also in the 12th (2 Kings viii, 25) year of Joram, and while this is probably

capable of explanation no amount of argument can reconcile his age at that time, being given as 22 and 42 years (2 Kings viii, 26, and 2 Chron. xxii, 1) respectively.

But we are more concerned here with the general chronological system, and the period with which we are dealing is too well buttressed to be easily upset. Hezekiah's accession, five years before the Fall of the sister kingdom, is fixed by more than one contemporary account at 727 B.C., and from this point to the Capture of Jerusalem by dead reckoning is 139 years and a half, and this brings us to the year 587 B.C. The city was captured in the 18th year of Nebuchadnezzar, which was 587-6 B.C., thus showing an entirely trustworthy chronology. I have said the 18th of Nebuchadnezzar because that was the year 832 captives from Jerusalem were deported (Jer. lii, 29). The city and Temple were not burnt till the following year (19th Nebuchadnezzar).

As, therefore, the Temple was burnt in the year 586-5 B.C. and rebuilt in 516-5 B.C., the land had been left desolate—without a House of God for seventy years.

This, however, is not all. The subjugation of Judah was a process which occupied twenty-three years—from 608 to 585 B.C., and its rehabilitation from the first year of Cyrus 538 B.C. to the completion of the Temple was the same length of time. The seventy years' captivity therefore began and ended with a period of twenty-three years, the beginnings of each, as also the endings, being seventy years apart.

#### § 8.—CONCLUSION.

I have endeavoured to set out before you the witness of contemporary history and its agreement or otherwise with the chronology of Scripture within the period under review. I think it will be found that in every part of the history there are at least two corroborative testimonies from quite independent sources, and there is thus formed a structure which is based on foundations which it is very difficult to traverse.

#### DISCUSSION.

The CHAIRMAN (Lieut.-Colonel Kenney-Herbert) said :—Let us confine ourselves to pointing out what we individually have gained from this condensed summary of many years of loving labour.

Anyone who studies the Bible, in a constructive sense, will receive some real reward for his work, something helpful to pass on. Last year Colonel Shortt gave us a valuable contribution on the date of the Fifteenth year of Tiberius. He proved to us, at least so I think, that the Bible meant exactly what it said, and in doing so settled two difficult points—the date of the birth of the Lord and the date of His crucifixion in terms of our reckoning. Incidentally, he showed that Josephus contradicted Josephus, and that, in consequence, we could, in this matter, dispense with his evidence.

Of the making of chronologies there is no end. The scholar will demand that due weight be assigned to his eclipses, his canons and his olympiads—and these ingredients can be mixed in almost infinite variety. The Bible student, seeking only to learn the will of God, as evidenced in the past, even if he rejects all other sources of information, will find that he is faced with three or four special problems, which can be understood in more ways than one. This paper sets out to solve one such problem, and incidentally throws considerable light on another.

To my mind, if Anstey's interpretation of the Hebrew of some of the difficult passages is good, he has harmonized the reigns of the Kings of Judah and Israel. But his facts reveal another problem in connection with the Captivity which he does not explain. If the Captivity began in the 3rd year of Jehoiakim, and ended in the 3rd year of Cyrus, as Anstey shows, the period was only 69 years, and not 70, as prophesied by Jeremiah. He suggests that this is a case of "inclusive reckoning."

But this period was a unit in God's plan of time, of which Gabriel said that there were to be seven other such units; obviously a slipshod period, with a bit over at each end, making 69 nearly 70, cannot be regarded as a unit to measure with. But the solution is easy if God intended us to understand prophetic years, in the statements He has given us through Jeremiah and Gabriel; for 70 prophetic years are within a day or two exactly 69 mean solar years. I had come to this conclusion some years ago, and now find that I am justified in this opinion by the records of the business house of Egibi, quoted in the paper. It is strange that the collection covers the exact dates necessary to confirm the proposition, as well as the 70 of desolation and the 70 of indignation.

It is easy for us, fundamentalists, to make out a *casus belli* against those who follow not with us in all things, but who are nevertheless seeking constructive work in the Lord's Vineyard. Every such student adds his quota to the common knowledge. For this reason I would personally thank the author of this paper for his contribution; in which I honestly believe that there are things to be avoided and things to be accepted with thankfulness.

The CHAIRMAN concluded by calling for the thanks of the meeting, and the same were accorded with much heartiness.

Mr. C. C. OGILVY VAN LENNEP said: Interesting and erudite though it certainly is, Colonel Shortt's paper seems to me to put the cart before the horse. All efforts to synchronize Bible history with profane, appear to me as pre-ordained to fail. For instance, the Eponym Canon, as shown, indicates that the 21st year of Ahab of Israel was 854 B.C. This I believe to be true; but it also indicates that 729 B.C. was the year of Pekah's death; thereby it implies that, then, it was only 125 years since the 21st of Ahab, whereas Anstey makes the Bible number about 170 (as also do I), and the A.V. margin makes it 157. This great difference casts doubt upon the reliability of the Eponym Canon.

Ptolemy's evidence is suspect also, for his Canon contains several names of kings that are unrecorded by any historian before him. The Greek Archons do not help us either, for the dating of these is anchored to Ptolemy's figures, by the general (secular) belief in his chronology, which restricts our freedom in our calculations of the possible dates of such eclipses as are recorded in the classics of the Archons' days. On the other hand, the earliest and the most explicit of all available chronological evidence, is in the Bible. Like our learned lecturer, all Bible students, admittedly, find difficulties in it; its chronologers, especially, often think that they are faced therein by irreconcilable contradictions. And yet, no really vital contradiction can be affirmed to occur in all the Bible chronology. All *seeming* contradictions should, no doubt, be studied, and solved, if possible; when, however, we find that we have been vouchsafed two exactly similar, and quite definite, statements of time, or of periods of time, it seems to me that we have

no alternative than to accept them, even though they appear to disagree with others that are parallel to them.

Thus it is with the history of the Kings of Judah. In 2 Chron., the lengths of their reigns are stated so plainly, so definitely, that, in my opinion, there is no scope for any alterations or modifications. But, to our present confusion, in the Book of Kings exactly the same figures are accompanied by another set of figures—the concurrent reign-lengths of the Kings of Israel. These are to be found nowhere else, and they are difficult to synchronize, throughout, with the reigns of the Judæan kings. Many a chronologer has tried to do this ; but can any student of their works aver that he is fully satisfied that any one of them has succeeded, so far ? Surely not ; because in all such attempts, certain alterations, either of actual figures or of the meanings of words, have been made in the narratives of the Kings of Judah, so as to make those *two* simple narratives agree with the admittedly more complex *one* of the Kings of Israel.

“In the mouth of two or three witnesses every word may be established” ; who shall say that the years of the Kings of Judah were not given by the two witnesses on purpose ? They are vital to the main line of Bible chronology ; therefore, it was important that they should have been given with chronological perfection. Surely, it is time that we began to accept them with simplicity ; and, having done so, to rebuild the profane chronology anew, upon the broad base of the Bible’s own, instead of the other way about.

#### WRITTEN COMMUNICATIONS.

Dr. NORMAN S. DENHAM wrote : While appreciating the labour involved in the paper, it is to be regretted that Col. Shortt has chosen to adjust Hebrew chronology by profane history rather than pagan records by the divine verities. He says : “ We know that the Jews commenced their civil year in the autumn.” I believe that no satisfactory proof of this is forthcoming. The dates that can be certainly identified are satisfied only with a year commencing with Nisan. The author does not make clear his authority for equating Jeroboam’s feast of the eighth month with Ziph rather than with Marcheshwan ; nor is it shown how the value of Judah’s chronology is destroyed after Ahab’s time because it is “ a series of joint-reigns.” Further on, the learned author states that the “ mistake ” as to the

age of Ahaziah is "probably capable of explanation." The reading of 2 Chron. xxii 2, as shown by Anstey, is, "A son of forty-two years was Ahaziah when he began to reign." That is, Ahaziah, being son of Athaliah, is reckoned as "an imp of the House of Ahab," whose evil line commenced with Omri's first year in 857 B.C. (Ptol. 936), while Ahaziah's accession year as co-rex with Jehoram in the latter's seventh year, was 815 B.C. (Ptol. 894). The difference is exactly 42 years. Can we not trust the sacred Word?

Passing to a further issue, I believe that the Persian era has to be telescoped by 79 years: *i.e.* the supposed 205 years from Cyrus to Alexander become 126. If so, all Ptolemaic dates prior to Alexander must be revised. I base my conclusions briefly as follows: (1) The 20th year of the Artaxerxes of Neh. viii, 2, was *Sabbatic*, for only in the *Sabbatic* year was the Law publicly read as commanded by Moses (Deut. xxxi, 10, 11). It was so read in Josiah's 18th year, 542 B.C., a *Sabbatic* year. The 20th year of Artaxerxes Longimanus, 445 B.C., was not *Sabbatic* (cp. 1 Macc. vi, 8; ix, 43; Jos. Ant. XIV, xvi, 2). (2) If Artaxerxes Longimanus was the Artaxerxes of Ezra vii and Neh. ii, 1, and Xerxes was the Ahasuerus of Esther, as is usually believed, then either there were two sets of eminent men with the same names, occupying similar positions at not remote epochs, or, they were the same men. In the latter case, Ezra would be about 141 years old when he read the Law at Jerusalem (Neh. xii); Nehemiah would be 103 years older when he returned to Jerusalem in Artaxerxes' 32nd year than when he came there in Cyrus' first year; Mordecai, who was taken captive to Babylon, would have been about 123 years old when premier of Ahasuerus; Jaddua would have been about 158 years old when he went out to meet Alexander at Sapha, and Sanballat would have been contemporary with Nehemiah in 445 B.C. and with Jaddua in 332 B.C., 113 years later. All these and other anomalies are caused by the slavish reliance placed upon the Canon of Ptolemy. They would all disappear if we identified the Artaxerxes and Ahasuerus above named with Darius Hystaspes. There are two striking confirmations of the revised scheme of dating:

(1) The 63 weeks, or 483 years of Daniel ix, 25, if they were computed inclusively from Cyrus' Decree in 457 B.C. (Ptol. 536), as they most certainly should be, would bring us exactly to the year



of the Baptism of our Lord, A.D. 26, a year shown to be a *Sabbatic* and *Jubilee* year by sundry tokens in the Gospels, notably by the "acceptable," or *Jubilee* year reference of Luke iv, 19 (see Colonel Mackinlay's *Recent Discoveries in Luke's Writings*).

(2) The total Solar Eclipse stated by Herodotus to have occurred as Xerxes started on his great Grecian Expedition would, if the above premise be adopted, necessarily fall 79 years later than 481 B.C. I say 481 B.C. advisedly, instead of the usually recorded 480 B.C., because Rev. W. B. Galloway shows that Dodwell, Hales, Scaliger, Wesseling and Duker all understood Xerxes to have set out from Susa (*Chain of the Ages*). No such eclipse visible to Xerxes took place in either 480 B.C. or 481 B.C., but the track of totality of a total solar eclipse swept from Sardis past Babylon and Susa on January 18th, 402 B.C. This is the only solar eclipse satisfying the conditions of the narrative of Herodotus (vii, 37). 402 B.C. is precisely 79 years later than 481 B.C.

These are some of the data upon which should be founded an entirely new dating of the profane and sacred records of these times, and consequently, of the reigns of the Kings of Judah and Israel.

Mr. G. B. MICHELL wrote: I welcome very heartily Lieut.-Col. Shortt's attempt to reconcile the chronologies of the Kings of Judah and Israel on sound and honest lines. I agree so closely with his system that I was inclined, at first sight, to accept it unconditionally. There can be no question that his dates for Solomon, 972 B.C., and consequently of 932 for Rehoboam (*and Jeroboam*) are correct, as are, of course, the dates that are confirmed by the Assyrian records. I would point out, however, that though a *contingent* from Ahab is mentioned as present at the Battle of Qarqar (see Schrader's *Cuneiform Inscriptions and the Old Testament*, Vol. I, pp. 183 to 190), it does not necessarily follow that Ahab was personally present, nor even that he was still alive. Indeed, he must have died in 855 B.C., the date of the Battle of Ramoth Gilead.

Colonel Shortt's system is so attractive that there can be little doubt that it was precisely thus that the compiler of *Kings* arrived at his synchronisms. By *computation*, and with a little latitude on account of the omission of fractions of a year, it is easy to see that the apparent difficulty of harmonizing the two lines is satisfactorily

disposed of. When, however, we come to set out in tabular form Lieut.-Col. Shortt's figures, year by year successively, as it must be done to provide a really rigorous *chronology*, I find that there are two fatal flaws in his system. Firstly, the year 843 was certainly the first of Jehu, and of Hazael of Syria, and consequently also of Ahaziah and Athaliah of Judah. And this figure is essential for Lieut.-Col. Shortt's dates of all the preceding reigns, both of Judah and Israel. Yet it will be found that the year 841 is equally essential for Lieut.-Col. Shortt's figures for all the *succeeding* kings. This is not a case of "overlapping." It is a definite hitch in the system, the first part depending altogether on 843, the latter part depending altogether on 841. Secondly, Colonel Shortt has failed to note that nineteen districts of Hamath revolted to *Azariah* of Judah in the fourth and fifth of Tiglath Pileser ("Pul"), *i.e.* in 742-0 B.C. (see Schrader, Vol. I, p. 214). Azariah, or Uzziah, was, therefore, alive at that time. In this Colonel Shortt agrees. But since he gives *Ahaz* as beginning to reign in 743 (and this is necessary for his scheme of the reign of Hezekiah), it leaves no place at all for an independent reign of Jotham. I quite agree that Jotham acted as regent for his father during a long period of the latter's reign—until Uzziah's death. But the statement in 2 Chron. xxvi, 23, is too categorical to make it possible to doubt that, however long was his regency, and however short may have been his independent reign, an independent reign of *Jotham* did certainly intervene between the death of Uzziah and the accession of *Ahaz*. "So Uzziah slept with his fathers . . . and *Jotham* his son reigned in his stead," precisely as in the case of his son and successor *Ahaz*, 2 Chron. xxvii, 9. Since, therefore, Uzziah was still alive in 742-0 B.C., it is quite impossible that *Ahaz* should have been reigning at that time.

Much as I should like to find a satisfactory clue to the synchronisms of the Books of Kings, and gladly as I welcome Colonel Shortt's system as a very attractive attempt at this, I feel that once we have to admit the four erroneous items that indicated in Colonel Shortt's table, there is little object in trying to explain away the rest. It is amply sufficient for historical purposes that we have in the line of Judah alone, as derived from the *Chronicles*, a perfectly sound and complete chronology, joining up at both ends and at all ascertainable points in the middle, with that of other nations.

Mr. LEONARD W. KERN wrote : As to the period under discussion, viz., that of the divided monarchy, most are agreed as to the fall of Samaria, there being only a minority of authorities following Bunsen forward to 719 B.C. (and even 709 on occasions) or Kittel backward to 725 B.C., except of course those who would repudiate Ptolemy altogether, and create what I choose to call a "Persian telescope" of anything from 50 to 100 years by the elimination as fabulous of those kings who are not mentioned by name by Josephus. This, however, opens out too wide a field to attempt to traverse to-day, and "Ptolemy on trial" might well be the topic of an adjourned hearing.

I confine myself to criticism of the duration of the kingdom of Israel, which the paper before us puts at 211 years. It purports to deal with Israel as Elliott in his *Horæ Apocalypticæ* (iv, 236) deals with Judah ; that is, by setting down the bare reigns as stated in Scripture, and totalling them, which in itself is at least honest and excusable. But—and it is a very big BUT—Col. Shortt then proceeds to send Pekah to his grave 15 years too soon, and to deny Jotham the 16 years' enjoyment of the throne which Scripture accords him. In my opinion these two shrinkages are co-related and interdependent, and necessitate labelling the scheme with the same name as its learned author. If the Scriptures are to be taken as authoritative, and surely they are, they would appear to raise the following objections to the present scheme : (1) Jotham's accession "succeeded" Uzziah's death (2 Kings xv, 7 and 2 Chron. xxvi, 23) instead of being 27 years before it. (2) Jotham and Pekah were contemporary monarchs of sister kingdoms (2 Kings xv, 37) instead of having an 8 years' gap between them. (3) Pekah must have reigned more than 5 years if Ahaz acceded in his 17th year (2 Kings xvi, 1). (4) Jotham acceded in Pekah's 2nd year (2 Kings xv, 32) when according to Col. Shortt he had been dead 11 years already.

For these reasons I regret that I must reject the scheme. To extend the period so as to give Pekah his full quota does not interfere with the earlier synchronisms of Ahab and Jehu, seeing that Shalmaneser reigned in Assyria for over 30 years acceding about 859 B.C. (*Cambridge Ancient History*) yet it does avoid attributing to the Inspirer of Holy Writ "these errors in the time of Azariah."

## LECTURER'S REPLY.

Dr. Denham complains that I adjust Hebrew chronology by profane history. It is surprising, therefore, to find that he adopts the apocryphal story, out of Josephus, of Jaddua and Alexander, and bases on it a system which upsets the whole course of ancient history. The dates, also, which he gives, for the 483 years, make 482 only.

Mr. Van Lennep's remarks, too, are puzzling. He insists on Biblical dates only, yet he finds a difficulty in Kings, and discards it in favour of Chronicles. I would remind him that, of the two, Kings has much the greater authority. Chronicles is not quoted in the New Testament, nor was it ever, like Kings, regarded as a prophetic book. Nor is his argument as to the "two or three witnesses" convincing. It would apply equally to the statement that Hezekiah was born when his father was eleven years old!

I disclaim any attempt to deal with either Jotham or Ahaz. I have worked up from the Fall of Samaria and down from the battle of Qar-Qar, and find a period of confusion in the leprous time of Uzziah. To deal with it would have taken much too much space, and then have been only tentative.

I cannot agree that Ahab was dead when Qar-Qar was fought, nor have I found any evidence that Ramoth-Gilead was in 855 B.C. But I am very much indebted to Mr. Michell for pointing out a slip, now amended, not in the Table of Kings as he suggests, which runs clearly and smoothly, but in the first paragraph of Section 6. The eighteenth year of Shalmaneser II was 842-1. This, and not 843-2, was Jehu's first year.

There is no question of any slavish reliance on Ptolemy. He can be cut out entirely, and the result would be the same.

## 750TH ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,  
WESTMINSTER, S.W.1, ON MONDAY, JANUARY 4TH, 1932,

AT 4.30 P.M.

CAPTAIN T. W. E. HIGGENS IN THE CHAIR.

The Minutes of the last Meeting were read, confirmed, and signed, and the HON. SECRETARY announced the following elections:—As Associates: Joseph Smith, Esq., M.Eng.; Harry D. Sharpe, Esq., B.Eng.; and Lady King-Harman.

The CHAIRMAN then called on Mr. G. Robert Gair, F.S.A.Scot., F.R.A.I., F.G.S.E., to read his paper on "Geographical Environment and Race Movements."

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### GEOGRAPHICAL ENVIRONMENT AND RACE MOVEMENTS.

By G. R. GAIR, F.S.A.Scot., F.R.A.I., F.G.S.E.

#### INTRODUCTION.

IN the course of this paper I wish to show the part played by geographical environment in bringing about migrations, in moulding their character, and in the consequent distribution of mankind. There is justification for such a viewpoint since the peculiar circumstances of geographical environment and isolation have produced definite strains the members of which bear closer genetic relationship to each other than to members of outside communities. Thus geographical factors have played an important part in making what are termed "Races."<sup>1</sup> Therefore, in order to understand man's distribution and anatomical peculiarities we must survey him in his geographical significance and approach anthropology from this viewpoint; thereby some contribution may be made to the study and classification of concepts concerning *homo sapiens*—as he is and as he was in prehistoric times.

## DISTRIBUTION OF THE LAND MASSES.

The fundamental relation of geography to racial-movement lies in the accessibility of land masses to each other, migrations being only possible where easy corridors are provided.

A North Polar projection of the world illustrates the juxtaposition of the land masses and the possibilities of migrations from central Asia to Europe, Africa, across the Bering Strait to Alaska, North, Central, and South America, and through southern Asia to the islands of Australasia.

Climate being the arbiter of settlement, continuity of land alone does not make migration possible. For by its regulation of his habitat man's physique is moulded and his variations created. We see the power of climate in the Eskimaux (with their shortened stature and narrowed nostrils) wandering before—but never traversing—the frowning polar front; or in the hardy Mongols, driven by the dry aridity of inner Asia from its inhospitable face; and in the Negro's thickened lips and pigment—physical characters consequent to denizens of equatorial lands. Many such examples readily occur to illustrate the dependence of man upon geographical conditions. It is therefore reasonable to say that the distribution of man rests on the accessibility of land masses to each other and on position of climatic regions, for with these man can only up to a point make free.

Owing to the juxtaposition of the land masses (but subject to climatic and other modifications) the distribution of races, as of flora and fauna, should present, *ceteris paribus*, a zoned appearance around the original centre of distribution. This principle is merely applying to man a method recognized by zoologist and botanist. Griffith Taylor<sup>2</sup> and others contend that such a series of zones can be detected and that such place the centre of distribution in central Asia. Support is obtained from anthropology for we find the dolichocephalic types tending to form a zone around the Alpines and the brachycephalic peoples. Prehistoric archæology (as far as is at present ascertained) can adduce many examples to show the migration of cultures into Europe from Asia, thus implying greater age for civilization there than in Europe. While the distribution of such primitive men as Neanderthal, Talgai, Rhodesian and Galilee—not to mention Pekinensis<sup>3</sup> seems to indicate a dispersion from a focal point in western or central Asia. A close

philological study also is claimed to indicate the same zonal tendency around central Asia. Thus the centre of the land masses, perhaps in the region of Turkestan, and in the centre of the zones of races and of languages, midway between the Alpines of the West and the Mongols of the East, must be (to use Professor Boyd Dawkins' phrase) the Ancient Eden, the birth-place of the Nations.

Endorsing this general principle on *prima facie* geographical grounds does not necessarily mean accepting every implication as rigidly as would be done in zoology or botany, since man, possessing culture and reasoning power beyond that of any animal, is not wholly subject to these laws nor bound hand and foot by his environment. To him is given the power of navigating lakes and seas on primitive log or in stoutest ship. Thus men with some impunity may transgress the well-defined corridors and cross the vast expanses of waters.<sup>4</sup>

#### CORRIDORS AND ROUTES.

From earliest times certain main corridors would be used by migrants. Densely forested regions, deserts, tundra, high mountain peaks and swamps, would be avoided and consequently less inhabited than the open park and grasslands. In such the first to seek homes would be the degenerates—fragments of humanity—seeking any haven in the racial tempest raging where the more fit held the thinner forests, parks and steppes so necessary to agriculturist, pastoralist and hunter. Therefore the great elevations, continental interiors in higher latitudes, great forest belts, and the regions deficient in rainfall would be formidable and almost insurmountable barriers to racial movements in early times.

On the other hand, the influences permitting, and in fact inviting, migration are thin forest lands, comparatively low foothills, downs, and mountains not high enough to be rigorous, steppes, sea margins, river valleys and small temperate and tropical seas. Only after these routes were exhausted would peoples responding to pressure plunge into the less hospitable regions.

The facility of rivers to settlement is illustrated as recently as Saxon times by the distribution of early graves along the river valleys.<sup>5</sup> While an example of the consequence of mountains is to be seen in the distribution of artefacts of the late bronze

age in Wales where the majority of sites are along the river valleys and the low hills.<sup>6</sup> Further, among many other cases, is the spread of the Danubian Civilization along the plains, valleys, and low foothills studiously avoiding the high mountain areas.<sup>7</sup>

#### NORTHERN AND SOUTHERN CORRIDORS.

Thus a likely route of migration into Europe is to be found within a zone traversable from the eastern Steppes, avoiding the northern forests and their extreme winter cold, leading into southern and central Europe by the northern Steppe, Black Earth and Danubian lands, and finally spreading through the lowest passes of the mountains into western Europe.

While high mountainous areas have been specified as inhospitable to migration and settlement it should be emphasized here that this does not apply to the lower mountains and hills. In fact the reverse is rather the case, for in England it is along the Downs that the evidences of prehistoric man are found,<sup>8</sup> and in Scotland the stone circles, generally attributed to the bronze age, are found on the lower mountain regions.<sup>9</sup> Not overlooking the value therefore of the lower hills and mountains, especially in the lower latitudes, it is evident that another belt of migration presents itself in the region to the south of the northern Steppe route stretching from the highlands west of Afghanistan through Persia to the Caspian Sea, to Anatolia, the Black Sea and the Mediterranean. Once man had left the hunting stage this would prove a more inviting route for here, owing to the higher relief, more rain falls even to-day than in the more arid steppe, and, as a consequence agriculture being carried on in the valleys, it possesses a greater population. Primitive agriculture came into being as soon as a pastoral life (if not before), and this route would appear to have been the most suited for all the earlier agriculturists as well as pastoralists and hunters. Eurasia was once less arid than it is now, and this ought to have been an ideal climate zone and principal route from east to west.

At present the Northern Corridor runs in a west-south-westerly direction from somewhere about Omsk, 54° 58' N. 73° 24' E. to the Black Sea. This is cut off from the fertile lands of the south by a wide stretch of poor steppe and from south of Lake Balkash to the Turkmen Republic and almost the



shores of the Caspian Sea by a series of deserts. Under normal conditions migrating peoples could only satisfactorily communicate with the south and its hill zone along the poor steppe lands and wooded slopes to the east and south of Lake Balkash. However, given a slightly damper climate (as seems to have been the case), the Siberian forest would extend further south, and what is now poor steppe and even desert would become grasslands, while the mountain plateaux (which we might term the Southern Corridor) would possess well-watered valleys and enjoy a climate not very much different from that of Armenia. The Northern Corridor would be favoured by pure pastoralists, but the Southern would be ideal for peoples keeping flocks or cultivating crops.

At the period of the final retreat of the European ice the Caspian Sea was probably of much greater extent and stretching as far north as Uralsk, and towards the Baltic, and as far east as the Aral Sea, while the climate was much more damp. The southern boundary of the forest belt would be on the northern coast of the enlarged Caspian. During its maximum this would interrupt, although perhaps not very seriously, east and west migrations, and therefore the Southern Corridor would actually be a more advantageous route. An alternative route coincident with the gradual shrinking of the enlarged Caspian would appear to eventually develop into what I have termed the Northern Corridor—Prof. Fleure's Northern Steppe—running across what is now the desert of Turkestan from the Hindu Kush to the Crimea.

In January the temperature nowadays along the Northern Corridor is from 10 to 0 degrees Fahrenheit. Sheep and herds can stand fairly severe temperatures, but they must be able to obtain access to food which, under these conditions, is under the frozen snow and ice. The Southern Corridor, on the other hand, has a far more satisfactory climate in the same month, when the average temperature is between 30 and 50 degrees Fahrenheit. Such a corridor especially in a more pluvial time actually would form the means of communication between the three great centres of ancient civilization, the North-West Indian, the Mesopotamian and the Egyptian. Therefore geographical (apart from archaeological)<sup>10</sup> considerations point to the Southern Corridor as a more probable means by which culture was transmitted and from which were disseminated races which were to profoundly affect east and west.

## CAUSES OF MIGRATION.

Migration may be due to increase of population, drought, cold or excessive wetness. Very seldom can migration be attributed to religious concepts or desires of conquest solely, although these may influence their character. Thus since deserts are even more inhospitable than tundra their borders, during periods of desiccation, would be deserted by all those able to carve out for themselves new homes elsewhere.<sup>11</sup> Or should a succession of good seasons cause a rapid increase in population swarms would pour out of the homeland. To some such cause (over population or sudden dearth) migrations must be attributed.

Thus far have we considered in barest outline the main environmental factors bearing on man and his distribution in geological and archaeological time. We have seen :—

1. The importance of the distribution of the land masses on the spread of humanity from the original "home."
2. Arising out of this the feasibility of the theory of the zoning of races, and therefore the identification of an original centre of distribution in Asia.
3. The dependence of man on suitable corridors or avenues of migration. Such corridors being identified as running from Asia to the west and being divided into a Northern Steppeland Corridor, suitable for pastoralists only, and a Southern Mountain Corridor more suitable for the migration of agriculturists and mixed farmers. (The latter corridor being instrumental in spreading the earliest cultures of civilized antiquity.)
4. Finally the causes of migrations. These being rather to sheer necessity than to choice.

Thus far we have considered purely general geographical principles, but by going further and turning to an historical study we find that these principles have been constantly in operation.

## THE RESPONSE OF MAN AND CULTURE TO ENVIRONMENT.

The greatest geographical pressure ever exerted on man was the advent of the Pleistocene Ice Age.<sup>12</sup> During a glaciation of northern Europe (owing to a deflection southwards of the cyclone

belt)<sup>13, 14</sup> the Sahara and the now arid regions of western Asia were well-watered parks and grasslands.<sup>15</sup> A pleasant belt stretched from central Asia through Persia, Arabia and North Africa to the Atlantic, inhabited by such animals as the Mauretanian Rhinoceros, African Elephant, Gnu, Wild Ox, Zebra, Bear, Jackal, and Cave-Hyena.<sup>16</sup> This belt was inhabited by the Capsians while Magdalenian man was compelled to live further north under Arctic conditions on the verge of the ice-sheet. Testút,<sup>17</sup> Hervé,<sup>18</sup> Boyd Dawkins,<sup>19</sup> and others held the Eskimaux (because of certain peculiarities in the Chancelade skull and similarities of artefacts) were a survival of Magdalenians who migrated northwards with their environment and have continued living on the polar front. However, this argument contains many difficulties, and Sergi is on good grounds when he says that the geological and climatic conditions under which the Eskimaux live probably account for any similarities to the Magdalenians.<sup>20</sup>

The Yoldia Sea period followed the maxima of the ice<sup>21</sup> and the Baltic was in direct contact with the Arctic Ocean, stretching a great distance over Russia. Characteristic is the aspen and the willow. The Ancylus lake (Boreal Period) with the continental pine flourishing appeared next, and man followed the changing climate northwards.<sup>22</sup> The Maglemose<sup>23</sup> culture belonged to this phase and was created by fishers living on rafts and using dug-out canoes, harpoons, chisels of bone and horn, and possessing the domesticated dog. This culture is traceable in Denmark, Yorkshire, Mecklenberg, Central Germany, as far south as Kalbe on the Milde, Pomerania, Prussia, and Norway. The warmer Boreal influences causing the rapid growth of forest lands to the south seem to have later isolated these peoples on the Baltic.

The Boreal was succeeded by the Atlantic or Littorina phase (brought about by a sinking of the land permitting an inflow of salt waters from the Atlantic) with the warm wet oak typical of the period. Associated with it is the Ertebølle and Kjøkken-Modding (Kitchen Midden)—the earliest true neolithic—cultures, in which pottery of a crude type was manufactured in northern Europe for the first time. Finally the climate became drier, giving rise to the sub-Boreal phase. Greater communication became easier and so we find the wider spreading of cultures and the development of the true neolithic. Thus the climate in Europe has been the arbiter of the bounds of man. These changes have apparently not left unimpressed the folk-memories of the peoples. Brooks<sup>24</sup> cites the meteorological legend of the

twilight of the Norse gods, when snow and frost ruled the land for generations, which he attributes to a great change of climate about 850 B.C. This, however, may be a traditional account of a still earlier event nearer the glacial period.<sup>25</sup>

There is also the older tradition of the Noachian Deluge, paralleled by the Egyptian story written about the time of Seti I (according to Elliot Smith), and by legend among the Mongols, Kamchadales (Malay Peninsula), Chaldeans (recorded by Berosus and by the Epic of Gilgamesh),<sup>26</sup> Greeks and Persians, by the Satapatha Brahmana of the Indians, and tales of the Bahnars in Cochin China and so on.<sup>27</sup> These may be some reference to changes of sufficient magnitude, brought about by post-glacial variations of land and sea which have left a corresponding impression on the human mind. With the close of the Atlantic period the epipalæolithic or very early neolithic in northern Europe ended. The sub-Boreal brought in the beginning of neolithic and bronze age cultures, while the new sub-Atlantic saw the closing phase of prehistory—the iron age. These great cultural changes (which are not altogether unrelated to ethnic movements) occurred in all probability in response to the changing climate of their areas of characterization.<sup>28</sup>

It is now generally acknowledged that climate in Europe is dependent on the position of the cyclonic belt. Therefore from the archæological and geological evidence we can work out the changes in the position of the belt. In the Boreal Period the cyclonic belt must have been to the south of its present position, although in the process of adjusting itself to modern conditions. The Maglemose folk were among the earliest to penetrate to the North. (Examples of such early migrations stretching from the Mediterranean can be well illustrated by the sites of Mugom and of the Azilian-Tardenoisian cultures from southern France to the Baltic and Oronsay.) At a later period there would be a dispersion along the central plains and the Black Earth region, exemplified in the infiltration of neolithic, chalcolithic and bronze cultures,<sup>29</sup> and finally the forest belts of northern continental Europe would be pierced and destroyed as the cyclonic belt took up its present position. To be correlated with this latter phase would be the movements of the Hallstatt and La Tène civilizations and ultimately the final moving northward of two branches of a Nordic-like stock—Kelt and Goth. Ellsworth Huntington<sup>30</sup> points out that the climatic conditions of north-western Europe and eastern U.S.A. are now most favourable to

civilization, and since there were once great centres of civilization, in Mesopotamia, Egypt, and the eastern Mediterranean (which gave place to Greece and then to Rome), these changes were due to the movement northward of the belt of cyclonic activity. Further, Huntington<sup>31</sup> accumulated evidence to show that fluctuations in the prosperity of ancient civilization were ultimately due to climatic conditions and that in the Near East there was peace when sufficient rainfall, but war and migration when it diminished. Thus, just after 1700 B.C. the invasions from the deserts of Kassites into Media, Elam, and Babylonia, of Hyksos and of Hebrews into Egypt occurred, and (about 1400 B.C.) of Aramaeans into Syria from the south and Hittites from the north. These movements postulate desiccation of this region—a view held by Kropotkin who maintained that there had been gradual desiccation of central Asia.

Such dispersals were facilitated by new methods of transport. It is claimed that probably before 5000 B.C. somewhere in western Asia, domestication of camels, cattle, horses and asses occurred. (Domestic oxen, sheep, goats and swine were pastured by the Fayûm peoples in Egypt and by the Prediluvians in Mesopotamia, while domestication was apparently common to the early Asiatic civilizations.)<sup>32</sup> Ox-carts were used in the bronze age, and we know that the horse reached Sumeria from the north about the time of Hammurabi, and the later conquest of Egypt by the Hyksos was greatly facilitated by their horse-drawn chariots.

Climatic changes that have occurred in Asia and their influence on civilization and migrations are illustrated at Anau. It was occupied from time to time and abandoned during the intervening periods which are represented by desert formations, and since there is no evidence of conquest, it is generally accepted that the interruptions were due to drought.<sup>33</sup> The first settlement is supposed to have begun about 9000 B.C.,<sup>34</sup> the second about 6000 B.C. The end of the first and all the second show increasing aridity, and it was abandoned soon after 6000 B.C. It was re-occupied about 5200 B.C. until about 2200 B.C. Then followed a period of intense drought to be equated with the sub-Boreal in central Europe and Anau, Susa and Tripolje were abandoned.<sup>35</sup>

We have thus a poignant story of the reaction of man to environment. Following the retreating ice man gradually settled in Europe, while coincident with this the well-watered

regions of Asia and North Africa were desiccated and the nomads set in motion. By means of geographical conditions alone are we able to explain these vicissitudes in the history of man. Climate, however, has not been static in more recent times. Pettersson would account for this by postulating a period of maxima tide-generating force, attaining its latest phase in A.D. 1434 and having periodicity of about 1800 years. In the 14th century, for example, the North Sea and the Baltic coasts were flooded, and cold periods, famines, and migrations resulted. Similar storm-floods impoverished the late bronze age people of Scandinavia. And as early as about 700 B.C. the amber trade route<sup>36</sup> shifted from the Elbe and Weser to the Vistula,<sup>37</sup> the North Sea presumably being very tempestuous. Pettersson contends that there was an iceless period favouring agriculture and commerce (which characterizes the Viking Age) between the two maxima of 400 B.C. and 1400 A.D. This apparently corresponds to the period from Kjekken-Modding to earliest bronze age times. From literature we also know there have been considerable changes—the invasion of the Teutons and Cimbri into Gallia was connected with inundations of Jutland, while tradition among the Druids relates that they were expelled from east of the Rhine by hostile tribes and an invasion of the ocean.

In the 10th and 11th centuries A.D. (the climate being comparatively mild and no ice blockades existing on the north of Iceland and south of Greenland) strong emigration took place from Norway to Iceland and Greenland and voyages were even made beyond.<sup>38</sup> (One fleet took 750 to 1,000 persons to Greenland alone.) But at the close of the 14th century a great accumulation of drift ice off the east coast of Greenland had occurred. This resulted in the 13th and 14th centuries in invasions of Eskimaux and the annihilation of the Norse.<sup>39</sup>

#### ENVIRONMENT AND RACIAL DEVELOPMENT.

Climate not only governs habitat but plays as great a part in moulding anthropological types as hybridization.<sup>40</sup> As a consequence intermediate types are not always due to two strains; separated sections of a race are subjected to their own particular geographical environment and in time they will differ widely from each other. An interesting problem respecting the powers of environment and hybridization arises in our own islands. The Britons,<sup>41</sup> Caledonians,<sup>42</sup> and Gaels,<sup>43</sup> in common with all the

Kelts,<sup>44</sup> were fair peoples. The Saxons and Danes were also fair and a part of this great Nordic stock. Some mixing with the dark aboriginals is bound to have taken place, but to-day the Scots and English (definitely Nordic in most respects) tend to be brunets. This is not necessarily due to hybridization, for if so not only would hair colour have altered in a Mediterranean direction but cranial type, stature, eye-colour, and other features, whereas the opposite appears to have been the case. It has yet to be shown that this brown-haired, tall, blue-eyed, mesaticephalic Nordic people is necessarily "disharmonic." The fairness of hair before maturity and the subsequent development of nigrescence seems to support this view. To reject this would be to deny to geographical environment any influence during two to three thousand years. This is a case of divergent differentiation of the Nordic stock due to climatic conditions. Prof. Fleure,<sup>45</sup> while perhaps not taking quite the same viewpoint, comes to this result and so also does Haddon<sup>46</sup> in regard to the matter of hybridization and differentiation.

Climate therefore does influence the germ-plasm and the reactions to it largely become heritable. This and the combination of isolating factors, has resulted in "races." Biogeographical studies of anthropology, ethnology and prehistory outline for us: natural routes; foci of dispersion; dependence of man on food supply (determined by geographical influences) and therefore man's habitat. Such studies explain the raising of great civilizations in now desert areas and the break-up of their peoples without invoking hypothetical reasons such as "trade" conquests or any other cultural instinct.

By a combination of viewpoints such as these (archæological, anthropological, geological and geographical), some day, we may be able to track down our mystic Asgard—the birthplace of the Nations—the primitive Eden of the old world, and trace the wanderings of the tribes, learning something of their civilizations, until we identify them among the nations of the prosaic 20th Century.

#### BIBLIOGRAPHY.

(1) The outward expression of these genetic groups is characterized by definite physiological traits. However, it is a mistake to stress too far the value of cephalic index, colour or shape of hair, or pigmentation of skin or any other single feature. The sum total of all outstanding racial characteristics is the only scientific criterion

of classification. Professor G. Sergi in *The Mediterranean Race* (1901), p. 198, draws attention to such abuse of anthropological data when discussing the cephalic index of Neanderthal and Cro-Magnon.

(2) Griffith Taylor, *Environment and Race*, Oxford, 1927.

(3) For an account of this skull see "The Significance of the Peking Man," No. XI, Henderson Trust Lecture, Edinburgh University, 1931.

(4) Marett sums up this important provision by saying, "So long as man was the land-animal . . . he must foot it together with the other land-animals along the existing bridges and corridors, and had virtually no choice in the matter. Given a boat, however, he became amphibious; he could to that extent make free with geography." (Article, "Anthropology," *Encyclopædia Britannica*, 14th ed., vol. 2, p. 42.)

(5) *The Archæology of the Anglo-Saxon Settlements*, E. T. Leeds, Oxford, 1913, p. 19.

(6) Dr. R. E. M. Wheeler's plate in *Prehistoric and Roman Wales* aptly illustrates this.

(7) This is illustrated by Professor Fleure and Mr. Peake in their plates (Figs. 80, 81 and 82) appearing in *The Steppe and the Sown*, Oxford, 1928.

(8) C. Fox, *Archæology of the Cambridge Region*.

(9) The circles of Aberdeenshire range from the shore to very fair altitudes, and some in Perthshire are found actually as high as 1,400 feet.

(10) A distribution from the southern mountain chain is supported by Dr. Frankfurt, who favours the western section of the Iranian Plateau as the centre of distribution of flat-ended ear-rings and pins of the rolled eyelet and raquet varieties—tokens of an intrusive culture. *Antiquaries Journal*, viii, p. 230.

(11) Marett does not exaggerate when he (Article, "Anthropology," *Encyclopædia Britannica*, 14th ed., vol. 2, p. 43), says, "As a cause of migration on a grand scale dessication is perhaps more effective than any cultural influence, such as commercial enterprise or colonial expansion."

(12) This consisted of a number of glacials and interglacials, details of which cannot be given here. The main divisions are Günz, Mindel, Riss and Würm. For further information see *Stone Age Antiquities*, British Museum, *Prehistory and Our Forerunners*, by M. C. Burkitt, M.A., etc.

(13) Brooks, *Climate Through the Ages*, London, 1926, p. 185; also *The Evolution of Climate*, 2nd ed. (1924), and *Quarterly Journal, Meteorological Society of London*, xlvii, p. 173 (1921).

(14) A map illustrative of the probable effect of the ice cap on the cyclone path is given by G. C. Simpson, *Proceedings*,



*Royal Society of Edinburgh*, vol. 1, part iii, No. 21, p. 275, referring to the Mindel Maximum and based on the views of Köppen and Wegener, *Die Klimate der geologischen Vorzeit*, Berlin, 1924.

(15) Professor V. G. Childe's *Most Ancient East*, cap. ii, for short account.

(16) A concise list of the fauna existing in Europe at this time is given in Table I, p. 283, *Proceedings of the Royal Society of Edinburgh*, vol. 1, part iii (No. 21), "The Climate during the Pleistocene Period," by G. C. Simpson, and based (for archæological correlation) on the work of R. R. Schmidt, *Die Diluviale Vorzeit Deutschlands*, 1912, and Soergel's *Lösse, Eiszeiten, und Palæolithische Kulturen*, Jena, 1919.

(17) Testút, *Bull. Soc. Anth. de Lyon*, vol. viii (1899).

(18) Hervé, *La Race des Troglodytes Magdalenians*.

(19) Boyd Dawkins, *Early Man in Britain*, London, 1880, p. 233 *et seq.*

(20) Sergi, *The Mediterranean Race*, p. 197, ed. 1901.

(21) The date of the retreat is variously estimated. Lidén estimated the end of the glacial retreat as late as 6500 B.C. De Geer estimated the beginning of the retreat as 13000 B.C. to 14000 B.C. Peake and Fleure—*Hunters and Artists* (1927), pp. 9–10. A. Heim estimated the retreat of the ice from Lucerne at 14000 B.C. Mr. M. C. Burkitt, working on de Geer's calculations, gives the retreat of the ice from the Baltic Ridge (the southern limit of the last glaciation) as 12500 B.C. Professor Sollas, however, estimates 15000 B.C. See M. C. Burkitt, *Our Forerunners* (1923), p. 63.

(22) See *Dawn of European Civilization* (1925), Professor V. G. Childe, pp. 8–9.

(23) M. C. Burkitt thinks the Maglemose was of the same age as the Azilian in France and would date it at 10000 B.C., *Our Forerunners* (1923), p. 64.

(24) Brooks, *Climate Through the Ages*, London, 1926, p. 331.

(25) There is another story of a period of great cold with frost and snow, which may be a legend of the Ice Age, in the Zend Avesta, the most sacred books of the Zoroastrians or Parsees. See Peake, *The Flood* (1930), pp. 23–24.

(26) A concise and short account of this is given in *The Babylonian Story of the Deluge and the Epic of Gilgamesh*, published by the British Museum, 1929.

(27) See Peake, *The Flood* (1930).

(28) A concise and clear account of the post-glacial changes in climate, especially in regard to forests and growth of peat, is given by T. W. Woodhead, Ph.D., "Post-Glacial Succession of Forests in Europe," *Science and Progress*, No. 102, October, 1931.

(29) Professor V. G. Childe, *Bronze Age*, contains a map of bronze age cultures, which illustrate the infiltration by this route.

(30) Ellsworth Huntington, *Civilization and Climate*, 3rd ed. New Haven (1924).

(31) Ellsworth Huntington, *The Pulse of Asia*, London (1907), and *Palestine and its Transformation*, London (1911).

(32) Professor V. G. Childe, *Most Ancient East*, for early asiatic civilization, and also M. C. Burkitt, *Our Forerunners*, p. 137.

(33) See Peake, *The Bronze Age and the Celtic World*, and Brooks, *Climate Through the Ages*, London (1926), p. 358.

(34) It should be pointed out that there is no ascertained chronology for Anau in Russian Turkestan, and the dates given are merely tentative and those used by Brooks. See V. G. Childe, *Most Ancient East*, p. 229.

(35) Brooks, *Climate Through the Ages*, London, 1926, p. 358.

(36) For maps of the amber trade route see Professor W. B. Dawkins, *Early Man in Britain*, p. 168, and map in Professor V. G. Childe's *Bronze Age*.

(37) The one amber trade route ran from the head of the Adriatic up the Adige, through the Brenner Pass, down the Inn to Passau and the Danube, across the Bohemian Forest to the Moldau and the Elbe. The other Route ran from the Gulf of Trieste to Laibach, Gratz, down the Leitha to the Danube at Pressburg, up the March, across Moravia, through Silesia along the Oder, across Posen to the Vistula and Baltic near Danzig. *Antiquities of the Bronze Age*, p. 136, British Museum (1920).

(38) See account of voyages of Biorn Heriulfson in vol. 5 (1879), *The Yorkshire Archaeological Journal*, p. 183 *et seq.*, by Rev. D. M. Haigh.

(39) O. Pettersson, *Ur Svenska Hydrografisk-Biol. Kom. Skrifter*. See also Brooks, *Climate Through the Ages*, p. 398, London, 1926.

(40) The reaction of race to changing conditions does not preclude the principle of a race-making period of Mr. Walter Bagehot, but the position is well stated by Marett: "No biological trait . . . is in a strict sense invariable, the plasticity of organic life pervades all its parts. Yet some human characters undergo alternate modifications that, once acquired, are reproduced with a high degree of regularity. Headform, hair texture and skin-colour are instances in point, not to mention many minor features of great persistency such as eye-colour, or the shape, and especially the breadth, of the nose." ("Anthropology," *Encyclopædia Britannica*, 14th ed., vol. 2.)

(41) The Roman ladies dyed their hair fair on account of the fairness of the Britons. Boudicca had flowing yellow hair, and Welsh records say fair hair was prized. This indicates a fair stock in the West as well as a dark Mediterranean race. See Professor F. G. Parsons, *The Earlier Inhabitants of London*, 1st ed. (1927), p. 103.

(42) *Rutilæ comæ, magni artus*, according to Tacitus.

(43) The Gael called foreigners the "Dark People," thus marking themselves as fair.

(44) Classical writers generally credit the Kelt with great stature, fair or reddish hair and blue or grey eyes. *Early Iron Age Antiquities*, p. 6 (1925). This is also the view of no less an authority than Professor Watson, Edinburgh University.

(45) "The most abundant type in England is that of a long-headed fairly dark and rather tall man, though stunting is sadly frequent. This is not to say that we have not numerous tall, fair long-heads, and, in some districts, short, dark long-heads, but the general run is neither the one nor the other, and, it seems almost certain, not a mixture of the two. It is rather a case of differentiation which has reached neither the one goal nor the other." (*Eugenics Rev.*, xiv (1922), p. 97; and *Journal of the Royal Anthropological Institute*, vol. 1, pp. 39-40.)

(46) "It is possible that there may be groups apparently intermediate between two others, which do not owe their intermediateness to racial mixture but to their being less modified descendants of an ancestral stock from which the other two stocks have diverged. Thus with more complete knowledge it becomes increasingly difficult to define a 'race.'" *The Races of Man*, p. 2 (1924).

#### DISCUSSION.

The CHAIRMAN (Capt. T. W. E. Higgins) said: In considering the subject we naturally ask, Who were the Races who "moved," and why did they move? The lecturer has fully answered the second question, but he does not tell us which were the races who moved, nor does he tell us how to distinguish a race. Professor Fleure recently wrote: "Existing types have all evolved from one ancestral type already quite human," and the lecturer claims that the variations from this type—*homo sapiens*—such as the Negro's thick lips and black skin, are largely due to the influence of climate; but when he refers to "dolichocephalous types" and "brachycephalous peoples" does he suggest that climate has any influence in such modifications? or can he suggest how such differences arose, and what ages it took to make long skulls broad?

That geographical environment and climate mould character, is no doubt true to a certain extent, but the lecturer does not give any details of its effect on the mentality or morality of any people. Do the people of N.-W. Scotland (for instance) differ from those of

S.-E. England only because they do not share alike the blessings of our climate in equal proportions ?

Griffith Taylor, to whom the lecturer refers, in his map of the *Zones of Migration showing the Evolution of Races* uses the cephalic index as the basis of his survey; and it strongly supports the lecturer's contention that very ancient types of man wandered from the original home, possibly driven further by broad-headed people, so that we now find the oldest types, consisting mostly of inferior long-headed people, located on the extreme edges of the world. This appears to be corroborated in two other lines of approach.

Professor Roland Dixon, of Harvard, by an entirely new method of classification, based solely on skull measurement, comes to the same conclusion as Taylor.

But from quite a different line of approach Father Schmidt, of Vienna, in *The Origin and Growth of Religion* (1930), brings evidence in support of the lecturer's contention, showing that the nations not only spread forth from one centre, but carried with them *the common traditions*. He says [my summary of pp. 234 and 261]: Assuming that the human race originated in Asia, it gradually migrated to other portions of the globe. Those portions of the world which contain the savage races to-day, namely, Africa, Oceania, and America are connected to Asia by isthmuses or strings of islands, so narrow that the bulk of the migrations must have followed this one way, and these men of the most primitive cultures carried with them the belief in a Supreme Being, so that this belief is almost like a girdle around the south central part of the Old World, and it is an essential property of the most ancient cultures; and must have been deeply and strongly rooted at the very dawn of time, before the individual groups had separated from one another.

Thus Griffith Taylor, Roland Dixon, and Father Schmidt all support the lecturer's contention. When we discuss "Races" and "Zones of Races," we are brought back to the question, What constitutes a race? But I must be careful. A writer in this month's *Contemporary Review* says: "Race is a sadly abused word, which is only safe when it is used by an Anthropologist—and not even always then." Both Taylor and Dixon accept skull measurements as the most reliable criterion of race, and Ellsworth Huntington says that Dixon's new method of race determination "produces results which

agree to an extraordinary degree with the known facts of history." With skin-colour or hair-texture as the basis of our classification, we cannot usually tell in digging up an old skull whether the owner was black, yellow or white; whether his hair, if he had any, was straight or frizzy. To me it seems that Dixon's classification of eight racial types of skulls is the most simple.

As regards migrations: If a group of people wandered off and settled in a forbidding and unsuitable neighbourhood, would it not be the more progressive who went further into the unknown to find a more suitable home, leaving the less energetic behind? Ellsworth Huntingdon's theory appears to be that as the wanderers struggled on, the difficulties encountered acted as a process of natural selection, causing the survivors to become of a higher mental and physical type, and only after they had established themselves in some more comfortable surroundings did a period of degeneration set in.

To come to our own Island: The lecturer mentions the "Britons" as being, in common with the Kelts, a fair people. May I suggest that they would be better described as "The Brythons" or "Brythonic Kelts." The ancient Britons, who were here before the Kelts, were short, dark, long-headed people of the Mediterranean Race (the "Long Barrow" people). Their predecessors, early types of Neolithic man, were supposed to be of much the same appearance; and the short, dark, long-headed people to be found in Herts, Devon, Cornwall and elsewhere are said to be the remnants of these two ancient peoples. It seems, however, highly probable that persons of the Mediterranean Race, especially women, were left in out-of-the-way places in many other parts of the kingdom—hence our dark-haired countrymen.

Professor Parsons, after researches among medical students and hospital patients in London, is of opinion that the modern Londoner is still more than three-quarters Nordic, though he considers that the Alpine type is increasing at the present time. And here, one may well ask, is the character of the English people altering? Are the Mediterranean and other types submerging the Nordics? How else can we account for the extraordinary desire manifest in some of our leaders, ecclesiastical as well as lay, to depreciate the deeds of our forefathers, and bid us be always apologizing for the leading

position which our God-given Empire has taken in world affairs, given, as I believe, that we may teach the nations His will.

Ripley, in his *Races of Europe*, states that the average cephalic index in the British Isles lies between 77 and 79, and is practically uniform from end to end of the country. When Ripley wrote, no attempt at a complete survey of the population had been made—nor has it yet—but when any intensive survey has been made in any locality, like those carried out by Messrs. Fleure and James in Wales, it has been found that there is often a wide variation, displaying quite distinct types, which apparently have lived side by side for generations, without mixing. To what extent climate influences the germ-plasm, and what, if any, limits can be set to its influence and the heritable reactions resulting therefrom, are very interesting questions, which I am sure we would all like to see fully discussed.

Lastly, we must remember that though great movements of nations may take place from the combinations of what we call natural forces; yet behind all is a Divine Providence, working to some Great End, which in this life we but dimly envisage, feeling certain that its ultimate purpose may be summed up in the motto of our Institute, To the greater glory of God, AD MAJOREM DEI GLORIAM.

Rev. Dr. H. C. MORTON said: Our thanks are due to Mr. Gair for presenting to us the geographical factors governing man's possible migrations. There is, I think, need for some revision of certain sentences, the meaning of which is not clear, such as the sentence relating to the proof as to the northern corridor: "This is cut off from the fertile lands of the south by a wide stretch of poor steppe and from south of Lake Balkash to the Turkmen Republic and almost the shores of the Caspian Sea by a series of deserts." It may be that though I used maps I did not use maps big enough.

The geographical facts are very interesting: but as to migration the whole question appears to be first of all "Whence?" and while Mr. Gair seems to look toward Bible records in some of his remarks—I am thinking of the kindly references to Eden—in others he assumes the current anthropological evolutionary accounts of mankind, with their prodigious assumptions as to enormous ages for the human race. If *Hesperopithecus* and *Neanderthal*, and

Pithecanthropus Erectus, and Taungs Man, and now Homo Pekinensis, are to be taken, not as creations of imagination pushed to the very borderland of the ridiculous, but as serious evidence for an antiquity—I quote, for instance, regarding Pekin Man “of from 1,000,000 to 5,000,000 years old,” an evident sheer guess, which carries upon its own face the rebuke of its audacity—of millions of years for the human race, then we must really give up all pretence of harmonizing the Bible with that kind of anthropology.

But apart from these strange unaccountable reckonings in millions, very much smaller but still most divergent reckonings in thousands of years seem to me to drive us to the conclusion that all hypotheses concerning race migration as presented to us to-day are quite speculative in character. In regard to the different human cultures to which references are made, should not these also be regarded as speculative? So many hypotheses respecting distinct cultures seem built up upon such slender foundations of evidence. So at least it has seemed to me in my anthropological reading, and when I find them treated very seriously I feel grateful for all efforts to improve my intellectual pathways for me, but I shall still walk with wary feet.

#### WRITTEN COMMUNICATIONS.

Colonel SHORTT wrote: Mr. Gair has given us a most helpful paper on a very difficult, but necessary, subject.

I would like, however, to suggest that a distinction should be made between *Migration* and *Spread*. By *Spread*, I mean, the gradual outward colonization, along the most favoured corridors owing to over-population. Yet nature, in early days, as with animal and bird life, regulated the population by war and disease, and I suggest that this influence may be exaggerated. *Migration*, on the other hand, might be due to a spirit of adventure, more often to *fear*. There is probably no more potent cause of migration than fear of a stronger neighbour. It was fear which caused the Eskimos to colonize Greenland in the fourteenth century. It drove the Kelts to the western fringe of Europe, the Brythons to the mountains of Wales, the Angles and Saxons into England, and was responsible for the emigration of a great mass of Dan, Asher, Zabulon and Naphthali, who thus evaded the captivity under Assyria, and turned

nomad. Such movements would not follow the corridors. Rather the reverse, for their main purpose would be to place the greatest barriers, whether of sea or land, between them and their enemies.

Lieut.-Col. L. M. DAVIES wrote : I am glad to see that Mr. Gair seems to endorse two points which I tried to make in my last paper read before the Institute, namely, the diffusion of mankind from a central position east of the Mesopotamian region, and the sub-recent desiccation of lands compelling and ruling the migrations of various branches of the human stock (*Trans. Vict. Inst.*, vol. lxii, p. 83, etc.).

Our race has twice, according to Scripture, dispersed from a central spot ; the first dispersion (of which no details are given) being from Eden, and the second dispersion, after the Flood (which I take more seriously than most geologists do to-day), being from a region *higher* than (and *east* of) the Mesopotamian lowlands. On any showing, whether one explains the greater moisture by the break-up of the Ice Age, or by residual waters left after a general deluge, the continents seem to have been considerably damper in the not very distant past than they are to-day. The well-marked evidence of this in Central Asia, which was never properly glaciated, points to flood, rather than glacial influence, as argued by G. F. Wright himself, the well-known American glacialist.

If the Bible account of the early history of our race is to be taken seriously—as I maintain—then the survivors of the Flood must first have moved *east* from the region of Ararat, and subsequently (in part, at least) back *from* the east into the Mesopotamian lowlands (Gen. xi, 2). That eastern region, into which they first went (thus indicated, but not named, in Scripture) must represent the area in which the race first again recovered its numbers, and from which it subsequently dispersed again a second time to cover the earth. High lands—in those days the best lands—stretch from Ararat into Central Asia, and from there disperse north-west, north-east and south-east. The early settlers in Australia and in the Americas must, on almost any showing, have followed these routes ; while the “ Southern Corridor,” as Mr. Gair calls it, to south of the Caspian (which undoubtedly extended far further north in those days, while much of northern Russia was still under the Arctic) would afford



the natural route for dispersion to Europe in the west and Africa (via the Syrian highlands) in the south-west. An attempt to call a halt, in the course of this latter migration, was (according to Scripture) broken up at Babel.

#### LECTURER'S REPLY.

When Captain Higgens raises the interesting problem of the responsibility of climate for anthropological differences, he encroaches on the whole basis of the relationship of heredity and environment. In the limited space, to which I am restricted in this reply, there is not opportunity for adequate discussion. It is sufficient, however, to say that the realization of a distribution of peculiar racial characteristics, co-extensive with a particular type of environment, is significant. So much so, that it is safe to assume that the geographic control is at least partly operative. If such conditions are found in connection with the fleshy structures (such as colour of skin, shape of lips and nose, and so forth), then it is reasonable and logical to assume that the whole physical structure is, in a greater or less degree, subject to reactions to environment. In making this deduction, it is not necessary to overlook, or underestimate the inherent properties of "race" itself.

To discuss these factors, brings us up against the whole of the difficulties of the race-problem. To me it seems that the environmental (or geographical) control has undoubtedly modified physical types from the beginning of time. Nevertheless, there is still a race-factor, since no amount of Irish environment will make a bull-dog into an Irish terrier. Therefore, while claiming that environment has played a large part in modifying racial types, it behoves both schools of thought to be moderate in the logical application of their theories.

Before I could answer the question, whether the people of N.W. Scotland differed from those of S.E. England on account of differences of climate, certain facts would have to be ascertained. If, after careful anthropometric and ethnological research, it was found that the people of these two areas were essentially of the same racial stock, then any apparent differences should be ascribed directly, or indirectly, to environment. If they were of different strains,

then the racial as well as the environmental factor must be taken into account. For my part, I am inclined to consider the inhabitants of these areas, so different ethnologically, are not so far apart racially, as often considered.

I am glad that Capt. Higgens draws attention to Schmidt's work, since the scope of my paper did not allow me the opportunity of digression into this profitable field of comparative religion, in relation to ethnography. The result of such research is undoubtedly in favour of an oriental centre of dispersion.

I used "Britons" expressly for a Keltic people. It always seems to me a very loose practice to give that name to the aboriginal Mediterranean peoples. There is no historic justification for such procedure. The Britons of history are always Keltic, and in the main, from the description, of Nordic type.

That some of the dark Mediterranean stock may have been left in eastern Britain does not invalidate my main contention. The fairness of children, the general fairness of rural as against urban populations, and the statements of history, to which I have referred, leave no doubt, in my mind, that there was a preponderating fair element in Britain in early times. Steadily increasing nigrescence is to be expected on the basis of Mendelian laws of inheritance alone. It is a fact that, if a person with light hair marries a black haired individual, the offspring tend to be dark. A dark strain in Britain to-day does not necessarily postulate any very great proportion of dark-haired (or Mediterranean) ancestors. Light eyes and light hair are considered complementary. Therefore a light-eyed stock would not be classified as Mediterranean, even if the hair were dark. It is possible to demonstrate that the light-eyed (and therefore fair-haired, or potentially fair-haired, Nordic stock) was very great in early times. This is best illustrated by a quotation from Dr. J. Brownlee's Henderson Trust Lecture, 1924 (Edinburgh), entitled, "The Origin and Distribution of Racial Types in Scotland" (p. 23), "As hair and eye-colour are inherited on Mendelian lines, it is possible to test by Dr. Beddoe's survey whether there was any source of light eyes in the ancestry of the race other than that provided by the light-haired invaders. This is best applied by adding the number of dark and jet-black-haired person to the number of light-eyed persons. If this total exceeds

the total number of persons observed, there is an excess of light eyes beyond that given by the mixture of race commonly assumed. This analysis shows that this excess is very large in many districts. In the West of Ireland, and especially Sligo, half the original dark-haired invaders must have had light eyes. This excess is also marked in Cornwall, Devonshire, and Wales, and in Scotland, especially in the West, in the region of the Great Glen and in Orkney."

Thus the evidence tends to minimize the occurrence of any great amount of the Mediterranean strain at all. Therefore, I should account for dark-hair on a basis of recessiveness and environmental change. Sir Arthur Keith recognizes this early Nordicism of Britain, but believes the invaders were dark-haired, since they had not reached the degree of fairness of historical times. I am inclined to dissent from this view, on the basis of the historical evidence alone.

I quite agree with Capt. Higgens when he says that the Nordic stock, although still the preponderating element, is decreasing in Britain. To me, this seems to be partly due to industrialisation and legislation, both of which tend to repress the Nordic class. However, this is a matter for further discussion and investigation in collaboration with the eugenist.

Lack of space prevents me from dealing adequately with other than these salient points. As regards Dr. Morton's criticism, all I can say is, that in all scientific work, certain basic principles must be accepted, if only to form a basis of philosophical reasoning. Therefore, on that account alone, the principle of stratigraphy (upon which is built the whole time sequence of prehistory) cannot be lightly thrust aside without adequate arguments being advanced to disprove it. Dr. Morton makes no attempt to do this.

## 751ST ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,  
WESTMINSTER, S.W.1, ON MONDAY, JANUARY 18TH, 1932,

AT 4.30 P.M.

DR. JAMES W. THIRTLE, M.R.A.S., IN THE CHAIR.

The Minutes of the previous Meeting were read, confirmed, and signed, and the ACTING HON. SECRETARY announced the following elections. As Members: Miss C. Tindall (from Associate); and the Rev. Prebendary H. W. Hinde; and as Life Associate, the Rev. W. M. Fouts, ThD.

The CHAIRMAN then called on Brig.-General H. Biddulph, C.B., C.M.G., D.S.O., to read his paper on "The Nestorian Mission to China."

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### *THE NESTORIAN MISSION TO CHINA.*

By BRIG.-GENERAL H. BIDDULPH, C.B., C.M.G., D.S.O.

THE early ages of the Christian Church were a time of great missionary activity, but we have little beyond traditions as to the spread of Christianity. Many of the early churches perished, but the largest area in which Christianity was extinguished was the Chinese Empire. I desire to examine this matter and the lesson taught is one of abiding value.

Tradition of doubtful value ascribes to St. Thomas the introduction of Christianity into China, and it is not until A.D. 635 that we come to assured facts. Early in A.D. 1625 workmen dug up near Hsi-an-fu, the capital of Shensi, a large stone slab covered with an inscription in Chinese, interspersed with a few sentences in Syriac, and bearing some 70 names of individuals in Chinese and Syriac.

This discovery was notified to the authorities, and the first translation was made by the Jesuit missionaries. Two of the most recent translations are by Professor Saeki, of Tokyo, and by Mr. A. C. Moule, the former of whom adds a mass of explanatory notes.

The inscription, entitled "The Monument Commemorating the Propagation of the Syrian Luminous Religion in the Middle Kingdom," begins with a summary of the doctrine of God, the Trinity, and of Man. It then records the arrival of A-lo-pen from Syria (perhaps Rabban) with books and images in A.D. 635. The Emperor, T'ai-Tsung, received him honourably, had his books examined, and, approving the doctrine, issued an edict in A.D. 638 in favour of the new religion, authorizing its free course throughout the Empire. A monastery was to be built in Hsi-an-fu with twenty-one regular monks, and the Emperor's portrait was to adorn its walls. The Emperor Kao-Tsung (A.D. 650-683) caused monasteries of the Luminous Religion to be founded in every prefecture, and conferred on A-lo-pen the office of Great Spiritual Lord, Protector of the Empire. The religion spread over the ten provinces, and the Empire enjoyed great prosperity. Monasteries occupied every city, and families enjoyed the great blessings.

Then there followed a period of decline under the attacks of Buddhists and Taoists, but the arrival of a fresh mission from Persia in A.D. 732, under Lo-han, the head priest, and Chi-lieh, effected a revival. The Emperor, Hsuan-Tsung (A.D. 712-755), who was surnamed "the Perfection of the Way," ordered five princes to visit the monasteries and to set up altars therein. In A.D. 742 he directed his Generalissimo of Cavalry to place the portraits of the five emperors in the monastery, and to present a hundred rolls of silk. In A.D. 744 a priest named Chi-ho arrived from Syria to pay court to the Emperor, who gave orders to Lo-han, P'u-lun and others to perform services in the Hsing-ch'ing Palace, and the Emperor himself composed and wrote a motto to be fixed on the door of the monastery. The monastery was resorted to by influential people and enjoyed the Imperial favour.

The Emperor, Su-Tsung (A.D. 756-762), rebuilt the monasteries of the Luminous Religion in Ling-wu and in four other departments; great prosperity came down and the Imperial Estate was established. The Emperor, Tai-Tsung (A.D. 763-779), observed the rule of non-assertion and walked in the Way of the Silent operation. On his birthday he used to bestow celestial incense wherewith to report his meritorious deeds (to Heaven), and distributed provisions from his own table to the congregation of the Luminous Religion. The present Emperor, Te-Tsung (began to reign A.D. 780), also was favourable.

Then follows an eulogy of the Great Patron Issu, a priest who received the purple robe, and who occupied the highest offices of State. Ever since he had heard of the "Way" he practised it. He made magnificent gifts, restored the old monasteries, enlarged and beautified the worship-halls. He spent his income in benevolent deeds and annually assembled the priests of the four monasteries to a retreat of fifty days. He fed the hungry, clothed the naked, healed the sick and buried the dead. Such excellence was not yet heard of, and we see this man among the white-robed scholars of the Luminous Religion. Next follows a poetical eulogy of the Emperors, and finally it is recorded that the monument was erected in A.D. 781 in the days of Mar Hanan-isho, Catholicos, Patriarch. Some seventy names are added in Chinese and Syriac, the individuals ranging from monk to bishop.

Independent Chinese writings refer to statements recorded on the monument, such as A-lo-pen's mission and the decree of A.D. 638, approving his doctrine and its teaching throughout the Empire, and directing also the building of a monastery in Hsi-an-fu, with 21 regular monks. The monk, Chi-lieh, is also mentioned more than once. He came in A.D. 732 in the suite of a high official sent by the King of Persia to do homage to the Emperor. A decree of A.D. 745 states that the Persian religion of the Scriptures originating from Syria, had long been taught and practised in the Middle Kingdom. An inscription of about A.D. 824 refers to Manicheans, Christians and Zoroastrians as being among foreign immigrants into China. Evidence also exists to the effect that the natives built a monastery for a full complement of resident monks about A.D. 875 in the city of Ch'uan-chou-fu, and another record refers to a monastery in the same city, built in the reign of Hsuan-Tsung (A.D. 712-755).

Toward the end of the nineteenth century the local priests found near Tuan-Huang a hoard of thousands of ancient MSS. hidden in a rock-hewn chamber. In 1908 both Sir Aurel Stein and Professor Paul Pelliot visited the locality and obtained a fair number of these MSS. Among them are some Christian MSS. detailed by Mr. Moule: (1) A Hymn to the Trinity; (2) Lists of Saints and Religious Works; (3) an historical note, stating that in the ninth year of the Emperor Tai-Tsung, A-lo-pen came to China from the West; (4) Four books which probably date from the eighth century; the only one of the four to which Mr.

Moule has had access is entitled "The Book of Jesus, Messiah," and from its queer mistakes it is considered to be the work of a foreigner.

We know from the monument that before the arrival of Lo-han and Chi-lieh in A.D. 732 the Buddhists and Taoists had attacked the new teaching, and as early as A.D. 797 a reaction against Nestorians and Buddhists began to appear, when for the first time Confucianists were allowed to share in the Imperial birthday services with Buddhists, Taoists and Nestorians. Before long the Taoists and Confucianists stirred up a movement against foreign religions, which culminated in the edict of Wu-Tsung, A.D. 845, and involved both Christians and Buddhists in a common downfall.

The reason of the decree is obvious, and reminds one forcibly of the suppression of the monasteries by Henry VIII. It commences by inveighing against the innovation of Buddhism and image-worship which prevailed far and wide. Everywhere the number of priests is increasing and the Buddhist temples winning support. Labour is wasted, the public purse plundered, parents and sovereign ignored, the people are injured, the monasteries and temples vie with the Imperial Palace in magnificence; while manners and customs degenerate through Buddhism. How dare the insignificant teaching of the Western lands compete with ours? We have decided to put an end to such great evils. The 4,600 monasteries supported by the Government shall be confiscated, and 260,500 nuns and priests return to secular life and pay taxes, 40,000 private temples and monasteries shall be confiscated with several tens of millions of acres of fertile land, 150,000 slaves are to be emancipated and become free tax-paying people. Further examination of foreign teachings in the Empire shows that there are more than 3,000 monks, Syrian and Zoroastrian. They also shall return to secular life and cease to interfere with the manners and customs of the Middle Kingdom. More than 100,000 idle, lazy busybodies have been driven away, and numberless beautiful useless temples swept away. Purity of life shall rule our people. Simple, non-assertive rules prevail, and everywhere the people shall bask in the sunshine of our Imperial influence.

The result of the edict was not merely the suppression of the Christian monasteries and churches, but the rapid extinction of Christianity itself, although Wu-Tsung's successor reversed his anti-Buddhist policy. After this date we never read in Chinese

books anything more about the Syrian Church and its members, and from an Arabic book by Abu 'l Faradj, we learn that the author, meeting a monk in the Christian quarter in Baghdad in A.D. 987 who had been sent by the Catholicos seven years before with other clergy to order the affairs of the Church in China, learnt from him that Christianity was just extinct in China, the native Christians had perished in one way or another, the church which they used had been destroyed, and there was only one Christian left in the land. Finding none to whom his ministry could be useful he returned quicker than he went. When one considers the vitality of Christianity as witnessed repeatedly by history, this rapid extinction of a Christian Church which had been planted under the most favourable circumstances, and had flourished for two centuries, is an amazing phenomenon, the more so since the persecution seems to have been aimed at monasteries and ecclesiastical property. We are reminded forcibly of a house built upon the sand. Surely if the house had been built upon the Rock it could not have fallen! Let us see if we can find the reasons of the catastrophe from the records quoted.

If we examine drawings of the monument we see that the figured decoration at the top "supporting" the tablet on which the title is engraved consists of two mythical creatures called "Khumbira," while the title itself is surmounted by a cross, underneath which is the lotus, with the "White" or "Flying Cloud" on either side. Experts inform us that this Khumbira design is thoroughly Buddhistic. It is a Hindoo idea which the Nestorian missionaries adopted. The lotus, of course, is a Buddhist emblem, and the same authorities inform us that the White or Flying Cloud is "the characteristic symbol of Taoists as well as of Mahommedans in China." Saeki remarks that the design was doubtless used to denote that the "Three Religions are One." It is ominous to find Buddhist and Taoist (or Mahommedan emblems) combined so prominently with the Cross in a Christian ecclesiastical inscription. The indications afforded by such "catholicity" are not encouraging, and they are strengthened by an examination of the inscription.

Saeki brings this to light very plainly. Thus the inscription says of God that He is the "Lord of the Universe," "Our A-lo-he." "The Lord of the Universe," writes Saeki, or "Highly Honoured by the Universe," is an epithet of Buddha, here used in a Christian sense. A-lo-he is the transcription



of the Syriac for "God," and Saeki notes that the three Chinese characters used are the same as those which a Buddhist translator used to represent "the fruit of Buddha," and Mr. Moule also notes this. The inscription further states that God, "setting in motion the primordial spirit (wind), produced the two principles." Dualism is plainly referred to here, and Saeki remarks, "the Spirit of Darkness and the Spirit of Light are indicated by the expression which is borrowed from Chinese cosmogony, especially that of Taoism. . . . Chinese dualism, like that of Persia, explains almost everything by the Two Spirits." One might add that the phrase leads one to suspect Manichee influence. We now transcribe the statement about our Lord: "Whereupon one Person of our Trinity, the Messiah, who is the Luminous Lord of the universe, veiling His true Majesty, appeared upon earth as a man, angels proclaimed the glad tidings. A virgin gave birth to the Holy One in Syria. A bright star announced the blessed event. Persians saw the splendour and came forth with their tribute. Fulfilling the old law, as it was declared by the twenty-four Sages, He taught how to rule both families and kingdoms according to His own great plan. Establishing His New Teaching of Non-assertion, which operates silently through the Holy Spirit, another Person of the Trinity, He formed in man the capacity for well-doing through the right Faith. Setting up the standard of the eight cardinal virtues, He purged away the dust from human nature and perfected a true character. Widely opening the Three Constant Gates, He brought Life to light and abolished Death. Hanging up the bright sun He swept away the abodes of darkness. All the evil devices of the devil were thereupon defeated and destroyed. He then took an oar in the Vessel of Mercy and ascended to the Palace of Light. Thereby all rational beings were conveyed across the gulf. His mighty work being thus completed He returned at noon to His original position."

One notes that, while many details are given in regard to our Lord's birth, not one word is said about His death, burial and resurrection; in fact, His mediatorial sacrifice and triumphant resurrection are completely ignored; the witness to the Gospel of Christ is hopelessly deficient. As Saeki writes, "the ascension was neither a new nor strange idea to the Chinese, it was the Resurrection of our Lord itself that they could not easily accept, whilst some of the literati were altogether opposed to it." And again, "As for the theological difficulties we should like to

emphasize that the most difficult thing for an intellectual Chinese to believe is the Resurrection of the Lord, which is as great a stumbling-block to them as it was to the men of Athens in the days of the Apostle Paul." It seems certain that, unlike Paul, the Nestorian missionaries accommodated their teaching to local ideas. Accommodation to Buddhism and other religions, fulsome eulogy of the emperors, and palpable satisfaction in material benefits, mark the inscription. Thus "His New Teaching of non-assertion is" (says Saeki), "a phrase adopted from Taoism." The author used a Taoist phrase here as elsewhere, but added his own explanatory words, "which operates silently through the Holy Spirit." Again, "Setting up the standard of the eight cardinal virtues," Saeki says, "we are inclined to believe that the phrase was borrowed from Buddhism." In one of the Garbha Sutras we read of "Eight Precepts." It says: "Eight Precepts are truly what make a Buddha of man," and then follow the Eight Precepts in question. Again, with reference to widely opening the Three Constant Gates, "we think that the author of the inscription here again adopted a Buddhist expression." "Three Gates" must be the literal translation of the Sanskrit words, "Trividha Dvara." Again, "He then took an oar in the Vessel of Mercy." "This expression is decidedly Buddhistic; the Saviour of the faithful is generally represented with a ship on her back owing to the commonly accepted tradition that she saves from ship wreck." The same idea reappears in the poetic eulogy later on in the inscription, where it runs, "We see the living and the dead all sailing in one Ship of Mercy." And it is obvious that the Christian teaching in the inscription has a thick veneer of Buddhism and a tinge of Taoism.

With regard to the fulsome eulogy of the emperors, it will be sufficient to make a typical quotation without comment: "The celestial beauty (of the Emperor's portrait hung on the walls of the monastery) appeared in its variegated colours, and the dazzling splendour illuminated the Luminous portals. The sacred features conferred great blessing and illuminated the Church for evermore, although the solar horns (*i.e.* the august and majestic visages) shine forth with such dazzling brilliance, yet the gracious Imperial faces are so gentle that they may be gazed upon at a distance, less than a foot." "Kao-Tsung . . . rebuilt the edifices for Holy use. Palaces of Peace and Concord stood resplendent far and near; the rays shining from them

filled every part of the Empire. The truths of the Way were made clear to all men. Setting up a new institution, he created the Lord Spiritual (*i.e.* A-lo-pen); and every man enjoyed most blessed peace and joy, whilst the land saw neither pain nor grief. When Hsuan-Tsung commenced his glorious career, with might and main he pursued the Way of Truth. The temple names written by the Emperor shone forth; the tablets of the celestial handwriting reflected gloriously . . . the least and the remotest places attained the highest virtue. . . . When Su-Tsung finally was restored to the throne . . . the sacred Sun sent forth its crystal rays . . . the causes of calamity took flight, never to return; tumults were settled and men's passions subdued. . . . Tai-Tsung's virtues united with the great Plans of the universe. By his unselfish benevolence he helped all mankind. . . . The Empire became so enlightened as though the glory of the Rising Sun and the full Moon were brought together. When our present Emperor ascended the throne . . . his peaceful rule of Enlightenment purified every part of the world . . . his glory penetrates the secrets of men . . . nothing is hid from his observant eye. The whole universe gets life and light because of him."

Such flattery is entirely consonant with the immense satisfaction which the inscription displays at the Imperial favour. The spirit is widely different from His, Who said, My kingdom is not of this world.

Let us next turn to the other documents mentioned. The first is "A Hymn of the Brilliant Teaching to the Three Majesties for obtaining Salvation." It is said to be based on the Eastern Syrian form of the *Gloria in excelsis*, and is certainly more definitely Christian than the inscription. It uses the word "A-lo-he" for God, which, as Saeki has noted, uses the Chinese characters representing "the fruit of Buddha." The Messiah is referred to as "merciful joyful Lamb," "generally and universally accepting pain," "be willing to put away the collected weight of sin of all living," "send down the Raft to grant escape from tossing on the stream of fire," which is, of course, the Buddhist figure of salvation; Kuan-yin, the goddess of mercy, being represented with a boat or raft. No reference is made to our Lord's Crucifixion and Resurrection in this Hymn of the Brilliant Teaching for obtaining Salvation. In the second document A-lo-he is again used for God, the saints are all distinguished by the Buddhist title, "Spiritual King," and among

the religious works is specified "The Book of the Three Moments," a Manichean book, which appears to add further testimony to the broad basis of the Nestorian Church in China.

Finally, turning to the *Book of Jesus Messiah*, "the text begins in the manner of a Buddhist Sutra," and the term for "the Lord" is borrowed from Taoism. Moule adds, "The following is an interesting example of the Buddhist colouring which has been mentioned: 'The Lord first sent all living creatures to worship all the Devas and Buddhas and for Buddha to endure suffering.' This indeed seems to take the place of the First Commandment, and it is followed by the Second (our Fifth) Commandment, with the promise that all who have been dutiful to their parents and supported them without fail shall at the hour of death attain the way of heaven as mansion. The Fourth Commandment enjoins love or doing good to all living beings, the Fifth forbids the taking of life or exhorting others to take life, 'for the life of all living beings is the same as the life of a man.' The Sixth forbids adultery; the Seventh is 'Do not be a thief,' and the Eighth, Ninth and Tenth seem rather vaguely to combine the real Ninth and Tenth." Whatever allowances may be made for the supposition that the writer was a foreigner, no one can doubt the Buddhist colouring of the document, and one is glad to find that in this document (and in this one only so far as I know) is the crucifixion of our Lord mentioned, and that He offered His life as a substitute to be put to death for the living beings of the present world. The document is imperfect and ends abruptly with the crucifixion; but it seems unlikely that there was any reference to the Resurrection, for the tract terminates as follows: ". . . the earth quaked and the hills rocked and all the gates of the graves in the world were opened and all the dead men all received life. When the men saw it like this, though there were yet some who did not believe the teaching of the Scriptures that death and life were both in Messiah, the men in general had belief. Men then said—"

The cumulative effect of this evidence is irresistible, and appears to afford proof that the Nestorian Church in China accommodated its public teaching to suit the religious ideas and prejudices of the people. Essential Christian doctrines, such as the Crucifixion and Resurrection, are blurred or omitted, and Buddhist ideas and phraseology emphasized. It is not without significance that William of Rubruck, who travelled to the Mongol Kakhan in A.D. 1252, records that: "The cross did not have the image of

the Saviour, for the Armenians and Nestorians are ashamed to show the Christ fixed to the Cross."

The Nestorians attempted to avoid "the offence of the cross" of Jesus Christ they built upon the sand and not upon the Rock. As Lord William Gascoyne-Cecil writes in his Introductory Note to Saeki's book, "Apparently the mistake made by the Nestorian preachers was that of being ashamed of their faith, and trying to recommend it merely as a branch of Buddhism. There is always a temptation and always a danger in mission work to soften down the edges of our faith, to represent it as something not so very new, not so very different from what is already known; such a policy may avoid immediate difficulties, but afterwards it tends towards defeat; the Christianity which has conquered has been that which is urged with distinctness even amounting to harshness. It seems as if the compromising nature of Nestorianism was the reason why, when Buddhism fell, it was entangled in that fall and then forgotten."

Is this failure merely a matter of historical interest, or does it contain lessons for the present day? I would say that these mistaken methods of the Nestorians are being viewed with favour even now, and when one reads of a Christian hall in India being used for a public meeting to celebrate the birthday of Mahommed, or of a joint religious service, held in Peking on an Easter Sunday, attended by Christians, Buddhists, Taoists and Lamas, with Christian and Buddhist choirs, with an address by a western Christian, wishing success to the Panchen Lama in fulfilling the mission of Gautama the Buddha, Jesus the Christ, and all holy men, one can scarcely say that the lesson is not needed. It may be said that these are extreme examples, and one may admit it, but the tendency to minimize the basis of Christianity (viz., the Cross of Christ) is only too common. Take that widely praised book on missionary hopes in India, *The Christ of the Indian Road*; let me read a few extracts from a criticism by Nemaï Chunder Das: "In the midst of much that is fine this book contains a good deal of matter that is positively misleading and harmful, and while reading the book a Christian reader feels that there is much pandering to the vanity of the educated Hindu. The fundamental fact that Christ came to save men from their sins is very imperfectly realized and stated, if at all. There is a constant endeavour to let the Hindu interpret Christ in his own way. . . . One looks in vain for a clearer state-

ment of the mission of our Lord on earth. The author practically ignores the more fundamental point, viz., that God so loved the world that He gave His only begotten Son, that whosoever believeth in Him should not perish, but have everlasting life . . . a sinner must first and foremost be saved from his sins by accepting Christ as his Saviour. Yet hardly anything is said on this vital point. . . . As to Hinduism also, it may be said that the foreign reader who has never been to India, is certain to receive a wrong impression. . . . The author realizes the fact that India has slipped into pantheism—everything God—but he airily remarks that it will be corrected to a pantheism—everything in God. I am afraid that this happy consummation cannot be brought about by adopting the author's method. . . . Will Hinduism gradually evolve into Christianity, or will it be entirely replaced by the teaching of Christ? . . . The former course of progress will be considered impossible by everyone who knows the bent of the Hindu mind."

Listen, again, to an Indian religious periodical: "Mission colleges employ Hindu professors, who naturally undermine any teaching by a European on religion. . . . Some (European professors) have joined an International Fellowship Movement, in which they undertake not to proselytize, nor can they pray through Jesus Christ at their meetings. At the Cambridge Mission College in Delhi, when I visited it in 1929, they never prayed through Jesus Christ at Morning Prayers for fear of offending Hindus and Mahomedans. . . . God never honoured cowards."

Let us turn now nearer home. With regard to "The Modern Oxford Movement," the Master of St. Peter's Hall has stated publicly, "The root error of the 'Groups' is that they are founded upon no essentially Christian basis. . . . According to their practices, communion between God and man is not mediated through our Lord Jesus Christ alone, and He has to be dragged in as a Patron, or as an example only of what our communion with God might be. . . . Their theology seems to be a leap from surrender to God the Father to communion with God the Holy Ghost. . . . The Groups have within them the seeds of death."

These examples, picked from different quarters, illustrate the Nestorian Inscription and the criticisms might be criticisms of that Inscription itself. However good the intention may be, it is certain that Christian enterprise which does not place the mediatorial Sacrifice of Christ first and foremost in its teaching

will fail in its object ; and that no better results will attend such methods in the twentieth century than they did in the seventh and eighth.

#### DISCUSSION.

The CHAIRMAN (Dr. Thirtle) said : The subject brought before us this afternoon is one of profound interest, and, moreover, as we have found, it is capable of a very important and profitable interpretation. While experts may be able to read with understanding the considerable literature that has gathered round the story of the Nestorian Mission to China in the seventh and eighth centuries of our era, most of us must be content with particulars such as may be gathered from an encyclopædia ; and, quite obviously, this must mean for the most part a one-sided view of what is avowedly a large subject. At length we are likely to discover that, though information regarding the Nestorian Mission is slight and deficient, what is more serious is that such information is of little use in the larger study of Christian Missions in the Far East.

Thanks to the wide reading of General Biddulph, and the care with which he has digested the results of patient research, we have had brought before us this afternoon a very serviceable appreciation of a great story, and, what is more, a discerning criticism of the true nature of the historic Nestorian Mission in China, with a careful indication of the defects that lay at the base of the movement, defects which account for the deplorable failure of what promised to be a great religious development.

I am sure I carry the meeting with me when I recognize the conscientious manner in which the General has set forth the results of modern investigation in regard to the Nestorian inscription and its interpretation. The work of Professor Saeki has been illuminating in a high degree, and has placed in a well-defined light the suggestions of earlier exponents of the historic monument and the literature that has grown around it. When at length the General went on to point out the essential weakness of the Nestorian Mission—the spirit of accommodation which brought in compromising elements from Buddhism and other forms of faith—he rendered a truly important service. And as we recall, he proceeded to find traces in quite modern movements of factors that are correspondingly weak, and

uttered words of warning to which we do well to take heed. There are, as we know, on all hands, teachers who omit from their statement of the Christian faith facts and doctrines that are of vital importance ; and, on the other hand, there are those who would assign to individual " experience " a place which should rightly be occupied by Divine Revelation, accepted in the mind and appreciated in the heart. In just such circumstances we do well at the present time to bear in mind the great spiritual lesson supplied by the Nestorian Mission and its humiliating record. Methods that brought failure a thousand years ago cannot be expected to yield success to-day.

On these and other accounts, I thank the General most heartily for his paper, at once informing and suggestive, and call for a vote of thanks (which was cordially given) for the lecture delivered in our hearing.

Major WITHERS, R.A., said : The wonderful walk in the Emmaus Road (Luke xxiv) is to the point here. The Lord Jesus (in v. 25) reproves his hearers for their unbelief. But we must notice that they *did* believe the promises to Israel in Messiah ; their failure was that they did not believe ALL, and the word ALL is emphasized to a remarkable extent. So it was with the Nestorians, and so it is now. We will not believe all the Scriptures.

If we try to believe *more* than all, by adding to the Scriptures, we end by believing less. The Nestorians added some Buddhism, and lost everything distinctively Christian. Similarly, if we refuse to believe all, we end by adding something antichristian. I can see no trace, in the Nestorians' teaching, of the Gospel proclaimed by the Apostle Paul to the nations. And so these people lost even the poor fragments of Judaism they held at first.

We learn that, before his death, all in Asia turned away from the Apostle Paul. The pristine purity of doctrine of the early Church is a myth. Even in A.D. 65, apostasy from the true Evangel of the Apostle Paul was in full swing, and we may well wonder whether the missionaries to China had ever received it. The Didaché shows no trace of it either. To-day the Churches are again falling away thus.

If it is necessary to add tradition to the sacred Scriptures in order to support our creeds and customs, so much the worse for the creeds



and customs. The Nestorians preferred the words of man to the Word of God. We will end as they did, unless we choose otherwise.

Mr. GEORGE BREWER said: I think that General Biddulph has proved that the Nestorian Missionaries accommodated the teaching of what truth they may have held to the ideas and customs of the people of China with whom they came in contact. Since the fall of man, Satan's object has been to modify and corrupt the Word of God and the simple worship of Jehovah, as the history of Israel reveals by their frequent lapses into idolatry. We see, moreover, from the experience of the Apostle as recorded in Acts, how slow were believing Jews to break from the Mosaic ritual, which had been done away in Christ, and this doubtless led to the establishment of a separate order of priesthood and a sacerdotal system contrary to the revealed word, which could readily be adjusted to pagan ideas and practices.

Had the "Teachers of the Luminous Religion," as the Nestorian Missionaries were called, adhered to Paul's simple gospel, received from the Lord Himself, "that Christ died according to the Scriptures, that He was buried, and that He rose again the third day according to the Scriptures," and the revelation of Light and Love recorded by the Apostle John in his Gospel and Epistles, the blessed results of such teaching would probably have remained to this day. Missionary effort and enterprise have, I fear, too often been undertaken with a view to Christianize heathen peoples and establish a civilized state of society, instead of making these subservient to, and dependent upon, the salvation of individuals, recognizing that human nature, irrespective of nationality or culture, is in consequence of the fall corrupt and in rebellion against God, and that nothing but the new birth and conversion of the individual by the power of the Holy Spirit can effect any lasting good.

#### WRITTEN COMMUNICATION.

Lieut.-Col. L. M. DAVIES wrote:—General Biddulph's paper is most interesting and timely. It has always puzzled me to know why Christianity, which spread north and west, failed to establish itself in the east, with which good communications had existed for centuries. This paper explains why. The Cross—the "Blood Theology" with which we are taunted to-day—is both our reproach and the touchstone of our faith.

With all its failings, Christianity—insisting upon the *Deity* and *Vicarious Death* of our Lord—did make good in Europe, conquering the bitterly hostile and persecuting powers of the west, both Roman and Barbarian. In the east, things seem to have been reversed. There Christianity seems to have been received with favour from the first; but, in order to secure the continuance of this much-prized favour, Christians seem to have temporized with potential opponents, bringing their Divine Lord down on to a common platform with the human founders of Pagan cults, and hiding completely out of sight the offence of the Cross. We see what followed. Boasting of their temporal prosperity, while betraying their sacred faith, the ancient Chinese church completed the picture of Laodicea (Rev. iii, 14–18), and was finally rejected as worthless.

The same tendency to temporize is seen to-day. I have known a military officer, at one of a series of addresses given to mixed audiences of Indians in Simla, tell his hearers that he and fellow-Modernists did not wish to proselytize them, but only to make them “better Mohammedans, better Sikhs, and better Hindus.” Yet his address was entitled, “Why I am a Christian”; and when asked what made him think he was one, he kept discreetly silent. History is clearly repeating itself, and it would be well for all who have to do with our modern temporizers to study the fate of their early prototypes.

#### LECTURER'S REPLY.

I beg to thank all present for the appreciative reception given to my paper, and I have little to add to the discussion. I trust that the lesson for the present day which has been brought out, and the wise comments by the Chairman, may be taken to heart by some at least who are in danger of falling into the errors of the Nestorian Mission to China.

752ND ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM D, THE CENTRAL HALL,  
WESTMINSTER, S.W.1, ON MONDAY, FEBRUARY 8TH, 1932,

AT 4.30 P.M.

DR. JAMES W. THIRTLE, M.R.A.S., IN THE CHAIR.

The Minutes of the previous Meeting were read, confirmed, and signed, and the HON. SECRETARY announced the following elections. As Associates: The Rev. George E. White, D.D.; and Mrs. Ada de B. Bridgford.

The CHAIRMAN then called on the Rev. Charles Gardner, M.A., to read his paper on "Karl Barth's Theology and the New Theological Outlook in Germany."

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*KARL BARTH'S THEOLOGY AND THE NEW  
THEOLOGICAL OUTLOOK IN GERMANY.*

By THE REV. CHARLES GARDNER, M.A.

GERMAN Theology, since the days of Martin Luther, has passed through many phases of thought. Luther's immediate successors were rigid in their literalism. In the seventeenth century Calixtus, strengthened by philosophical and scientific studies, introduced a larger element of reason into his theological studies. Spener, suspicious of the reason, enlarged the pietistic and mystical strain that had been a part of Luther's make-up; but his followers soon lost their master's freshness, and the vital stream was renewed by Arnold and Thomasius, who brought with them much philosophy borrowed from Leibnitz and Wolf. Henceforth, philosophy becomes the key to the German theologian's position, with the result that German theology corresponds with the inevitable rapid changes of philosophy through the passing generations.

The eighteenth century brought a foreign contribution to the Lutheran tradition. England produced a crop of Deists of

whom the best known are Lord Herbert of Cherbury, Toland, Hobbes, Tindal, and Collins. German theological students were wide awake to English Deism, and took from it the critical spirit which has produced the higher criticism of to-day. Voltaire, in France, also alert to what the English Deists were saying, borrowed without acknowledgment of his debts. When he went to the Court of Frederick the Great he opened the way for a stream of French rationalism to flow into Germany.

German thoroughness has worked on the double contribution for 150 years till the Lutheran tradition has become almost unrecognizable. In the nineteenth century English students either feared or imitated German theology. Professorial imitators became apologetic if they had not kept abreast with the latest German higher critical theory.

Certainly modern theology has had a very difficult and important task to perform—nothing less than a synthesis between the new knowledge and the old faith. The man who set himself this mighty task in the early nineteenth century was Schleiermacher (1768–1834). It is still to him that many evangelicals turn when they become aware of the urgent pressure of modern thought, and are anxious to enlarge the evangelical inheritance that has become too narrow for them.

Schleiermacher aimed at a synthesis between the varying doctrines of his day. He studied deeply Plato among the ancients, and Spinoza among the moderns. He did not become a pantheist like Spinoza ; but from his bent towards idealism he veered towards a one-sided immanentism, and looked within man for a remedy for all his ills. The religious consciousness became the pivot on which all his teaching turned, and any Christian doctrine that was not a part of this consciousness was regarded as of no great importance. Thus Schleiermacher was essentially a subjectivist ; and while it is true that a subjective immanentism has again and again shown itself able to provide an inclusive religion, yet it has done so at the price of sacrificing some of the priceless things that have come to us from Christ.

Schleiermacher did not entirely lose his hold on the transcendence of God. But a master's weakness is exaggerated by his pupils. Immanence has been pushed to the front and has had an innings for at least two generations.

It is easy to see how immanence alone strikes at the root of the Christian faith. The name of any of the old doctrines remains, but it is given a new meaning. Thus, the Incarnation

which carries, among other meanings, that Christ bridged the gulf between the holy Creator and the sinful creature, ceases to be a bridge, and Christ ceases to be the Mediator. If man is essentially a part of God, the Incarnation can mean only that the Word that became completely incarnate in Christ will also become completely incarnate in us when we have realized our essential divinity. Christ Himself loses His Deity and is God only in the sense that we all may become gods. At the most He has only the value of God for us. Next the Trinity is resolved into an indistinctive Unity; and since man is a part of God, the line between the Creator and the creature is obliterated, and man is finally merged in God. A monistic philosophy takes the place of the richer catholic philosophy; and ethics, losing all absolute value, becomes the individual taste of those choice spirits who have all but become gods.

It seemed to the immanent dreamers that the kingdom of God must very soon be realized, till they were rudely awakened by the crisis of the Great War. The War tested the faith of men. Many lost what they had. Others clung to any cult that seemed to give them help. Protestantism had lost its prophetic fire. Religion had become a part of culture. Those who threw over the last tags of their religious training found themselves face to face with their primitive passions, and since the War they have been driven hither and thither like stubble before fierce opposing winds.

Amidst the crashing of the theological world a loud voice crying from Switzerland has pierced our ears—a voice issuing from lips touched by fire, convicting the world of sin and righteousness and judgment, and awakening the immanent dreamers with a stern theology of Crisis.

Karl Barth was born at Bâle in 1886. He was educated at Berne, and passed on to the Universities at Berlin, Tübingen, and Marburg. He was called to the Chair at Göttingen in 1921, then to Münster in Westphalia in 1925; and in 1929 to Bonn. His removal to the German universities brought him into the thick of German theology. For a while he sat at the feet of Wilhelm Herrmann, till, like Saul at the feet of Gamaliel, he reached an inner crisis to which his master could not minister, but which led to the revelation of Jesus Christ to his soul and the deepening of his apprehension of the transcendent God.

There are many examples in modern days of the gradual loss of faith after the practical surrender of transcendence. Loisy

thus lost one doctrine after another till his Christian faith was but the shadow of a shadow. In following the steps of Barth's spiritual history we see exactly the opposite process at work. For the sake of clearness I will take the steps in order. The first step is the doctrine of Creation. Immanence substituted evolution for creation, and regarded the universe as an emanation from God. Science was the first to question this conclusion in the present century. Eddington and Jeans both affirm that the universe is finite. But if finite it must have had a beginning. The faith affirms that in the beginning God created the heavens and the earth. And this creation is not out of Himself, for then the universe would in some sense be infinite, but out of nothing. That is the most offensive doctrine to immanent ears. Karl Barth has re-affirmed it without compromise and without wrapping up his meaning in a haze of verbiage.

Barth next recovers the Fall. He believes in an actual fall, and that its results have left man so deeply immersed in original sin that he is beyond self-help. This last point is of extreme importance in Barthian theology. Calvin affirmed man's total depravity. Article IX in *The Book of Common Prayer* less stringently says that "man is very far gone from original righteousness." Barth appears to lean to the Calvinist view. The point is that even if faint traces still remain of the original image of God, yet the ruin has gone so far that man cannot by any means save himself. Barth's indictment of modern immanentism is that it is Pelagian. Man's sin throughout the ages is pride. Pride is not simply a mistake; it is rebellion against the will of God. The evil one has whispered throughout the ages into the ear of man: Ye shall be as gods. The modern attempt to scale the heavens and snatch from God His peculiar prerogatives is one of the most daring and most futile that has ever been made. The Word of God is a call and challenge to man. Man's crisis is when he stands before God, acknowledges his helplessness, believes in the Atonement made by Jesus Christ, and, making his grand decision, is justified by faith in Christ Jesus. Man despairs of himself, and his despair is the realization of the truth of God's judgment on man. The relief of his despair is in the consciousness that in receiving Christ he receives the eternal life of his soul. Many would say that here, at the Cross, man may begin to live the Christian life. Barth says, No. Strictly, no Christian can live the Christian life. The only Christian life is that which God lives in Christ. The

Christian is called to holiness. But what is the nature of holiness? Barth makes short work of the many modern cults of perfectionism. At no time in a Christian's life can he stand before God and say "I am holy." The lesson of sanctification has to be learnt in the valley of humiliation. The road goes down, down, till the bruised and battered man, clutching the last remnant of his pride, has at long last to let go even that, and the emptied creature stands in the Presence of the Creator only under the cover that Christ has provided. "Strange love-knot!" exclaimed St. Theresa contemplating the knot that ties the creature who is nothing to the Creator who is all.

It is evident to one who understands that Barth has experienced, with all the accompanying storm and stress, the volcanic upheaval of conversion. And his conversion has been not only a turning of the soul to God, but a complete remaking of his mind according to another pattern. That pattern, he affirms, is found in God's Revelation. The Bible is the Word of God. The Word of God is another thing than the word of man. Here we would all ask Barth a host of questions. As far as I understand him I think he would say that the prophets prophesied the Word of God, that Jesus Christ *is* the Word of God, that the Evangelists and other writers of the New Testament speak and write about the Word of God. The preacher is called to proclaim the Word of God. How can he do that when inevitably his own word mingles with the Word of God? He can but pray and trust and humble himself, hoping that the Word of God will find utterance, if only brokenly, through his lips. God's Word is still sharper than any two-edged sword, and God's Spirit blesses God's Word. A Christian is to be filled with the Spirit of God, but in no sense is the Spirit his own possession. If the preacher preaches not from himself but from God, and if he seeks the Glory of God, the Word of God may sound forth from him, and the Spirit of God will make the Word quick, powerful, cutting, convincing, till the hearer of the Word stands stripped of his defences, naked before God. He is then pointed by the preacher to the Lamb of God that taketh away the sin of the world.

It will help us to understand Barth's attitude to the Bible if we remember that he makes a sharp distinction between Revelation and History. The immanentists have tried to see in history the growing revelation of God. Such unity as they have professed to discover in the Old Testament has been from a supposed evolution in the revelation of history. Barth repudiates

the notion. History is from below : Revelation is from above. Seen from below Old Testament history has little meaning and no unity. Seen from above it narrates a series of free divine acts, and it culminates in the supreme divine act when God broke into history and the Word became Flesh. The Bible from Genesis to Revelation is the history of these divine acts succeeding one another, and therefore the Bible is the Revelation of God and the Word of God.

My space is far too small to allow me to elucidate Barth's teaching about history. But I have said enough to give a clue to his eschatology. The immanentists have tried to trace a grand evolution and advance of history until it becomes the kingdom of God on earth. Teachers of a dozen different kinds, from the Victorian with his ineradicable belief in progress, to Bernard Shaw with his equally indestructible belief in the life-force, have maintained that man has only to will and choose the better future of the world in order that the millennium may come. The modern cry "Back to Methuselah!" is an odd cry to come from the evolutionists! Now Barth repeats with fiery conviction that the kingdom of God is not of this world. History is of time : the Kingdom is of eternity. Indeed, it is set against time, it continually breaks into it—grandly when Christ rose from the dead—with great power on the Day of Pentecost, and with glory at the final breaking-in. This will be not by history and time becoming eternal ; but the rolling up as a scroll of history and time, and their passing away when the Day of the Lord shall come. The Eternal Kingdom shall be God's last act.

It will be seen that Barth has passed clean over from the glory of man to the glory of God. Man is undone. But God of His infinite grace apprehends him and uses him for His ends. Modern man is absorbed in biographies, and he must have them complete, seasoned with vinegar and oil. The theologians ransack heaven and earth to write complete "lives" of Jesus Christ. The Bible gives no full biography, and even when setting forth the story of its central Figure, with the exception of the one scene of the Son about His Father's business, hides Him from all prying eyes for over thirty years. Of Jesus Christ Himself and Who He is, I need hardly add that Barth's sharp sword cuts through all modern woolly statements about Christ having the value of God. For him Christ is unique, the eternal Son of God, the Word become Flesh, and he bows the knee to his Lord and his God.



Barth has made his voice heard not only in Germany but throughout the world, and already there is a Barthian school of theology. It will be sufficient here to mention Emil Brunner, who is Professor of Theology at the University of Zurich.

Brunner differs from Barth only on certain questions of criticism. It is obvious that the immanentist must trim the whole Bible to make it a perfect fit with his philosophy. It should be equally clear that the Bible is mainly concerned with the revelations of the transcendent God. The question of the higher criticism shrinks to far smaller dimensions when the critic reads in the light of transcendence. There will still be room for minor differences of opinion, but these will easily fall into their right perspective towards the questions of fundamental importance. Brunner's little book—*The Theology of Crisis*—states the issues for to-day with great forcefulness and clarity.

It remains for me to make a few criticisms of Barth himself. I would remind you that he is only 46, and so there is plenty of time for so live a man to modify some of his opinions. I feel that his *Theology of Crisis* is a theology of crisis in more senses than he himself probably intends. The catastrophe of the Great War was the appalling sequel to the nineteenth century. It was an awful commentary on European civilization and European religion. The immanentists had proclaimed that history would evolve till it brought the kingdom of God: the scientists thought that with their knowledge of natural law they could soon bring a universal state of peace and prosperity. Instead of peace came war, for prosperity we have the multitudes of unemployed; for the crowning achievement of evolution we had a break-up and a lifting of the veil that revealed man's malady and deformity. The moment of reaction had come; Barth, caught by the moment, swung far back to the transcendence out of which Christianity had its birth. The theology of reaction is never balanced. To go back is to miss something in the living present. But to go back is also to renew and go forward. And therefore, if Barth does not reach a full synthesis, there is every probability that his disciples will. He has been exasperated with the futile teaching of so many idealists and mystics till he can only gird at both. He has not time to remember how much fruitful idealism there is in the Epistle to the Hebrews, how much Christened Platonism is a part of our Christian inheritance. It is true that many mystics are pantheists; but it is also true that the best Christian mystics have well understood the transcendence

of God, and their mysticism is one of the loveliest flowers in the Christian garden. Barth's *bête noir* is Schleiermacher whom he regards as the father of modern theology. I agree that Schleiermacher built on a wrong foundation. Much of his error was a failure to relate his immanence to transcendence. Barth's weakness is all the other way. He professes deep kinship with Kierkegaard. The confession is significant. Kierkegaard was the prototype of Ibsen's *Brand*, from which we gather that the dramatist, with his instinct for all that is human, perceived a lack of the human genial element in his hero. Looking farther back we can trace his true spiritual ancestry through the Port-Royalists to Calvin rather than to Luther. Wherever Calvinism lingers Barth will appeal, and it is probable that a great many Scotch Presbyterians will be kindled by his fire. But his ancestry goes much farther back than to Calvin. St. Augustine is his grand ancestor. The father remains greater than his son of the twentieth century. St. Augustine well knew from his own experience the meaning of man's helplessness, and God's grace, of man's pride and God's majestic transcendence. He came into Christianity through Neo-platonism; and while he grasped to his soul's salvation God's grand provision for man in Jesus Christ, he did not overlook the vestiges of truth that descended from Plato and other old world teachers. He believed that they had been partially illuminated by the immanence of the Divine Logos, and he found their fulfilment in Jesus Christ. Thus he was able to build a theology not only for a time of crisis, but, as time has shown, a theology whose main features seem likely to last as long as the ages.

Looking backwards, many men and women who have reached middle age may feel a melancholy regret because they can remember a time when they testified to Christ with fiery zeal, and wielded a sharp double-edged sword. Barth himself speaks with the fire of one of the old prophets, and I fancy that those who go to him may yet rekindle their waning fires and go forth to a ministry of purity and power.

#### DISCUSSION.

The CHAIRMAN (Dr. Thirtle) said: I believe I use words which many would gladly second, when I say that we have listened with profound appreciation to the paper read in our hearing this afternoon. The subject is one which, during recent years, has engaged a

deepening interest in the minds of many, and from time to time observers have gone so far as to say that the teaching of Karl Barth has "saved" a moribund Protestantism, in particular in Germany. The Barthian message has been brought before the Christian community from various points of view; and in many quarters, as we very well know, it has been recognized as placing a new emphasis on doctrines associated with the name of the redoubtable John Calvin.

We have to thank our lecturer for indicating with clearness the conditions in which Barth launched his message upon the world; for bringing before us an outline sketch of the man and his career; and for adding to these considerations some critical thoughts as to directions in which, in the coming days, danger may be encountered by the Barthian theology. It is encouraging to know that already outlines of the teaching of Barth have been made available in England and America, as translated from the German, also that the writings of Emil Brunner, a well-known exponent of Barthian doctrine, in Switzerland, have attained a considerable vogue. In all, the books by these men, and those who have expounded their forms of thought, have run into a goodly number; and if in some cases they have been difficult to understand—partly by reason of German idiom resting as a cloud over the general content of the books—yet works of introduction, by Birch Hoyle, McConnachie, Chapman, and others, to say nothing of Continental interpreters, have enabled one to recognize with what vigour of method and strength of purpose Barth has combated the modern spirit, with its tendency to a sterile monism, and involving the forth-right acceptance of Evolution and a qualification of the doctrine of righteousness, with light views of sin, and much beside.

The sense of a transcendent God, with purposes of grace toward His fallen creature, regarding sin as a reality and eternity as a fact—these mighty considerations have been passed by with the growing acceptance of the general point of view of Schleiermacher, the father of modern theology. As we have seen, this great religious leader placed experience where the Reformers sought to establish the facts of Divine Revelation, and this he did with disastrous results. Hence it comes about that Barth has placed himself in active conflict with Schleiermacher, while opposing the teaching of those who

have followed that leader in the development of a theology that begins with *man* rather than with *God*. It follows that, all along, Barth has been impatient of the modern psychological approach to religion, and has called men back to the Word of God, as found in the Holy Scriptures, the Old and New Testaments alike. Here it is that he claims to have recovered outstanding implicates of what has passed as Calvinistic doctrine, as noble men have sought to maintain that doctrine during a succession of generations. In a word, he says, only through revelation can man come to know God and His will. Of themselves, men are without resource, without hope : God must come to them in grace, and the way and means of salvation must be of His provision.

The subject brought before us is wide and manifold. Barth has called it the Theology of Crisis ; and so it is in more senses than one. Moreover, in the light of Schleiermacher's influence, so commonly recognized and accepted, Barth's teaching has been described as the Theology of Correction. For one thing, it is a theology which reaffirms the majesty of Christ, and revives for our day the Apostolic witness regarding " Jesus and the Resurrection." Could any slogan be more influential than that which calls the Church of God to devote itself to a world-wide witness to the fact that God raised up His Son from the dead to bring blessing to His people ? It is more than interesting to know that the Epistle to the Romans, which in the providence of God served so great a purpose in the spiritual equipment of Martin Luther, pointed the way of life to Karl Barth ; and in the measure that we follow the guidance of the bold German leader, we may be blessed to recover Reformation truth in its true Evangelical substance.

May we not, however, be sure that, as in the sixteenth century John Calvin was misunderstood and has been misrepresented ever since, so also in this twentieth century Karl Barth may not be wholly appreciated ? The doctrines which he has formulated may, indeed, revive Protestantism, and give new life to its more noble ideals, but the natural man will not desire such doctrines. Whatever may be the issue of the present message, therefore, it will be for Christian people to seek guidance apart from passing merely superficial observations. All the time there is a place for religious experience, which Barth brings under grave suspicion. But this

must not usurp the place of God and His grace, as the same is associated with the thought of Divine Righteousness, as an exponent of which Karl Barth has come before the world.

I conclude with moving that a vote of thanks be given to the lecturer for the paper to which we have listened. The vote was accorded with acclamation.

Rev. Dr. H. C. MORTON said: Mr. Gardner has brought forward a very interesting movement of the present day, and to me it seems that he has given us a fine paper and a true picture of Prof. Barth—a preacher who somewhat over-emphasizes the stern and hopeless elements, and lacks a due proportion of the “human genial element.” The hopelessness of the post-war outlook, and the beating up against insoluble problems, has too much coloured his preaching.

In reality, it seems to me, both Prof. Barth and Prof. Brunner are not theologians but *preachers*. That is their appeal and power. As theologians I have sought in vain for anything new to explain their vogue. As preachers, who have clearly realized that modern critical theology has succeeded beyond all the Devil’s hopes in making, as Barth says, “God a questionable figment of our own thoughts” (“The Word,” etc., p. 23), and who passionately proclaim *Revelation* as the *sine quâ non* of all man’s hope of finding God: who have re-discovered for themselves God, and find that to all man’s pretensions and hopes that discovery gives an emphatic “No”; who find that the sinless Christ means to them a divine “No,” an affrighted halt before God (“Romans,” quoted by Chapman): and who then have found that “The Resurrection is the Revelation,” and that the “No” becomes “Yes” when Christ’s Resurrection says “God stoops down to grasp human life”—as *preachers* who feel passionately that they must needs give this new discovery of God to the Christian world, their vogue is explained. The Modernist evolutionary school, which is realizing more and more that it has shut itself in to itself, God becoming more and more a shadowy supposition, is in God’s good providence listening to this passionate preaching and may find deliverance there.

It is greatly to be hoped that the professors will not try to build up a system and found a school. Prof. Barth is reported to deprecate both. Personally I have sought in vain for anything new or

systematic. It is just a vivid setting of the old theology. And that is just what the world needs—not new “schools” but old Truth; though I share what I understand Mr. Gardner to desire, viz., that he should modify his too strict Augustinianism with some of that “genial human element” which is so abundant in the Bible. May they continue as preachers, not systematic theologians! That Brunner, more careful and systematic than Barth, is none the less a preacher, such a passage as this may show:—

There is a third way of seeking Truth: when one no longer seeks with philistine concern for practical values; when it is not sought with cool scientific objectivity, or with a serene æsthetic outlook upon the world; but with the passion of a drowning man, who desperately cries for help. It is the quest of a man who passionately feels the import of the question “What is Truth? I must know or I shall die” (*The Theology of Crisis*, p. 25).

On p. 26 he adds, “If you do not *so* seek, viz., personally and passionately, you do not seek at all.”

Instead of propounding a new system, Prof. Barth says that he is correcting current theology. His is “a theology of correction.” What he specially corrects seems to be the doctrine that the only certitude is found in personal experience—a subjectivity which satisfies itself with an experience of its very own. He wants to correct current ideas of the Church and Religion. The Church has become an end in itself, offering “experience” as its currency; whereas the Church ought to be just a passage-way to God. Otherwise Religion as an organization, a process of worship, may be a veritable barrier, keeping the soul from God and satisfying it with something less. Even Jesus Christ is always saying, “I am the Way to the Father,” and “Religion has only the right to exist when she continually does away with herself” (Barth, “The Word,” etc., p. 67). Moreover, this experience which the Church preaches is a poor way of discovering God. We want a bridge from earth to heaven, Barth says: and this experience can only make God “become to us dubious, for in his place there stands the questionable figment of our own thoughts.”

Lastly, as I understand him, Barth objects to this doctrine of experience specially because it magnifies man. It gives man the

idea that God is like himself, whereas God is not like man, but vastly other than man; and Barth speaks of "Titanism," and "man's over-weening presumption" ("The Word," etc., p. 126), while Brunner speaks scathingly of those who presume to regard God as man's "ideal companion," and says that they give the modern interpretation of the serpent's word in Eden "Thou shalt be as God" (p. 44).

This preaching is splendid. May it long prevail! But a doubt is in my mind. Barth finds God and the supreme moral facts of a transcendent world revealed in the Bible, and preaches that from these there is no escape. It seems to me that he must needs have therefore a Bible which is from God and the transcendent world without the ignorant meddling of man. But so far as I am aware Barth does not say so. Mr. Gardner truly says that "the immanentist must trim the whole Bible to make it a perfect fit with his philosophy," and Brunner ("The Theology," etc., p. 41) admits that he clings still to "higher critical" theories. Now this movement is a preacher's revival of Biblical Christianity, and the doubt is in my mind whether it can possibly be revived with a critic's Bible.

Mr. PERCY O. RUOFF said: It is just thirteen years since Karl Barth issued his book on the Letter to Romans. It has been said that he spoke at the top of his voice to make men listen; and it has been claimed that Barth has influenced all Protestant Churches by his theology. It is no disparagement of Barth to say that unsophisticated Evangelicals have at all times held his main thesis which he has proclaimed with such great vigour. There is a sentence of Barth's which states in a cogent way his main position. He says: "The meaning and the possibility and the subject-matter of theology is not Christian faith but the Word of God. When this relation is reversed there is falsification, and falsification along the whole line and at every point."

Mr. Gardner refers to Barth's voice "issuing from lips touched by fire, convicting the world of sin and righteousness and judgment." It seems a mistake to attribute to a man conviction of this kind, which in the New Testament is attributed to the Spirit of God. Dr. Sydney Cave has made interesting references to the fact that at Cheshunt College, in recent years, several German-Swiss students,

followers of Barth, went there to complete their preparation for missionary work. Their sombre estimate of the world's need and the Church's guilt had not lessened their missionary zeal. Perhaps Mr. Gardner may be able to say what effect Barth's teaching has on missionary propaganda generally.

REV. DR. HART-DAVIES said : " The darkness is always deepest before the dawn." In recent years many have been depressed by reason of widespread destructive criticism of the Bible and of consequent falling away ; but God has not left Himself without witness. This movement in Germany, we pray and hope, will prove to be the dawn of a new Reformation and Revival, the blessed effects of which will extend to our own shores. The principle underlying Barth's teaching, as I apprehend it, might be expressed in the sentence : Let the Word of God sound in the soul of man and give its own message. He emphasizes the transcendence of God, and the need of revelation if man is ever to become spiritually illuminated. I agree with Dr. Morton that there is nothing really new in Barth's teaching. Much of it must be very familiar to anyone steeped in the theology of the Thirty-nine Articles. Evidently a big transformation has taken place in Germany in the general attitude toward the Bible. Some of us have been familiar since our Ordination with two characteristic attitudes. The Sacerdotalist used to say, " The Church to teach, the Bible to prove." The Modernist seems to say, " The Church to criticize, the Bible to apologize." Many of us will welcome the Revelationist attitude now being associated with the name of Barth, which might be thus expressed : " The Bible to teach, the Church to learn."

MR. GEORGE BREWER said : The advent of Karl Barth amid the welter of semi-pagan philosophy which permeates so many of the theological colleges in Germany is indeed a cause for thankfulness to God, and it is difficult to realize what revolutionary effect his teaching may have upon the theological outlook in that country. The sound scriptural character of his teaching is a formidable protest against the ephemeral vapourings of modern speculative theology, and the increasing tendency to accommodate Christian doctrine to Pagan ideas and the unproved theories of scientists.



Karl Barth has been described as a simple, sober, unpretentious Swiss, born in Basle 46 years ago, and before going to Bonn, was for twelve years a minister of the Word. He has a quick dialectic mind, a reverent up-look, and a winning smile ; his one ambition being to bring men back and the Church back to the Word of God. In the summer he is in his classroom at 7 o'clock in the morning, with usually 200 students to meet him, including about 40 women. He is not a fluent speaker and often hesitates for the right word, but all the time keeps the minds of his students working at high pressure.

It has been suggested that in Barth's theology there is no place for ethics. On the contrary, his mind is deeply concerned with conduct, and he is foremost in presenting a true Christian ethic based on grace, in place of the Pagan ethics frequently mixed up with Christian doctrine. The ethical problem for Barth is not academic, but a real concern witnessing to man's natural depravity and rebellion against God and His laws, the only remedy for which is justification by grace alone, and the sanctifying power of the Holy Spirit. He teaches that the first step of good conduct is a sincere confession that we are sinners ; the second is the acceptance of God's free and unmerited gift of forgiveness through the person and atoning work of the Lord Jesus Christ, Who is the Creator of the new man. In this moment of acceptance, which Barth calls the existential moment, when we come into contact with the Saviour, we encounter also our neighbour and his claim upon us. The ethical note which Barth strikes is always first "Obedience to God" by true repentance and faith in the Lord Jesus Christ, and then to such conduct as will adorn the doctrine of God our Saviour.

#### LECTURER'S REPLY.

I greatly appreciate the kind words of the Chairman and other speakers. Where there has been so little criticism, there remains very little for me to say.

Dr. Morton finds nothing new in Karl Barth, and calls him a preacher rather than a theologian. Yet while he proclaims the old truth, he does so in a new way. It is evident that he has worked through many phases of Modernism, and the one who makes that expedition and reaches the Evangel of Jesus Christ is always able

to preach the Gospel with power and freshness. At present Barth is a preacher. But remembering his youthfulness—he is only 46—it would not surprise me if he became a profound theologian.

Mr. Percy O. Ruoff remarks that it is not the lips of man, but the Holy Spirit of God that convicts of sin, righteousness, and judgment. That, of course, is true. But it is also true that the Holy Spirit uses the lips that are touched by fire and proclaim the Word of God in order to convict the hearers of sin, righteousness, and judgment.

Barth's main significance is that he has proclaimed transcendence to a pantheistic world. His weakness, I think, is to run too near to Calvin. It is true that Calvin's commentaries of the Bible are among the best ever written, and even Jesuits have been glad to make use of his treasury. It is also true that Calvin's mind was one of the most rigidly logical minds of the sixteenth century. But there is a region above logic. Life is greater than logic. In the eternal life we must find place for God's almighty sovereignty and man's free will. A contradiction in logic, but true in life and experience.

753RD ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,  
WESTMINSTER, S.W.1, ON MONDAY, FEBRUARY 22ND, 1932,

AT 4.30 P.M.

LIEUT.-COL. HOPE BIDDULPH, D.S.O., IN THE CHAIR.

The Minutes of the last Meeting were read, confirmed, and signed.

The CHAIRMAN then called on Mrs. A. S. D. Maunder, F.R.A.S., to read her paper on "The Shadow returning on the Dial of Ahaz."

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*THE SHADOW RETURNING ON THE DIAL OF  
AHAZ.*

By ANNIE S. D. MAUNDER, F.R.A.S.

THE laws of nature are determinate in their action; a certain result must follow whether or no we demand the opposite. Therefore it is not possible to explain, or explain away, the return of the shadow through ten steps on the staircase of Ahaz, as due to some rare (therefore misunderstood) natural happening in the heavens, and I will make no attempt to do so. I can only show you the circumstances—astronomical, geographical, and historical, in which the miracle is set.

The shadow had already gone down ten steps and might go down at least ten steps more. The time therefore was early in the afternoon, not later than half-past three if the season was midsummer, nor later than half-past two, if midwinter; the shadow was thrown easterly, stretching towards south of east in the summer months and north of east in the winter, but never further north than E.N.E., nor south than E.S.E. We must look, then, for a terrace of steps in Jerusalem and for an appropriate building which might cast such a shadow. The

building was "the house of thy (Hezekiah's) father"<sup>1</sup> (according to the Septuagint version), but this description might apply to the Royal Palace or to Millo, both south of the Temple area; from both, steps went down to gates in the wall.

"The mountains are round about Jerusalem," so that the city is hidden from every direction except one gap towards the S.E., down which may be seen the wilderness of Tekoa, the Dead Sea, and the mountains of Moab on the distant horizon. Within the city in this direction is a spur with three elevations, on which were successively, from north to south, the Temple itself, the Palace, and Millo the fortress, this last having been strengthened after Jebusite times by David,<sup>2</sup> by Solomon,<sup>3</sup> and by Hezekiah<sup>4</sup> himself. Millo was originally the highest of the three, but was cut down by the Maccabees (so Josephus<sup>5</sup> tells us), even to a slope so that the Temple might dominate the whole. *Before* the Temple (to use the Biblical term for the eastern side) was the Mount of Olives, and between the two, but close outside the city wall, was the Kidron Valley, in which was the spring Gihon, and "the conduit of the upper pool in the highway of the fuller's field." Here Ahaz<sup>6</sup> went to consider the water problem for the city, when threatened by Rezin and Pekah, and was met by Isaiah; here Hezekiah<sup>7</sup> dealt with the same problem and made his aqueduct beneath the spur, coming out on the west side of the City of David for "why should the kings of Assyria come, and find much water?"<sup>8</sup>; here the envoys of Sennacherib<sup>9</sup> came to speak treason and sedition to the men on the city wall. In this part of the wall were two gates, the Horse and the Water Gates, and in the time of Joash of Judah we know that steps went down from the Temple to the Horse Gate, and thence up to the King's House, for such was the description at the slaying of Queen Athaliah.<sup>10</sup> Joash himself was killed by his servants "in the house of Millo, which goeth down to Silla,"<sup>11</sup> and as *Silla* means "highway," we naturally connect this with "the highway in the fuller's field." We do not know whether this descent from Millo was rather to

<sup>1</sup> Isa. xxxviii, 8 (LXX version).

<sup>2</sup> 2 Sam. v, 9.

<sup>3</sup> 1 Kings ix, 15, 24; xi, 27.

<sup>4</sup> 2 Chron. xxxii, 5.

<sup>5</sup> *Antiq.*, XIII, vi, 7; *B.J.*, V, iv, 1.

<sup>6</sup> Isa. vii, 3.

<sup>7</sup> 2 Chron. xxxii, 3.

<sup>8</sup> 2 Chron. xxxii, 4.

<sup>9</sup> Isa. xxxvi, 11.

<sup>10</sup> 2 Kings xi, 16; 2 Chron. xxiii, 15.

<sup>11</sup> 2 Kings xii, 20.

the N.E. to the Horse Gate, or rather to the S.E. to the Water Gate. If we knew at what season of the year Hezekiah took ill, it might help to decide.

Can either of these staircases be connected specially with king Ahaz? There is perhaps a slight balance of evidence in favour of the King's House and the Horse Gate stairway. For after Ahaz had made an altar after the pattern of one at Damascus,<sup>1</sup> and had himself sacrificed on it and brought the brazen altar made by Bezaleel for himself "to inquire by," then he made "the Covert (portico) for the Sabbath that they had built in the house, and the king's entry without, turned he from the House of the Lord for the king of Assyria."<sup>2</sup> This is as in the Hebrew text, but the Septuagint version runs, "and he made a base for the throne in the House of the Lord, and he turned the king's entrance without in the House of the Lord after the presentment of the king of the Assyrians."<sup>3</sup> Whichever rendering is the right one, there seems to be some obscure reference to an alteration of the king's way to the Temple, made by Ahaz because of the king of Assyria.

Already and for a century to come, the king of Assyria was to be for Judah, "King Jareb,"<sup>4</sup> *the King Adversary*, as Hosea calls him—whether he be Tiglath-Pileser or Shalmaneser, Sargon or Sennacherib or Esarhaddon.

King and priest had distinct offices with the Hebrews. Babylonia was a theocratic nation wherein the king was subordinate to the priest, and every king over Babylon—legitimate, Assyrian or Chaldean—had to "take the hands of Bel" in Babylon once a year on the proper day. Assyria was a military nation; the king was the Commander of the Assyrian army, and the army was the people; from Tiglath-Pileser to Assurbanipal, Assyria was fighting on all sides for world dominion until the nation was bled white. This is an inevitable result almost. Centuries earlier king David (a great general) having been successful in all his wars and having been promised that his heirs would sit on his throne<sup>5</sup> "for a great while to come," sought to hasten by the sword the coming in of the kingdom of God, so he numbered Israel and Judah for a national army. He was stopped and offered the choice of famine, defeat or

<sup>1</sup> 2 Kings xvi, 10-15.

<sup>2</sup> 2 Kings xvi, 18 (A.V.).

<sup>3</sup> 2 Kings xvi, 18 (LXX).

<sup>4</sup> Hos. v, 13; x, 6.

<sup>5</sup> 2 Sam. vii, 19.

pestilence<sup>1</sup>—his own country and the countries he fought against would have suffered all three had he carried through his intention.

In Babylon the temples of the gods were the chiefest public buildings; in Assyria the king was supreme and the temple was but a king's chapel attached to the palace. Uzziah, also a warrior king, "was marvellously helped till he was strong."<sup>2</sup> Then he meant to do like Jeroboam of Israel and Asumirari of Assyria, and went into the Temple "to burn incense upon the altar of incense" and he became a leper till his death. So too did his grandson Ahaz in the year 731, and he did it (if the Septuagint version is correct) "after the presentment of the king of the Assyrians."<sup>3</sup>

Tiglath-Pileser's first business was to save the priests and king of Babylon from the Arameans on their border. The king, Nabonassar, seems to have been what Jeremiah would call "a quiet prince,"<sup>4</sup> and was always a faithful vassal of the Assyrian king. On his death in 734 there was an insurrection, the chief rebel being a Chaldean prince, Merodach-baladan, "king of the sea-land," and rather against his will and convenience Tiglath-Pileser "took the hands of Bel" a couple of years before his death in 727. Besides Babylon, he had to guard his north-east border, through Armenia to the desert towards Elam, where, from 733 on, the encroaching Medes began to be felt; he had also to control Syria. Here he conquered Damascus, put Pekah to flight but did not pillage Samaria, and came into contact with Ahaz, whom he met at Damascus, but "he helped him not."<sup>5</sup> We know little of his successor Shalmaneser except from the Bible; he spoilt the fortress of Beth-Arbel<sup>6</sup> (probably in Galilee) and besieged Samaria,<sup>7</sup> where Hoshea, the Assyrian viceroy, had refused him tribute.

It was Sargon who actually took Samaria. Under him the Assyrian empire came into collisions with nations equal in power to its own. The newly immigrated Iranian tribes from Helمند and Kabul and Holy Merv were pressing down south of the Caspian and towards Elam with a vigour that the earlier Median tribes had lost. Into Cilicia (whence Assyria got its metals)

<sup>1</sup> 2 Sam. xxiv, 13; 1 Chron. xxi, 12.

<sup>2</sup> 2 Chron. xxvi, 15.

<sup>3</sup> 2 Kings xvi, 18 (LXX).

<sup>4</sup> Jer. li, 59.

<sup>5</sup> 2 Chron. xviii, 21.

<sup>6</sup> Hos. x, 14.

<sup>7</sup> 2 Kings xvii, 3-5.

there was an invasion of other Indo-European tribes—the Cimmerians from Gomer, north of the Black Sea—and it was fighting against these that Sargon lost his life in 705. In the west, Egypt—albeit “a broken reed”<sup>1</sup> to any nation that it helped—was come in, remaining an adversary till the Empire’s end. To quote *The Cambridge Ancient History* (vol. iii, p. 46): “The enemies Sargon had to meet arose from four quarters: (1) Union of Chaldea and Elam in the south; (2) medley of peoples in the north and north-east; (3) Phrygia in the north-west; (4) Syria, Palestine and Egypt in the south-west.

Merodach-baladan got the support of all the Chaldean tribes, which united with the Elamites, and also (perhaps later) with the Arabians. In 721 he “took the hands of Bel” at the new year’s festival. In 720 Sargon took the field against him, but the result was uncertain, and it was not until 710 that the great attack was prepared which conquered him. Even then Sargon reinstated him in his principedom of the “sea-land,” and Merodach-baladan seems to have remained his faithful vassal until Sargon’s death. As Sennacherib spent his first two years rebuilding Nineveh, and did not go to Babylon to “take the hands of Bel” until 703, Merodach-baladan was able to make strong his claim and put out the Babylonian appointed as viceroy. In 702 Sennacherib put in another Babylonian, Bel-ibni, and himself went west against Palestine. Next year he came back, for Bel-ibni had joined up with Merodach-baladan; he finally crushed both and made his own son viceroy.

At what time then did Merodach-baladan’s envoys come to Hezekiah to “inquire of him of the wonder that was done in the land?”<sup>2</sup> Merodach-baladan was “a wretched soldier,”<sup>3</sup> but certainly also a first-class intriguer, and no doubt he plotted at all opportune intervals from 733 to 699. He seems to have made Tiglath-Pileser, Sargon, and Hezekiah all do much as he wanted them. Now, Isaiah distinctly says that the envoys came after “those days,”<sup>4</sup> namely, “the 14th<sup>5</sup> year of Hezekiah,” when “Sennacherib, king of Assyria, came against all the defenced cities of Judah and took them.” Col. Shortt, however (in his paper of December last), says that this “is an error” on Isaiah’s part.

<sup>1</sup> Isa. xxxvi, 6.

<sup>2</sup> 2 Chron. xxxii, 31.

<sup>3</sup> *Camb. Anc. Hist.*, vol. iii, p. 46.

<sup>4</sup> Isa. xxxviii, 1.

<sup>5</sup> Isa. xxxvi, 1.

Isaiah was the recognized historian<sup>1</sup> for (at least) Uzziah's reign, and though he was a prophet, it does not follow, necessarily, that he was vague or inaccurate as to when events took place in which he himself took so active a part. Let us then assume that Isaiah was right in his dating and test this by the other dates that he gives.

In the Book of Isaiah, five points of time are noted :—(1) “ In the year that king Uzziah died ”<sup>2</sup>; (2) “ In the year that king Ahaz died ”<sup>3</sup>; (3) “ In the year that Tartan came unto Ashdod (when Sargon, the king of Assyria, sent him), and fought against Ashdod ”<sup>4</sup>; (4) “ and took it ”<sup>5</sup>; (5) “ In the fourteenth year of king Hezekiah, Sennacherib, king of Assyria, came up.”<sup>6</sup> From Assyrian history we know the dates of (3), (4) and (5) as 714, 712 and 701 respectively. The last date would give Hezekiah's *first* year as 715, and this, therefore, as “ the year that king Ahaz died.”<sup>7</sup> Ahaz reigned 16 years so that he came to the throne in 731, which is therefore “ the year that king Uzziah died.”<sup>8</sup> But he was regent at least as early as 735, since in that year the kings of Israel and Damascus conspired to depose him and substitute for him “ the son of Tabeal.”<sup>9</sup> Probably this meant that the regent Jotham died in 736 or 735. In chapters 7–9 of his book, Isaiah relates this intrigue. Chapters 9–10 form the prologue to a series (chapters 13–30) of “ burdens ” (sometimes translated as “ visions,” sometimes as “ words ” by the Septuagint), concerning certain nations, and these nations are just those enemies from the four quarters that Sargon had to meet ; they are given almost in the very order in which *The Cambridge Ancient History* enumerates them ; especially is the reliance upon Egypt emphasized, and Egypt was not a factor in Tiglath-Pileser's military problems. Also the prologue represents the Assyrian king as saying : “ Is not Calno as Carchemish ? Is not Hamath as Arpad ? Is not Samaria as Damascus ? . . . Shall I not, as I have done unto Samaria and her idols, so do to Jerusalem and her idols ? ”<sup>10</sup> But Carchemish was taken in 717, Hamath was made an Assyrian province in 720, and Samaria was captured in 721. There seems small doubt then that all

<sup>1</sup> 2 Chron. xxvi, 22.

<sup>2</sup> Isa. vi, 1.

<sup>3</sup> Isa. xiv, 28.

<sup>4</sup> Isa. xx, 1.

<sup>5</sup> *Ib.*

<sup>6</sup> Isa. xxxvi, 1.

<sup>7</sup> Isa. xiv, 28.

<sup>8</sup> Isa. vi, 1.

<sup>9</sup> Isa. vii, 6.

<sup>10</sup> Isa. x, 9–10.



the "burdens" were seen subsequent to 717. But the "Burden of Babylon" was seen "in the year that king Ahaz died,"<sup>1</sup> which accords well with the date 715. The reference to the three-year siege (714-712) of Ashdod<sup>2</sup> comes in between the "Burden of Egypt"<sup>3</sup> and the "Burden of the Desert of the Sea."<sup>4</sup>

It seems to me that the evidence is strong that chapters 10-30 of the Book of Isaiah are concerned with Sargon's reign of 721-705; if this is so, there was no confusion on Isaiah's part between Sargon's campaign in Palestine between 715 and 712, and Sennacherib's campaign in 701 and later. It is equally strong that Hezekiah's 14th year was 701. This must also have been the year of his mortal sickness, for 15 years<sup>5</sup> were added to his life and he reigned for 29 years.<sup>6</sup> Like Merodach-baladan, Hezekiah probably took advantage of Sennacherib's tarrying at Nineveh to give up paying him the tribute he had rendered to king Sargon. He also finished his great conduit, but there is a suggestion in "the burden of the valley of vision,"<sup>7</sup> that this was begun in 716 or 715, probably by Ahaz (who 20 years earlier was troubled by the city's exposed water supply),<sup>8</sup> for the reproach there levelled is one deserved by Ahaz rather than by his son. "Also he strengthened himself and built up all the wall that was broken down, and raised up the towers, and another wall without, and repaired Millo in the City of David."<sup>9</sup>

And then he was stricken to death.

Hezekiah lay in the King's House and looked down the steps which, by the Horse Gate, went up again to the Temple. In the distance, on his right hand, was the Mount of Olives, above which the sun had that morning risen; the sun (now sloping towards the west, for it was about 3 o'clock in the afternoon) had already cast the shadow of his father's house upon the upper steps of the staircase. Then Isaiah brought him the message: "Thou shalt die and not live";<sup>10</sup> and went out into the court between the King's House and the Temple precincts. Hezekiah turned his face to the wall and prayed, and straightway Isaiah was bade return and tell the king that he would recover and go up to the House of the Lord on the third day, and that

<sup>1</sup> Isa. xiv, 28.

<sup>2</sup> Isa. xx, 1.

<sup>3</sup> Isa. xix.

<sup>4</sup> Isa. xxi.

<sup>5</sup> Isa. xxxviii, 5.

<sup>6</sup> 2 Kings xviii, 2.

<sup>7</sup> Isa. xxii, 9-11.

<sup>8</sup> Isa. vii, 3.

<sup>9</sup> 2 Chron. xxxii, 5.

<sup>10</sup> Isa. xxxviii, 1.

God would defend this city.<sup>1</sup> Perhaps Hezekiah looked out to his right to the conduit of the upper pool in the highway of the fuller's field, between the city wall and Mount Olivet, where his father Ahaz—also in imminent danger of invasion—had stood and been offered a sign for safety, a sign either in the depth or in the height,<sup>2</sup> and had refused it. Now he asked a sign and was also given a choice—between an easy, almost a natural sign, and a hard, nay, a sign out of all nature. Should the shadow go forward ten steps or go back ten steps: as Amos had put it half a century earlier, making “the day dark with night,” or turning back “the shadow of death into the morning.”<sup>3</sup>

“Faith is the substance of things hoped for, the evidence of things not seen,”<sup>4</sup> and Hezekiah grasped this substance and chose the hard sign. It was a light thing for the shadow to go down ten steps to the east; every afternoon it happened, and a mere rain cloud over the sun until its setting would extend the shadow to the horizon. But the sun must always go down steadily to the west, and it could not again bathe the steps in sunlight until it rose again next morning over the Mount of Olives. Never did any light appear in the afternoon to the north or south or east that would shine on those steps and drive back the shadow.

Never? Perhaps once. For when king Solomon brought up the Ark of the Covenant of the Lord out of the City of David, which is Zion, and the singers were praising the Lord, and saying “For He is good; for His mercy endureth for ever,”<sup>5</sup> then the glory of the Lord filled the House. Twice had Isaiah seen this glory in vision: once while Uzziah was still alive: “upon every dwelling place of Mount Zion, and upon her assemblies, a cloud and smoke by day, and the shining of a flaming fire by night: for upon all the glory shall be a defence”;<sup>6</sup> once again the year king Uzziah died, the Temple was filled with the glory.<sup>7</sup>

The “burdens” of Isaiah give us a review of this great world contest. The origins of the wars are stated and their far-reaching consequences. But these origins are not the desires

<sup>1</sup> Isa. xxxviii, 5-6.

<sup>2</sup> Isa. vii, 11.

<sup>3</sup> Amos v, 8.

<sup>4</sup> Heb. xi, 1.

<sup>5</sup> 2 Chron. v, 13 (LXX).

<sup>6</sup> Isa. iv, 5.

<sup>7</sup> Isa. vi, 1.

for world dominion, nor for the extension of trade; the theme of the "burdens" is neither strategy nor intrigue, victory or defeat, the supremacy of one nation or the breaking up of another. These are so transitory as scarcely to need mention. The origins were summed up in the words of Hosea: "For the Lord hath a controversy with the inhabitants of the land, because there is no truth, nor mercy, nor knowledge of God in the land. By swearing and lying, and killing, and stealing, and committing adultery, they break out, and blood touches blood."<sup>1</sup> Because of all these when the Lord sends the Assyrian as the rod of his anger,<sup>2</sup> neither Confederacy, nor Peace Conference, nor League of Nations could avail to stop the war. They could not do it then; they cannot do it now.

Isaiah saw clearly the course of events in several directions. For instance, in the "Burden of Babylon," he saw that God would "stir up the Medes against them which shall not regard silver; and as for gold they shall not delight in it."<sup>3</sup> Anyone who has read the *Mihr Yasht* will perceive how apt a description this was of Iranian integrity, and what a power it gave to such a people. Again, immediately after that same "burden," he warns Palestina not to rejoice that "the rod of him that smote thee is broken: for out of the serpent's root shall come forth a cockatrice, and his fruit shall be a fiery flying serpent. . . . thou, whole Palestina, art dissolved: for there shall come from the north a smoke."<sup>4</sup> This gives the succession of Sargon, Sennacherib and Esarhaddon, and the coming advance of the northern hordes. These may be cases of far-seeing judgment of the characters of men and nations; they may not be prophecy.

But there are other passages which cannot bear this interpretation, for the contrast between the earthly circumstances and the message which the prophet must give is so fierce, that he can only speak with stammering lips. When Ahaz stood at the conduit of the upper pool, and refused a sign, yet a sign was given him that a Virgin should conceive and bear a Son and call him *God-With-U.s.*<sup>5</sup> This was that Ahaz who burnt his own children in the fire.<sup>6</sup> In the year that king Uzziah died, Ahaz desecrated the Temple,<sup>7</sup> yet it was then that Isaiah saw

<sup>1</sup> Hos. iv, 1-2.

<sup>2</sup> Isa. x, 5.

<sup>3</sup> Isa. xiii, 17.

<sup>4</sup> Isa. xiv, 29, 31.

<sup>5</sup> Isa. vii, 14.

<sup>6</sup> 2 Chron. xxviii, 3.

<sup>7</sup> 2 Kings xvi, 12-15.

the Lord high and lifted up, and the Temple was filled with His glory.<sup>1</sup> When Ephraim saw his sickness and Judah his wound, then Ephraim went to the Assyrian and sent to king Jareb, yet Hosea says of these repentant sinners: "After two days will He revive us; in the third day He will raise up and we shall live in His sight"<sup>2</sup> and so it came to pass 750 years after this saying.

Two were signs, or rather symbols. Even in his unwillingness Jonah was made a type of our Lord when in the tomb.<sup>3</sup> Half a century after Jonah's reluctant preaching to the Ninevites, the sign of Hezekiah's choice was to reveal that not for always was it to be "appointed unto men once to die."<sup>4</sup> As the prophet Paul said, "We shall not all sleep, but we shall be changed,"<sup>5</sup> but for the fulfilment of this we still wait.

#### DISCUSSION.

The CHAIRMAN (Colonel Hope Biddulph) said: The paper to which we have listened evinces a careful study of the Scriptures and of the locality in which the event recorded took place, and, moreover, it presents us with a vivid picture of the times.

I think, however, that some here present, like myself, may feel disappointed that the writer has not attempted to offer an elucidation of the miracle. Though loth to "rush in where angels fear to tread," I venture to offer a suggestion for consideration. Some persons hold a miracle to be something that cannot be explained by natural means, and think that an occurrence ceases to be a miracle if it can be so explained. It is a fact that we are surrounded by many marvels in our daily life, and experience so many indeed, that only events of a unique character or of rare occurrence arrest attention and excite interest. At the same time science is continually discovering processes which have hitherto been inexplicable, and I would suggest that the Creator works by natural laws when what we term supernatural events take place.

The case of the shadow returning ten degrees on the dial of Ahaz seems, on the face of it, to be akin to that of Joshua's Long Day.

<sup>1</sup> Isa. vi, 1.

<sup>2</sup> Hos. v, 13; vi, 2.

<sup>3</sup> Matt. xii, 40.

<sup>4</sup> Heb. ix, 27.

<sup>5</sup> 1 Cor. xv, 51.

I am aware that the latter is explained by some in a sense totally different from that usually drawn from the text of the Authorized Version of the Bible, and I do not propose to argue the point. But, as periods of light and darkness are greatly extended in Polar regions, owing to the inclination of the earth's axis to the plane of the ecliptic, it appears reasonable to suppose that some change of this angle may have been effected causing an extension of daylight in Palestine on the occasion of Joshua's Long Day, and in the same manner also the retrogression of the shadow on the staircase of Ahaz.

If it be objected that such a change would be catastrophic, I would point out that Nature has safety valves in her operations which outwit purely scientific reasoning. A striking instance of this is found in the temperature of water, which contracts instead of expanding when heated between 32° and 40° Fahrenheit, a provision which prevents rivers from being frozen solid and killing the fish (see *Transactions*, Victoria Institute, vol. lix, p. 239).

I ask you to accord a hearty vote of thanks to Mrs. Maunder for her interesting and instructive paper. Vote accorded with acclamation.

DR. THIRTLE said: The paper to which we have listened bears on the surface evidence of careful investigation conducted by a lecturer whose name occupies a place of signal honour in the proceedings of the Victoria Institute. Whether the "degrees" on the sundial of Ahaz represent movements on such an instrument as passed for a sundial in subsequent times, or whether they indicate an architectural feature of the king's palace, is a point that is hardly material. Certain it is that, on the day specified in the record, something happened which made a profound impression upon King Hezekiah. More than that, while the incident gave immediate comfort to the king it was noised abroad among peoples in distant lands, for, as we are told, ambassadors came from Babylon to Jerusalem with the express purpose of inquiring as to "the wonder that had been done in the land," and in actual history, as we also learn, the period of fifteen years was added to the king's life. Now, not by way of criticism, but as following upon the lecture, I wish to point out what the record makes clear, that the

king not only enjoyed the blessing of added years, but ordered his after life in the light of a great experience. While suffering from the leprous boil, which disabled him from entering the sanctuary, the king besought delivery with the express purpose that he might "Go up to the house of the Lord," and so join the pious Israelites of his time in divine worship. Being marked for death, however ("Set thy house in order, for thou shalt die and not live"), had for him a deeper meaning. He was an unmarried man, and his death would mean the end of the Davidic dynasty, and what is more, it would involve a tragic violation of the divine purpose, solemnly pledged in Covenant, that the throne of David should never fail of an occupant in succession to a righteous ruler (see 1 Kings ii, 4). It was in these circumstances that the king wept and prayed, and having at length been raised, as it were from death, he exclaimed (Isa. xxxviii, 18, 19): "The grave cannot praise thee, death cannot celebrate thee; the living, the living, he shall praise thee, as I do this day: the father to the children shall make known thy truth."

The king recovered and the Davidic dynasty was prolonged; hence a godly king was not to despair of a successor on the throne. When giving expression to these facts the king made another statement, which should command serious attention; he said: "The Lord is ready to save me; therefore we will sing my songs to the stringed instruments all the days of our life in the house of the Lord." "THE LORD," that is Jehovah: the form of address should be noted by those who would inquire whether the king's pledge was kept. Verily, that pledge was kept, and the result appears in the Psalmody of Israel, in songs to JEHOVAH, sung in "the house of JEHOVAH," fifteen in number, corresponding to the years added to the king's life. Find these songs in the Book of Psalms, Nos. 120 to 134, each of them entitled "A Song of the Degrees." However we may read in our common versions, the title is "A Song of the Degrees," the definite article is plainly there, indicating the association of the songs with the episode of "the degrees" or stairs, as the episode has come before us this afternoon.

Let it be clear that the songs are fifteen in number, no more, no less; the titular form stands between the series, individualizing each and all of the songs. Moreover, the allusion is precise, and should

save us from accepting a loose reference to undefined ascents, steps, or movements, as imagined in pilgrimages, processions or anything else. The word "degrees" in the title *shir-Lammaaloth*, a song or lay, defines a marvellous occurrence in the life of one of the greatest kings of Judah.

Is it said, by way of criticism, that the "Songs" before us have been otherwise explained? The reply is that a mis-explanation cannot be blamed upon the Psalter. Scores of theories of the Psalter and its constituent parts have come and gone, and, at times, as it were by divine illumination, a new light may surprise a patient student. Certain it is that the fifteen songs presume the existence of the temple and its ordered worship, and, therefore, they cannot be exilic as some have contended. Other explanations are equally deficient as it becomes clear on a dispassionate investigation. Apply the test—the man who goes to the Songs with an intimate knowledge of the story of Hezekiah will find in every one of them a response to situations and circumstances belonging to the life of the king who said he would "sing his songs in the house of the Lord," *i.e.* Jehovah, as long as life might last. An important point is found in the fact that the name JEHOVAH dominates the series. It occurs fifty times, and no single song is without the sublime and ineffable name of the God of Israel.

Lieut.-Colonel T. C. SKINNER said: My first impression after a hurried reading of the paper was one of disappointment that the distinguished author had left the astronomical problem unsolved, but more careful perusal disclosed something vastly better. If I read aright, the author's view—most wisely left to suggest itself—is that the turning back of the shadow may have resulted from the appearing of the Glory of the Lord, the Shekinah Glory, in response to Hezekiah's faith. If so, she has brought out for us more than the most satisfying explanation along lines of natural science could ever do, the fact, *viz.*, that God Himself is greater than all His laws as manifested in natural phenomena.

#### WRITTEN COMMUNICATIONS.

Rev. J. J. B. COLES wrote: Mrs. Maunder's paper on the Sundial of Ahaz is naturally associated in our minds with the valuable

essay on "Joshua's Long Day," by the late Mr. E. W. Maunder, widely known as the author of *The Astronomy of the Bible*.

Both Joshua and Hezekiah were specially favoured servants of God, and Isaiah a leading prophet. The ambassadors from Babylon were greatly impressed by "the wonder wrought in the land" (2 Chron. xxxii, 31). I remember reading that ancient chronologists have asserted that there is a day's difference between astronomical chronology and ordinary reckoning.

Colonel A. G. SHORTT wrote: I see the lecturer differs somewhat from my chronology. I wish I could think that she was right. The fall of Samaria is put in 721, the invasion by Sargon in 714, and that of Sennacherib in 701. So far so good! but in making 714 the *first* year of Hezekiah endless difficulties are raised, for he was certainly reigning in 721, by 2 Kings, xviii, 1, 9, 10; and also the agreement between the chronology of Judah from Hezekiah to Zedekiah with secular history, is destroyed.

The Revised Version is followed in the substitution of "steps" for "degrees," but though the Hebrew word does mean "stairs" there is no certainty that it does so here, or in Ezek. vi, 4, 6, where it is translated "images" or "sun-images." The actual cause of the movement is not touched upon. The late Professor H. H. Turner of the University Observatory in Oxford, suggested to me that it was due to a rare phenomenon, a sun-mirage, when the sun became a *pillar* of light which lasted for a long time after sunset. This appears to me to be a more likely explanation than any I have yet seen.

Miss ETHEL D. JAMES, B.A., wrote: I would like to suggest an explanation that might enable one to conceive a possible method of God's acting. We are told that though we now know only in part, we shall one day have full knowledge. Though our knowledge is still very partial and only such as a finite created being can grasp, yet one or two among us have grasped a little farther than others. The great mathematician Einstein, in showing that even over short distances and short periods light can be proved to bend, suggests that possibly God bent the light rays a trifle differently from the effect produced by the unaided laws and forces of nature,



and thereby produced a transitory and local result. This seems a simpler explanation than any possible slowing down and reversing of the earth's rate of rotation.

Dr. JAMES KNIGHT wrote: Permit me to offer one or two comments on the opening paragraph. This view of laws of nature is antiquated. The new teaching, really a return to Huxley's caution of fifty years ago, declares roundly that natural laws govern nothing, are not obeyed, and do not belong to the nature of things. They are indeed, "but formulæ for the prediction of an observable occurrence," and that the prophets sometimes prophesy falsely is easily seen when we study the method by which a so-called "law of nature" is formulated. Modern physics has accepted Heisenberg's principle of indeterminacy, and J. W. N. Sullivan, commenting upon the application of this, asks, "Are we to interpret the principle as an indication that the law of strict causality does not apply to the fundamental operations of nature? At the present time scientific men are of two minds about this matter" (*Outline of Modern Knowledge*, 1931, p. 111).

In the same way Prof. Wolf, writing on Recent and Contemporary Philosophy, discusses this general Principle of Indeterminacy (or of Uncertainty), "according to which, as some would maintain, there is no such thing in the physical world as that causal determination on which the older scientists insisted, and on which the mechanistic philosophy was based" (*op. cit.*, pp. 590, 591).

In view of these modern pronouncements in the spheres of physical and mental science respectively, it would seem that Mrs. Maunder has been too generous to the materialists, who, of course, are bound to deny, not only this miracle, but all physical miracles.

Mr. G. B. MICHELL wrote: There is only one point that I find to criticize in this most interesting paper, namely, the chronology of the reigns of Ahaz and Hezekiah. The authoress gives "the year that King Ahaz died" as 715 B.C. on the strength of this being Hezekiah's first year, since his "fourteenth" year when Sennacherib came up against him was 701. This is also assumed to be the year of the sickness and recovery of Hezekiah. But, if so, then he died in 686, since 15 years were added to his life.

Now, it is manifestly impossible to fit in (1) the 55 years of Manasseh, (2) the 2 years of Amon, (3) the 31 years of Josiah, (4) the 11 years of Jehoahaz and Jehoiakim, and (5) the 11 years of Jeconiah and Zedekiah—110 years in all—between 686 and 586, the date of the end of the dynasty. Even if we take these last reigns as beginning in the same year as the last of its predecessor, the death of Ahaz *must* have occurred in 721 B.C., not 715.

I quite agree that the "fourteenth" year of Hezekiah *when Sennacherib came up*, must have been 701 or 702. But was this the same "fourteenth" year *when he was sick*? I maintain that it is impossible. For it was *after* the recovery of Hezekiah that Merodach-baladan, *King of Babylon*, sent his ambassadors to Hezekiah (Isa. xxxviii, 1). This could not have been after 701, for Merodach-baladan had been finally conquered by Sennacherib in 704, and deposed and replaced by Bel-ibni in 703. This is no "error on Isaiah's part," for the words "In those days" of xxxviii, 1, cannot refer to the events of chapter xxxvii, for that chapter closes with the death of Sennacherib and the accession of Esar-haddon in 682 B.C., the words immediately preceding "In those days."

In what days then? Evidently, "at that time" of xxxix, 1, to which the following oracles of the rest of the Book refer.

Hezekiah must have had *two* fourteenth years, just as James I of England and VI of Scotland had two fourteenth years, and so he had two *first* years, one in 721, when his father Ahaz died and he became king of *Judah*, and one in 715, the year of Sargon's second plantation in Samaria, when Hezekiah evidently assumed the rule of *all Israel*. There is plenty of evidence that he did this. It was in the fourteenth year of his reign over Judah that he fell sick and the sign under discussion was given. For the whole story concerns Judah alone. But it was in the fourteenth year of his reign over the whole nation that Sennacherib came up against him. For that concerned the whole land. No other theory will fit the historical facts. But this is consistent with all.

The date 708 would suit well the embassy of Merodach-baladan. For although Sargon of Assyria became suzerain of Babylon in 709, he left Merodach-baladan, who had been the native king of Babylon since 730, pretty much to his own devices, of which this embassy

would be a very natural one. Babylon, though it had no military might against Assyria, possessed in the religious supremacy of its Sumerian priesthood a strong and a dangerous prestige which finally destroyed the Assyrian, and as Isaiah foresaw, the Chosen People too.

Mrs. Maunder acknowledges that Ahaz was reigning at least as early as 735, but she makes him "regent" at that time. For this we have no evidence whatever. As Syria was conquered by Pul, and Rezin slain, in 732, a date when the child whose birth was prophesied in Isa. vii, 14, 15, would be only two years old, the events recorded in that chapter as occurring *in the days of Ahaz* must have been in 735.

The learned authoress also says "Ahaz reigned 16 years, so that he came to the throne in 731, which is, therefore, 'the year that king Uzziah died,' " thus eliminating Jotham altogether. But Jotham must have had an independent reign of his own after the death of his father, as well as his long regency for Uzziah. For the language used of his reign in both Kings and Chronicles is explicit, and precisely the same as the terms used of Ahaz, Hezekiah and the other kings,— "And Azariah *slept with his fathers* : and they buried him with his fathers in the city of David : and *Jotham his son reigned in his stead.*" Compare 2 Kings xv, 38 ; xx, 1. The death of Uzziah must, therefore, be placed at least two or three years before 735, say in 739. For in 741 Azariah was still alive, since in that year nineteen districts of Hamath revolted to him. See Schrader's *Cuneiform Inscriptions and the Old Testament*, vol. i, p. 214. And Menahem's tribute to Pul (2 Kings xv, 19) was in 738.

We have, then, for Mrs. Maunder's "five points of time" seven, not five, viz. (1) "In the year that king Uzziah died," say, 739 ; (2) "In the year that King Ahaz died," 721 ; (3) "In the year that Tartan came unto Ashdod," 714 ; (4) "and took it," 712 (711) ; (5) the sickness and recovery of Hezekiah, 708 ; (6) the embassy of Merodach-baladan, say, 707 ; and (7) Sennacherib came up against Jerusalem, 701 (702).

These alterations of dates in no way affect the main argument of this valuable paper, with which I am in cordial accord.

## LECTURER'S REPLY.

I would like to emphasize two points about the returning of the shadow : it was local, not something that affected other regions ; it was a large return, and went back over a big extent of ground.

The Chairman has urged two points also. The Creator, he says, works by natural laws. I think each miracle should be considered on its own merits ; I may instance one which was certainly accomplished by natural causes, that of the piling up of the waters of the Red Sea by wind, so that the people walked over dry-shod. But this miracle of the returning shadow I consider to be *the case* in the Old Testament of a miracle which was not in any way due to natural causes, but to the "finger of God" alone. The Chairman's second suggestion that the return was due to a change in slope of the earth's axis comes under his own ban as being "unnatural" and under mine since this must affect the whole world and not Jerusalem only.

In reply to Col. Shortt, the Hebrew word *maalāh* or *maaleh*, or its equivalent in the Septuagint, *anabathmos*, always means "ascent" (steps, degrees, going up, etc.), either physical or ethical. But the "images" (of the Sun) in Ezek. vi, 4, 6, is quite a different word, *chamanim*, "idols" (of Baal). If he turns to Zeph. i, 4, he will see the terms in which the Word of the Lord came concerning the *kemarim*, the idolatrous priests who ministered in the worship of Baal and the host of heaven. Can we suppose that the Lord would use such idols—especially evil, when in the holy precincts of the Temple—as medium for this great miracle of healing ? I knew Professor Turner well, and his keen interest in all accurate observation of astronomical phenomena ; I do not suppose that he ever read this narrative with attention ; had he done so, he would not have suggested a sun-pillar which occurs *after* sunset as the cause of this returning shadow, which *must have taken place in the early afternoon*. Moreover, I put it to Col. Shortt, if this were the cause of the returning sunlight, what meaning could Hezekiah have put on the alternative choice that the shadow should go forward ten degrees ? If the sun was on the horizon or below it, the shadow extended to the horizon ; how could Hezekiah see it go farther ?

With Miss James I agree entirely, that it is possible that God should work a miracle in *any way*. Therefore, I have not tried to explain *how* this miracle was done. I have only brought to memory that there was one previous occasion when the Glory of God so covered the Temple that it would have lit up the ascent to the house of Hezekiah's father. I do not say that this was the means actually employed.

I need not go into Dr. Knight's objection to my "Antiquated view of the laws of nature," except to assure him that "Heisenberg's principle of indeterminacy" does *not* mean that if the Sun on any day is high in the heavens, it is an indeterminate thing, whether the Sun will return to sink in the east region or will continue its course to sunset in the west.

I should like to give my thanks to Dr. Thirtle for his valuable addition to my paper, and especially for his insight into what I wanted to express, but had not the ability to express in any adequate fashion.

754TH ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,  
WESTMINSTER, S.W.1, ON MONDAY, MARCH 7TH, 1932,

AT 4.30 P.M.

WILLIAM HOSTE, ESQ., B.A., IN THE CHAIR.

The Minutes of the previous Meeting were read, confirmed, and signed.

In the absence of the author of the paper in Canada, Dr. JAMES W. THIRTLE kindly undertook the reading of Mr. George B. Michell's paper on "The So-called ' Babylonian Epic of Creation.'"

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*THE SO-CALLED "BABYLONIAN EPIC OF CREATION."*

By G. B. MICHELL, ESQ., O.B.E.

SCHOLARS have assumed too hastily and on insufficient evidence that the Babylonian Epic beginning with the words *Enuma elish* was meant to be an account of the first creation of the world and of man. My object in the present essay is to show that it is nothing of the sort, but that, on the contrary, it is a mythological description of the devastation of the Babylonian system of land-irrigation by the Flood, and of its reconstruction after that disaster.

I attach less importance to the fact that the words "create" and "creation" do not occur throughout the Epic than I do to the facts that (a) the Babylonians had other accounts of a long previous creation which are incompatible with the Epic; (b) the "building" of a man to restore the worship of the gods is a minor incident, quite subordinate to the main purpose of the Epic; and (c) this main purpose has nothing to do with the primæval Creation.

1. To begin with, the Babylonian word *banah*, translated "to create" in the versions of the Epic, has not that significance either in the Babylonian or in any of the Semitic languages.

It signifies merely the mechanical operation of *building*, with no reference to the intellectual conception of the *pattern* or *plan* which must precede the mechanical operation, and which is of the essence of creation. The creation of a work of art is not the mere modelling of the clay, or the laying of pigments on canvas, or the making of black marks on paper, but the genius of the artist manifesting itself in visible or audible form. It is this that is expressed in the Hebrew word *bar'a* in Gen. i, 1, *et al.*

2. I have said that the assumption of scholars is based on insufficient evidence. I ought rather to have said on no evidence at all. For Berosus is not *evidence*. His opinions are but hearsay, at best, and even these are only to be had at third, fourth, or fifth hand, in translations of translations of translations. And "traduttore traditore"! Even if we could be sure that we had the doctrine of Berosus correctly handed down through Polyhistor, Eusebius, Damascius, George the Syncellus, etc., the opinions of a Babylonian priest of the Persian period with regard to matters some two thousand years before his time are no more infallible than those of religious sectarians of the present day. Yet there is no other reason whatever than the citations of Eusebius for supposing that the *Enuma elish* is an account of the primæval Creation.

3. There is abundant evidence that the Epic, in its present form, is not the original Babylonian theory on the subject.

When I asked Professor Pinches, with regard to his paper on "The Completed Legend of Bel-Merodach and the Dragon," (*V.I. Transactions*, vol. lix, p. 163), whether the copies made in the time of Assur-banipal (*cir.* 669—625 B.C.), had been subjected to Higher Criticism I had in mind the notes of Professor Langdon to his edition of *The Epic of Creation*. So far as I know these notes are the only attempt at such criticism. But they are sufficient to show how necessary it is. For they demonstrate clearly (a) that the Epic is a composite and garbled work, and (b) the dissension between the Sumerian priesthood and the Semitic authorities, civil and religious, with regard to certain points in it. For it contains elements which must be very much older, and of contrasting origin than its final redaction in its present form under a *Semitic* dynasty. And what evidence we have points to these disparate elements rather than to the complete Epic. Further, it is precisely these elements which relate to the creation of man.

4. That the Epic describes a secondary fabrication of a man *after the Flood* I do not dispute. But the phraseology of the Epic is ambiguous. It says, Book VI, line 23, "The great gods replied, 'It was Kingu that made war; that caused Tiāmat to revolt and joined battle.' They bound him and brought him before Ea, punishment they imposed upon him, they severed (the arteries of) his blood. With his blood he (*Ea*) made mankind in the cult services of the gods, and he set the gods free. *After Ea had built mankind and (? had imposed) the cult services of the gods upon him.*" Dr. Langdon's note to this is, "In the Nippur version the mother-goddess Aruru (Mami, Nintud) created man from clay only or gave birth to him directly, but a Semitic legend states that Mami made man from clay and blood at the order of Ea (Enki), who commanded that a god be slain and that Ninḥarsag '*ina shiri-shu u dami-shu liballil tittam,*'" (*i.e.*, "into his flesh and blood should mix clay"). "On the other hand, Marduk in this same Epic, VII, 29, is said to have created man, *ibnu ameletu*, whereas in reality he only instructed Ea to do it, and a late bilingual incantation also attributes the creation of mankind to Marduk (*ameletu ibtani*) assisted by Aruru. There were, in fact, two Sumerian traditions, one from Nippur in which the earth-goddess created man from clay, and one from Eridu in which Ea created man in the same manner. The legend of the slaying of a god and mixing his blood with clay is probably later and worked into both versions. Marduk had originally no connexion with the tale. This Aššur copy of Tablet VI does not substitute Aššur for Marduk, but is a copy from Babylonia. The version of the creation of man in Assyria has no connexion with the *Epic of Creation*. Here all the great gods assist in making man from the blood of two 'artisan gods' (sons of Ea!). In any case the legend of a god who was sacrificed to create man is extremely old." No doubt it is, but it was *Semitic*, and new in comparison with the original Sumerian version.

5. It is all very well to charge the mystagogues of Babylon with a ruthless confusion of the ancient myths. It is much more satisfactory to try to put ourselves in their position, to seek to divide out the primitive elements, and to ascertain if there is no way of reconciling them on reasonable grounds. It seems to me that my theory does this. That is to say that the myths regarding Ea refer to the original creation of man before the Flood, while that regarding Marduk's making of man from



the blood of Kingu is an exaggerated term for the restoration of civilization in Babylonia after the Flood. It may be that they were content with the story of Gilgamesh (*Utu-napishtim*), as recounting the escape of man in a "ship" from the Deluge, being probably unaware that that legend related to a very much more ancient episode, viz., to the last of those post-glacial floods which Professor Myres describes in the *Cambridge Ancient History*, vol. i, p. 42.

6. It seems to me clear that the two ancient Sumerian traditions refer to the original creation of man from clay, whether by the Earth-goddess or by the Water-god, whereas the Semitic versions refer to a second "making" of man *after the Flood*. For that is the theme of this Epic. The latter was probably in order to induce the all-powerful Sumerian priesthood to admit the claims of Marduk, and so ascribe the initiative in the matter to the Sumerian deity, Ea. But it was the Semites who introduced the sacrifice of a god and the mixing of his blood with clay. To them also was due the idea that it was to "purchase their ransom."

7. Yet the mystic meaning attached to the episode by the Sumerian hierarchy, in order to admit it, would doubtless be in harmony with the rest of the myth. Thus, the "blood" of Kingu would signify the mud, or perhaps bitumen, ejected and stirred up by the earth movements, but disseminated over the land and stilled by Marduk, so that man might carry on the work of irrigation. For I have no doubt that this is the significance of the phrases "that he might purchase their ransom," and Ea "made mankind, in the cult services of the gods, and he set the gods free." Marduk, or whatever god it was, having overcome the rebellious powers of nature, "the gods" might now rest, and it devolved upon mankind to develop the system in peace, and to worship the gods in the proper manner. Note that it was *Ea*, the *Water-god*, who was really the agent at work in this, though the Semitic versions intrude the names of Marduk and Ashur into it. I think, then, that we can take Ea as the link between the ancient Sumerian philosophy and the upstart Semitic system which the political supremacy of the "First (or Canaanite) Dynasty" of Babylon imposed upon the old conservative hierarchy. The join was somewhat clumsily made, but, under the circumstances, it was difficult to satisfy all parties more skilfully than was done.

8. The Babylonians were perfectly familiar with a story of a great flood in which all the living people were drowned, with the exception of certain persons in a ship. They had accounts of this in documents which have survived, and the story was well known down to the latest times. Yet the *Enuma elish* does not allude to this story in the most distant way. But if it recounts the *first* creation of man where does the flood of Gilgamesh (or *Utu-napishtim*) come in? After the building of Babylon and its great temple E-sagila, which is described in the same book, the VIth, as the making of man? No hint of it is given. Yet Babylon and its temple existed continuously. They are never mentioned as having been subjected to a deluge, unless this Epic be the account of it. On the theory of the *original* creation of man the Epic has no meaning, it is contrary to the history as we know it, and to the records of the Babylonians themselves.

9. Then there is a second disparate element, which is much more ancient, of different origin, and in reality quite irreconcilable with the theory of an "Epic of Creation." I refer to the ancient myth of the contest between Ninurta and the dragons, especially the Storm-bird Zû. Here again the object is manifest, viz., to identify Marduk with the ancient theology, and so to remove an objection to his inclusion in the pantheon.

10. But this identification throws a light upon the meaning of the Epic which is not apparent on the surface of it.

The myth of Ninurta, of Nippur, the god of the spring sun (the old Sumerian war-god, and identical with Lugal banda of Erech and Ningirsu of Lagash), and Zû, is based upon the conflict between the spring sun and the demons of the winter period of storms and darkness. This myth could not, therefore, have originated in Babylonia, where there is no winter period of storms and darkness. It must have arisen in the mountainous districts from which the Sumerians originally came.

There is, however, other and better evidence that this element in the Epic is far more ancient than the redaction of the Epic itself. In a footnote to page 19 of his edition, Professor Langdon says: "The place of the mysterious bird-god Zû, the lion-headed emblem of Susa and Sumer, in Sumerian mythology is obscure. From the evidence adduced in the text above this mythological monster figured in the Sumerian and Semitic Epic of Creation as a monster in the host of Tiâmat, and as a constellation he was identified with Pegasus. . . . Scholars agree

in explaining the location of this star to the identification of the 'Storm-bird' Zû with the winter sun, for this constellation rises heliacally in the stormy season. . . . It is, therefore, certain the mythical storm-bird was associated, in astronomy at least, with the winged horse Pegasus." In fact, the evidence is complete that this episode, at least, in the *Enuma elish* is nothing but an attribution to the Semitic god Marduk of the ancient Sumerian myth of the victory of the young god of the spring sun, Ninurta, son of the earth-god Enlil, over the stormy and dark period of winter, typified by the "storm-bird" Zû, the constellation of Pegasus, which rises heliacally in the stormy season of the northern and eastern mountains. This episode, in any case, in no way refers to the original creation of the universe, but is a mere solar myth, which recurs every spring season.

11. There is also astronomical evidence of a much earlier date for this element in the *Enuma elish*. This is given in p. 19 of Dr. Langdon's work—supported by a note to p. 26, regarding the heliacal rising of the constellation of Taurus at the spring equinox, that is, before 1900 B.C. "Naturally the star Aldebaran was associated with the beginning of spring before 1900 B.C.," when he is of opinion that the epic was written. "Later the mean solar year was fixed by the rising of Alpha in Aries. But the date for the festival remained unchanged."

12. No doubt the Semitic legends which were afterwards worked up into this Epic existed as early as the First Babylonian Dynasty. But I can find no evidence that the Epic was *written* so early as 1900 B.C. I think Dr. Langdon founds his opinion of this date on evidence that applies rather to the Sumerian element. He states (p. 11), "The reaction of the Epic upon art in all periods after its composition, about the twenty-second century, is undeniable. The problem here is chronological, and from this point of view the reliefs of Agum-kakrime are important. They constitute at present the only direct evidence of the existence of this great poem before the actual texts which contain the legend. There is in the literature of the First Dynasty no reference to the Epic at all. But an earlier Sumerian poem of a similar kind existed, which inspired the Semitic poem, a problem which remains to be examined."

I bow with great deference to the authority of Dr. Langdon. But here I venture to point out that the reliefs of Agum-kakrime are far from conclusive proof. This king, who reigned from

about 1648 B.C. for an unknown period, was a Kassite, not a Semite. The priesthood was Sumerian, and the reliefs relate to the ancient, Sumerian, parts of the legend. They afford no evidence of the Semitic parts of it. Indeed, we have nothing to show that the Epic existed in a form from which the Creation story in Genesis could have been borrowed already in the middle of the fifteenth century B.C., the time when Moses wrote the Pentateuch.

13. The conclusion is then, I think, imperative, namely, that the theory that the *Enuma elish* is an "Epic of Creation" is founded on a confusion between the conflict of the "upper" and "lower" gods, as related in it, and the much earlier, and totally irrelevant, conflict between the spring sun and the stormy and dark period of winter, which occurs annually, and which could not have arisen in Babylonia, where there is no stormy and dark winter.

14. I come, then, to the alternative suggestion that the Epic relates, in fact, to the destruction of the system of land-irrigation in Babylonia by the Flood, and its subsequent restoration by "Marduk."

15. To my mind this word "restoration" is the key-note of the whole Epic. It occurs in Tablet IV, lines 11 and 12, where it is stated of Marduk, "*restoration* is the need of the chambers of the gods. (And so) thy place has been fixed wherever there are shrines. Thou Marduk art our avenger." But before restoration there must be some account of the events which have made restoration necessary. So we have the preliminary narrative of the great attack of the "lower" gods on the "upper" gods and the dismay produced in the latter by the havoc wrought.

16. Positive and material evidence of an immense and long-lasting inundation of the lands lying about the Lower Euphrates has at last been discovered, which completely and finally sets at rest all doubt of the historicity of the Babylonian records of a great flood. Whether the Flood, the vestiges of which were found in 1928 and 1929 by Messrs. Woolley and the Oxford Field Museum Expedition at Ur and Kish respectively, be that of Gilgamesh, as appears to be likely,\* or that of Noah, which I

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\* See R. P. Dhorme's article on "Le Déluge Babylonien" in the *Revue Biblique* for October, 1930, pp. 481 ff.

doubt,\* the fact remains the same that an inundation occurred in Chaldea which utterly destroyed the whole of the civilization then existing there, and that it was followed long afterwards by a reconstruction on new lines. *All this was within historical times*, and, therefore, certainly ages after the first "creation" of man, whether according to the Babylonians themselves, or according to the Hebrew Scriptures.

Since the entire habitability, and consequently in a still greater degree the civilization, of Mesopotamia depends as much on *irrigation*, and the curbing and canalization of the Euphrates and the Tigris as Egypt depends on the Nile, it would be strange if the local populations, while they conserved records that show how deeply they were impressed by the disaster, preserved no account whatever of the enormous operations involved in its repair. I maintain that we have this in the *Enuma elish*, which was an important factor in the long New Year's festival of Nisan at Babylon.


17. The fact that some fifteen feet of mud was piled up by the deluge to which I refer in the last paragraph is sufficient proof that *the Rivers Euphrates and Tigris had even at that time no outlet to the sea*. This latter fact had already been established by Sir William Willcocks.† The huge bank built up by the Rivers

\* While the story of the escape of Gilgamesh in a "ship" is obviously derived from that of Noah and the Ark, the *Flood* in question was, I think, an earlier one, of far longer duration. I found this opinion on the Biblical chronology. This places the Deluge of Noah at 2522-1 B.C. and it lasted only 358 days, from the beginning of the rain to the drying of the ground. Mr. Woolley places the inundation of Ur before the thirty-eighth century B.C. Père Dhorme agrees with M. Weidner that the data on which Woolley bases this estimate should not be dated earlier than the twenty-eighth century. Dr. Langdon is more moderate in placing the inundation of Kish at about 3300 B.C., and Père Dhorme agrees with him. I am absolutely certain of the accuracy, to a year, of the Biblical chronology set forth in my *Historical Truth of the Bible*. It has never yet been seriously examined, much less refuted, and it harmonizes exactly every item both of the Biblical and the secular history, and fails in none. It is surprising to me that lovers of the Bible should neglect so sure a test of the truth.

† See his *From the Garden of Eden to the Crossing of the Jordan* (E. & F. Spon, London, 1920). The argument from the present rate of deposit of alluvium, calculating from the foundation of Mohammerah in the time of Alexander the Great, is perfectly worthless. For that city was built on *Karun* mud, and is situated on the Karun itself, and the alluvium deposited in the delta at the head of the Persian Gulf was brought down by the Kerkha and Karun from the opposite direction from the Euphrates. The mud of the latter river, and of the Tigris, was left behind in Babylonia, and nothing was left to build either a bar or a delta.

Karun and Kerkha from the mountains on the east and north-east effectively prevented the outflow of water from the low-lying marshes of the district about Ur and Eridu into which both the Euphrates and the Tigris then emptied themselves. The Tigris then flowed down what is now the Shatt el-Hai, or Gharraf, and fell into the Lower Euphrates at Ur. It was comparatively lately that it broke through the bank at Kut el-Amara and took its way into the great Susiana marsh, or shallow lake, through which it now flows. Consequently, neither "Tiâmat" nor "Apsû." can possibly stand for the salt sea. *Tiâmat* stood for the *subterranean* depths from which the springs were supposed to be derived, and *Apsû* for the surface floods.

18. The following is a plain, common-sense interpretation of the whole myth.

The poem opens with a description of the early conditions, under the figure of "gods," derived from the union of the work of the subterranean waters, "Tiâmat," and that of the surface floods, "Apsû." At first, the waters were free and unrestrained and there were no products of civilization. They produced the lazy, indifferent, god, Lakhmu (Arabic ) , and his female counterpart. But these, in turn, produced Anshar and Kishar, "the host of heaven" and "the host of the earth." These, again, produced Anu, the heaven-god, Ea (or Nudimmud) the water-god, "equal to Anu," and Enlil, the earth-god (though this latter is not mentioned in this part of the poem). In time these gods began to organize things in Mesopotamia, commencing by restraining the annual inundations (Apsû), to their own great satisfaction (line 24), but to the great indignation of the waters thus held in check. The floods had been in undisputed possession. The inundation and the noisy elements ("Mummu") are represented as going to the underground sources, "Tiâmat," from which they derived so much of their force, to complain of the disturbance of their universal sway (lines 29-40). "Apsû the flowing and ebbing but limitable fresh-water lake, appeals to Tiâmat the illimitable and ever moving flood, to help him to overthrow the beneficent work of the gods, who were so ordering the world that such rest as he took was banished from him!" (Willcocks.)

But Ea, the wise and skilful god of irrigation, perceived the plan of Apsû and Mummu (line 60), overcame and slew them both,

and fixed upon Apsû his dwelling (line 71). This is, no doubt, primarily a reference to the temple at Eridu.

Tiâmat, finding that her sway was disputed and her consort Apsû was subdued, rebels against the restraint and organizes the constellations that were supposed to rule the atmosphere, and to produce rain, hail and thunderstorms (lines 128 to 145). She then exalts "Kingu" and takes him as her second husband. "Kingu" I take to be earth-movement, such as the geology shows to have occurred at Hit, spreading mud and bitumen over the land. "All the fountains of the great deep were broken up." Anshar, "the host of heaven," is depicted as unable to cope with this emergency, so he sends his son Anu (II, 71-80) to remonstrate with Tiâmat. The heaven-god, however, flees in terror. Ea too, the water-god (in the character of Nudimmud) (II, 58), cannot face her. Eventually Marduk, the young god of the spring sun, typifying, of course, evaporation, gains the victory, but not until the floods have been stopped by embankments. Book IV describes his weapons and then the great combat.

In line 35 there is, perhaps, a reminiscence of the rainbow. Lines 95 to 122 describe the combat and the victory of Marduk. "The lord spread out his net and enmeshed her." That is to say, he made a network of canals and dykes which broke up the floods, so that they could be dealt with piece-meal. Taking advantage of the winds (lines 42-49, and 98-100), when they blew against the current, he made dams to hold up the water and turn it into other channels. Thus, by splitting it up into various streams (lines 101, 102), he overcame the force of the rushing rivers. "They were encircled by restraint, so that it was not possible to flee. He bound them and broke their weapons. Into a net were they thrown and in the snare they sat down." Line 119, "And Kingu who had become chief among them he bound and he counted him with the god Diggû" *i.e.* Nergal, the god of the underworld. Then "unto Tiâmat whom he had bound he returned again. The lord trod upon her hinder part, with his toothed sickle he split her scalp. He severed the arteries of her blood. The north wind carried it away into hidden places." That is to say, he constructed the great dam across the Tigris so that the upper waters were held up and turned over the conglomerate and down the Shatt el-Gharraf, while the lower waters, cut off and driven by the north wind, were lost in the marshes to the south-east.

Line 137. "He split her into two parts like a mussel. Half of her he set up and made the heavens as a covering. He slid the bolt and caused watchmen to be stationed. He directed them not to let her waters come forth." In these poetic terms we have the dividing of the waters of the Euphrates from those of the Tigris by the great dam across the Sakhlawia branch—a dam which, of course, it was of the utmost importance to keep in repair.

After crossing the skies and pacing out the spaces, apparently as an abode for the heaven-god, Anu, he set out the foundation of a temple on the water-level, or "face of Apsû," at Eridu, as the abode of Ea-Nudimmud (line 142). As a counterpart of the same, of identical dimensions, he fixed a temple, "E-sharra," at Erech, as an abode for Enlil.

Eridu and its temple were built in the midst of the wide overflow of fresh water when the Euphrates was flowing wide like a sea, as it traversed the great overflow. The beginning of habitable earth in it was ushered in by the growth of reeds in the open water and the appearance of marsh-land. Then the work of land reclamation was begun in the overflow by the placing of bundles of reeds on the face of the water, and the piling up of earthen banks behind them, in order to form enclosures within which the water dried up. The land was then cultivated, and irrigated by free flow. This, of course, is that which is typified by that part of the ritual of the fifth day of the New Year celebrations which consisted of laying a bundle of reeds in a trench in the temple court. See Langdon's *Epic of Creation*, pp. 26, 30, and probably also the "muddy waters" of pp. 45 and 55 (23). Langdon notes that the "E-sharra," i.e., "House of the Universe," at Erech is a name for the Earth, and a synonym of E-kur, and later a part of it, the temple at Nippur. Thus Marduk caused the Great Three, Anu, Enlil and Ea, to occupy each his own abode.

Thus, it seems to me, Dr. Langdon's commentary on the Epic is the satisfactory explanation of its purpose and sources, while my own theory, based on that of Sir William Willcocks, is the common-sense view of its meaning and doctrine, and offers the solution of its discrepancies.

#### DISCUSSION.

The CHAIRMAN (Mr. W. Hoste), in proposing a vote of thanks to the author of the paper, regretted his absence in Canada. He



thought he seemed to have made out a good case for his view on some points. He wished, however, that that distinguished Assyriologist, our vice-president, Dr. Theophilus Pinches, had been present, to check some of the statements. Dr. Pinches had read papers before the Society on the Babylonian Epic, and clearly held to its reference to Creation. After all, perhaps it did not much matter to the ordinary layman, but the paper contained some important deductions, as, for example, that with reference to the burning question whether Genesis is of Babylonian origin. "Indeed, we have nothing to show that the epic existed in a form, from which the Creation story in Genesis could have been borrowed already in the middle of the fifteenth century B.C., the time when Moses wrote the Pentateuch." That this was so, however, is axiomatic with the Higher Critics, or at any rate, that Genesis i is based on the Babylonian story. Genesis i is, accordingly, relegated to the Priestly Code, supposed to have been written by "P." during or after the Babylonian captivity; for how else explain the presence of the alleged Chaldaicisms in the chapter?

The *ambiguity* of the Babylonian Epic seems against the theory. If even experts cannot agree whether the epic describes Creation or the Flood, it is difficult to see how the clear, succinct account of Genesis i could have been derived from it. No one, at any rate, could affirm that Genesis i describes the Flood. The *total lack of moral power* in the epic points to the same conclusion. No one could find comfort or spiritual edification from it. Then the *incongruity* of the two documents hardly argues for the Higher Critical thesis. How could the majestic, monotheistic account of Genesis i be derived from the polytheistic conglomeration of gods and goddesses, mostly wicked, engaged in bloodshed, murder, and internecine warfare, of the epic? If so, then Job was wrong, and a clean thing has been brought out of an unclean. Polytheism might evolve into Pantheism, but Monotheism never. The Chaldaicisms, if such there be, in Genesis i, could be otherwise explained, as the late Professor Naville, of Geneva, points out. Abraham came from Ur of the Chaldees, and it is highly probable that he brought with him historical records from the earliest times, and that on cuneiform tablets. If such were used in whole or in part by Moses—and there is nothing in the fullest belief in divine inspiration

to negative this, the Chaldaicisms might well be found in Genesis i. Professor Albert T. Clay, of U.S.A., a noted scholar and critic, goes further than this. In a paper on the early civilization of the Amuru, read before the Institute in 1925, he made the following statement with reference to Genesis i. "In spite of all the claims of Pan-Babylonists, this story as preserved in the Biblical version, and in the Greek, contains absolutely nothing that is Babylonian. There is not a semblance of an idea that can be proved as such. This refers to the colouring of the narrative, the names, foreign words—in fact, everything." May we not then possess our souls in patience, and know that "great truth will prevail"?

Mrs. MAUNDER said: There are doubtless many variants, some very ancient in date, of the struggle between the hero and the dragon, but she would like to point out that the 5th and 7th tablets of the *Enuma elish* show that they at least are of a date no earlier than the 7th century B.C. In the 5th tablet, ll. 3-7, it states of Marduk: "(3) He fixed the year, he appointed the limits thereof. (4) He set up for the twelvemonths three stars apiece. (5) According to the day of the year he . . . figures. (6) He founded the Station of Nibir, to settle their boundaries. (7) That none might exceed or fall short." Now the Babylonian year was a luni-solar one; that is to say, the months were actual lunations and the year consisted of 354 or 384 days, according as this included 12 or 13 of these. The statement in the text of the 5th tablet implies that the limits of the year were fixed by observations of the equinoxes or of the solstices.

Of the equinoxes we find observations which were made in Mesopotamia in the 6th and 7th centuries B.C.; so far, the speaker knew of none earlier. But of the solstices observations have been made by the Indo-European nations, which in one case at least was as early as 3000 B.C. The year as determined by observations of the equinoxes or solstices is a solar year, and is incommensurable with "lunations." The "twelve months" of which the 5th tablet speaks are therefore twelve arbitrary months, divorced from connection with the moon (just as our months are), and they correspond in the tablet to twelve *equal* divisions of the zodiac, that is to say, to the "signs" and not to the actual "constellations" (irregular in shape

and size). We know when this change from "constellation" to "sign" took place, for a star which was near the intersection of the equator and ecliptic, at the time of the change, was still accounted in men's estimation as marking the place of the equinox among the constellations right down to the time of Hipparchus. This star is Hamel, the Chief Star in *Aries*, and it is just about  $8^\circ$  from the boundary of the constellation *Aries*. That is to say, the boundary of the "constellation" *Aries* continued to coincide with the boundary of the "sign" *Aries*, until astronomers came to realize with Hipparchus that the signs move through the constellations because of the precession of the equinoxes.

Now the equinox was close to Hamel,  $8^\circ$  from the border of *Aries* at about 700 B.C. There is a tablet (No. 77,821 [85-4-30, 15]) in the British Museum, giving a list of the names of the signs of the zodiac with a list showing the month that was associated with each star. This is, however, of the Persian period in the time of Darius I, and is a proof of the late date earlier indicated. In this tablet, be it noted, Ninurta (or Pa·Bil·Sag) is allocated to the 8th month, *kislimu*, which is *not* a spring month.

#### WRITTEN COMMUNICATIONS.

Col. A. G. SHORTT wrote: The paper covers a very wide field, and it will be necessary to deal with one or two points only.

Para. 15.—The word translated "Restoration" is apparently a little uncertain. Budge renders it "Worship," which, I think, would equally fit the context.

The excavations mentioned in this paragraph require straightening out. The clay deposit at Ur is claimed to be much older than that at Kish, and the pottery recovered is said to bear this out. On the other hand, it is hardly possible that a flood leaving a ten-inch deposit of clay at Kish could avoid leaving an even thicker layer down the river at Ur. It is difficult also to think that the Flood of Noah, lasting only a year, would leave any permanent layer.

Para 10.—I think Professor Langdon has been a little hasty in speaking of the heliacal rising of Pegasus (and also of Taurus and Alpha Arietis in para. 11). Babylonian astronomy was essentially meridional, and heliacal risings were an Egyptian addition, which did not appear, so far as I can ascertain, in Babylon until

the sixth century B.C. It has led him to connect Zû with winter storms, and the lecturer, in consequence, to give the bird a source dating back to before the Sumerians left their original habitat. This is not necessary. Pegasus, if we are to connect him with Zû, was on the meridian at midnight in June-July during the period 4000-2000 B.C., and this is the season of the South-West Monsoon which reached as far as Babylonia. It caused heavy rains and floods from June to August, as stated in an early tablet on astronomy, and it would naturally be represented by Zû the Storm-bird, which spread clouds and obscured the Sun. Budge says that Kingu was Tammuz, but I have not his grounds for so saying. I would suggest rather that it would be to the Monsoon (Zû) to which Tiâmat would look to break up the irrigation system, and that Kingu may possibly therefore be Zû.

Mr. G. WILSON HEATH wrote: Believing absolutely in the Bible "Epic" of the earth's first orderly creation (Isa. xlv, 18) and also in the chaotic and water-flooded condition it had been resolved into, as the result of some gigantic catastrophe, as presented to us in Gen. i, 3, and from thenceforward as recorded in that chapter made suitable for man and "the beasts of the earth," and this by the word of Elohim; and further also as a believer in the Noachic flood mentioned in Gen. vii and viii; and that this flood was the *last* one (Gen. ix, 11)—I can but look askance at mythical stories, such as we have listened to this afternoon, with their gods many and goddesses many, and all their blood-curdling ways. It is to me amazing that strangely conflicting myths, be they Babylonian or Chaldean or "what not," should be ranged side by side with those most clear, straightforward and defined statements found in, say, the first ten chapters of the book called Genesis.

The suggestion which has been made, that the Genesis story was compiled by some very clear-headed writer from, or out of, the confused and muddled stories current among the early Babylonians is, I submit, unthinkable. The imprimatur of the author of the *whole* Bible is evident in the clear Genesis story, and I submit that the great author of confusion, and of man generally—and we are not ignorant of his devices—is evident in that of every other story. The one is the *truth*, the others are bad *counterfeits*. The Genesis

story, or even the Bible generally as we well know, does not pretend to relate the history of the whole human race or to teach physics. But it does give us, from the Divine standpoint, the history of "the seed," from Adam right down the four thousand years to "the Seed" Himself, the Messiah, the Christ. All after this is merely unfolding to us the results following.

The Genesis story, for possibly 2,500 years, was conveyed orally, as we know, from father to son, Patriarch to Patriarch, from Seth and through his line to Moses, and then Moses was instructed to write the records in the parchments which we read as translations in our Bibles to-day. Those old-world Bible stories, and this I suggest is important, whilst they were unwritten, Satan sought to confound and confuse by these Babylonian and other "Epics." I thank God for the Pentateuch and its clear story of the creation by Elohim and Jehovah Elohim (whose name, by the way, finds no place in this "essay" from the first line to the last).

Kingdoms and thrones may have been reared and overturned worldwide during these many ages, and doubtless were. But such histories the Bible does not record except as they converge on "the seed" line history of Israel, and profane history is about one of the most untrustworthy props any one may seek to rely upon.

#### LECTURER'S REPLY.

The restrictions of space made it impossible for me to go into the subject of the Flood in greater detail. And my ignorance of astronomy prevented me from criticizing Professor Langdon's views on that subject. I am all the more grateful, therefore, to Mrs. Maunder and Col. Shortt for their valuable contributions on the astronomical evidence for the date of one element at least in the *Enuma elish*.

I am glad, too, that Mr. Hoste seized on my point that no part of the Pentateuch could have been borrowed from the Babylonian myths. I took the date of the middle of the fifteenth century B.C., though I believe it to be impossibly early for the *Enuma elish*, so as to be well on the safe side. Some of the elements of the Epic may be as old as that, but, for other reasons besides those supplied

by Mrs. Maunder and Col. Shortt, I do not think its final redaction can be placed much earlier than the seventh century B.C.

The Modernistic Higher Criticism of the Bible is out of date; its "Historical Criticism" is hopelessly behind the times. The principal object of my paper, though not expressed, was to show this in connection with the history of Creation in Genesis i, and further "to hoist the Higher Criticism with its own petard." I agree heartily with Mr. Hoste in his remarks, and with Professor A. T. Clay in the citation given by Mr. Hoste. I do not believe, however, that the few Chaldaicisms in the Pentateuch were brought from Babylonia, but from Harran in Amurru. Near this place was an outlying colony of Chaldeans, at a local Ur, now 'Urfa, hence called Ur "of the Chaldees," to distinguish it from the great Ur on the lower Euphrates. Take the word "gopher" for cypress wood. Père Dhorme traces this word to the Sumerian *Gî-par*, the Akkadian *giparu* (tree) of the field, the country, a standing tree, as against beams already cut. This outlying settlement of Chaldeans would well be described as in the *Gî-par*, the country, and products imported from there, especially heavy timber, which was not to be found in lower Chaldea, would be known as "Gipari," or "gopher," the name having become by Moses' time a technical term for cypress wood.

The statement of the tablet to which Mrs. Maunder alludes, that Ninurta, the Spring-god, was allocated to the 8th month, Kisleu, *i.e.*, November–December, puzzles me. Had this god lost his character by the Persian period, the sixth century B.C.? Or was he never a Spring-god? Or did the Persians, in their new system, disregard the old Sumerian myth?

Col. Shortt's identification of the Storm-bird Zû, with the heavy rains and floods of June–July, caused by the south-west monsoon, during the period 4000–2000 B.C., is interesting. The present total annual rainfall in Babylonia is exceedingly small, an average of about 2.78 inches. Of this, 0.25 in. falls in November, in 4 rains, and 0.77 in. in December, also in 4 rains, mere light showers, but far the heaviest of the year. But according to Professor Huntington, in his *World Power and Evolution*, and the charts he gives of Pulsations of Climate in California and the Eastern Mediterranean (based on the growth-rings of giant trees, and the

levels of the Caspian Sea), the rainfall was far heavier, and with far greater variations of rain and drought, during the period 1200-200 B.C., than it has been since then. It has been steadily falling. According to him the sixth century B.C. was a time of exceptional drought. Thus Professor Huntington seems to bear out Col. Shortt's contention. Is it possible that the allocation of the ancient Spring-god to November-December marked the exceptional drought?

With regard to the Flood in question, the Flood of Noah was unquestionably the *last* great deluge in Babylonia. But it was not the first. I think, therefore, that the *Enuma elish* describes this flood.

Whether this was the local flood, or floods, the traces of which have been found at Kish and Ur, is a different question, which, as Col. Shortt points out, requires straightening out. I have stated in my paper (para. 16 and footnote), that I think it was not.

The suggestion that the Genesis story was compiled from Babylonian stories was not made by me. My suggestion was the direct contrary. My subject was "The So-called 'Babylonian Epic of Creation'." As Elohim (and Jehovah Elohim) finds no place in the Epic, naturally He finds no place in my paper on the Epic. If the Institute desires it, I will gladly write a paper on Biblical History of Creation, in which Elohim fills the whole place.

## 755TH ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,  
WESTMINSTER, S.W.1, ON MONDAY, MARCH 21st, 1932

AT 4.30 P.M.

G. A. LEVETT-YEATS, ESQ., C.I.E., I.S.O., F.Z.S.,  
IN THE CHAIR.

The Minutes of the previous Meeting were read, confirmed and signed, and the HON. SECRETARY announced the election of the following as Associates :—Miss E. M. Herriott and Mr. Robert J. Cobb.

The CHAIRMAN then called on Mr. Douglas Dewar, F.Z.S., to read his paper on "The Limitations of Organic Evolution" which had been chosen as the Dr. A. T. Schofield Memorial paper, 1932.

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### *THE LIMITATIONS OF ORGANIC EVOLUTION.*

By DOUGLAS DEWAR, ESQ., F.Z.S., Barrister-at-Law.

*(Being the Dr. Alfred T. Schofield Memorial Paper.)*

Sir Michael Foster began his course of lectures on Physiology at Cambridge for the session 1892–93 with the following words : "I find every year that I have to cease repeating statements which I made in my previous courses of lectures, because new discoveries have shown these statements to be incorrect." Such words would be a fitting prelude to every course of lectures on Natural Science, especially on Biology and Geology, because in these theory has outrun fact, owing to the modern tendency to depart from Baconian principles and to indulge in speculation.

The history of natural science is a history of discarded hypotheses. Almost every hypothesis hitherto put forward has been either abandoned or greatly modified. The theory of evolution, as generally held to-day is very different from the hypothesis enunciated by Darwin. It seems to me that ere long it will have to be still more drastically modified.



AS the result of forty years' study I have come to the conclusion that the amount of transformation in the organic world that has been effected by the process of evolution is limited. As the term "evolution" is very elastic, let me here say that I employ it in what I believe is the most generally accepted sense, to denote the gradual, as opposed to the sudden, origin of new types of organisms; thus the statement that the whales have evolved from a terrestrial ancestor means that the supposed ancestor, in the course of successive generations, gradually lost its terrestrial form and acquired an aquatic form. The proposition which I submit for your consideration is the changes that have been effected gradually in animals are strictly limited, and do not transgress the limits of the natural family. Go back as many generations as you will, you never see evolution taking an animal from one family into another. Several living biologists have openly enunciated this proposition. E. G. Dehaut, who has made a special study of the living and extinct fauna of the islands in the Mediterranean, would perhaps place an even greater restriction on evolution, for he writes (*Contribution à l'Etude de la Vie Vertébrée dans la Région Méditerranéenne Occidentale*, p. 19): "The species appears to me to be *par excellence* the unit of the organic world; from this I conclude that its production indicates a particular intervention of the Creative Power. This is why I do not consider it right to describe as distinct species animal forms that pass from one to the other by insensible shades, because the action of mere secondary causes seems sufficient to account for their differentiation."

From this it is apparent that Dehaut puts a wide and vague interpretation on the term "species," inasmuch as he would describe as a species a group of animals, no matter how large it be, of which the members are separated from one another by insensible gradations. Indeed there may not be much difference between Dehaut's view and that which I am advocating. So far as I am aware, the German Palæontologist, E. Dacqué, was the first definitely to assert that evolutionary changes in animals are confined to the ambit of the natural family. As long ago as 1911 Dacqué asserted (*Palæontologie, Systematik- und Descendenzlehre*, p. 179): "New types, because always specialized, must have originated suddenly by leaps, as the result of an important transformation in embryonic life, which is certainly no more astonishing than the metamorphosis of an insect."

A few years later G. McCready Price, Professor of Geology of Union College, Nebraska, who has read papers before this Society, wrote (*The Phantom of Organic Evolution*, 4th edn. (1924), p. 206): "I do not believe that the various families included in any given order have originated from any common ancestor . . . I am willing to grant that all of the cats over the world may have had a common origin; that all of the bears may have had a common origin; or that all the genera included under the *Canidae* may have had a common origin. Yet I utterly deny that there is any scientific evidence worthy of the name to intimate that the cats and the bears and the dogs have all sprung from a common generalized type in the long ago."

Mr. Dudley J. Whitney has published views similar to those of Price. It will be observed that Price goes farther than Dacqué, in that he denies that the cats, dogs and bears have descended from a common ancestor, while Dacqué says that such a descent may have occurred, but, if it did, the transformation from non-dog to dog must have been effected by an important change in embryonic life. Dacqué's view seems the safer in the present state of our knowledge, because (although Price will not have it so) the rocks, as interpreted by geologists, indicate that some families appeared on the earth at a later period than others, and if this be the case, the phenomena of embryonic development indicate that new types may have so originated. There is, of course, no proof that creation has ever been effected in this manner; but such a method does not seem to be an impossibility.

The zoologist who has gone the most carefully into the limitations of organic evolution is L. Vialleton, who for nearly half a century before his death in 1929 was Professor of Comparative Anatomy at the University of Montpellier. Vialleton specialized in the anatomy of tetrapod vertebrates and is the author of several volumes and papers on that subject. His greatest work was published in 1924, and bears the rather cumbrous title "*Morphologie Générale. Membres et Ceintures des Vertébrées tetrapodes. Critique morphologique du Transformisme.*"

Vialleton's prolonged study of comparative anatomy led him to assert: the theory of organic evolution postulates transformations that are physically impossible. Thus, he writes of the Cetacea (*loc. cit.* p. 394): "In a development such as we have just discussed there is no place for a pelvis, since most of its functions are performed by other organs, and the reduction which it has effectively suffered is easily understood. No more

is there a place for conditions intermediate between those of ordinary and aquatic mammals, because one cannot imagine individuals of which the hind limbs, still well (*assez*) developed, and the tail, already stronger than usual, function simultaneously. It is therefore an illusion to look for intermediaries in which will be found, at one and the same time, an ordinary mammalian pelvis and a tail tending towards the pisciform type." In other words, so long as an animal possesses an effective pelvis, its tail cannot act as a propeller like that of a whale, because the pelvis will not admit of the proper attachment to the backbone of the motor muscles of the tail, and a land mammal with an improperly developed pelvis is incapable of locomotion on land, because the hind limbs lack points on which to articulate; therefore the gradual transformation of land animal into a cetacean is impossible.

Vialleton's anatomical researches led him to believe that the various groups into which the animal kingdom is divided are not all based on the same criteria. Phyla, classes and orders are founded on the modalities of the organization of their component parts, while the lesser groups are based particularly on form. In consequence, Vialleton described the former as Types of Organization (*Types d'organisation*) and the latter as Formal Types or Types of Form (*Types formels*). He asserts that there is a fundamental difference between these two classes. Types of Organization consist of types (*loc. cit.* p. 675) "that differ from one another in their very nature, because each of them results from a peculiar development of the embryonic rudiments (*ébauches*) of the phylum; in consequence it is not merely the perfection or reduction of a neighbouring type, but something different." On the contrary the formal types are "all of the same nature, of which the different terms are distinguished only by more or less accessory details, or by their form."

Of the phylum, the most comprehensive of the types of organization, Vialleton writes: "The essential characters of this are imparted by the mode of the growth of the embryonic layers and by the architecture resulting therefrom . . . this architecture constitutes the only general character of the phylum—a very precise character despite its generalness, because of the difference between it and the architecture of other phyla. In the phylum form is represented merely by the superposition of the parts, and can be exhibited only by transverse or longitudinal sections, which permit the perception of this superposition, but nothing

more. Thus, it is impossible to imagine the contour of a mollusc, an echinoderm, an arthropod or a vertebrate; the attempt to do so inevitably leads to representations, not of the general type, but of one of its expressions . . . The class, like the phylum, cannot be characterized by its form, because its features are drawn entirely from the central parts and derive nothing from the peripheral parts, such as the embryonic rudiments of the limbs, which will give rise later, by their specialization and the correlations this entails, to the secondary types of each class—the orders. These embryonic rudiments are at first in an undifferentiated condition, capable of taking various dispositions, so as to produce . . . the wing of the bat, the paddle of the dolphin, the leg of the lion or the horse, the arm and hand of man. . . . In the orders the organization of the class becomes determined as regards the relations of the organs, especially those of locomotion. Thus, the fore-limb of a carnivore, formed for locomotion and seizing prey, will become a paw with five toes ending in claws, the fore-limb of a cetacean will become always a paddle, that of the chiroptera a wing, and so on. But several forms of wings and paddles are possible, that is why the order, equally with the preceding divisions, is not yet characterized by a determined and constant form. In order to define an order it is necessary to have recourse to its organization, that is to say the general characteristics of its chief apparatus, to the dentition or the limbs, closely correlated to the ordinal type. . . . Below the order organization no longer operates in establishing systematic categories, because all these groups have an identical organization—that of the order. On the other hand, they exhibit many well-marked differences, of which the principal is form. By form is meant the exact outline of an organism, stripped of all extravagant tegumentary excrescences. . . . Formal types are represented by general forms known as sub-orders or super-families. These forms are in fact modality types which a given organization can assume to adapt itself to various functions, or the different places it can occupy in nature. As a result of these adaptations the formal types are in turn divided into the secondary categories below sub-orders and super-families. . . . The subdivisions of the formal types do not present among themselves the opposition exhibited by the types of organization; being composed of organisms of the same nature, they represent quantitative differences, or rather the details of the outer parts and accessories of which nature produces

an exuberance and a prodigality, which, as Cuvier remarked, are beyond our comprehension."

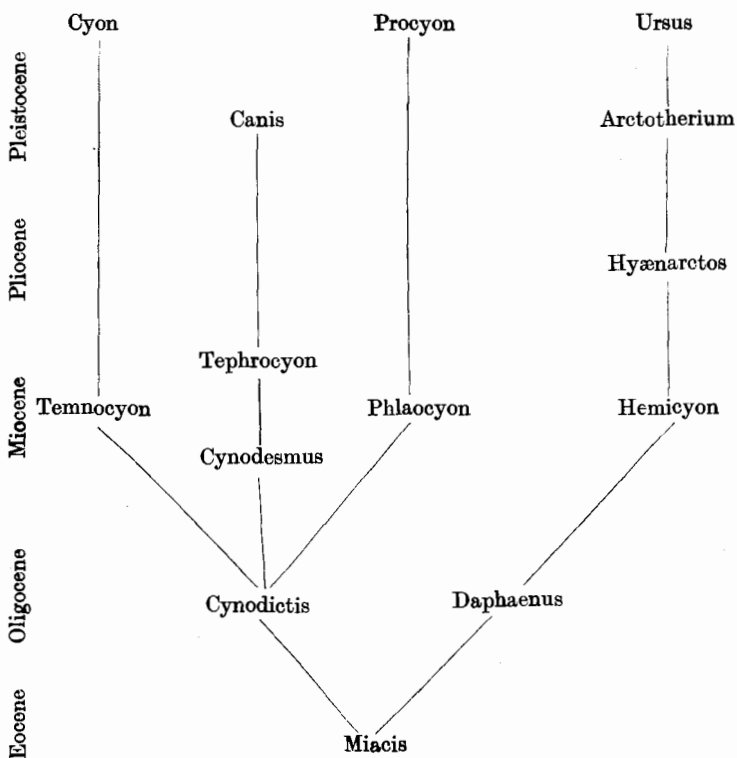
Vialleton's theory may be thus enunciated (*loc. cit.* p. 679); a new Type of Organization can originate only by a special development effected in the egg in the earliest stages of ontogeny, which absolutely excludes the process of phylogenic development required by the doctrine of evolution. On the other hand, many of the Types of Form may originate in the latter manner; but certain of these, very sharply defined and very isolated, may have originated independently of their nearest neighbours by a change in an early stage of embryonic development, as in the case of the orders. Others, not so clear cut, and the secondary subdivisions owe their origin to less profound transformations depending on conditions and functions, as evolutionists incorrectly imagine in the case of the bigger groups.

Thus Vialleton, as the result of prolonged study of comparative anatomy and embryology, became convinced that none of the orders or greater groups of animals can have originated gradually as the result of the accumulation of variations or mutations, but he considered that some of the sub-orders and super-families, if not very sharply differentiated from some other group, may have had such an origin.

Vialleton may be right, but I am inclined to think that he credits evolution with having effected transformations beyond its powers. As regards mammals, at any rate, the fossils known to us do not seem to favour the theory that most of the sub-orders and super-families have originated as the result of the gradual modification of earlier types. I contend that it is not possible with these fossils to construct a single phylogenetic series linking a member of any mammalian family with a member of any other family. So far every attempt to construct such a series for any genus has failed. No single pedigree has been constructed which is not open to severe criticism. In the present paper it is not practicable to criticize all such pedigrees. It must suffice to deal with that which is put forward with the greatest assurance, purporting to trace the *Canidæ*, *Ursidæ* and *Procyonidæ* back to a common ancestor. The greatly paraded pedigree of *Equus* is not relevant, because, as now set forth, it does not purport to show from what earlier family the *Equidæ* have sprung; it merely deals with the evolution or differentiation of the horses since the appearance of *Eohippus*, the earliest known member of the family. So far as I am aware, every zoologist to-day rejects

the earlier pedigree that traced the descent of *Equus* from *Phenacodus*.

The latest bear-dog-raccoon pedigree is that published by Professor W. J. Matthew in the *Journal of Mammalogy*, 1930, vol. 2, p. 117.



Before pointing out the most palpable errors in this pedigree it is necessary, in justice to Matthew, to say that he himself is not sure of its correctness. He writes: "It is probable that some of these (the genera that compose the pedigree) are derived from imperfectly known allies of *Cynodictis* rather than from this genus itself." Of the bear line of descent he remarks: "Until complete skeletons are known and studied it is uncertain how close it (the pedigree) is to the direct line of descent." On p. 129 he writes: "How near *Phlaocyon* really stands to the ancestry of *Procyon* will also remain uncertain until an inter-

mediate series is discovered. If it was not the ancestor it is just like what that ancestor must have been as adjudged from a critical study in the light of all the known evolutionary series among the Carnivora." The above pedigree is not accepted even by many evolutionists. While Matthew derives *Temnocyon* from *Cynodictis*, Osborn (*The Age of Mammals* (1910), p. 230) asserts that *Temnocyon* is a descendant of *Daphaenus*.

*Daphaenus*, which Matthew makes out to be an ancestor of *Ursus*, belongs to the Canid sub-family *Amphicyoninae*; but, on p. 67 of vol. iii (1925) of von Zittel's *Text-book of Palæontology* it is asserted that the bears are an offshoot of another sub-family—the *Cynodontinae*.

Further, Schlosser insists (*Palæontographica*, vol. xlvi (1899), p. 142) that *Hyaenarctos*, while in a measure parallel to the bears in evolution, is not in the direct line of *Ursus*.

*Arctotherium*, which Matthew shows as the direct ancestor of *Ursus*, is not known until the Pleistocene, whereas *Ursus* occurs in the earliest Pliocene! As regards *Procyon*, the raccoon, Teilhard believes this animal to be derived from *Pachycynodon* and not from *Cynodictis*.

Disagreements such as the above occur in the case of all other pedigrees. As Dacqué sarcastically remarks (*Palæontologie, Systematik- und Descendenzlehre* (1911)): "Two pedigree-makers never construct the same tree, and usually just where theory requires a liaison there the pedigree is interrupted, obscure, or has to be made up."

There is, however, one point on which all the pedigree-makers agree, viz., that the modern Carnivores are derived from the Creodont family known as the *Miacidæ*. This unanimity is due to the fact that the Creodonts are the only known earlier animals that show any resemblance to the modern Carnivora, and the *Miacidæ* is the only Creodont family having in common with the Carnivora the fourth upper premolar and the first lower molar modified as carnassial teeth. The argument is: premise, the Carnivora evolved from some earlier group. Of the earlier groups the *Miacidæ* bear the greatest resemblance to the Carnivora, ergo the Carnivora evolved from the *Miacidæ*. In view of the fact that those who have adopted this argument have invariably blundered in the past, it is somewhat surprising that it is still resorted to.

One of the earliest biologists to fall into the error of believing that resemblance denotes blood relationship was the talented

author of *Vestiges of the Natural History of Creation*, who dogmatically asserted that the seals (Phocidæ) gave rise to the bears and these, in their turn, gave birth to the Canidæ. He, like his successors, based his genealogies largely on the form of teeth, which are particularly unsafe criteria, because their form depends largely on the food eaten by their possessors.

Such a procedure may have been excusable in Darwin's time. Since then our knowledge of histology has increased greatly. In the present state of knowledge to frame pedigrees based on the form of teeth, without considering the minute structure of these, is, to say the best of it, indiscreet. Sir John Tomes and his son, C. S. Tomes, many years ago, studied the minute structure of the teeth of a large number of animals. In 1906 the latter, who was a Vice-President of the Zoological Society of London, read a paper before that Society entitled "On the Minute Structure of the Teeth of Creodonts, with especial reference to their suggested resemblance to Marsupials." This paper is printed in vol. i of the *Proc. Zool. Soc.* for 1906. In this paper Tomes wrote (p. 45): "It might have been expected that there would be but little variety of structure in the teeth of animals belonging to the same great groups, for it is not easy to see how this should be affected by the ordinary processes of selection. It might have been thought that so long as a tooth was strong enough, sharp enough, and well adapted in external form to its work, its structure would matter little and would remain constant. But it was shown by my father, the late Sir John Tomes, that by a mere examination of sections of the enamel it was possible in the case of rodents, not merely to pronounce that the enamel was that of a rodent, but, in a large number of instances, to refer it correctly to a particular family of rodents, or to a group of rodents. . . . Similarly, my father showed that the enamel of Marsupials presented characters very unusual in placental mammals, and therefore almost characteristic of Marsupials, whilst the Carnivora also presented well-marked enamel characteristics."

In view of the above C. S. Tomes thought it "well worth while" to examine the enamel of some Creodont teeth. To him the result of this examination was very disappointing, as this enamel was found to be not intermediate between that of Marsupials and that of modern Carnivores. He writes: "so far as the structure of their enamel may be taken as evidence, with one exception, no Creodont presents any greater resemblance



to Marsupials than do the recent Carnivores." This exception is afforded by the Miacidæ. Tomes was surprised to find that the enamel of the only Miacid he examined—*Didymictis*—is actually simpler than that of other Creodonts and of most recent Carnivora. This means that the family from which evolutionists are agreed that the Carnivores have originated is the one in which the enamel is the least like that of the Carnivora. Nor is this all. Tomes found that the enamel of *Cynodictis* is very like that of *Didymictis*. He was thus forced to conclude that "as *Cynodictis*, at all events, appears to be nearer to the true Carnivora than are the Creodonts, the simplicity of its enamel, as compared with theirs, may point to its lying not quite in the same line of descent."

The above discovery does not accord with the theory that *Cynodictis* is the common ancestor of the dogs and the raccoons.

Did Matthew know of Tomes's discoveries when he drew up the above pedigree? It is quite likely he did not, because, to quote Vialleton, "For the past fifty years the text-books are a simple illustration of evolution, bringing to light only that which is favourable to it, passing over in silence all that is outside it or contrary to it."

If Tomes's discoveries had been favourable to the doctrine of evolution, if the enamel of the Miacidæ were intermediate between that of the other Creodonts and that of the Carnivora, this fact would have been hailed with delight, recorded in the text-books and have found its way into the scores of popular works which sell by the thousand, as has happened in the case of Nuttall's blood-serum experiments, which at one time were deemed to be favourable to the evolution theory.

A posthumous edition of C. S. Tomes's *Manual of Dental Anatomy* has appeared since the above observations were recorded. The editors—Dr. W. H. M. Tims and Mr. A. Hopewell-Smith—have inserted in this nothing about the peculiar enamel of *Cynodictis*, nor have they included Tomes's paper in the list of authorities at the end of the chapter dealing with dental tissues. The paper in question is mentioned in chapter xvi, as is the fact that in respect of enamel the Creodonts stand no nearer to the Marsupials than do the true Carnivores, but nothing is quoted regarding the enamel of *Cynodictis* and *Didymictis*.

As C. S. Tomes died shortly after he had made the above discoveries he had little or no opportunity of further investigating the structure of various enamels. No one else seems to have followed up this line of investigation. It may, I think, be safely

asserted that had Tomes's discoveries been favourable to the doctrine of evolution, scores of histologists would have devoted much time to the investigation of the structure of enamels in order to furnish proofs of evolution.

In view of facts such as these and of the eclectic nature of the lectures attended and the text-books read, is it surprising that all the younger zoologists are evolutionists? As no one has succeeded in tracing, by a phylogenetic series of fossils, the descent of one family from another, it is scarcely necessary to mention that this is the case with the larger groups. As Dacqué puts it: "Never yet has it been possible methodically and faultlessly to trace to a common origin two types or two larger groups."

As to genera, the fossils have afforded remarkably few cases of one genus becoming gradually transformed into another genus.

"Only rarely," writes Vialleton (*loc. cit.* p. 671) "has it been found possible to trace a genus, step by step, and without artifice into an earlier genus; moreover, when this can be done, it is never a case of two creatures essentially different in their organization, but of neighbouring forms of which the organization continues in the same line."

Most evolutionists recognize that such facts as these must be accounted for unless the evolution theory in its ordinary form is to be abandoned. Some allege the imperfection of the geological record and of our knowledge of it. As regards mammals, at any rate, this allegation is incorrect. I have been taken to task by a German zoologist for having applied mathematics to Palæontology in my volume *Difficulties of the Evolution Theory*. He asserts that such calculations are based on purely subjective suppositions and that, of all sciences, Palæontology is the last in which mathematical calculations should find place. The first assertion may be correct, but the second certainly is not. Moreover, it is not necessary to make any suppositions; inferences must of course be drawn.

How far the views of my critic are sound may be judged from the table given below compiled by me. I believe that the figures given of the fossils of non-volant land mammals found in various periods of the Tertiary of Europe and North America are fairly accurate. In case of genera now living, in those continents I have adopted the nomenclature of Lydekker, as being more suitable for comparison with fossil genera than that which is in vogue to-day.

I submit that the figures in the table show that, as regards the mammals in question, the geological record is not very incomplete, indeed it reveals to us the majority of these.

*The number of genera of non-volant land mammals known to have lived at various stages of the Tertiary and in the Quaternary and now living in Europe and North America.*

Stage	Europe	North America
Basal Eocene ... ..	14	40
Lower Eocene ... ..	24	52
Middle Eocene ... ..	38	69
Upper Eocene ... ..	68	37
Lower Oligocene ... ..	80	58
Middle Oligocene ... ..	41	44
Upper Oligocene ... ..	43	57
Lower Miocene ... ..	52	51
Middle Miocene ... ..	59	35
Upper Miocene ... ..	81	52
Lower Pliocene ... ..	87*	42
Middle Pliocene... ..	47	18
Upper Pliocene ... ..	45	28
Pleistocene ... ..	66	84
Now Living ... ..	48	72

\* Includes fossils from the Maragha beds of Persia.

Thirty-seven families of non-volant land mammals are known to have lived in the Pleistocene of Europe and North America, none of which occurs in the Basal Eocene. In addition, twenty extinct families are known to have inhabited those continents. Allowing for the fact that some of the above families may have originated outside Europe and North America, in some locality not geologically explored, and migrated from there to Europe or North America, the inability to trace the descent of any of the above fifty-seven families does not accord well with the evolution theory. Some Palæontologists appreciate this. In consequence the theory of centres of evolution has been formulated. To my mind this hypothesis is eminently unscientific, because it assumes that evolution has taken place only in certain localities, not one of which has yet been palæontologically explored. This assumption involves the belief, either that the forces which cause

evolution are confined to certain areas, or that their activity has been inhibited in all localities in which numerous mammalian fossils have been found.

The great majority of living biologists infer, from the possibility of change within the type, that of change from one type to another. A few of us, more circumspect or cautious, distinguish carefully between these two things. Time will show whether they or we are right. The facts at present known seem to be in our favour.

#### DISCUSSION.

The CHAIRMAN (Mr. G. A. Levett-Yeats, C.I.E., I.S.O.) said : It has given me pleasure to introduce Mr. Douglas Dewar, who has had a distinguished career in India as a Member of the Indian Civil Service, and nevertheless found time to keep up his interest in those scientific studies that he pursued with credit at the University of Cambridge. He made time in the midst of arduous and responsible duties to keep fully apace with the trend of modern thought on the evolution theory—a subject which he has studied critically for the last forty years.

It was my good fortune many years ago to be employed in the same station as Mr. Dewar in India. A community of tastes led to the formation of a lasting friendship. We were both interested in ornithology, and spent many pleasant mornings on the sandbanks of the Ganges at Ghazipur, investigating the habits of the terns and other birds. I then realized how close and keen an observer of nature Mr. Dewar was. On Indian birds he is an authority, and has written and published numerous works on this subject.

The subject of to-day's lecture has occupied Mr. Dewar for many years, and to it he has brought wide reading, close observation, and the powers of a well-trained, keen, and analytical mind. He is also an authority on this subject, regarding which he has lately published a powerful and illuminating book entitled *Difficulties of the Evolution Theory*, a book which may be best described as a searchlight into the darkness of confused thinking.

From the evidence produced by Mr. Dewar, it is clear that the fossils themselves, so far as we know them, appear to call for a considerable revision and modification of the currently accepted theory of evolution. The story unfolded by the fossils may support

the idea of variation or differentiation within certain limits, but it does not afford evidence supporting a theory of evolution on the grand scale.

This is not because the fossil record is very poor. On the contrary, the fossil record is by no means poor. Mr. Dewar has mentioned that in another paper, in the preparation of which I collaborated with him, it is shown that 45·63 per cent. of the living genera of mammals alone are known as fossils. Such facts are eloquent.

I ask you to join me in offering a hearty vote of thanks to Mr. Dewar for the preparation of the paper he has just read—a paper that will rank as a most valuable contribution to scientific thought and scientific method. I hope that Mr. Dewar will continue his labours in the field he has chosen, and will add still more to the startling array of facts that render the modern theory of Evolution incompatible with the truth.

I have one more pleasing duty to perform, and that is to hand to Mr. Dewar the honorarium of £10 which is awarded to him as the author of the Alfred T. Schofield Memorial paper.

At the call of the Chairman, a cordial vote of thanks was awarded the lecturer.

Rev. C. LEOPOLD CLARKE said: I would draw attention to the new evidence provided in the paper of the continuing drift of Biological research away from the theory of Organic Evolution, as properly so called. I wonder, indeed, if the name can at all be given to those processes of transformation or variation described by the lecturer, which by common consent “confine themselves within the ambit of the natural family.” Organic Evolution seems to denote so much more than that. The bone of contention between Evolutionists and non-evolutionists is precisely whether or not Biology has the material to show the rise of new types from existing types—or the “rise of any new type apart from a specific act of creation.”

The lecturer has offered important authorities, who in veiled language are admitting what amounts to this “act of creation”—some even use the very term. Dehaut, for instance, says that “the species is the true unit of the organic world, and that it requires a particular intervention of creative power.” Vialleton predicates “a special development effected in the egg in the earliest stages of

ontogeny" or individual history ; which seems only a very polite circumlocution for creation. Dacqué says that "an important transformation in embryonic life is requisite for new types, because they are always specialised." Then there is the lecturer's own conclusion, that "the fossils do not exist from which a phylogenetic series can be constructed linking any mammal with the other family."

All this shows the flow of the tide away from the idea of any automatic species production, if I may so phrase it. I suggest that the more the positive evidence of Biology disproves the theory of Organic Evolution, the more insistent becomes the necessity to overhaul the supposed evidence of geology in its favour. This is largely based upon evolutionary prepossession, and its imagined proofs are almost entirely presumptive. The reason recently assigned by Prof. D. M. S. Watson for the "universal acceptance of evolution" was that "the only alternative 'special creation' was clearly incredible" (British Association Meetings, Capetown, 1929). Huxley said that half a century ago, and I think I am right in saying that he had in mind creation of a piecemeal kind, extending over incredible ages, which the present system of geological interpretation presumes. But that is not the view of creation revealed in the Bible—and I know of no other source of revelation of Creation. Prof. G. McCready Price, in his *New Geology*, offers a mass of evidence that the fossils simply show an older state of our world which perished, and not the theory of an "ordered life-succession," corresponding rigidly with a universal succession of rocks and strata, on which estimates of unlimited geological time are based and the evolution of endless species. Geological facts ought first to be explained, especially the fact that the great geological changes and the upheaval of the mountain ranges must have taken place since the thousands of living species of plants and animals, including man, came upon the earth. So long as Biology could sustain even an equivocal negative in the matter, the geological evidence has been neglected. The Biblical view of a vast number of types created within near distance of each other, perhaps, is being substantiated by the conclusions of Biologists, as well as by the altered view of Geology, and is establishing the credibility of Creation, and removing Organic Evolution from the scheme of things.

Rev. H. TEMPLE WILLS, M.A., B.Sc., said he was reminded of an experience he had in the late 'eighties when he heard Huxley lecture on the skull of a recently discovered mammal at the Geological Society. The Professor, after a masterly description of the remains which he held in his hands, showed that they proved to be more highly developed than those of other animals of the same class which had been previously found in newer strata. Realizing that this might be taken to be an argument against his pet theory, he said that Evolution must be true, and therefore we must find a way out of a difficulty. This he proceeded to do by drawing a large Y on the blackboard. At the foot of the Y he said there must be a common ancestor as yet undiscovered, and then he put the form he had been describing on the one arm and the other forms on the other arm, saying that it was clear that there had been separate development. This was so palpable a shift that many scientists present looked at one another and smiled, and Prof. T. McKenny Hughes of Cambridge said after the meeting was over, "Oh, that was Huxley all over."

Mr. G. F. CLARINGBULL said: Mr. Dewar has made a really valuable contribution to the Transactions of the Institute. He has shown that the pendulum is swinging back from Darwin and selectionism toward a polyphyletic origin of similar organic forms. One is inclined to agree with him that Dacqué's view is perhaps safer at the moment than that of Price. His conclusions are wonderfully supported by Berg (*Nomogenesis*, 1926)—*e.g.* (p. 341): "To create a new name is not a very difficult matter. But a fact remains a fact. Similar forms have been produced from various stems, and that is what we mean when we speak of a polyphyletic origin. Every new class, sub-class, order, etc., established on the assumption of it being derived from a separate root, is yet another proof of the inadequacy of selectionist views and a confirmation of the truth of nomogenesis.

"If we turn to the history of the classification of plants and animals, we shall see that the number of phylæ, classes, orders, etc., continually increases, and this increase is in an overwhelming majority of cases due to authors realizing that they are unable to derive one group from another, *i.e.* it testifies in favour of polyphyletism."

Again (p. 343): "A strict adherence to the monophyletic principle is generally bound to lead to absurdity. For in that case we should have to admit that all mammals (or even all vertebrates) or all angiosperms are derived from one individual. For, if they owe their origin to many individuals, their development would be governed by analogy and convergence, not by homology. *But it is quite inconceivable that all vertebrates, for instance, should be derived from a single pair.*"

Further on, p. 347, showing that the plea of incompleteness of the fossil record is only the bluff of the evolutionist:—

"It is truly remarkable that palæontology in no way displays transitional forms between phyla and classes, and, possibly, not even between orders. Thus, we are ignorant of transitional forms not only between vertebrates and invertebrates, fishes and tetrapods, but even between cartilaginous (chondrichthyes such as sharks, etc.) and higher fishes (osteichthyes); in spite of a wonderful affinity between reptiles and birds, no transitional forms between them are known hitherto. Formerly, this circumstance was accounted for by the imperfection of the geological record; but it is none the less surprising that the deeper our knowledge penetrates into the domain of fossils, the further back recede genetic interrelations, which, as it were, ever elude our grasp."

Incidentally, it is interesting to note that Prof. D'Arcy Thompson, at the last meeting of the British Association, said, that while not denying the evidence for evolution, he thought that any attempt to trace the passage from invertebrate to vertebrate was doomed to failure. Lastly, Berg, who is not a theologian, but a scientist of the first order, says (p. 358): "To support the view that animals descended from four to five progenitors is now *impossible*, the number of the primal ancestors must be computed in thousands or tens of thousands." Remarking that Belogolovy speaks even of "millions of initial points."

Mr. GEORGE BREWER said: The doctrine of Evolution, as taught by many scientists, is at best a purely speculative theory, which seeks to account for radical differences of structure and modes of life by spreading them over immense periods of time, thus postulating a gradual development from the lowest forms of life, for the origin of which no account is given.



As Dr. Etheridge, the fossilologist and Curator of the Natural History Museum, is reported to have said: "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."

Prof. L. S. Beale, Professor and Fellow of King's College, in his book *Vitality*, says: "We have had during many centuries modifications in pigeons, dogs and men, and the powers of variation are by no means exhausted, although the widest departure from the original type does not pass beyond pigeon, dog or man."

Forms of vegetable or animal life which man is able to vary by human selection and environment revert repeatedly to type as soon as man's directive skill is withdrawn, proving that there are certain types and species which can sometimes be widely extended within the strict limits of the species, but that no further change can take place by either natural or artificial selection. The fixed law of sterility in both vegetable and animal realms, each species yielding seed after his kind, is fatal to the Evolution theory, while it supports the clear record given in the first chapter of Genesis.

By careful selection and environment man can develop the wild rose into many beautiful varieties; or the rock dove into many varieties of pigeons; but it is significant that these varieties do not continue to increase, or even persist, but will revert to their original state when left to themselves.

Rev. Dr. H. C. MORTON said: It is a long time since any contributor to our Proceedings has put us more deeply into his debt. The *independent* scientific voice is what Britain deeply needs. We have one here this afternoon, and I breathe the fervent prayer, May Mr. Dewar's tribe increase!

I am not a zoologist or a research worker, but just a member of the jury of the intelligent public whose verdict of "proven" or "not proven" will weigh heavily in the Evolution controversy. Mr. Dewar has given advocates of evolution a great deal to answer in this paper, and his arguments appear to me to have an unanswerable cogency. The mathematical argument impresses me strongly. The plea that the imperfection of the geological record

and of our knowledge of it accounts for our failure to trace to a common origin two types or larger groups, can hardly survive the table given by our lecturer. In Europe and North America there are 122 genera of non-volant land mammals, known and now living. In each of the other thirteen stages, leading back to the Basal Eocene, Mr. Dewar shows that there were on an average one hundred genera of such non-volant land mammals. One hundred and twenty-two known living to-day, and in each preceding stage upon the average one hundred known! In other words, our knowledge of the geological record in this respect is *not* slight, but very considerable indeed; and in spite of this wide knowledge the evolutionists fail to trace the descent of any one of the 37 non-volant land mammals which existed in the Pleistocene, but did not exist in the Basal Eocene! In view of their wide knowledge of the geologic records, that failure needs a great deal of explanation, and will go far to convince the jury of their failure.

May I refer to two things which arouse deep indignation in my mind whenever I think of them? One is the continued repetition by responsible men of discredited evolutionary "proofs." To-day it is Recapitulation and the embryological argument; to-morrow it is the Blood-Test, which, if it proves anything at all proves vastly more than any evolutionist can allow; next week some one will again be making dogmatic statements about Pithecanthropus or Hesperopithecus or the Taungs skull. It is the ceaseless repetition of Haeckel's offence of faking illustrations, and is simply a disgrace. The second thing is this, that in practically all our elementary and secondary schools this unproven, and increasingly disproven, hypothesis is being taught to the young. That is an outrage upon truth and justice.

We ourselves need to be continually on our guard against "thinking evolutionarily." That is a besetment of our day, full of peril; and Mr. Dewar is really helping us to think independently and to think clearly.

Lieut.-Col. L. M. DAVIES, R.A., said: I welcome Mr. Dewar's paper, every word of which is true to fact. The more detailed series of the evolutionist always lie between very narrow limits. It has repeatedly been pointed out, by the more serious minded

evolutionists themselves, that the greater taxonomic groups—the phyla, classes, etc.—always appear suddenly, with little or nothing to link them to other forms. To postulate an embryonic change in order to account for such things is plausible, but wholly unprovable, and itself amounts to an admission that even ontogeny affords no link between very different types, or any suggestion of a gradual transformation from creatures of one great group to those of another.

The possibility of a broadly graded classification exists, it is true ; and I have recently heard a very eminent University lecturer on evolution claiming that the very fact that creatures can be systematically grouped into different degrees of resemblance itself proves the fact of evolution, and is incompatible with creation. I could not follow his argument. There is, to my mind, no reason why creatures should not have been created either like or unlike in any degrees or ways conceivable to an infinitely intelligent Creator ; but the *anomalies* of classification (of which such lecturers generally say little) are extremely hard to account for on any basis of evolution.

Mr. Dewar has instanced the anomalies brought to light by Sir John Tomes and his son in regard to the details of dental structure ; let me quote another instance of the same sort. All living Mammals are supposed to have had a common origin in some ancient non-placental form. After long ages, the Placentals are supposed to have separated off from the others (Marsupials, Monotremata, etc.). Then it is supposed that certain of these Placentals, after a further prolonged period, succeeded in developing a typical dentition, consisting of 44 teeth (including 12 molars), to which all existing orders of Placental Mammals conform, except the Edentates and the Cetacea. Teeth may be lost ; but such as remain fall within the limits of the typical dentition. Then came another long interval, by the end of which our Typidentate Placental Mammals had further subdivided into two groups—the Decidua and the Indecidua. Then (to shorten the story) the Deciduate Typidentate Placental Mammals themselves finally divided into two groups, the Zono-Placentals and the Disco-Placentals. After this, the Zono-Placentals still further split apart into Carnivora of various types, etc.

So far, so good. But what are we to say when we find that one of our living Carnivora of to-day—the OTOCYON, an African animal allied to the dogs and foxes—is seen to possess 46 to 48 teeth, instead of the orthodox permissible maximum of 44—a fourth molar being always present on each side of the lower jaw, and often of the upper jaw as well? According to evolution, this animal has not yet succeeded in acquiring the Typidentate formula, and is thereby more primitive and more nearly allied, *e.g.* to the Whales, than the very earliest and most generalized known members of his order; although in every other known respect he fully conforms to the family characteristics of certain most up-to-date members of that order.

Geology, as Flower and Lydekker pointed out (*Mammals*, pp. 554–5), knows of no suitable ancestors for Otocyon. No shuffling of the classification scheme can account for him. On an evolutionary view of nature, he is, so to speak, a twin-brother, whose only possible common ancestor with his fellow-twin is their (always theoretical) great-great-great-grandfather; for all the nearer ancestors of his twin-brother entirely disown him. Classification abounds with such anomalies, which our text-books and official lecturers keep well out of the way of the rising generation of scientists, lest their young and plastic minds be adversely affected to the great doctrine of evolution.

As regards Mr. Dewar's "mathematical" argument, it seems to me to be eminently reasonable, and much to the point. It suits the evolutionist (it always has done so) to draw unlimited drafts on the unknown. This is all the more necessary to his credit when it is seen what a remarkably small way the geological record will take him along the road to completing his multifarious genealogies. But is he really entitled to suppose that the geological record is actually as incomplete as its failures to support him compel him to plead? Mr. Dewar gives us—it seems to me—very good reason for denying this.

Genera are relatively long lived. The Horse, in his modern form, goes back to the Pliocene; Bears and Camels to the Miocene, etc. In other words, genera are capable of existing through several of the stages into which Mr. Dewar has divided the Tertiary. When, therefore, he shows that the fossil genera discovered in each of these

several stages are about equal in numbers to the genera known to be alive to-day (and our knowledge of existing forms of life is pretty complete by now), on what grounds can we claim that the fossil record (so far as *genera* are concerned) is hopelessly incomplete? By the amount that we propose to multiply the known numbers of fossil genera, we propose that life in the past was richer in types than it is at present. Here the evolutionist is seen to abandon his own favourite principle of extending the present into the past. If his opponent did such a thing—*i.e.* postulated abnormal conditions in the past in order to escape from a theoretical impasse—the evolutionist himself would be the first to protest. When he himself requires to do this, his objections to the practice seem to melt away. But that would seem to be no reason why *we* should ignore Mr. Dewar's exposure of the "imperfection of the record" plea.

#### LECTURER'S REPLY.

I find myself in the happy position of agreeing with all those who have taken part in this discussion, most of whom have dotted the i's and crossed the t's of my paper, and added valuable notes to it. I agree with Mr. Clarke, that in the present stage of knowledge, it would be advantageous to distinguish between differentiation and evolution; if changes within the ambit of the natural family were described as differentiation and only greater changes called evolution, it would be seen that there exists no proof that *any* evolution has taken place.

A number of biologists hold views similar to those of Berg, to which Mr. Claringbull has called attention, *e.g.* Bather, Sergi, Kleinschmidt, Dacqué and Clark. Theories of this type get over the difficulty of the lack of fossils linking the great groups of organisms, but seem to me to be even less compatible than the Darwinian type of theory with the fossils we know. For example, the theories of the latter type demand only one series of fossils leading from the invertebrates to the vertebrates, while the former require as many series of fossils as there are lines of descent.

Mr. George Brewer emphasizes the stability of species. This has been demonstrated by the experiments of Morgan and his associates, who, since 1910, have bred selectively over 500 generations of the fly, *Drosophila melanogaster*, and found that every one of

the innumerable varieties they have bred is fertile when crossed with the parent form. On the other hand, this species will not cross with other species, such as *D. virilis*, although these often differ in appearance from *melanogaster* far less than do many of the forms bred by Morgan.

I agree with Dr. Morton's statement that Britain deeply needs the independent scientific voice, at any rate as regards biology. The reason why this voice is so rarely heard is that evolution has become a scientific creed. Those who do not accept this creed, are deemed unfit to hold scientific offices; their articles are rejected by newspapers or journals; their contributions are refused by scientific societies, and publishers decline to publish their books except at the author's expense. Thus the independents are to-day pretty effectually muzzled.

Those who believe evolution to be a law of nature are convinced that there must be something wrong with experiment or observation that tends to discredit evolution. Facts are to-day deemed to be of little value or worthless unless they afford evidence of evolution. Recently Mr. Levett-Yeats and I spent much time in collecting statistics of mammalian fossils. We embodied the results in a short paper in which we confined ourselves to facts, and avoided all comment. We sent this paper to the Zoological Society of London, in the hope that it would be published in the Proceedings of that Society. The Secretary returned the paper with the following remarks: "I am sorry, but the Publication Committee cannot accept your paper. We got the opinion of a first-rate palæontologist and geologist about it, and he told us that although it must have taken a very long time to compile it, he thought this kind of evidence led to no valuable conclusion."

From his point of view, the palæontologist was right in advising the Society not to publish the paper: the facts the paper contained being unfavourable to evolution. Those who are not confirmed evolutionists will, on the other hand, think the evidence valuable, so that if the Victoria Institute agree, the gist of the statistics will be printed in their *Journal* as an appendix to my paper.

*Otocyon*, cited by Col. Davies, is an excellent instance of the kind of difficulties which the evolutionist meets at every hand. The tendency is to brush aside such difficulties as trivial matters of

which doubtless solutions will eventually be found. In my humble opinion this persistent disregard of inconvenient facts is a great stumbling-block to the advancement of the biological sciences.

STATISTICS COMPILED BY G. D. DEWAR AND G. A. LEVETT-YEATS.

TABLE I.

LIVING GENERA OF MAMMALS OF WHICH WE HAVE FOUND RECORDS OF FOSSILS.

[\* Denotes not known earlier than the Pleistocene.]

*Primates*.—Of the 40 living genera, 40 per cent. are known as fossils, *i.e.* the following 16 :—Anthropithecus, \*Brachyteles, \*Callicebus, \*Cebus, Cercopithecus, \*Hapale, Hylobates, \*Indris, Lemur, Macacus, \*Mycetes, Papio, \*Propithecus, Rhinopithecus, Semnopithecus, Simia.

*Insectivora*.—Of the 35 living genera, 42·86 per cent. are known as fossils, *i.e.* the following 15 : \*Blarina, \*Centetes, \*Chrysochloris, Crocidura, Crossopus, Erinaceus, \*Macroscelides, \*Microgale, Myogale, \*Ptilocercus, \*Scalops, \*Scapanus, Scaptonyx, Sorex, Talpa.

*Edentata*.—Of the 13 living genera, 60 per cent. are known as fossils, *i.e.* the following 8 :—\*Chlamyphorus, Dasypus, Manis, Orycteropus, \*Priodon, \*Tatusia, \*Tolypeutes, \*Xenurus.

*Rodentia*.—Of the 157 living genera, 59·24 per cent. are known as fossils, *i.e.* the following 92 :—Abrocoma, \*Acodon, Acomys, Aconaemys, Alactaga, \*Arvicantis, \*Atherura, Aulacodus, \*Bathyergus, \*Cannabatomys, \*Capromys, \*Carterodon, Castor, \*Cavia, \*Cercolabes, \*Chaetomys, \*Coelogenys, \*Colomys, \*Conilurus, Cricetus, Ctenomys, Cynomys, \*Dactylomys, \*Dasyprocta, \*Dicrostonyx, Dipodomys, \*Dipus, Dolichotis, \*Dryomys, \*Echinomys, \*Ellobius, Eliomys, \*Erythrizon, \*Evotomys, \*Fiber, Geomys, Gerbillus, Haplodon, Holochilus, \*Hydrochaerus, \*Hypogeomys, Hystrix, \*Ichthyomys, \*Kerodon, Lagomys, Lagostomus, Lepus, Lophiomys, \*Loncheres, \*Lophuromys, \*Marmotta, \*Mastacomys, \*Megalomys, \*Mesomys, Microtus, Mus,

Muscardinus, Myocastor, \*Myodes, Myoxus, \*Nectomys, \*Nelomys, Neofiber, \*Neotoma, Nesokia, Ochotona, \*Otomys, \*Oxymycterus, Pedetes, \*Perodipus, Perognathus, Peromyscus, \*Phyllomys, \*Plagiodon, \*Platycercomys, \*Pteromys, \*Rhipodomys, \*Rheithrodon, \*Reithrodontomys, Rhizomys, \*Scapteromys, Sciuropterus, Sciurus, \*Sicista, Sigmodon, Siphneus, Spalax, Spermophilus, \*Synaptomys, \*Tamias, Thomomys, Xerus, Zapus.

*Carnivora*.—Of the 55 living genera of terrestrial carnivores (Fissipedia), 66·66 per cent. are known as fossils, *i.e.* the following 33 :—Ailuropus, Ailurus, Arctogale, Arctonyx, Bassariscus, Canis, Conepatus, \*Cryptoprocta, Cyon, Cynaelurus, Felis, \*Galictis, \*Genetta, \*Gulo, Herpestes, Hyaena, Icticyon, Ictonyx, Latax, Lutra, \*Lycyon, Meles, Melursus, Mellivora, Mephitis, Mustela, \*Nasua, Procyon, Putorius, \*Spilogale, Taxidea, Ursus, Viverra. Of the 9 living genera of aquatic carnivores (Pinnipedia), 77·78 per cent. are known as *i.e.* fossils, the following 7 :—\*Chrystophora, Halichoerus, Monachus, Ogmorhinus, Otaria, Phoca, Trichechus.

*Hyracoidea*.—Fossils have been found of the only living genus, Hyrax, *i.e.* 100 per cent.

*Proboscidea*.—Fossils have been found on the only living genus, Elephas, *i.e.* 100 per cent.

*Ungulata*.—Fossils have been found of the three living genera of the odd-toed ungulates (Perissodactyla); Equus, Rhinoceros, Tapirus, *i.e.* 100 per cent. Of the 61 living genera of the even-toed ungulates (Artiodactyla), 77·05 per cent. are known as fossils, *i.e.* the following 47 genera :—Alces, Antidorcas, \*Antilocapra, \*Antilope, Auchenia, Bos, Bose-laphus, Bubalis, Camelus, Capra, Capreolus, \*Cariacus, \*Cephalophus, Cervulus, Cervus, \*Choeropsis, Cobus, Connochaetes, Damaliscus, Dicotyles, Dorcatherium, Gazella, Giraffa, \*Haploceros, Hemitragus, Hippopotamus, Hippotragus, \*Hylochaerus, Moschus, Nemorhaedus, Okapia, Oreotragus, \*Oryx, \*Ovibos, \*Ovis, Pantholops, Phacochoerus, Rangifer, \*Redunca, \*Rupicapra, \*Saiga, Strep-siceros, Sus, Taurotragus, Tetracerus, Tragelaphus, Tragulus.



*Cetacea*.—Of the 29 living genera 68·97 are known as fossils, *i.e.* the following 30 :—Balaena, Balaenoptera, Delphinapterus, Delphinus, Globicephala, Hyperoodon, \*Kogia, Lagenorhynchus, Megaptera, Mesoplodon, Monodon, Orcinus, \*Phocaena, Physeter, Platanista, Pseudorcha, Steno, Stenodelphis, Tursiops, Ziphius.

*Sirenia*.—Of the 2 living genera fossils are known of Manatus, also of the recently extinct \*Rhytina, *i.e.* 66·66 per cent.

*Monotremata*.—Fossils are known of all 3 living genera *viz.*, Echidna, Ornithorhynchus, Proechidna, *i.e.* 100 per cent.

*Marsupialia*.—Of the 39 living genera 41·03 per cent. are known as fossils, *i.e.* of the following 16 :—Æpyprymnus, \*Bettongia, \*Chironectes, \*Dasyurus, Didelphys, \*Macropus, \*Peragale, \*Perameles, \*Petrogale, \*Phalanger, \*Phascolomys, \*Potorous, \*Pseudochirus, \*Sarcophilus, \*Thylacinus, \*Trichosurus.

*Chiroptera*.—Of the 215 living genera of bats, 17·67 per cent. are known as fossils, *i.e.* the following 38 :—Antrozous, \*Artibaeus, \*Atalapha, Brachyphylla, \*Carollia, \*Chiroderma, Cynonycteris, \*Desmodus, \*Glossophaga, Kerivoula, \*Lophostoma, \*Lonchoglossa, \*Molossus, \*Monophyllus, \*Mormoops, Myotis, \*Natalus, Noctilio, Nyctinomus, \*Phyllonycteris, Phyllorhina, \*Phyllostoma, \*Plecotus, Pteropus, Rhinolophus, Rousettus, Saccopteryx, \*Schizostoma, Stenoderma, \*Sturnira Synotus, Taphozous, \*Tylostoma, \*Vampyrops, \*Vampyrus, Vespertilio, Vesperugo, \*Barbastella.

TABLE II.

Type of Mammal.	No. of Genera now living.	Percentage known as fossils.
Volant (Bats) ....	215	17·67
Aquatic (Whales, Sirenians, Seals, etc.) ....	41	70·73
Land ( <i>i.e.</i> all mammals other than aquatic and volant) ....	408	57·84
Total ....	664	45·63

TABLE III.

Name of Continent.	No. of genera of land mammals now inhabiting it.	Percentage of these known as fossils.
Europe ....	48	100·00
Asia ....	134	70·15
Africa ....	145	49·65
North America ....	71	90·14
South America ....	86	72·09
Australia....	48	45·83

The above statistics indicate that the geological record is fairly complete in the case of mammals other than bats. The latter, owing to their powers of flight, are rarely fossilized.

The continents that have yielded a low percentage of fossils have not yet been well explored by palæontologists.

756TH ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,  
WESTMINSTER, S.W.1, ON MONDAY, APRIL 4TH, 1932,

AT 4.30 P.M.

DR. JAMES W. THIRTLE IN THE CHAIR.

The Minutes of the previous Meeting were read, confirmed, and signed.

The CHAIRMAN then called on the Rev. Paul P. Levertoff, D.D., to read his paper on "The Changing Attitude of the Modern Jew to Jesus Christ."

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*THE CHANGING ATTITUDE OF THE MODERN JEW  
TO JESUS CHRIST.*

By REV. PAUL P. LEVERTOFF, D.D.

SCATTERED among all nations; forced to struggle perpetually for preservation as an entity; persecuted, harried from land to land, forced into false positions by the pressure of social and economic circumstances; and so led into an ever-deepening hatred of a "religion" which could inform the hearts of its adherents to such bitter purpose—the Jewish people now emerges from the cauldron of past hate, and stands in a relation to the Christian world at once more peaceful and more desperate.

What they have for centuries preserved, that they are now throwing away. They are losing their identity in a maze of conflicting aims. Where, at one time, assimilation was forced upon them against their will, and so never consummated, now many of them allow themselves to be submerged, and the process is all too thorough. The strong, unifying purpose of religious tradition and aspiration has weakened, and for want of this bond the Jewish people is now scattered in a more profoundly tragic sense than ever before.

Thus, there can be no possible meaning in the phrase "changing attitude" if it be applied to the Jewish people as a whole. For the racial entity as such, there has been (and is) but one attitude to Jesus Christ, and that is the unchanging one of aversion and fear. The writer of the so-called "Letter of Lentulus" speaks of Christ as *vultum quem possent intuentes diligere et formidare*—"having a countenance which those who looked upon it might fall in love with, or might shrink from in terror." What he meant was, that men were at once awed and fascinated by His presence, and so felt that He was a true representative of the Divine Nature. But the Jewish people as a whole still "shrink from Him in terror," in a different sense.

This attitude has undergone no change, except in so far as the influence of Gentile and non-religious culture, tending to diminish hatred through lack of fervour and to replace it by indifference, can be counted a change. Unfortunately, that change is by far the easiest to perceive and to record.

\* \* \* \* \*

But it is equally certain that, among individual Jews, a more hopeful state of affairs is beginning to emerge. In fact, there has been nothing more striking in the movement of modern religious thought than the changing attitude of some Jews to the Person of Christ, as exemplified by some of their pulpit utterances, and such books as Claude Montefiore's commentary on the Synoptic Gospels, *The Old Testament and after*, etc., Joseph Klausner's *Life of Jesus of Nazareth*, and last but not least Franz Werfel's dramatic presentation of St. Paul's conversion, in which a new note is sounded, and for the first time there is found a genuine comprehension of the deeper mysteries of the Christian Faith. In its knowledge of the background and the play of forces that were operative as the Christian message widened its scope, in its delineation of character, and its deep spiritual insight, this is undoubtedly a unique and highly significant work, and we propose to concentrate our attention on it.

It is necessary, however, first to consider some utterances of eminent Jewish writers which reveal an admiration, even a veneration, for Jesus and His teaching, but nothing more, in order that the full importance of Werfel's masterpiece as a fulfilment of all that preceded it may be clearly understood.

Karl Emil Franzos, one of the most brilliant Jewish novelists of the latter part of the last century, relates in one of his works

a very interesting story. In the town of Barnow, in Galicia, there lived a Jewish shoemaker, Chaim Lipiner. This man was possessed by an unquenchable thirst for knowledge, his favourite saying being "Who knows the truth?" He attached himself in turn to one sect after another. Being originally a Talmudic Jew, he left the Talmudists and joined the "Chasidim" *i.e.* the mystics. Among these Chasidim there are different parties and circles, each following a different (so-called) "Zadik," or miracle-working Rabbi, and he went from one party to another always with the cry, "Who knows the truth?"

It came to pass that, on one very cold moonlight night, as a company of Jews were returning late to their homes, they noticed a figure kneeling motionless in the deep snow before the large crucifix which was attached to the wall of the convent of the Dominicans, with his arms stretched out as if longing to embrace it. To their horror, when they came nearer, they saw that it was their eccentric friend, Chaim Lipiner. They stopped for a few moments, horror-struck at the sight, and, as they silently listened, they heard him, in a tremulous, sobbing voice, pronounce over the crucifix the blessing which in the Jewish liturgy is prescribed for a pilgrim who, after wandering through the dark night, sees the sun rise. Then their rage burst forth, they fell upon the poor man, beating and kicking him, until he had to be carried home half dead.

Next morning great excitement prevailed among the Jews in that small town. A court of judgment was to be held in the synagogue, and the Rabbi was to pronounce sentence on the culprit. The people gathered in masses. The poor man had to be brought on his bedding into the synagogue, and, as he was carried through the ranks of Jews on either side, they spat upon him and cursed him. The Rabbi preached a sermon, emphasizing the awful character of apostasy, and the terrors which were awaiting the apostate in the world to come; and when he had finished, the man was asked what he had to say for himself. To everyone's astonishment, he remained silent, merely shaking his head. This increased the indignation, and the Rabbi, together with the angry crowd, insisted upon a reply. At last, the poor man raised himself on his bedding, looked with a calm glance at the fanatics around him, and uttered a short speech. It was nothing more than his favourite saying, "Who knows the truth?"

Dr. Martin Buber, a well-known exponent of mystical Judaism, says in his *Drei Reden über das Judentum*: "It was on Jewish soil that this spiritual revolution (*i.e.* the Gospel) burst into flame. . . We must overcome the superstitious terror with which we have regarded the Nazareth movement, a movement which we must place where it properly belongs—in the spiritual history of Israel."

Speaking on St. Luke xv, the leader of Liberal Judaism, Dr. Claude Montefiore, says: "Surely this is a new note, something which we have not yet heard in the Old Testament of its heroes, something we do not hear in the Talmud or of its heroes. 'The sinners drew near to Him.' His teaching did not repel the . . . It did not palter with, or make light of sin, but yet gave comfort to the sinner. The virtues of repentance are gloriously praised in the Rabbinic literature, but this direct search for (and appeal to) the sinner, are new and moving notes of high import and significance. The good shepherd who searches for the lost sheep, and reclaims it and rejoices over it, is a new figure, which has never ceased to play its great part in the moral and religious development of the world." (*The Synoptic Gospels*, vol. i, p. 520).

The Hebrew writer, Reuben Brainin, speaks lyrically of his search for the "mysterious personality, who embodies in himself our great past and our yet more glorious future." . . . "Where art Thou? (he cries), Redeemer, who hast the power to draw everything which is yet spiritual, ethical, beautiful, and good in our nation to thyself, and to unite us in one great redeeming deed?" Although the Name of Jesus is not mentioned in the article, there can be no doubt that it is that "mysterious Person," whom he thus addresses.

\* \* \* \* \*

In all these brief extracts there is a predominant note of seeking—but not of finding; of longing unfulfilled, and of a desire scarcely defined; but ever present. The full expression of that longing, the fulfilment of that hope, and the concentration of all those aspirations into a passionate and articulate whole, can be found in Franz Werfel's drama, *Paul among the Jews*.

The author is an Austrian Jewish poet, novelist, and playwright, who has already won for himself a great reputation in Europe and America. In this play he gives,—aided by a consummate technique which never needs to suspend its sincerity in order to achieve its effects—not only a theatrical panorama of

Jerusalem at the time of Caius Caligula, in all its social, political, and personal intricacy, but also a powerful dramatic presentation of the great historic moment when Christianity liberated itself from the swaddling bands of a too nationalistic Judaism; and in addition—for else the play would have been a dramatic tract instead of the masterpiece that it is—a series of portraits of the leaders both of the old religious life and of the community based on the new revelation, all centring round and culminating in one principal figure—Paul himself—as a fit symbol of, and leading factor in, the events of that “revolution,” certainly one of the most momentous in the history of the world.

No one, reading or viewing this play without knowing anything about it, could imagine for a moment that its author was not, officially at least, a Christian. Every word of the newly converted Paul, now returned to Jerusalem only to meet the hatred of his former companions and the distrust of the Christian community which he so recently had persecuted—every word of this extraordinary and dominating character, at once so complex and so full of passionate simplicity, holds the note of joy in spiritual fulfilment, the affirmation and completion of Israel's expectation. Whether he is attempting to convey to the dubious apostles the miraculous change which has been wrought in him, or to proclaim the newly discovered truth to the amazed and angry rabbis whose brightest hopes had in the past been centred in himself; whether the Jewish leaders are attempting to exorcise him, or the Roman Government to imprison him on false charges—whatever the involved and often tragic turn of events, it is this Paul, this man immersed in and re-made by overwhelming experiences, who holds chief place.

At first he himself is not clear as to the nature of his immediate mission; he is saddened by the apostles' evident distrust of him; but when he hears Gamaliel's voice chanting Psalms as a procession passes, he divines that it is to him that he must take his message. When he visits the House of Study he becomes reconciled with that greatest of Israelites, who had renounced him when he deserted the mild ways of his teacher and joined himself to the violent men and the zealots.

Gamaliel it is who shelters Paul against the wrath of the other rabbis, and it is to him that, in the last scene, seated at his feet in the inner chamber of the Temple, on the eve of the Day of Atonement,—the murmuring of the praying people sounding from without like a symbol of despair—that Paul pours out the

full burden of his glorious message. He speaks of himself as he had been in the past—a slave of sin, and, equally, a slave of the Law; he speaks of Gamaliel himself, his greatness and beauty of soul; but Gamaliel commands: “Speak of that which thou shouldst speak!”

*Paul*: “How can I speak of Him, Rabbanu? How can I speak of the moment when the Light from heaven rushed into my being, when I entered, blind, into a new world? My heart is torn when I so much as think of it. Can a man speak of the moment of his birth?”

*Gamaliel*: “Thou wilt speak! For I have decided that thou shouldst lead back Rabbi Jehoshua of Nazareth to Israel!”

*Paul*: “Glorious! Rabbanu! Isaiah’s word is being fulfilled: ‘I was found of them that sought me not.’ Hear, O Israel! Thou hast found Him!”

*Gamaliel*: “I have found a holy man of God. And I will testify of him.”

But Gamaliel cannot go beyond a certain point, and when Paul insists that—“He did more than illumine the Law” . . . and that “The dispensation of the word Law is past,” he cannot, or dare not, believe. Says Paul: “Why has loneliness vanished? What is this strong exulting love in me?” But Gamaliel, his mood changing, cries: “What has the love of thy Jesus changed? Not He, and not I, can banish evil, only the Law, the holy Tie which binds mankind.”

*Paul*: “This Tie has become rotten, Rabbanu! Like a discarded wine-skin the word Law lies upon the road!”

*Gamaliel*: “This the man Jesus did not say.”

*Paul*: “Rabbanu speaketh of a *man*! Oh, the world is swallowed up, both Jews and Gentiles, and only thou art here, thou and He. . . . *A man*! Has ever a man conquered death and decay? Has ever a man risen bodily from the dead? The Light, which spoke to me before Damascus, was it a man? Was it a man that delivered me from myself? Can a man grant God’s renewing grace? No, Rabbanu! He was not merely a man! He wore Manhood as a garment. . . . He, the Messiah, the incarnate Shekinah, God’s Son, He was before the world came into being. . . .”

*Gamaliel*: “Saul, say that He was a man, for thine own sake and mine!”

*Paul*: “How can I? From man new birth cometh not.”



*Gamaliel* : “ From man alone it cometh ! For this Temple’s sake, say that He was a man ! ”

*Paul* : “ Not in the Temple, but on the Cross was the Blood of the Atonement shed. Now is the whole world the Temple of the great Sacrifice.”

*Gamaliel* pleads still more passionately—“ For Israel’s freedom’s sake, say that He was a man ! ”

*Paul* : “ Rabbanu, by the living God, I implore thee, believe ! In this hour, not for anyone’s sake can I lie.”

*Gamaliel* : “ Woe unto thee ! Knowest thou who the Messiah is ? He is annihilation ! For when this arrow flies the bow will break. I will not see Him. . . . ”

*Paul* : (after an awful pause) : “ The bow is broken, O Israel ! And forever ! ”

*Gamaliel* : “ Traitor ! ”

And as the murmur of prayer is borne up in a great volume of tragic sound, he advances on Paul with the sacrificial knife, crying : “ I retract my decision concerning Jesus of Nazareth ! Perhaps he was a holy prophet, but I call him enemy ! . . . The angel of Death between us, Saul ! ”

Passionately he appeals to God for guidance : “ Who is Jesus of Nazareth ? Who is Jesus whom they call Messiah ? Has the Messiah come ? Have we profaned thy Light . . . ? ”

But there is no answer. Imperiously he cries : “ Answer ! ” But only silence answers him.

Then Paul, softly and fervently,—“ I have received the answer, Rabbanu, Here am I.”

*Gamaliel* : “ I know the Truth no more. . . . Go ! ” (and he lets the knife fall).

*Paul* : “ Yes, I have seen God’s answer ! I was wafted into dusty streets, in harbours I saw ships come and go ; sailors sang. I stood among the throng in a great city, and ever must I go—go—go ! For the Christ is a tireless hunter.” And so he goes.

And *Gamaliel*, his face becoming slowly distorted, cries out, “ The Destruction upon us ! The Destruction ” . . . and stumbles out, covering his face, his cry dying away in the distance.

But this is not the end, though destruction does indeed fall upon the Temple, and Roman troops take possession of the holy place. The body of *Gamaliel* is carried in, and the Jews break into subdued yet dreadful wailing, which continues to the end. But above the tumult of an epoch crumbling to ruin ; above the tragic finality of that destruction, self-imposed by refusal of that

which alone could have kindled it anew to a more glorious life ; above the symbol of a more than national, a cosmic despair, sounds the voice of St. Peter, in that supreme affirmation which, in the final issue, is the touchstone of the only satisfying attitude to Jesus Christ of anyone, be he Jew or Christian—"THE HOUR OF THE CHRIST HAS COME!"

#### DISCUSSION.

The CHAIRMAN (Dr. Thirtle) said : I am sure we have listened with profound attention to the paper read by Dr. Levertoff in our hearing. We could, perhaps, have wished the paper to be somewhat longer ; but what it has lacked in length it has exhibited in intensity of conception and strength of expression. I wish to return sincere thanks to our distinguished lecturer for that which he has placed before us. For myself, I fully expected depth of thought combined with warmth of feeling, for I have known Dr. Levertoff some twenty years or more, having met him in days before he found his home in England. As in the course of years friends and scholars have risen around him, and have given welcome to the output of his fertile pen, one and all have come to admire his special command of Jewish culture and Jewish learning as we have had it sampled before us this afternoon.

Quite obviously, the title of the paper was open to misconception. If there is changing attitude to Christ on the part of the Jew, it is not a change on what can rightly be called a communal scale, nor, I think, can it be described as fundamental in its effects upon the Jewish race. There may be *ostensible* change in some quarters, but there is nothing that can be said to carry the mentality of the Scattered Nation as a whole. As we are well aware, there exists an organization in which Jews and Christians combine on an intellectual basis, with the hope of establishing an understanding between those who follow Moses and those who follow Christ. But this organization cannot be said to exercise any wide and deep influence : it may carry the interest of circles of refinement, but it does not touch the heart of the Jewish people as a whole, even as it fails to represent Christian judgment along a line that holds with consistent tenacity to the teaching of Christ. Hence, we acquiesce without question in the words of a short paragraph on the opening page of the paper,

which says that the attitude of the Jew to Christ "has undergone no change except in so far as the influence of Gentile and non-Jewish culture, tending to diminish hatred through lack of fervour, and to replace it by indifference, can be counted a change. Unfortunately, that change is by far the easiest to perceive and to record."

I think we shall agree that, leaving on one side anything like a challenging statement, Dr. Levertoff has been wise in confining himself to incidents and records that have an illustrative bearing on the subject before us. The thoughtful Jew remains such, even as the thoughtful Christian must remain such; and while there may be (and should be) a spirit of understanding, yet, with Christ as answering to "the stone of stumbling" in Scripture language, there can be no justification for a spirit of insincere compromise. To the Jew, even as to the Greek, the Christian should be a confessor of Christ both by lip and life. As absolute honesty is cultivated, we may witness the upgrowth of feelings of mutual respect and confidence. Most certainly the Jew does not ask for patronage, equally as the Christian has no reason for maintaining a weak, apologetic attitude. At any rate, and always, it is right for Christian people to stand apart from the persecuting Church of the Middle Ages, and to evince the sympathetic spirit that has appeared in more recent generations, the while praying for the peace of Jerusalem, and invoking the Divine blessing upon the people still "beloved for the fathers' sakes."

I am sure you will join with me in thanking our lecturer for the paper to which we have listened.

Mr. PERCY O. RUOFF: This interesting paper describes in a graphic manner a remarkable spirit of inquiry among modern Jews in reference to Christianity. The principal point to be considered is: How far, if at all, does this inquiry extend beyond modern liberal-mindedness? Does it show any indication on the part of Jews to-day to approach Christianity or Jesus Christ with faith in its divine origin or acceptance of His Messiahship? Let it be granted that a readiness to investigate the truth is a hopeful and welcome sign, and it is certainly significant that in Werfel's drama, "Paul among the Jews," the claims of Messiah as Son of God are so forcefully and pathetically set forth. It is to be carefully observed

that, in the moving story of the shoemaker Chaim Lipiner, the climax is repudiation of Lipiner, and stern denunciation by the Rabbi of the awful apostasy committed. And with regard to the most dramatic and moving dialogue between Paul and Gamaliel, it should be carefully noted that, whilst it is deeply significant that Christ is openly spoken of as "the incarnate Shekinah, God's Son, He was before the world came into being," the climax of the drama is reached when Gamaliel, the accredited representative spokesman, declares of the Messiah, "He is annihilation!" And again, "Perhaps he was a holy prophet, but I call Him enemy." It may be that another emphasis may completely change this aspect of the drama, and show it to be a new approach to Christ. I shall welcome any light which Dr. Levertoff can give in this matter.

Rev. F. W. PITT said: It should be observed that a change of attitude or opinion does not imply a change of heart. There is, without doubt, a willingness among Jews to reconsider the work of Christ, Whom the nation as such rejected, but this must be regarded in the light of the liberalism of these last days. Jewish exclusivism is not what it was, it having yielded much in the widespread apostasy foretold. The prophetic Scriptures clearly show that Israel as a nation will not acknowledge Jesus of Nazareth as their Messiah until the times of the Gentiles are fulfilled. When the Son of Man comes the second time, Israel, under the stress of the great Tribulation, will look for deliverance, calling on Him whom they pierced, and at His appearing they will say, "This is our God; we have waited for him." In the meantime, there is salvation for the individual Jew, whenever there is a change, not of opinion, but of heart.

#### LECTURER'S REPLY.

The questions propounded in connection with my paper can all be considered as connected with one problem: namely, in the words of Mr. Ruoff, "how far, if at all, does the remarkable spirit of inquiry, now manifest in modern Jews in reference to Christianity, extend beyond modern liberal-mindedness."

The Chairman's remarks present no definite questions other than those already raised in the course of my paper; with the exception

of some personal references, I am in complete accord with all his statements.

On the other hand, Mr. Ruoff, while emphasizing the very fact which I myself have always endeavoured to bring clearly to the minds of the over-optimistic, namely, that in most cases this spirit of inquiry does not extend beyond modern liberal-mindedness, seems inclined to underestimate the significance of such evidences to a deeper change of spiritual attitude as I have mustered. A readiness to investigate the truth, while a hopeful and welcome sign, can of course never be enough in the final issue, and in fact leaves the gulf between a Christless world and a world centred in Christ as wide (and as deep as) ever it was, though it may to a certain extent bridge the gulf between the Jewish and the Christian worlds, and aid in the achievement of that mutual respect and confidence emphasized by the Chairman.

As Mr. Pitt truly says, "a change of attitude or opinion does not imply a change of heart," and it is only in a comparatively few cases that this miracle or gift of true enlightenment can be detected. That was the very reason why the title of my paper was, in one sense, a misnomer. While many modern Jews have altered quite startlingly in their opinions of Christ from those held by their forefathers, and while their attitude becomes increasingly tolerant and inquiring, it is in only a very few cases that I have been able to find what I may call a preparation for the true spiritual enlightenment; and in one alone that I have found—at least I think so—the enlightenment itself. These cases are the examples mentioned in my paper, and it is their significance which is, to my mind, somewhat underrated by Mr. Ruoff.

The climax of the story about Chaim Lipiner is emphatically not repudiation and denunciation, but the triumphantly courageous "un-satisfaction" of the seeker—"Who knows the truth?" There is nothing final in that, but at least it is a pretty good basis for further spiritual ventures, which, one can only hope, may ultimately find their fulfilment and satisfaction in a better knowledge and understanding of the completest and most perfect Truth. As for the play, it may be noted that it is of great significance that a Jew should choose to write a play about St. Paul at all. One is amazed at the intense and accurate spiritual vision and under-

standing with which all the aspects and reactions of that character and the problems of the newly emerging Church are treated. It is a mistake to imagine that Gamaliel, or any other single character in the play, is to be considered as the vehicle for the expression of the author's opinions; rather it is the whole atmosphere of the work, the passionate sincerity that animates it, and the extraordinarily illuminating—and illuminated—phrases of complete affirmation and comprehension, such as could surely only be possible to one who has experienced, not only a change of opinion but—as emphasized by Mr. Pitt—a change of heart.

Of course, this example only bears out that which he has averred, namely, that it is in individuals only that we dare hope to find at present that miraculous and mysterious gift of sudden vision. But that it is present in this play I personally have no doubt: the climax is not—"He is annihilation!"; it is not—"I call Him enemy!"; it is—"For the Christ is a tireless Hunter" . . . It is—"The hour of the Christ has come!"

757TH ORDINARY GENERAL MEETING,

HELD IN COMMITTEE' ROOM B, THE CENTRAL HALL,  
WESTMINSTER, S.W.1, ON MONDAY, APRIL 18TH, 1932,

AT 4.30 P.M.

DR. JAMES W. THIRTLE, M.R.A.S., IN THE CHAIR.

The Minutes of the previous Meeting were read, confirmed, and signed, and the HON. SECRETARY announced the election of Mrs. K. G. Tapp as an Associate.

The CHAIRMAN then called on Prof. Theophilus G. Pinches, LL.D., M.R.A.S., to present his paper on "The Tablet of the Epic of the Golden Age"; and the same was read by the Chairman.

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*THE TABLET OF THE EPIC OF THE GOLDEN AGE.*

By PROFESSOR THEOPHILUS G. PINCHES, LL.D., M.R.A.S

THIS inscription of the Golden Age, or, as Professor Langdon calls it, the Epic of Paradise, was recognized by him in the collection of the Museum at Philadelphia, U.S.A., in the year 1912. It was not complete, but other fragments were found and joined thereto afterwards, and he was enabled to complete his copy, and his description and translation of the text appeared in the Publications of the Babylonian Section of that Museum in 1915. The tablet is about  $7\frac{1}{2}$  inches high by 5 inches wide, and has three columns on each side, with a total of about 270 lines—possibly more. The style of the writing suggests a date of about 2200 years before Christ. The language, as my title suggests, is Sumerian—that tongue which preceded Semitic Babylonian or Akkadian—the Semitic tongue spoken in Accad, the state mentioned in the tenth chapter of Genesis as one of the cities of Nimrod's (Merodach's) kingdom. As is well known, this name, which also appears under the form of Akad or Agad, is regarded as being the Semiticized form of the Sumerian Agade. It would be interesting to know what is the meaning

of this now well-known Sumerian place-name, but this I can only give in a very uncertain way. If it has any connection with *aga*, meaning "after," it may indicate the fact that the Akkadians were the people who came at a late date into Mesopotamia—a theory which is generally accepted by Assyriologists and other students of ethnology.

I have called this legend or poem the "Babylonian Epic of the Golden Age," but Professor S. Langdon entitled it the *Sumerian Epic of Paradise, the Flood, and the Fall of Man*. Professor Fried. Delitzsch pointed out—proved, in fact—that Babylonia was, in very truth, the "Paradise-land" of Genesis—the place of the "garden eastward in Eden," for was not that land the *edina*, the Babylonian plain, the land wherein lay Êridu, the city of the four streams and the sacred vine, emblem of the Tree of Life? And besides Êridu, there was the city of Babylon itself, for one of the Sumerian names which it bore was Tin-tir, which Delitzsch translated as *Lebenshain*, "the Grove of Life."

Neither of these names is to be found in this poem given to us by S. Langdon—neither Êridu, nor Tin-tir, nor Êdina. Yet it was a poem descriptive of what the Babylonians believed to have been the condition of the southern portion of their land in prehistoric times, beginning with "the good old days" when everything was as it *should* be, but changing soon for the worse, when men and the conditions of life were no longer perfect, but even as they are now. In all probability several of the states of Babylonia in those remote days had legends of earlier periods when greater perfection prevailed—just as they had legends of the Creation.

In the tablet now before us the Babylonian province dealt with is neither Babel, nor Erech, nor Accad, nor Calneh—nor, indeed, any of the less-known provincial capitals (Kish, Sippar, Ur of the Chaldees, Lagash, etc.), but the mysterious province and capital called Tilmun, in the extreme southern part of Babylonia, on the shores of the Persian Gulf. The name of this city, and probably of the province itself, is indicated by means of a character which, owing to its being divisible (wrongly) into two parts, was read differently. That the first syllable is *tîl*, and not *dîl*, is proved by the name of a slave, Tilmunû (Tilmunî, oblique case, in the original, where it occurs). The name means the Tilmunite. As to the meaning of Tilmun, there is much uncertainty, but it may be noted that the final syllable



means "salt," and as *til* means "to end," "to complete," and the like, it is not impossible that Tilmun means "the salt end," or "seashore." As we shall see, the changing of a salt spring to a fresh one was regarded as an important and most desirable work. The tablet begins with a description of the land and its inhabitants, and though there are many repetitions, the composition is poetically expressed.

*The holy land of Tilmun.*

1. [They who are holy], they who are bright, are ye.
2. [The land of Tilm]un is holy.
3. [In the holy] place they are who bright are ye.
4. [For] the land of Tilmun is holy.
5. The land of Tilmun is holy, the land of Tilmun is pure.
6. The land of Tilmun is holy, the land of Tilmun is resplendent.
7. Alone in Tilmun one reposed.
8. Where divine Enki with his spouse reposed.
9. That place is pure (that place is resplendent).
10. Alone (in Tilmun one reposed).
11. Where Enki (and) Nin-ella (reposed).
12. That place is pure (that place is resplendent).

*The harmless ness of the denizens of Tilmun.*

13. In Tilmun the raven croaked not.
14. The kite-bird with the voice of a kite cried not.
15. The lion\* committed not slaughter.
16. The wolf ravished not the lamb.
17. The dog worried not the kid.
18. The dam eating grain he disturbed not.
19. The agriculturalist [reaped] the increase of his land.
20. The birds of heaven forsook not their progeny.
21. The doves were not put to flight.
22. To the sore-eyed "Thou art a sore-eye," one said not.
23. To the sore of head "Thou art a sore-head," (one said) not.
24. (To) the old woman "Thou art an old woman" (one said) not.

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\* Or, "the great dog."

25. (To) the old man "Thou art an old man," (one said) not.
26. (As to) the virgin, one caused not her desecration in the city.
27. "A man has changed a canal by night," one said not.
28. The prudent minister withheld not his gift.
29. The bewailer uttered not lamentation.
30. (On) the high place of the city one [uttered] not word of grief.

*The goddess Nin-ella asks her father Enki to fix the destiny of Tilmun, the city which he had founded.*

31. Nin-ella to her father Enki speaks :
32. "(Of) my city thou founder, my city thou founder, give thou (it) a destiny.
33. (Of) Tilmun my city thou founder (my) city (thou founder, give it a destiny)."

At this point the lines are imperfect, but the goddess repeats her request, adding thereto the need of the city to possess a stream or canal.

The end of the column is incomplete, but there was probably further references to the canal and possibly to the need of a water supply in the final lines.

## COLUMN II.

*The goddess Nin-ella asks for "sweet water" for the city which Enki had founded for her.*

1. At the foot of thy great fountain (?) may the water flow forth.
2. May thy city drink abundant water.
3. (May) Tilmun (drink) abund(dant) water.
4. May thy well of bitter water (gush forth) a well of sweet water.
5. May thy city be the meeting-house of the land.
6. (May) Tilmun, (thy) city, (be the meeting-house of the land).
7. Thereon Shamash shineth.
8. "Shamash, in heaven stand thou !"
9. In (his) course beginneth the festival in his domain.

10. In the chapter (?)—house of Nannar.
11. From the mouth of the earth flowing, from earth's sweet waters he cometh unto thee.
12. At the foot of his fountain (?) the waters flowed forth.
13. His city drank abundant water ;
14. Tilmun (drank) abu(ndant water).
15. The well of bitter water became sweet water.
16. The field, the enclosure, produced (?) its crop of grain.
17. His city became the meeting-house of the land—
18. Tilmun (became) the meeting-house (of the land).
19. Thereon Shamash shineth—May it ever be thus !

*Ur hennanamma*, “ May it ever be thus ! ”—“ Amen, so be it ! ” as we often say now, though there may be some slight difference of meaning in the old Sumerian expression.

“ *Unto me a man entereth not.* ”

At line 20 of the second column, a fresh section seemingly begins, and Enki tells Nin-tu, “ the Dame-begetter ”—the earth-mother—his designs. For some reason, the god is represented as forbidding men to approach him. Probably it was because the prayers of men troubled him, for he is twice designated “ He alone possessing ear,” or the like. “ Rest for me, rest for me ! ” he seems to say. However, the father of Dam-gal-nunna (“ the great princely spouse ”) here announces that Ninhursag, “ the Dame of the fertile downs,” had “ opened out the field ”—probably the Babylonian plain—for cultivation, and the field received the waters of Enki.

“ It was day 1, its month 1,  
It was day 2, its month 2,”

and so on, until we come to

“ It was day 9, its month 9, the month-period of a woman.”


Evidently this is a symbolism derived from the period of pregnancy. Following this come the mysterious lines :

“ Like pure oil, like pure oil, like fine sweet oil,  
[Nin-tu], the mother of the land, brought forth.”

What Nin-tu brought forth does not appear, but it may be supposed that she, being the earth-mother, produced the inhabitants of the waters as well as of the land, including men. At this point (column iii, line 1) it is stated that Nin-tu returned

to the bank of the river or canal which had been constructed (? by Enki), and said to the god with emphasis, that they (? created things) were to be reckoned as hers. She also called out to Isimu her minister, saying that she was not wroth with the "pious" sons of men. These words were repeated by her minister, apparently to those "pious sons of men," probably to reassure them. As the next line is couched in the first person, it is probably the goddess who is speaking, though the reason for this abrupt change of subject is not clear:—

“ My king, with cloud enclosed, with cloud enclosed,  
Set foot alone upon the ship.  
Let not the two spirit-handmaids stand there.”

The words of this last line seem to be *Mina gimma gidimma nam-mingub*, and the doubtful word is the second, *gimma*. This I take to be a variant of , *gina*, "female servant"—perhaps here they were to be kept aloof in order that they should not have intercourse with, seemingly, the chosen man, who is mentioned later under the name of Takku or Utu, but future discoveries can alone decide this.

Enki's revelations for the necessities of the human race in what seems to have been a new sphere, follow. "He doubled fruitfulness, he kindled fire." Enki flooded the field, and the field received his water. After this the enumeration of the days and the months is repeated—"It was day 1, its month 1—It was day 2, its month 2—It was day 9, its month 9." (The reader has to fill in what is omitted.) Here again come the references to the pure oil and the rich sweet oil. The goddess mentioned in connection with this seems to be still Nin-tu, but the name in line 21 changes to Nin-kurra, "the lady of the land," or "of the mountain." The wording is now, for the second time, the same as in the case of Nin-tu. Like her, Nin-kurra returns to the bank of the river (or canal), claims that the created things should be held as hers, and she, too, was not wroth with the pious sons of men. Enki, apparently by his irrigating streams, again floods the land, and the field receives his water. Then we are told, for the third time, that "It was day 1, its month 1—It was day 9, its month 9":—

37. Like pure oil, like pure oil, [like] fine sweet oil,

38. Nin-kurra (like) pure oil, (like) pure oil, like fine sweet oil).

39. (To) Takku\* gave increase.

Here the name of the goddess again changes, for in line 40 she is called Nin-turi, according to Langdon, to be read Nin-tudri. She tells what she has done for him—she had tilled (?) for him, and she had spoken. She then addresses Enki, the creator of mankind :

43. "Lonely one,\* for me they are held, for me they are held.  
 44. Enki, for me they are [held, for me they are held]."  
 45. He raised his eyes (?) . . . .

Here comes a considerable gap, owing to the mutilation of the inscription. There are recognizable characters in line 12, from which it would seem that the deity provided increase for [Takku and his woman ?]. After this, in line 16, there is a reference to "the middle of the orchard," introducing us to the "garden" of this Eden, wherein wonderful things were to take place. But it seems to have been a place where the gods were worshipped, for two temples seem to be mentioned—the house Ê-bara-gu-dudu, "the house of the shrine of plant-perfection," and Ê-rab-garan, a name of which I hope to find the meaning later.

20. "At the temple may my leader dwell—  
 21. May Enki, my leader, dwell therein."

There the two handmaids (they are not called "spirit handmaids") were to supply water. One was to fill the waterway with water, one was to fill the canal with water, and one had irrigated the farmland.

After the orchard comes naturally the orchardman, but the line in which this word occurs is too mutilated to translate. The next seems to mention a hidden place "on the bank" (of a canal or river). The next line has the question "Who art thou?" followed by the word "orchard." Then Enki apparently addresses the orchardman, and there is a gap of five lines. Connected phrases begin again at line 35 :—

35. In Ê-bara-gu-dudu he stood.  
 36. In Ê-rab-garan he stood—(there) his seat he made.  
 37. Enki beheld him—the sceptre he laid aside.  
 38. Enki waited for Takku.†  
 39. At his house‡ he cried "Open, open!"  
 40. "Who is it (that) thou art?"

\* Or, "lonely man."

† Or Utu.

‡ Or "temple."

41. "I am an orchardman rejoicing (in) the tree (?)."
42. "I will cause the skill (?) of a god to be given to thee."
43. Takku\* in the joy of his heart opened the house.

Enki now seems to give Takku something, and "joyously he gave him his reward (?)." These gifts took place in the two temples named, Ê-bara-gu-dudu and Ê-rab-garan. Takku seems to have acknowledged the gift by raising his left (hand) and advancing (?) his (right).

This ends the first column of the reverse, and the second begins with a list of the plants made to grow (by Enki). They were seven in number, but their names are in every case broken away. These, too, the goddess asks to be regarded as hers. She then calls to her minister Isimu, whose name occurs so often in this inscription, saying that she had decided the fate of the plants for ever. By this she apparently claims to have given them their names, indicating thereby their characteristics. As to their fate, she declared it, "Whatever that be—whatever that be!"

Her herald Isimu now returns to her, apparently with Enki's pronouncements with regard to the plants, giving (or withholding) permission to cut or pluck and eat them. One alone seems to be excepted:—

20. My king as to the woody plant has announced :
21. "He may cut, he may eat."
22. My king as to the fruit-plant has announced :
23. "He may pluck, he may eat."
24. My king as to the . . . -plant has announced :
25. "He may cut, he may eat."
26. My king as to the *a-gug* (water-plant) has announced :
27. "He may pluck, he may eat."
28. [My king as to the] *uttutu* (?) -plant has announced :
29. ["He may cut], he (may eat)."
30. [My king as to the *pi*] *pi*-plant has announced :
31. ["He may pluck], he (may eat)."
32. [My king as to the . . . -plant has announced :]
33. ["He may pluck]. he (may eat)."
34. [Takku] the *amhara*-plant approached—
35. [He pluck]ed, he ate.
36. [Nin-kur]ra (as to) the plant its fate had decided, therein she encountered it.

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\* Or Utu.

37. Nin-ḫursagga (in) the name of Enki uttered a curse :  
 38. "The face of life until he dieth shall he not see."

Here we have it—the Fall of Man—but how different from the Fall as related in Genesis. The fall in this text came because "the divine dame of the fertile slopes," obeying Enki, had uttered a curse against anyone who should pluck and eat, apparently, the *Amḫara*-plant, which Professor Langdon identifies with the cassia. With this identification I have no fault to find—it may be the *kasia* of the late contract-tablets and letters, and also of an early list of temple-offerings which I included in the Catalogue of the Amherst Tablets, but it can only be described as a *parallel* to the Tree of Life in Genesis. Every incident here, in fact, is as unlike as it could be.

Owing to the doom brought upon Takku by Nin-ḫursagga's curse, the Anunnaki—that is, the gods of the earth and the deep waters—are represented as sitting down in the dust, and the goddess reproached the god Enlila rather angrily, saying :

41. "I, Nin-ḫursagga, have brought forth children for thee,  
 and what is my reward ?"

But Enlila was unwilling to let her have the last word :

43. "Thou, Nin-ḫursagga, hast indeed brought forth—  
 44. "In my city let me create two beings, shall thy name be called."

This was apparently to be her reward—the two creatures—the first couple, male and female—were to be credited to her by this gift of a special name, making up a descriptive phrase. Names of this class were not uncommon in Babylonia and Assyria, and were apparently accepted, notwithstanding their strangeness and cumbersomeness. Similar names are those of two of Merodach's attendants, one of whom was called "What will my lord eat ?" and the other "What will my lord drink ?"

En-lila is regarded as one of the older gods—"the older Bel," but Nin-ḫursagga must have preceded him, and was, in fact, his creator. This appears from the three lines which follow, in which she seems to be described as she who had once modelled his head, devised his foot, and had first made his eye to glow with fire.

Who shall say that the Sumerians of Tilmun did not possess a glorious mythology ?

We now come to the last column of the reverse, which is the final one of this remarkable text. As it is one of the "outside" columns, it has suffered more than those of the centre of each side, especially in its upper part. Four lines are wanting, and with regard to the 13 immediately following, mere scraps of text appear. This part still deals with "the lord En lila." The words "they went" occur more than once, there is a reference to "the lord of the gods," and the name of Nin-hursagga appears again, and is repeated in line 18. The men (?) reposed in the protection (?) of En-lila, and rejoiced. (The gods) decided the fates (of intelligent beings existing), and rejoicing, they set them free. Though this seems to be part of the narrative of the poem, it is probable that it forms part of a pronouncement by some divine personage, probably Nin-hursagga, who then continues, probably addressing Takku :—

24. "My brother, what of thee is ill ?"
25. "My pasture is ill."
26. "Ab-šam I have brought forth for thee."
27. "My brother, what of thee is ill ?"
28. "My flock is ill."
29. "I have brought forth Nin-tulla (the divine dame of the flock) for thee."
30. "My brother, what of thee is ill ?" "My command is ill."
31. "Nin-ka-utu I have brought forth for thee."
32. "My brother, what of thee is ill ?" "My mouth is ill."
33. "Nin-ka-si I have brought forth for thee."

The text goes on with similar questions and answers for eight lines more, and we learn that the goddess had brought forth Na-zi, "the divine man of life," Da-zi-mâ, "the divine life-strength-producer," for him because the strength of his life was defective. Because his health was defective, she brought forth Nin-ti, "the divine lady of health," for him. As his gladness was "ill," she had brought forth En-šag-ša, "the Lord making glad."

42. To be great were they born, (and thus) [they] act.
43. Let Ab-šam be the King of Vegetation ;
44. Let Nin-tulla be the lord of Makan ;
45. Let Nin-azu (the lord physician) possess Nin-ka-utu (the begetter of the word).




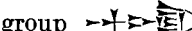
46. Let Nin-ka-si be she who filleth the heart.
47. Let Na-zi be held as Lord of Produce.
48. Let Da-zi-mâ be held the . . .
49. Let Nin-ti be the lady of the month.
50. Let En-šag-ša be the Lord of Tilmun.
51. "Praise."

Naturally, there are many difficulties in translating a text like this. It is written in what is known as the "dialect" of Sumerian, and is not accompanied by any translation in Akkadian—that is, Semitic Babylonian or Assyrian. The Assyriologist of to-day, therefore, has to depend for the sense on the Assyro-Babylonian syllabaries (sign-lists) and bilingual lists, which give the pronunciation of the Sumerian characters or words. To add to the difficulties of translating, each character has generally more than one meaning, and sometimes as many as ten or more. In these inscriptions unaccompanied by any Semitic rendering there are, moreover, always expressions which are not to be found in the linguistic inscriptions, and these we have to reason out as well as we can. It is needless to say that the original tablet has suffered greatly during its long existence of more than four thousand years.

The land of Tilmun, to which this inscription properly belongs, had a very special position—it was the tract at the head of the Persian Gulf, as already stated, and the god of the waters was, to them, the all-important deity of the tract. This was the god Enki, who is mentioned so often in this poem. His name really means "lord of the earth," but according to the important list of the names of Enki printed on pl. 58 of the *Cuneiform Inscriptions of W. Asia*, vol. ii, he was so called as "Êa of the whole (universe)." The next line of that list gives us his name as "lord of heaven and earth," *Anna-an-ki*. His third name is *En-engur*, and he was so called as "Êa of the Deep"—the Apsû. This extension of his domain to the waters, both fresh and salt, is doubtless due to the destruction of the evil god called Apsû, the spouse of Tiawath, the Dragon of Chaos, by Merodach, when the rebellion of the demons of evil was quelled. (See the completed Legend of Bel and the Dragon, in *Victoria Institute Transactions* for March 7th, 1927, pp. 6 and 14, where the death of Apsû and the abodes of the gods are described.)

Enki's interest in earthly things was not bounded, however, by these three descriptive titles—he had many others. Among

his interests were many occupations of men, of which he was patron. Thus the list to which I have referred tells us that he was Nudimmud as god of creation, Nadimmud as god of every (single) thing, Nin-igi-azag, "the lord of the bright eye," as god of wisdom. He was also the god of the potter as the assembler and moulder of the clay, god of the smith, when called Nin-â-gal, "god of the great (brawny) arm," or the like. He was also the god of the intoner and the psalmist, of the mariner and the weaver. Other arts of which he was patron were those of the metal-worker and the washerman or fuller.

But one of the most interesting of his names for the discussion of the present paper was Utu—a name which possibly occurs in column iii of the obverse, line 39, and which may have been also in column i of the reverse, line 13. See also lines 43 and 48 of that column. These passages, however, give us the form —the divine prefix followed by the characters *tak-ku*. In the list of the names and attributes of Enki or Êa, however, *ku* is written within *tak*, and we are told to read this combined group  as *Utu\** in *Cuneiform Inscriptions*, II., pl. 58, and the duplicates. The question naturally arises, however, whether *Tak-ku* and *Utu* be really one and the same. The *Takku* (or *Tag-tug*, as Professor Langdon originally read it) would seem to be the name of a man, whilst *Utu* was certainly one of the gods of the Babylonian pantheon, and is identified, as we have seen, with Enki.

Other lines of this list describe Enki or Êa as god of irrigation (as is clear from this text of Tilmun). As here, again, he was god of the agriculturalist and the orchardman. Finally, he was god of the fisherman, the shoemaker and the barber.

We thus see how important, in Babylonian mythology, the god of wisdom and all the other things mentioned, the god Enki or Êa, was. And it is worthy of note here, because the name of Êa has been compared with *ia* or *ya*, in its fullest form *yau*, the Hebrew *Yah* (Jah). I have never believed that there was any connection between Êa and Yah or Jah, either by derivation or mythological borrowing. Êa and Yau are utterly different names.

Considerations of time and space stand in the way of making comparisons to any great extent with the Greek and other legends

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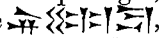
\* I gave this character in my *Texts in the Babylonian Wedge Writing* (London, 1882), pl. v, "Less used characters," "Utu, a name of Êa."

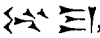
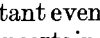
of the Golden Age, or with other legends of the Flood, such as that of Deucalion and Pyrrha, but before coming to that, I will make a few additional notes upon certain difficult words or characters, dealing more especially with those passages in which my rendering differs from that of Dr. Langdon.

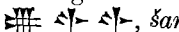
In column i, line 13, the name of the raven is the usual one, but there is doubt as to the rendering of the word for "kite," *dare*, in line 14. *Ur-gula*, "great dog," = "lion" in line 15 is probably correct. *Ur-barra* (line 16) has been rendered as "hyæna."

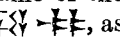
*Ki-el* in line 26 may be rendered as "pure place," as Professor Langdon has translated it. The desecration of a "pure spot" within the pure city of Tilmun would be just as improper as the desecration of a vestal virgin.

It is noteworthy that in line 31 Enki is described as the father (*aa* for *ada*), and not the spouse, of Nin-ella. In column ii, line 31, he is called the son (*a*) of Damgal-nunna.

With Professor Langdon I restore line 43 of column ii as indicated by lines 18 and 37 of column iii. In all three passages, however, instead of reading *ia-luma-dim*, I think I see , *ia-guba-dim*, "like pure oil." The character that I read as *gub*—it has also the value of *li*—is the same as in lines 20 and 22 of the reverse, column iii, read thus, correctly, by Professor Langdon. *Li* means "joy" or "rejoicing."

I pass over another reading which I suggest, of , *gin-ma*, instead of , *gu-ma*, as being too unimportant even though it may be correct—the meaning, in any case, is uncertain.

The plant mentioned in line 26 of the reverse, column ii, seems to be that called, in Akkadian, *ēlpit mē burki*, possibly a plant growing in "water (of the depth) of the knees." In line 29, I imagine that the plant referred to should be completed as , *šam pipi*. I cannot suggest any identification.

In column iii of the reverse, line 41, I read the name of the deity brought forth by the earth-goddess, , as *En-šag-ša*,\* "the lord making joy" or "luck." This has to be restored in line 50, and appropriately closes the poem—"May the god producing joy (or prosperity) be the god of Tilmun." The group *zag-sal* in line 51 is regarded as standing

\* Other possible readings of this last syllable are *me*, *ag*, *na*, and *ki*. Professor Langdon has chosen the first of these, and translates the name: "The lord who renders the understanding good."

for a musical instrument, and may indicate that music or singing, or both, followed the recital of this poem.

It is uncertain as to what the 9 days like 9 months, symbolizing the 9 months of pregnancy, really refer to in the irrigation of the fields of Babylonia. Three goddesses are mentioned in the three sections of the inscription following the nine days, namely, Nin-tu, Nin-kurra, "the Lady of the land" or "of the mountain," and Nin-hursagga, "the Lady of the (cultivated) heights." The first, Nin-tu, bears the descriptive title of "the mother of the (inhabited) land (of Tilmun or of Babylonia in general)." All three, therefore, seem to have had similar influence in the land, and might naturally be three aspects of the same goddess. Other goddesses who might, and probably were, identified with them are Ištar, the goddess of love, Nin-maḥ, "the supreme lady," also called Aruru, who was Merodach's spouse, and created the "seed of mankind" with him, and Zêr-panîtu (for Zêr-banîtu), the "seed creatress," which was her name in that province of divine influence.

As already stated, after the enumeration of the nine days as the nine months, three in number, there are three practically identical sections, the names of the goddesses differing somewhat. A more interesting variation in the 27th line of column iii, however, instead of the words stating that Nin-tu was not wroth with the pious sons of men, we find the words *su-inninni* instead of *nu-munzubbî*—a positive phrase instead of a negative one. In the next line the goddess's name differs—it is Nin-kurra, "the Lady of the mountain" instead of Nin-tu. *Su-inninni* is evidently a compound verb, consisting of a noun and a verb, *su* and *ninni*, in which *su* would mean "increase," and *ninni* might mean "great" or "to be great" = *rabû*.

Nin-tu, therefore, was not wroth with the pious (or happy) sons of men, and Nin-kurra "greatly increased" them.

Concerning Deucalion and Pyrrha, I quote the following from Smith's Dictionary of Greek and Roman Biography and Mythology. "When Zeus, after the treatment he had received from Lycaon, had resolved to destroy the degenerate race of men who inhabited the earth, Deucalion, on the advice of his father (Prometheus) built a ship, and carried into it stores of provisions; and when Zeus sent a flood all over Hellas, which destroyed all its inhabitants, Deucalion and Pyrrha alone were saved. After their ship had been floating about for nine days, it landed, according to common tradition, on Mount Parnassus.

“On the request of Deucalion that mankind might be restored, the goddess Themis bade them to cover their heads and throw the bones of their mother behind them when walking from the temple. After some doubts and scruples respecting the meaning of this command, they agreed in interpreting this command to mean the stones of the earth. They accordingly threw some stones behind them, and from those thrown by Deucalion there sprang up men, and from those of Pyrrha women.”

Professor Langdon's monograph upon this old inscription: *Sumerian Epic of Paradise, the Flood, and the Fall of Man*, Philadelphia, 1915, is a small storehouse of information upon parallels from ancient sources (including Genesis) to this archaic text.

But we need more light from the East, especially Babylonia, to show the possible bearing of these legends upon the Epic of Enki, the earth goddesses, the nine days, the ship on which the god stood, and also the two “spirit-handmaids.” To these we must add Takku or Utu, the plants which he was allowed to eat, and the *ambara*-plant which he ate without permission, and the curse ordaining that he should not see life until the day when he died.

We owe much to Professor Langdon, as well as to the old Babylonian scribe who wrote this wonderful Epic more than 4,000 years ago.

#### DISCUSSION.

The CHAIRMAN (Dr. Thirtle) said: I am sure I carry the meeting with me when I move that the best thanks of the Institute be given to Dr. Pinches for the paper which he prepared for this afternoon. We could have wished that he had been able to read the paper in his own expressive manner; but at any rate the paper, in substance, has been presented to this gathering, and what has not been read has been given in printed form, after the custom of the Institute.

In the course of the years, Dr. Pinches has on many occasions honoured the Victoria Institute with papers on Assyriological researches, and we have endeavoured from time to time to recognize, by formal vote, the great value of his services rendered to Oriental investigation. Now he has come before us with a subject which cannot but have a peculiar attraction to thoughtful people in a day when, from the point of view of anthropological inquiry no

less than the pursuit of antiquarian investigation, men seek a more thorough acquaintance with primitive conceptions ; in other words, with things that take us back to early developments in civilized life.

Only in an indirect manner do we reach, through Babylonian thought, any clear contact with Biblical story, not to say with Divine revelation as we find it in the Sacred Scriptures ; but all the same, the epic of the Golden Age, as we have traced it in part this afternoon, supplies ideas that in some measure bring us into association with mythology, and what is commonly known as comparative religion. Quite obviously, the representation is of men and races struggling, as it were in the dark, with problems on which, in other regions, as we have the right to believe, the All-wise God has sent forth light and truth which have brought spiritual guidance, of which hardly a trace can be discovered in the document which has been sampled to us by our learned lecturer this afternoon.

By temperament and training I find myself in deep sympathy with Dr. Pinches in the trials that he has encountered in some sections of his work. The investigator may labour hard in the translation of documents, but when it comes to a case in which omissions in the text have to be supplied, by the help of higher criticism or the exercise of powers of imagination, then supposition has to take the place of a more reliable rendering of the ancient writing into a modern English counterpart. We are thankful that in such circumstances we have so reliable and accomplished a scholar as Dr. Pinches, to lead us through the mazes of translation and to supply deficiencies in the broken text. With these circumstances in mind, we are able in some measure to weigh the value of the result as a whole, and one point at least seems clear to Christian men and women in the twentieth century ; and that is, that some aspects, though broken, of the Golden Age, as it was cherished in Babylonian thought, have assuredly been handed down in the inscription which has engaged our attention this afternoon.

It is usual with ourselves to project the Golden Age into a time yet to come and more or less remote ; but people whose portion was in the present life—so it would seem to us—were content with a Golden Age as conceived in the distant past. Going back four thousand years, we may seek for light in the East ; but compared with the light which we are privileged to enjoy, the light in old-time

Babylon would appear to have been dim, if not dusky dark. With gods and goddesses in conflict, and powers of earth and other regions engaged in base intrigue, what else could we expect ?

These things notwithstanding, we are deeply thankful to Dr. Pinches for the paper which he has prepared, and which, to say the least, brings to us a message of thankfulness that we did not live in a land and at a time in which the things set forth were enacted—enacted in conditions not to be compared with the age that dawned upon mankind when the light of God broke upon peoples that are now permitted to anticipate the coming of a Golden Age, more rich and joyous, in which light and truth will prevail in a measure more full than has entered the mind of mortal man.

Lieut.-Col. F. MOLONY asked if he was right in concluding that this old poem represents an ancient monotheism becoming corrupted with polytheism ? And that it represents the Deity as beneficent ?

Mr. WILLIAM C. EDWARDS said : We have all enjoyed this most interesting and instructive paper. There is another relic of the widespread tradition of a golden age—a paradise of Righteousness, and this one reminds us of the prophecy of its return (Isa. ii, 7), when again the lion shall eat straw (grass) like the ox, and no animal shall prey upon another.

As regards the date of this fragment, I think that it must be very early. The beginning of the prostitution of virgins, described at length by Herodotus (Clio/199/200), was still a subject of regret and protest by a few at any rate. The great Greek historian was horrified to find it, and calls it the most disgraceful of the Babylonian customs. Every native woman is obliged once in her life to sit in the temple of Venus, and have intercourse with some stranger—who coming in shall throw into her lap a piece of silver, saying : “ I beseech the goddess Mylitta (*i.e.* Venus) to favour thee ! ” The woman has to follow the first man that throws, and to refuse no one.” He adds : “ That this custom was also followed in Cyprus, and we recall something similar in Marco Polo’s Chinese experiences.” Now this epic says that, in that purer and happier age, this did not obtain. Herodotus’ date of birth is 484 B.C., and therefore we may easily place this fragment more than 1,000 years before his time.

Lieut.-Col. SKINNER asked if the *amhara*-plant, which the Professor would appear to connect with the Tree of Life in Genesis, might not perhaps be identified with the Tree of Knowledge of Good and Evil, the Tree of Temptation, about which the crisis arose? In the Genesis narrative there was no prohibition as regards the Tree of Life till *after* Adam's fall and eviction from the Garden; but if the *amhara*-plant be understood to be the Tree of Knowledge, in place of the Tree of Life, then the correspondence between the epic and the inspired account would appear to be very close.

#### LECTURER'S REPLY.

In reply to Col. Molony, it seems to me to be doubtful whether this poem of the Golden Age points to a primitive Monotheism or not. I should like to believe that this was the case, but the god Enki or Êa already has a spouse and a daughter, and the earth-mother seems to appear in two or three different forms. In both Babylonia and Assyria we find many gods and many lords. That there were sages who believed in a single God and Creator of the world is possible, but I am inclined to think that this conception took place at a later date, when all the deities were identified with Merodach.\*

Mr. Edwards' reference to the widespread tradition of a Golden Age, and its return, as recorded by Isaiah, is quite to the point. It is gratifying to think that Tilmun (and probably other cities of Babylonia) was a place where every inhabitant was expected to keep himself pure and undefiled—this was a great contrast to what Herodotus says about Babylon, and to what we learn in the Gilgamesh legend about Erech.

Lieut.-Col. Skinner asks about the *amhara*-plant. This is apparently a Sumerian word, and is explained as the Semitic *kasû*, which Professor Langdon compares with the *kasia* of the late Babylonian letters. From the determinative prefix *šam*, it would seem to be a herb, and not a tree. The Tree of Life finds its closest analogy in the *giš-kin*, Semiticized as *kiskanû*, which grew in Êridu,

\* See the *Journal* of this Institute for 1894-5, p. 10. The God identified with Merodach in line 1 is Uraš, in the second line it seems to be Lugal-akiata, and in the third line, En-urta (the true reading for Ninip). These three are possibly gods of agriculture.



the "Paradise-city" on the Persian Gulf. The prefix *giš* indicates a tree, and that in Êridu, the *kiskanū*, bore fruit which was black (*šalmu*). For this reason it is generally rendered as "the dark vine," and on account of its healing qualities it has been compared with the Tree of Life.

One of my audience referred to the line (38 in col. 2 of the reverse): "The face of life until he dieth shall he not see." The following is the original Sumerian, word for word:—

*Ine nagtila enna ba-uggia ine-baranbarrien.*

The face (of) life until he dieth eye-not-beholdeth.

Many thanks to my audience for their kind interest in this difficult text, and renewed thanks also to my old friend Dr. Thirtle for so kindly reading my paper for me.

758TH ORDINARY GENERAL MEETING,  
HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,  
WESTMINSTER, S.W.1, ON MONDAY, MAY 2ND, 1932,

AT 4.30 P.M.

WILLIAM C. EDWARDS, ESQ., IN THE CHAIR.

The Minutes of the previous Meeting were read, confirmed, and signed.

The CHAIRMAN then called on Lieut.-Col. F. A. Molony, O.B.E., to read his paper on "The Magi: Their Nationality and Object."

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*THE MAGI : THEIR NATIONALITY AND OBJECT.*

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

THE story of the Magi is clearly relevant for consideration at the Victoria Institute, because the Bible and Science touch each other therein. The aim of the writer will be to show the credibility of the Biblical record, both from an historical and a scientific point of view.

The advisability of dealing with the subject arises from the fact that there have grown up round the story legends and ideas which present difficulties to many minds. Some of these ideas have been so often presented to our thoughts by hymns, pictures, nativity plays, etc., that they have become part of popular belief. But this is dangerous, and Article VI of the Church of England Prayer Book says "Holy Scripture containeth all things necessary to salvation: so that whatsoever is not read therein, or may be proved thereby is not to be required of any man, that it should be believed as an article of the Faith." Though we never do require that these accretions should be believed by any man, yet many probably suppose that we do, and some may be kept from accepting the Faith thereby.

The Magi probably travelled from the East to Jerusalem more because of the expectation of a Judean Messiah, than because they saw a new star in the sky. This is the first point I wish to make.

Edersheim, in his *Life and Times of Jesus the Messiah*, has a whole chapter on the Jewish expectation of a Messiah ; and an appendix, containing a list of 456 Old Testament passages which are Messianically applied in Rabbinic writings. Josephus, Tacitus, and Suetonius confirm the fact that the Jews were expecting a Deliverer when Christ came, the two former expressly declaring that this was based on certain passages in the old Jewish Scriptures.

The expectation of the Messiah can be abundantly illustrated from the New Testament. The deputation of the Pharisees to John the Baptist asked him if he was the Messiah. The woman of Samaria said " I know that Messias cometh, which is called Christ, when He is come, He will tell us all things." St. Luke says that the people were in expectation, and all men mused in their hearts of John, whether he were the Christ, or not. Later they said : " When Christ cometh, will he do more miracles than these which this man hath done," and there are many other passages. This expectation accounts for the many false Christs who arose at, and soon after, the time of Christ.

There was a very large colony of devout Jews at Babylon, and the expectation of the Messiah was just as strong there as in Judea, and Babylon fulfils the condition of being east of Judea. There seems little reason to doubt that the approximate time when the Messiah was due to appear was deduced by the Jews from Daniel ix, 25—the prophecy of the 69 weeks. The word " weeks " signifies only septenaries, and may therefore be reasonably taken to mean weeks of years—that is 483 years. The period was to begin from the going forth of a commandment to restore and build Jerusalem, but four rather similar edicts had been issued.

\* \* \* \*

This matter has caused much controversy, and the proof that the date for Christ's coming was accurately foretold would involve us in a long historical argument. Let us put the matter thus—the Babylonian Jews must have been much interested in Daniel's prediction, for was not that prophet a Babylonian Jew himself ? and had not the edict probably emanated from Babylon ? Their history had taught them to be very sure that all God's promises would be fulfilled. In 5 B.C. it became clear that the first two possible dates for Christ's coming had failed, and only two remained. The third had to be dated from the decree granted to Ezra in the seventh year of Artaxerxes. Dean W.

Goode, in his Warburton Lecture of 1857, dates this as the close of 458 B.C. or beginning of 457, and we gather from Ezra vii, 8, that Col. A. G. Shortt agrees with the first date.

So, in 5 B.C., it became clear that there were about 30 years to run to complete the third period. If these Jews assumed that the Messiah would be about 30 years old before beginning His work, then their expectation of His birth would become very marked, and they naturally looked out for something to corroborate the prediction of Daniel or at least show them whether the third or the fourth date was the long-expected time. They found this corroboration in the appearance of a new star or comet, and therefore started for Judea to do homage to the Messiah of whose birth they were assured.

It is, of course, well known that the Chaldeans studied the stars very carefully. We call their wise men who did so, astrologers, but doubtless there were some among them who deserved to be classed as astronomers, and who sought to know the truth about the stars. There was a general belief that the appearance of a new star presaged the birth of a great man. This must have caused them to make maps of the stars. But any particular section of the southern sky could only be seen for a month or two each year, so probably they revised these sections annually, and thus were able to say with some certainty whether any particular star was new or not.

\*            \*            \*            \*

Were the Magi Jews who had some faith in Chaldean beliefs? or were they Chaldeans who had studied the Jewish Scriptures and thus become interested in the expected Messiah? Either explanation may be held. The stricter Jews denounced the idea that events could be told from stars. But when a belief is general among one's neighbours, most men begin to consider it as a possibility. What more natural, in 5 B.C., than that Babylonian Jews, expecting the Messiah's birth, should have gone to one of the best of the Chaldean astronomers to ask him if a new star had appeared of late? Or what more natural than that a Chaldean astronomer, who knew of the great Messianic expectation among his neighbours, the Jews, and who saw a new bright star or comet, should wonder whether it were the Messiah's star? He may have had his private doubts about the soundness of the Chaldean belief that new stars presaged the birth of great men, and have welcomed an opportunity for testing it.

Herein seems to lie the only dilemma connected with the story of the Magi. If they were Jews, how is it that they did not know of Micah's prediction that the Messiah was to be born at Bethlehem? If they were Gentiles, why should they take so much interest in the Jewish Messiah as to undertake the long journey to Jerusalem? But an answer can be found to both questions. The Jews had not the Old Testament prophetic writings all bound up together as we have, nor had they our aids for discovering what they say on any particular question. Chaldean Gentiles, living among Jews, may well have known of Isaiah's many favourable allusions to the Gentiles, and in particular of Isaiah xlii, 6, where the prophet writes of One who should be a light of the Gentiles. Indeed, we know that the expectation of a Deliverer and Enlightener was general throughout the Roman world at the time of Christ's birth.

Tradition makes these Magi to be Gentiles, usually kings, and makes their number three. It is well to remember that there is no Scripture warrant for these assumptions. It seems probable that kings would know something of Herod's jealous nature, and would fear to stir up his wrath. The number three is probably arrived at because they presented three classes of gifts. The Magi may have travelled from Persia, India, or even China, and artists love to show them as representing these three countries, but it seems much more probable that all were Babylonians.

\*            \*            \*            \*

The identification of Christ's star would be of great importance if it would help us in fixing the date and time of year of Christ's birth. But it cannot do this, for we do not know what interval elapsed between the first actual appearance of the star and the arrival of the Magi at Jerusalem, nor how long the latter event was after the birth of Christ. Yet the matter has interested astronomers. Kepler pointed out that a conjunction of Jupiter and Saturn took place in the constellation Pisces in the year 747 A.U.C., that is two years before the probable date of Christ's birth, and in the next year Mars joined this conjunction. This only comes about once in 800 years, and is generally admitted by astronomers. But Kepler, who observed this in 1603-4, also noticed, that when the three planets came into conjunction, a new, extraordinarily brilliant, and peculiarly coloured evanescent star was visible between Jupiter and Saturn, and he

suggested that a similar star had appeared under the same circumstances in the conjunction preceding the nativity.

Thus there is probability that Christ's star appeared in the constellation Pisces, which never rises high in the sky, and this agrees with Matt. ii, 9, implying as it does that the star was seen low down, close over Bethlehem.

If we assume the Magi to have travelled from Jerusalem to Bethlehem in the early evening, as seems most likely, then the constellation Pisces would have stood over Bethlehem in the months of October and November. If the visit of the Magi was made in the autumn, then the birth of Christ took place probably in summer, and this agrees with the shepherds having been keeping watch in the open.

One of the Collects speaks of the star *leading* the Gentiles, and many hymns speak of its *guidance*. It would be well if preachers sometimes pointed out that the Bible knows nothing of this, except that, at the very last, the star may have indicated the exact house where the Holy Family were to be found. The Magi, during their long journey to Judea, must have travelled at various times of the night. If the star was always in front of them then, it would mean that it pursued a course in the heavens which even those who have only a smattering of astronomy must regard as incredible. Before they left Jerusalem, the Magi had decided to go to Bethlehem.

When they left Jerusalem we read: "Lo, the star which they saw in the east, went before them, till it came and stood over where the young child was."

This may be very simply explained as follows. Suppose that the route which they chose from Jerusalem to Bethlehem pointed, at first, 11 degrees to the left of Bethlehem, and gradually bent round towards that little town. And suppose that the star stood right in front of them when they started, and that they took 1½ hours to cover the 6 miles. Then, when they approached Bethlehem, the star, which of course kept moving to their right hand, would appear to be right over the town, and, as they descended into the depression north of Bethlehem, the star would seem to descend also and to stand close over the town. St. Matthew implies that they then saw it over the very house in which the Holy Family lived. Needless to say, it is unlikely that this was the inn. St. Joseph, being a skilled artisan, had probably moved into some premises where he could pursue his trade.

It may be asked, If you explain away the miraculous guidance of the star, what was St. Matthew's motive for relating the story? We do not eliminate miracle. The fact that the star first moved towards, and then appeared to stand over Bethlehem impressed the wise men. We may look upon it as a coincidence if so minded. But the number of such coincidences related in Scripture is, to say the least, very impressive. Then we have at least two coincident dreams, perhaps more, for it is reasonable to suppose that more than one of the Magi were warned that they must not return to Herod.

As to the question whether the star was sent by God or not, it would seem that St. Matthew leaves us free to believe what we think fit. Hence there is no need to raise any difficulty connected with the impropriety of Almighty God condescending to make use of false Chaldean beliefs. But as regards the dreams, we are distinctly told that both were sent by God.

It would seem that St. Matthew's motive in relating the story was this: He regarded the sojourn of the Holy Family in Egypt as an instance of the early history of Israel being repeated in the person of the Messiah. To account for the flight into Egypt he had to relate Herod's wicked plot; and to explain that truthfully it was necessary to tell the story of the Magi. Is it not remarkable that, in telling the story, he should have been kept from saying anything incredible by modern astronomers?

Herod the Great's conduct is, of course, entirely in accordance with all we know of that suspicious and cruel king. But why did he name such a long period as two years? We are told that he inquired of the wise men diligently what time the star appeared. If our conjecture is right, that they made plans of sections of the southern sky annually, what could they tell him? Only that they first noticed the star two or three months back (for we must allow time for preparation as well as for the long journey), and that it may have first appeared any time within the 12 previous months. Say 15 months in all. Herod was then very likely to say to his soldiers—"slay all under two years of age," to make sure that a boy unusually big for his age did not escape.

\* \* \* \*

We now come to consider the gifts which the Magi presented. Edersheim says: "Their offerings were evidently intended as specimens of the products of their country, and their presentation was, even as in our days, expressive of the homage of their country

to the new-found King." We note that Edersheim does not favour the popular idea that they came from different countries, and it certainly seems improbable. The learned author continues, "In this sense, then, the Magi may truly be regarded as the representatives of the Gentile World; and their homage as the first and typical acknowledgment of Christ by those who hitherto had been 'far off'; and their offerings as symbolic of the world's tribute.

"This deeper significance the ancient church has rightly apprehended, though, perhaps mistaking its grounds. Its symbolism, turning, like the convolvulus, around the Divine Plant, has traced in the gold the emblem of His Royalty; in the myrrh, of His Humanity, and that in the fullest evidence of it, in His burying; and, in the incense, that of His Divinity." And Edersheim adds in a footnote—"So not only in ancient hymns (by Sedulius, Juvenas and Claudian), but by the Fathers and later writers." See also No. 76 in "Hymns Ancient and Modern."

But if it can also be shown that the Magi may have had practical reasons for the gifts they chose to offer, then the credibility of the narrative is increased. Gold need not detain us. If a king is to do any good, he must have gold. If he wishes to benefit his people by the construction of roads or bridges, the workmen must be paid. The other two gifts may well have been chosen to convey a useful message from the Jews of Chaldea to the Jews of Palestine. They seem to have been designed to tell the Western Jews what their Eastern brethren gathered from the Scriptures about the expected Messiah. Frankincense was the most costly material used in the worship of God. To offer frankincense in a casket to the infant Messiah did not necessarily mean that they looked on Him as divine. Many passages in the Old Testament imply as much, but it seems clear that their meaning had not been appreciated by either East or West.

But it may well have meant that the Eastern Jews looked to the Messiah to lead and help them in their worship. If so, Christ certainly did not disappoint them. The Babylonian Jews probably knew that their Judean brethren were planning a rebellion against the Romans. They held that such a revolt was both needless and hopeless. For the Romans governed well for those days, and their good laws and good roads were great boons. Looked at from a distance their petty tyrannies sank into



insignificance ; their colossal strength showed in its due proportions.

The message of the incense thus was : Turn your thoughts from these vain hopes of independence from Rome. Our Jewish mission is to teach mankind to worship aright the true God. This will be the aim and work of our great Messiah. Follow our example and help Him in this.

And the reason for offering myrrh may have been that the Eastern Jews had assimilated the meaning of the 22nd Psalm and 53rd chapter of Isaiah, and knew that their Western brethren had failed to do so. Edersheim says : " It was a merciful Jewish practice to give to those led to execution a draught of strong wine mixed with myrrh, so as to deaden consciousness." The use of myrrh for mitigating suffering, was thus already well known. It was not only used for placing round a dead body as hymn 76 implies.

Hence the message of the myrrh was surely this : " Our prophets predict that the great Messiah will have to suffer grievously to fulfil His mission. When this happens, do not be scandalized or cease to believe that He is the Messiah. The story of Joseph, the Book of Job, the history of the prophets all show that Almighty God sometimes allows Satan to afflict the innocent. Suffering must not be taken as a proof of sin or even of shortcoming. If the Messiah leads a perfect life, do not argue that He must be a sinner because He suffers. Remember that the suffering was predicted, and must therefore be looked upon as a part of God's plan."

In summing up, we may surely say this. While the accretions which have grown round it are dangerous, the story of the Magi, as related in the New Testament, is fitting in every sense of the word. It fits into the Old Testament, and into all we know of the history, expectations and systems of thought of the time of Christ's birth. And in a higher sense, to those of us who believe in Christ's divinity, it seems fitting that one born to be the Saviour of mankind should receive homage from wise men who had journeyed from afar, as well as from the humble shepherds of the hills around Bethlehem.

#### DISCUSSION.

The CHAIRMAN (Mr. W. C. Edwards), with a few remarks, moved that the thanks of the meeting be given to the lecturer for

his interesting and instructive paper, and the vote was passed with acclamation.

MR. G. WILSON HEATH said: I think we shall agree that the Magi were devout Jews, and not Gentiles. Probably they were Chaldean or Persian Jews, for many thousands of these had never returned to Palestine with Nehemiah and Ezra after the captivity. They must have studied the various prophecies about the coming of the Messiah, and among these that of Daniel (chap. ix). The impulse was so strong in them, that they had travelled, say, a thousand miles, bearing costly presents in order to do homage to their long-hoped-for King and Deliverer.

I question all we have heard about any astronomical combination occurring at that time. The movements of the earth in relation to the heavenly bodies would make them appear to move from east to west and not from north to south. Luke ii, 9, mentions "the glory of the Lord," which was the feature when the angels visited the shepherds on the night of the birth in Bethlehem. Possibly this was a kind of *Shekinah* glory similar to that which rested on the Tabernacle in the wilderness, and would be seen as coming down from heaven for a vast distance in an eastern sky. There is no indication that the Magi needed any star or other directing sign from heaven to direct their way to Jerusalem, the "Magi city of the great King." The route was a well-known "Highway." They reached the city, they told their story to Herod, they asked "Where is He," etc. Herod called in the scribes, and made careful inquisition both as to the *place*, and, from the Magi, the exact *time* when the star appeared. It was decided that Bethlehem Ephratah, a town less than six miles south of Jerusalem, was the town marked out by the Scriptures, and that the star, or heavenly light, appeared in the east some fifteen or eighteen months previously. The Magi were then sent by Herod to make full inquiries and to return and inform him. As they reached the outside of Jerusalem, they once again saw the miraculous light, but not in the south over Bethlehem, but in the north. They followed the light, and reached Nazareth, the native town of Joseph and Mary, some sixty miles north of Jerusalem, and there entered "the house" (Matt. ii, 11), not a "stable," and there they poured out

their worship and treasures on the child Jesus. Warned of God, they did not retrace their steps south to Herod and Jerusalem, but continued their journey back to their own land in the east.

To get the whole story and scene clearly before us, we must examine and combine both the story of the shepherds mentioned in Luke ii and that of the Magi in Matt. ii. Luke does not mention the Magi nor Matthew the shepherds. Matt. ii opens in the past tense—"Now Jesus having been born in Bethlehem"; then in the story of the Magi we are listening to something which happened some considerable time *after* the birth. The story in Luke of the shepherds concerns their visit *at* the birth. Luke tells us exactly when the holy family returned from their enforced visit to Bethlehem to their own town of Nazareth—Luke ii, 39, "*When they had accomplished all things according to the law of Moses they returned into Galilee into their own city Nazareth.*" The circumcising of the child and the purification of the mother would take, say, 33 or 41 days. During these days the shepherds made their visit. And some 18 months later the Magi were directed by the Glory light from heaven to Nazareth. No such miraculous directions would have been needed to visit the near-by village of Bethlehem. We must place the story of the Magi of Matt. ii, between verse 39 and 40 of Luke ii, and then all is clear and simple. The late Dr. A. T. Schofield held the views I have indicated, and taught the same in his lectures on the journeys of our Lord in Palestine. Dr. Bullinger and other expositors have indicated the same.

Col. SKINNER said: Col. Molony has given us a most interesting paper, and I am sorry to have to raise a discordant note. But, had these men been Jews, the strength, the intensity of Jewish nationality being what it was—for a Jew was a Jew, the world over, in those days, just as now—would not St. Matthew, the writer for the Jews—as we think of him—have recognized and referred to them as Jews, rather than vaguely as wise men from the East? Personally, I would like to think of these men as Jews earnestly longing for their Messiah, but the difficulty is a real one.

Bishop MOLONY, brother of the lecturer, followed with some remarks, in which he expressed the opinion that the star could not

have been an angel (as some speakers had suggested) as Scripture spoke definitely of a star, without any hint of angelic form.

Mr. AVARY H. FORBES said : I should like to ask if anything was known of the expectation of a " Messiah " outside the Jewish Church. I ask this, because of the so-called " Messianic Eclogue " of Virgil, written some 30 or 40 years before the birth of Christ, in which this heathen poet pictures a son of the gods being born on earth, to introduce a new and golden age of peace, prosperity and happiness among men.

Here are a few sentences from Virgil's Ode No. IV :—

" Now a new progeny is sent down from high heaven, the infant boy, under whom first the iron age shall cease, and the golden age over all the world arise. He shall partake the life of gods, and rule the peaceful world with his father's virtues . . . The serpent shall die, and the poisonous fallacious plant shall die . . . The Assyrian spikenard shall grow in every soil . . . All lands shall all things produce . . . Dear offspring of the gods, illustrious increase of Jove, set forward on thy way to signal honours, the time is now at hand . . . See how all things rejoice at the approach of this age. Oh that my last stage of life may continue so long, and so much breath as shall suffice to sing thy deeds. Begin, sweet babe, to distinguish thy mother by thy smiles. Begin, young boy, that child on whom parents never smiled nor God ever honoured with his table nor goddess with her bed."\*

I hardly expect an answer to my query, as I know that the source and meaning of this poem have always been, and still are, a great puzzle to classical scholars, whose expositions of it have been multitudinous and multiform. But if there was before our Lord's birth a widespread expectation among cultured heathen nations, as well as among the Jews, of a regenerator of the world, and the Divine Regenerator actually came soon after, does that not help to reinforce the expectation now so widespread throughout the Christian world of the coming again of that Divine Regenerator in the person of our Blessed Lord ?

I may add that Pilate, brought up in Rome, surely knew of this Eclogue of Virgil, and when he heard that Christ claimed to be the

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\* Davidson, Trans. (Bohn).

*Son of God*, it flashed on him that this was the Divine Being predicted by Virgil. Pilate then became alarmed, and did his utmost to save Jesus from the Jews ; for if he (Pilate) should be guilty of putting to death a son of the gods, what should his own end be ?

#### WRITTEN COMMUNICATIONS.

Lieut.-Col. A. G. SHORTT wrote : I see Col. Molony considers the Wise Men (called in Greek *Magoi*) to be Jews from Babylon. The Magi were, according to Herodotus, a class or caste of the Medes. Some say that they were Scythians. They were in due course the priests of the Persians, and were widely known for their wisdom and magic as far as India. Borlase, in his *History of Cornwall*, expresses surprise at the close similarity between their doctrines and practices and those of the British Druids. Would it not be more probable that during the Persian domination of Babylonia they would absorb the astronomical wisdom of the Chaldeans, and retain their records ? It seems doubtful whether any Jews would be called by the name of a people so widely known.

Also the remnant of Babylon were transported to Seleucia *en bloc*, in 275 B.C. Sacrifices, however, are said to have been still held there a century or so later, but by the time of the Nativity, many years after the Babylonian priesthood had found a refuge in Pergamos, had the city not become "heaps" ? Has Col. Molony any information on this point ? The Nativity star is assumed to have been a new, or temporary, one. For my own part, I am inclined to think that this is not the case, but I would suggest that we shall get nearer a solution if we regard it as an entirely open question, and keep both views to the front, until further evidence is available.

Rev. J. J. B. COLES wrote : We are indebted to Lieut.-Col. Molony for calling our attention to the accretions which have greatly interfered with the true understanding of the story of the Magi. I will add a few thoughts which may be helpful to Bible students. The Royal pedigree in Matt. i begins with Abraham the *Hebrew*. The antithesis between Jew and Gentile is not introduced into Holy Scripture until long after Abraham's day. There is nothing, of

course, of this question of Jew and Gentile in the revelation which was given by God's holy prophets during the 2,500 years before the written Scripture began.

The Patriarchs mapped out the constellations in the heavens, and especially the Twelve Signs of the Zodiac. The Magi knew that the promised Redeemer was the principal subject of this primitive revelation, and that He would be of the tribe of Judah. "Canst thou bind the sweet influences of the Pleiades, or loose the bands of Orion—canst thou bring forth the Mazzaroth (the Twelve Signs) in their season? Was not Joseph's dream of the 'Sun, Moon and Eleven Stars' making obeisance to him (his own star being the twelfth) connected with this primitive revelation?"

The Magi knew of the wisdom of the stars. What of the banners of the Twelve Tribes in the Wilderness? Why introduce the question of Jew and Gentile into the dramatic story of the Magi? Let us read this true romance of Holy Scripture without any accretion. As to Bethlehem or Nazareth, would not the present of gold be useful for the journey and for the expenses while in Egypt? Why then any necessity for returning to Nazareth before proceeding *via* Hebron?

#### LECTURER'S REPLY.

Mr. Wilson Heath advocates the theory that the interview between the Holy Family and the Magi took place at Nazareth and not Bethlehem. This is new to me. I do not think that Luke ii, 39, compels us to believe that the Holy Family returned to Nazareth immediately after the Presentation. If so, there would surely have been very little danger from Herod.

Taking into account the point which Col. Skinner brings forward, the best explanation would seem to be that the Magi were Gentiles who had heard from Jews of the Messianic expectation.

Mr. Avary Forbes' extract from Virgil is very interesting, but I cannot add anything further on his question. In answer to Lieut.-Col. Shortt's question, Dr. Lukyn Williams tells me that there were plenty of Jews in Babylon in Christ's time.

759TH ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,  
WESTMINSTER, S.W.1, ON MONDAY, MAY 23RD, 1932,

AT 4.30 P.M.

SIR AMBROSE FLEMING, D.Sc., F.R.S. (*President*),  
IN THE CHAIR.

The Minutes of the previous Meeting were read, confirmed, and signed, and the HON SECRETARY announced the election of the following:— Miss E. R. Elverson as a Life Associate and the Rev. J. A. Harper and Brig.-General F. D. Frost, C.B.E., M.C., as Associates.

The CHAIRMAN then called on Mr. H. R. Kindersley to read his paper on "The Bible and Evolution: The Evidence of History and Science."

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*THE BIBLE AND EVOLUTION: THE EVIDENCE OF  
HISTORY AND SCIENCE.*

By HENRY R. KINDERSLEY, Esq., Barrister-at-Law.

INTRODUCTION.

YOU are listening to-day to views on the Bible and biology of the old orthodox description. They will not, I assume, suit the minds of everyone; nevertheless as those here present will impute to each other nothing but the highest motives, a fair presentation of the case should yield good results, either in modifying our outlook or (if the arguments are fallacious) in confirming us in our views.

I lay no claim to special scientific knowledge or superior intelligence. I have endeavoured to deal with the subject as a lawyer preparing a case with scientific material of the highest quality. I take it that we all desire to approach the subject with the unfaltering belief in the logic that "two and two make four," or, in other words, that truth in the end must prevail. Realizing the undermining power of Darwin's Evolution which,

together with the Higher Criticism, tends to loosen men's hold on Christianity, along with many others, I have felt drawn to examine the various views current among evolutionists to-day.

We cannot disregard Dr. Sayce's assurance when he tells us "that the 'Higher Criticism' is bankrupt whenever tested by the facts of modern discovery and scientific archæology. The rout is complete," and the backbone of the higher criticism is belief in Evolution, if Professor Bethune Baker, an accredited leader, is to be believed; for in the November number of the *Outline*, 1929, in answer to the question, "Is Modernist Christianity a new religion?" he said "*First, I must say something about 'Evolution' because every answer I can make depends on it.*"

By some evolutionists it is made to appear as if the objections to Evolution are based on blind and inveterate prejudice, where the logic of science is not permitted a hearing. I will endeavour to expose the fallacy of this prepossession by offering facts, from which you will gather that the real opposition to Evolution rests upon the merits of the case. Evolutionists have made an appeal to the logic of *History* and *Science*. Followers of the orthodox views have accepted the challenge, and claim an unbroken series of victories in many fields of scientific research—Biology, Physics, Archæology, Astronomy, Philology; while so far not a single destructive point has been registered to the credit of Evolution against the orthodox faith. This may seem to many people to be an unduly bold assertion; but it merely expresses the naked truth.

#### HISTORY.

As judges in these matters, whether from a religious or secular point of view, the men and women of to-day are ready to accept the evidence of their physical senses. They realize that, if the historical facts of the Old Testament are true, then Evolution is a fallacy, for the Biblical events stand for a record of God's intervention in the affairs of men and nature, in pursuance of a divine plan revealed to man's first parents; and these events are classed as "catastrophism," the very antithesis of Evolution.

Thomas Huxley said, "Evolution, if consistently accepted, makes it impossible to accept the Bible,"—quoted by W. Bell Dawson, D.Sc., in his foreword to *Evolution and the Break-up of Christendom*, by C. Leopold Clarke (1930.) Like many others



throughout the Old Testament, the troubled disciples of the risen Christ were mercifully granted that physical evidence which carried conviction—"Handle Me and see . . ." The same mercy is extended to the sceptics of this generation. Year by year unimpeachable evidence accumulates, testifying to the startling and unrivalled exactitude of the historical records of the Old Testament, labelled by evolutionists "tradition," "mythology" and "legend."

It is just this accuracy that has converted brilliant scientists, engaged to-day in archæological research in the Middle East, from open sceptics to avowed and ardent believers in the Christian faith as enunciated by the Creeds—Sir William Ramsay and Dr. A. H. Sayce among them. These and such like names cannot be brushed aside as nonentities: they are the greatly honoured scientists of the world in archæology and philology. These are no armchair philosophers tied to the skeleton of a once accredited theory of Evolution. The results to date of their enthusiastic labours, fortified by those of Dr. Garstang and Sir Flinders Petrie, have gone far to prove to our physical senses the marvellous accuracy of Old Testament records, and have falsified the view that "the Pentateuch is a patchwork of folk-lore and fable," the work of a body of designing and unscrupulous priests, supposed to have lived in the time of the Babylonian Exile.

It must influence our judgment that, one after another of the many assertions in denial of the cherished belief of Christians, issuing from Apostolic times and embodied in the Creeds, have been cast into the limbo of exploded fancies by facts which are ever emerging from the various fields of scientific research. Where to-day stands the allegation that Moses could not write, or that moral culture was not sufficiently advanced in his day to have allowed him to evolve the decalogue? In *Is the Higher Criticism Scholarly?* and *Historical Accuracy of the Old Testament*, Professor R. Dick Wilson, D.D., together with other high authorities, among them the Rev. A. H. Finn, author of *The Unity of the Pentateuch*, has shattered the suggestion that the Pentateuch was not written by Moses, and that, consequently, "Jesus Christ was deluded" in ascribing its authorship to Moses (see *Modern Churchman*, Oct. 8th, 1928).

Where to-day are the incredulous smiles of Biblical critics over the fall of the Walls of Jericho, in view of the evidence supplied last year by Dr. Garstang, evidence of a quality that

appeals to our very hands and eyes? Are we not also entitled to call for explanations of the reiterated assertion that the flood of Genesis was a myth, in face of the physical proofs from Ur of the Chaldees, rendered by Professor L. Woolley and Dr. Langdon of that "flood of unexampled magnitude" upon which they quite unexpectedly stumbled?

### SCIENCE.

Evolutionists have appealed to science, but they refuse to abide by its verdict that "*species blocks the way.*" The definition of *species* given by Professor Poulton to the British Association in 1926 is short but decisive—"An interbreeding community." The test is a breeding matter, pure and simple. Is it sufficiently appreciated, what a flood of light has been thrown upon the vexed yet vital problem of "species" by these few plain words of definition?

I wonder how many will agree that, "in the light of modern knowledge," this amounts to a complete solution. To employ this formula experimentally, recourse must obviously be had to living "species," which in the vegetable and animal kingdoms number perhaps a million—Darwin's estimate was "two to three millions." Yet, with this vast field of research open to them, evolutionists persistently refuse to allow the "genetics" of "existing species" to speak (the one department of science which alone has been productive of positive results in the matter of Evolution; its voice, whenever raised, is deliberately smothered), and almost entirely confine their barren investigations to the sphere of "comparative anatomy" (*i.e.*, similarities or resemblances in organic structures) with a special partiality for palæontology (science of fossil remains).

If any question this, let them examine the various contributions to current literature by Sir Arthur Keith, Professor Pycraft, Professor Elliot Smith and other biologists pledged to Evolution. This is all the more unaccountable when we recall Sir Arthur Keith's assurance, in his Presidential Address to the British Association in 1927, that "the guide to the world of the past is the world of the present." That staunch evolutionist, Mr. Julian Huxley, is evidently impressed by this studied neglect of "living species." He says that evolutionists "not only do not avail themselves of the new tool, but evince positive hostility to it. The new principles are indeed the *only tool* (my italics)

we at present possess which is capable of putting evolutionary theories to experimental test. Yet with a few honourable exceptions, most taxonomists and evolutionists prefer to stick to speculative methods."—*Nature*, April 12th, 1924, p. 520, (quoted by C. Leopold Clarke in *Evolution and the Break-up of Christendom*, p. 141). Here we have a lacerating wound for evolutionists received in the house of their friend!

By thus limiting their search to the field of "comparative anatomy," evolutionists exultingly produce a mass of similarities in organic structures and habits, which nevertheless have never yet furnished, and never seems likely to furnish, them with the line of small transitions necessary to make out even a conjectural case for evolutionary ascent; while they disregard the plain logic that these same similarities support the belief in "special creations" by *One Master Mind—similarities which are the hall-mark and sign-manual* of the almighty Architect and Author of all phenomena, organic and inorganic.

The case of the hare and rabbit affords a simple illustration of the futility of expecting "comparative anatomy" to furnish the missing evidence for Evolution; and at the same time it supplies a convincing example of the immutability of "species." Here are two types of rodents exhibiting such remarkable similarities of structure and "posture"—(see Sir Arthur Keith's address, British Association, 1931, on "posture") that if the case for Evolution rested on structural and postural resemblances then evolutionists would triumphantly declare that "all thinking men are agreed" that Evolution has now passed the stage of theory and entered the happy state of certainty. They would claim this to be a clear-cut case of ascent in the scale of life—or was it, perchance, a case of "degeneration"! Which first saw the light of day, the rabbit or the hare? And which of them claims priority of place in the scale of life?

Now let us exchange the hazy area of plausible appearances for the region of realities. Let us follow the advice of Sir Arthur Keith and Professor Julian Huxley and turn to the "species" of the present as the only guide to the "species" of the past. *Examined as living species*, we find that the hare and the rabbit absolutely refuse to interbreed. Moreover, one of them produces its young blind and naked and the other open-eyed and covered with fur. Under Professor Poulton's definition of "species" the fact of sterility proclaims these two types of rodents (*in spite of cogent appearances to the contrary as judged by comparative*

*anatomy, and also that they are both said to chew the cud !)* to be unrelated, separate "species"—each in itself an "*interbreeding community*"—*sterile with all others.* And this case is just one of the million similar prohibitive obstacles *in the shape of "living species"* which have faced evolutionists since Darwin launched upon the world his agitating theory of Evolution by "natural selection." *For Evolution to succeed, this massed wall of living obstacles must be breached or surmounted, one or the other.*

We can confidently challenge evolutionists to descend from unprofitable generalities to the particulars of the case, and give us in detail, from the million living "species" known to science to-day ("a sufficient field, one might think, for observation," as Darwin said), one single instance of the crossing of two "species" or the ascent of any one of them in the scale of life, *to form a new "species."* In short, "species" with its isolating factor of sterility stands for fixed rigidity, and that spells death to any theory of organic evolution, *since all life, vegetable and animal, is marshalled into "species."* That factor of sterility has never been known to be "acquired." It is the one determining patent of "species" all the while open to proof.

Sir William Bateson on this matter says: "If 'species' have a common origin, where did they pick up the ingredients which produce this sexual incompatibility [sterility]. Almost certainly it is a 'variation' in which something has been added!" (see *William Bateson, F.R.S., Naturalist*, by B. Bateson, p. 393).

This unique, because inviolable, "something added," viz., sterility, must mean "creation" or special intervention, and a little further on this view is clearly seen to be that of the great biologist. He says: "If thus one plant may by appropriate treatment be made to give off two distinct forms, why is not that phenomenon a true instance of Darwin's origin of 'species' ? . . . We know that that is not the true interpretation, for that which comes out *is no new creation.*"—(p. 396.)

All this goes to confirm the scientific accuracy of the record of Genesis, where we are told, nine times, as if to force the fact upon our attention, that the various forms of life were to appear "after their (or his) kind," that is, to follow some given order; and "kind" denotes a genetic and not a morphological distinction. Obviously the God-given factors of sterility were already added in the original stock determining the "kind" or "species" before the sea and earth brought them forth to order.

In varying degrees practically all these million "species" resemble, each one, some other "species" in structure or habits, if only to mark the unity of the Creator's handiwork; *yet none of them can be coaxed to transgress the bounds of their "specific" limitations.* At the same time, each "species" appears to be endowed with wonderful powers of variation—an elasticity capable (among other advantages) of adapting it to an ever-changing environment.

Professor Huxley said: "If this (*i.e.*, that variations never culminate in new 'species') was the necessary and inevitable result of all experiments, the Darwinian hypothesis would be shattered" (see *Sir William Bateson, F.R.S., Naturalist*, by B. Bateson, p. 461). After seventy years of searching by the greatest brains of the period, can evolutionists give us one solitary example among existing forms of life of a new "species" arriving from variations; and if not, how will they settle with Huxley? By "Darwinian hypothesis" Huxley evidently did not intend to limit himself to "natural selection."

What comment also do evolutionists make on the following unqualified admissions—just a few selected from a volume of similar admissions by leading scientists throughout the world? And how do they reconcile such admissions with their solemn assurances before the British Association last year—that Evolution is now a proved fact, and no longer merely a plausible theory? Let us hear what scientists are really saying:

#### SCIENTIFIC ADMISSIONS.

"For the moment . . . the Darwinian period is past; we can no longer enjoy the comfortable assurance which once satisfied so many of us that the main problem had been solved—all is again in the melting-pot. By now in fact a new generation has grown up that knows not Darwin."—*Dr. D. H. Scott, LL.D., D.Sc., F.R.S., Professor of Botany, University College, London: Address, British Association, 1921.*

"At the present moment we seem to have reached a phase of 'negation' with respect to the attempts of botanists to trace out lines of evolutionary descent."—*F. O. Bower, Professor of Botany, Glasgow University, President British Association, 1930—"Nature," March 8th, 1924.*

"At the meeting of the British Association at Oxford . . . 1926, Professor H. F. Osborn, in discussing the problem of the

origin of species . . . said, 'The word "creation" must certainly be linked with the word "evolution" to express in human language the age-long origin of species. Were Darwin alive to-day he would be the first to modify the speculations and conclusions of 1859.'—*Sir Ambrose Fleming, D.Sc., F.R.S., "Evolution and Revelation,"* 1926 (p. 12).

Professor Osborn's admission implies that, on something like a million occasions the Creator must have intervened to create life! Now Genesis had already revealed this secret by informing us that all life was ordered "*after their kind*"—a decree in "genetics" from which there is no escape." "*Species*" *blocked the way to Evolution from the first "Creation" of life.*

It is also worth observing that Professor Osborn, in making this profoundly important admission, omits all references to "genera" and "phyla" obviously because these and all other human attempts (in the interests of Evolution) to extend classifications in Biology, including the misnamed sub-species beyond those revealed in Genesis, are artificial and arbitrary conceptions, based alone on "resemblances" and wholly unrecognized by "species." Whereas the claims of "species" are demonstrable to our senses by a natural law of sterility, which is in active and universal operation among all living forms to-day.

The failure of evolutionists has lain in their endeavours to correlate morphology and "genetics." But these sciences are not fundamentally comparable. The hare and the rabbit have illustrated how "species" ignores "similarities" of form; and to show its disregard for "dissimilarities," what more ludicrous contrast in structure and appearance exists than that of the greyhound and the pekingese? Yet when breeding-time comes round the demands of "species" are undeniable. Here we have identity of "species" coupled with diversity of forms. Dog, Wolf, Jackal—call the "species" what you will, they are all interfertile and their progeny can reproduce; but none of them has ever been known to breed and reproduce a new type with the Fox!—though a few are said to have been known to breed (*vide* "Fox," *Encyclopædia Britannica*, Edition XI). The exception, however, is denied by authorities at South Kensington Natural History Museum.

The governing principle of all these experiments is solely the breeding capacity. Yet, strangely enough, in their pursuit of "species," the lure of likeness still holds captive a large body of evolutionists within the fruitless fields of morphology. If Sir

Arthur Keith's comparative measurements of ape and human remains are claimed to be valid as evidence of genetic relationship, the logic must hold good for the hare and rabbit and perhaps more so! But if applied to these rodents, it does not assist in the smallest degree to solve the problem of "species," for each is encased in its own impenetrable cell of sterility which no measurements can touch; and it is the obstacle of sterility that every evolutionist is endeavouring to surmount. *We submit that "species" or "kind" is (and ever has been) the only ordained unit of delimitation and order, operating equally throughout the entire realm of organic nature.*

So far as hybridisation is concerned—and I say this reverently—the reason for this inviolable law of sterility seems perfectly clear. Free crossing of all forms of life would spell chaos throughout the entire organic range; and, moreover, that variations might not wander off into utter confusion, it has been proved by Mendel, and confirmed by Sir William Bateson and others, that the workings of pronounced characters within the "species" are governed by laws of the strictest constancy, which leave no room for immutable added factors, the necessary postulates of any theory of permanent progressive change.

Let us return to our quotations: "We see no changes in progress around us in the contemporary world which we can imagine likely to culminate in the 'evolution' of forms distinct in the larger sense" (*i.e.*, new species).—*Sir William Bateson, F.R.S., Naturalist*, by B. Bateson, 1928 (p. 295). This President of the British Association died in 1925.

"We cannot see how the 'differentiation' into 'species' came about. 'Variation' of many kinds, often considerable, we daily witness, but no origin of species."—*Ibid.*, p. 392.

"We no longer feel, as we used to do, that the process of 'variation' now contemporaneously occurring is the beginning of a work which needs merely the element of time for its completion: *for even time cannot complete that which has not begun.*"—*Ibid.*, p. 393 (*my italics*).

From this we gather that Sir W. Bateson, who cannot be accused of being a half-hearted evolutionist, was reluctantly driven to admit that Darwin's child, "organic Evolution," never breathed. It was stillborn. And the millions of years in the past which Darwin's disciples have conjured up for the evolution of existing forms of life, even if true in point of time, accordingly have missed their purpose.

Why do evolutionists continue to blind the eyes of the world by centring attention on that poor fugitive, "the missing link" between man and the ape? Unquestionably the public have been led to believe that a single link alone was missing in an otherwise complete chain of evidence in proof of Darwin's mental creation—"organic Evolution." Have men not yet realized that there is no such thing as "the missing link"? For the truth is that, all the time, unappreciated by the public, the overwhelming fact existed (and no one knew it better than the evolutionist leaders) that all of the *genetic* links are missing between each of the million "species"—vegetable and animal—known to science.

It is this uncompromising fact that has driven (and is driving) distinguished scientists of many nations, without trumpeting their retreat, quietly to abandon the sinking ship of Evolution. Professor Kammerer to-day is not content with a negative view of Evolution. Though couched in the language of morphology, he says, "The theory of Evolution at the present time is pointing in that direction (*viz.*, the unchangeableness of types); it is returning to the theory of non-Evolution."—*Literary Review*, Feb. 21st, 1924 (p. 538).

Doubtless for the die-hard evolutionist a confession of failure is painful; but some of the more fearless, in the interests of truth, are already facing the facts, like Professor Macmurray in his review of Professor W. Schmidt's recent work, *The Origin and Growth of Religion* (1931), where the former says, in the matter of Evolution, "we are returning to a shame-faced sanity," and again, "If Professor Schmidt is even half right, then it looks as though the great struggle between Religion and Evolution were going to end after all in the triumph of Religion." This word "Religion" can mean nothing else but the Bible, or Creation as revealed in Genesis (see *Bible League Quarterly*, Jan.-Mar., 1932 (p. 33)).

Science now appears to be clearing the stage of the bric-à-brac of all morphological investigations, including those of the fashionable school of "mutations" (since for many scientists they have lost all evidential value, see *Predicament of Evolution*, by Professor McCready Price, p. 72); for the final judgment in the age-long controversy which has raged round the "origin of species," now centred in the practical question—*Is there evidence that new "species" can arise by any natural agency in operation to-day?*



The answer, clear and convincing, rests upon the application to each individual case of the solvent provided by Professor Poulton's definition of "species"—or in other words, "*Is the organic form in question which claims the status of a new 'species' 'an interbreeding community' sterile against all comers, including its parent stock?*"

If the answer is "yes," then a new "species" has arisen. But up to date, without a single exception, the verdict of science upon the thousands of cases presented for examination has been "no." *Whatever special characters of form or habit they may carry, and under careful segregation reproduce (vide De Vries' experiments with the willow-herb) they have all signally failed to break away in the matter of breeding from their ancestral stock or "species."*—(see Professor McCready Price, *Predicament of Evolution*, p. 17.) This verdict of science applies equally to the "mutations" of De Vries as to the "variations" of Mendel (see *Evolution and the Break-up of Christendom*, by C. Leopold Clarke, 1930, p. 142).

I would like to end these quotations by one from Professor D. M. Watson. You can gather from his Presidential address to the British Association in 1929 the parlous condition in which Evolution now stands—(see *The Times*, Aug. 3rd, 1929). He says, "Evolution is a theory universally accepted, *not because it can be proved to be true*, but because the only alternative, 'special creation,' is clearly incredible." Or, in paraphrase, because a number of men refuse to believe in a God Almighty capable of creating the heavens and the earth and every "species" of life, and thereafter sustaining and directing them by laws over which He exercises a perfect control, therefore they feel able to accept the crowning speculation that these organic phenomena "emerged," maintained and advanced themselves by a process of continuous evolution, a theory which "comparative anatomy" and the records of the past refuse to support, and all the investigations of science into living "species" reject as sheer fiction! We could go on to fill a booklet of similar admissions.

If evolutionist leaders persistently refuse to "face the music" of historical and scientific facts in the courts of logic and free discussion, by opening their periodicals and platforms (where temperate papers can be read and questions asked) to men who on reasonable grounds differ from them, they cannot complain if the "thinking" public condemns their attitude as evasive, and noting their "boycott" of living "species," proceeds to

draw its own conclusions. A thousand assurances of confident belief in Evolution, vociferously reiterated, will never do duty for (and in the absence of) one scrap of positive evidence. Nay more, the whole weight of evidence from existing "species" is thrown into the scales against Evolution.

To recapitulate : the Bible, the one and only, first and final authority for Christianity, unlike the sacred books of all other religions of the world, stands for acts of Creation by One Almighty Living Power, followed by a series of historical acts of intervention by the same Power in pursuance of a plan revealed to man's earliest ancestors. The amazing accuracy of these historical records—unique in the annals of history—in many cases has been (and is being) proved to satisfy our physical senses, and as none of these records have been falsified, it furnishes evidence acceptable in any court of law of the Bible's trustworthiness ; and to this estimate of the Bible, science to-day is lending its support, both interested and disinterested. What has Evolution to set against this ?

#### DISCUSSION.

The CHAIRMAN (Sir Ambrose Fleming, F.R.S.), in some forceful remarks, commended the paper to the serious attention of members of the Institute. Quite clearly, Mr. Kindersley had devoted much attention to the subject, and his lecture was the fruit of careful research.

In conclusion, Sir Ambrose called for the thanks of the meeting, to the lecturer, and the vote was carried with acclamation.

Rev. Dr. H. C. MORTON said : Professor Poulton had framed a very neat definition, viz., " an interbreeding community " ; but long years before 1925 Bateson had laid immense emphasis upon the fact that species limits were determined by interbreeding capacities. In his great speech in Canada, 1921, and the subsequent controversy with Professor H. F. Osborn—a " last ditch " evolutionist—he declared that genetic series of fossils were simply illegitimate guesses, unless the interbreeding capacities of the fossils were known ; and with great scorn of the complacent evolutionary assumptions, Bateson declared that they had no more right to make assumptions about such fossils than they had to make assumptions about the contents of a row of bottles on a chemist's

shelf before they had examined the contents even to the extent of taking out the stoppers !

The speaker thought Mr. Kindersley was wise in emphasizing this matter, and thus confining Evolution, properly so called, to the *organic* realm. The only legitimate meaning of "Evolution" is "the transmutation of species." Evolution ought to be a question of science, not of philosophy ; but to-day the word is being steadily treated as if it were one of indeterminate meaning, the reason being that intelligent men know that there is no scientific evidence for Evolution. It is just a matter of faith, and (very emphatically) of arrogant dogmatism.

Hence, Professor J. A. Thomson and many others are trying to affirm that it only means "changing order, orderly change." But this is not so. The doctrine of Evolution was the pet theory of a small *coterie*, until Darwin by his clever and plausible advocacy made it the dogmatic belief of vast numbers of mankind. Darwin is the supreme representative of the modern evolutionary movement, and every ordinary man or woman means by "Evolution" what Darwin meant ; and there is no manner of doubt that for Darwin Evolution meant essentially the transmutation of species.

If once we allow the word to be taken to mean just "changing order," which in some senses, of course, everybody allows, the very next thing we shall find is that we shall be accused of allowing that species have been transmuted. Even Bergson gave this warning. Transmutation of Species is stamped so deeply upon the human mind as the meaning of Evolution, that if we allow any secondary and unreal meaning to be now given to it, and admit its truth in this secondary sense, we shall only be perpetuating the transmutation error ; and the discredited theory, being denied admission at the front door, will get in under false pretences at the back !

Evolution, in the sense of "transforming" or "transmutation," the worker of such mighty and incredible change that there is no need to bring in God, is the chief root of Modernism ; and it is being taught in almost all schools to almost all children, as the indubitable truth about the world of life and very particularly about man. This is an outrage of the most unpardonable description. Great numbers of the more intelligent men and women have very strong objection to this feature of our schools to-day, and ordinary fairness

demands that this abuse of the schoolmaster's position should be brought to an end.

Mr. GEORGE BREWER said : Mr. Kindersley has, I think, produced undeniable evidence of the fallacy of the Evolution theory. Discoveries in the East continue to establish the accuracy of Bible records, and modern scientific knowledge (apart from human speculation and deduction) confirms our faith in the Bible as the inspired Word of God. Organic Evolution, a term used to describe a process of transformation, assumes that all species of animals and plants now existing have been derived from one, or a few, elementary forms, by gradual development extending over vast periods of time, through the agencies of matter and force, for the origin of which we are unable to account, the result being a natural ascent, of which man is the climax.

The Bible records that God created man in His own image ; being formed of the dust of the ground as to his body, and by the breath of God, man became a living soul ; and we learn that, being tested, man fell, and evidence of that fall has been manifest all through the world's history, but never more so, than at the present time (Gen. i, 26, 27 ; ii, 7 ; iii, 1, 19). The Bible stresses the appalling character and consequence of sin, while it reveals the marvellous provision, which God Himself made for sin's removal. According to Evolutionists sin is merely a surviving remnant of an assumed animal ancestry ; yet the depravity of the human heart and the appalling crimes of which the natural man is capable, notwithstanding his superior knowledge and intelligence, cast an unjust reflection upon any such supposed ancestry.

The Bible records (Gen. i, 21 and 24) that God created every living creature after his kind ; that Noah was commanded to take two of every living thing after his kind into the Ark (Gen. vi, 19, 20) ; the statement of the Apostle Paul on Mars Hill, that God hath made of one blood all nations of men (Acts xvii, 26) as well as that in his first letter to the Corinthians (1 Cor. xv, 28-39) that God giveth to each seed a body as it hath pleased Him, and to every seed his own body.

Mrs. BOYD said : I should like to draw attention to a verse in the Old Testament in which the Omniscient Creator explicitly

forbade the crossing of breeds (Lev. xix, 19) : "Thou shalt not let thy cattle gender with a diverse kind : thou shalt not sow thy field with two kinds of seed ; neither shall there come upon thee a garment of two kinds of stuff mingled together." (R.V.) The Authorised Version mentions "linen and woollen." Had this law been obeyed, we should have had no adulteration of goods ; no "linsey-woolsey" ; and it has not been for the benefit of a civilized world that this law has been disregarded. In Deut. xxii, 9, 11, this command was repeated and amplified by the words, "lest the whole fruit of thy vineyard be defiled."

Rev. C. LEOPOLD CLARKE said : I should like to congratulate the lecturer upon the clear way in which he has shown the obstinate tendency of "Species" to conform to the Biblical account of their nature and origin, and not to that of the evolutionists. The process of exposing Evolution is now very much like "whipping a dead horse," for not only anti-evolutionist, but pro-evolutionist, is engaged in showing that the supposed evidences formerly relied upon must be abandoned. All that is required is the frank and honourable admission that this hypothesis, after the most protracted and experimental research, is known to be an utterly wrong hypothesis. It will awaken early memories for most of us to refer to the famous Jevons, but speaking about the process of "Inductive Logic," he says :

"If we meet with several distinct disagreements between our deductions and our observations, it will become likely that the hypothesis is wrong and we must then invent a new one."

I submit that the torturing of this hypothesis of Evolution has gone far enough—the observations give no ground for the deductions drawn in support of it. But by far the greatest reflection is the moral and religious consequence of the acceptance of this Pagan concept. Too much attention cannot be drawn to the aggressive manner in which Evolution combats Biblical Revelation, as if it were designed especially for that purpose. Huxley, indeed, was honest enough to admit that "if Evolution were consistently accepted, it was impossible to believe the Bible." I remind you of the more recent words of

Mr. H. G. Wells, who, in his *Outline of History*, says: "If all the animals and man had been evolved in this ascendant manner, then there had been no first parents, no Eden, and no Fall. And if there had been no Fall, the entire historical fabric of Christianity, the story of the first sin and the reason for an Atonement, upon which current teaching based Christian emotion and morality, collapses like a house of cards."

These amateur moralists think that it is sufficient, having removed confidence in the eternal sensations, to offer a grinning assurance of well-being to the human conscience, from a process of betterment; against which all history and all experience shouts a prolonged denial. Two further quotations show how thoroughly the acceptance of Evolution disturbs belief in God. Sir Arthur Keith said: "By this new knowledge, my youthful creed was smashed to atoms. My personal God, Creator of Heaven and Earth, melted away. The desire to pray—not the need—was lost; for one cannot pray for help to an abstraction." (*The Forum*, April, 1930.)

In the fifth of an excellent series of tracts on Evolution by Dr. Bell Dawson, of Toronto, the words of a young woman undergraduate are quoted from *The Bible for China*, November, 1927: "The boys and girls that I know, who have accepted the idea that they are only superior animals, are no longer interested in religion, and are wholly animal in their tendencies. Ninety per cent. of the immorality in our University is traceable to this notion. These girls and boys seem to think that all restraint has been removed by this discovery that God did not make them, as taught by the Bible, and that therefore there is no responsibility to God for their actions. The girls are often heard to excuse themselves on the very ground that God, and heaven and hell, and all the rest of it, have been ruled out of existence by Evolution." Most logical thinkers regard that as the inevitable conclusion from the acceptance of Evolution.

#### WRITTEN COMMUNICATION.

Lieut.-Col. A. G. SHORTT wrote: Mr. Kindersley bases his argument on the one fact that there is no fertility between species. That there are varieties which have much in common, but which are infertile between themselves, is true. We call them distinct species. But he takes it as evidence that they cannot have had a

common ancestor. This surely is not a legitimate deduction. Variation among animals is, of course, common. Where they exist together, the variations are ordinarily bred out again. Where they are segregated from the main stock these variations will in certain cases persist, and become fixed. If they remain segregated, it is at least arguable that, in course of time, they may become less and less fertile with the parental stock, until, perhaps in thousands of years, inter-fertility disappears altogether.

Mr. Kindersley, on the other hand, *assumes* that, because interbreeding, he says, is now impossible, it has always been so. If he says that there is no evidence that it was ever possible, the obvious answer is that there is no evidence to the contrary. The period required is far too long for observation, and the argument for species necessarily fails. We must, therefore, turn elsewhere, and it is clear that the possession of characteristics common to both species is a factor of very great importance, which cannot be left out of consideration. The problem is one of great complexity, and cannot be solved by the quotation of people's opinions, however eminent, or reliance on any single point ; all the evidence available, of whatever kind, will have to be taken into consideration before conclusions of any value can be reached.

#### LECTURER'S REPLY.

It is most gratifying to find such unanimity in support of the facts and arguments offered in the paper which I had the great privilege of reading. Yet knowing the popularity of Evolution among sections of the community, a strong opposition openly expressed would have been welcome. Indeed, Col. A. G. Shortt alone raised a note of dissent, and in his written criticism he confined his objections to the matter of "species," past and present. He does not seem to question the fact that scientists are unable to disclose any evidence that Evolution, in the production of new "species," is in working order to-day ; but this conclusion does not deter him from arguing that organic Evolution, though undiscoverable now, may yet have been an active factor in the past.

Surely this suggestion shatters the twin pillars of "uniformity" and "continuity" upon which the theory of Evolution was built, and without which it would collapse. We may reasonably ask,

Why and when did a universal system of Evolution cease to operate as the prime factor of origin and maintenance of "species" throughout the vegetable and animal kingdoms?

In dwelling upon the necessity for "isolation" in the Evolution of new "species," Col. Shortt touches one of the weakest spots in the armoury of Evolution. While recognizing its importance of isolation, Darwin refused to allow that his theory was dependent thereon. See *Origin of Species* (Everyman's Library edition, pp. 100, 101); but Col. Shortt evidently regards "isolation" as indispensable in order to obtain purity of seed and prevent "breeding out" by the dominant and normal parent stocks in nature. In this he can count on the support of every practical hybridizer. But in the fields of nature how is "isolation" secured? Is Evolution to be dependent on some fortuitous circumstance of segregation? This was too hazardous a chance to be set to carry even Darwin's gigantic speculation, *who is here seen impaled on the horns of an awkward dilemma*. The factor of time also is raised by Col. Shortt, but this was dealt with in the paper by a forceful quotation from Sir William Bateson.

That "the problem [of life] is one of great perplexity," as he says, is undeniable with Evolution as its solvent, but "in the light of modern knowledge," with Genesis as a guide, doubts vanish, for Genesis with Geology and Biology are found to harmonize in a marvellous manner.



760TH ORDINARY GENERAL MEETING,  
HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,  
WESTMINSTER, S.W.1. ON MONDAY, JUNE 6TH, 1932,  
AT 4.30 P.M.

DR. JAMES W. THIRTLE, M.R.A.S., IN THE CHAIR.

The Minutes of the last Meeting were read, confirmed, and signed.

The CHAIRMAN then called on Sir Ambrose Fleming, D.Sc., F.R.S., the President, to give the Annual Address on "Some Recent Scientific Discoveries and Theories."

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## ANNUAL ADDRESS.

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### *SOME RECENT SCIENTIFIC DISCOVERIES AND THEORIES.*

By SIR AMBROSE FLEMING, F.R.S. (*President*).

#### I.

IT is not an unprofitable occupation to take stock from time to time of the intellectual position of civilized mankind in certain matters, and to endeavour to obtain a broad view of the achievements and tendencies of current thought in various regions of inquiry.

Our present age is pre-eminently a scientific one. The ingenuity of the human mind has enabled us to devise innumerable instruments which vastly extend the range and power of the human organs of sense. Some of these appliances enable us to detect and measure physical agencies such as magnetic fields or electromagnetic waves which do not affect directly any of our senses.

In some instances we have obtained means of seeing objects which never have been seen, nor indeed can be seen, by the unassisted human vision, as when a photographic plate is used in the focus of a telescope or microscope of suitable construction.

We have been able to invent instruments such as the Spectroscope which enable us to determine the motion of near or far-distant objects which do not seem to move, and means for determining the distance of stars so remote that light takes millions of years to come to us from them, even though it travels at the rate of 186,000 miles a second.

The outcome of all this recent research has been popularized, and has given us of late years a view of the physical Universe which in grandeur and immensity amounts to a new revelation. Therefore it is important to obtain some general impression of the result of it all on the average human mind.

Hence in this Annual Address I thought I might attempt the task of giving a brief epitome of some of the more recent results of this scientific investigation in the departments of Astronomy and Physics, and of the conclusions or theories that have been built upon them. As time is limited, I shall only be able to give brief sketches of the advances under about four different heads as follows :—

1. Advances in our general knowledge of the physical Cosmos, that is of the stellar Universe generally.
2. Discoveries with regard to Radiation of which what we call Light is only a very limited portion.
3. Progress in knowledge concerning the ultimate nature of Matter.
4. Investigations respecting Gravitation and its connection with other physical Agencies.

## II.

We may notice, in the first place, that the mere collection of new facts by observation or experiment is not the chief aim of scientific investigation, although it is a necessary foundation for it. The human mind craves above all for what we call explanations of phenomena, or means for regarding them as the result of some ascertained general principle or necessary consequences of other known phenomena. Our fundamental idea of causation makes us desire to see the relation of cause and effect established in as many cases as possible, for isolated and

unconnected observations or facts are unsatisfactory to our minds. Accordingly, we are prone in all cases, when brought face to face with new or common facts of observation, to devise what we call explanations of them, or to endeavour to see them as the necessary consequences of some general principle, or generalization. We construct our scientific theories or hypotheses to meet these requirements. But it is always necessary to bear in mind that even if we can imagine some mechanism capable of producing a result we see in Nature, it does not in the least follow that it is actually done in that way. Moreover, an explanation may seem perfectly valid when based on a certain limited range of observed facts, but may fail totally to account for other facts which may subsequently be discovered.

Hence our scientific theories or hypotheses are in a continual state of flux, and that which is cherished to-day may have to be abandoned to-morrow. In the popularized accounts of scientific investigations this vital distinction between the ascertained facts and the non-permanent explanations of them is not always held well in view. The result is that the general public are apt to mistake the hypotheses or theories for scientific knowledge, and may fail to remember that whilst the well-ascertained results of observation or experiment remain as solid achievements built into the fabric of certain knowledge, the speculations or theories are often short-lived products of the mind of man which occupy the attention for a time and then pass away.

### III.

Turning then, however, to the matters of fact we consider as ascertained, we may note, first :—

#### 1.—THE ADVANCES IN OUR KNOWLEDGE OF THE STRUCTURE OF THE STELLAR UNIVERSE.

In this department of scientific research the progress has been chiefly due to the construction of immense telescopes, both refractors and reflectors, and their use in conjunction with dry-plate photography in especially clear atmospheres abroad.

The three great problems to the solution of which attention has been directed are (1) The Nature, (2) The Distance, and (3) The Arrangement, or distribution in space, of all the stars we see in the sky at night.

As regards (1) the upshot of research has been to show that the stars may be divided into three chief groups. There are, first, a small group called the Red Giants. These are merely immense masses of rarified gas. They are red because they are only at a temperature of red heat at the surface, but perhaps one or two million degrees in the centre.

These stars are of enormous size, and their diameters in a few cases have been measured by an instrument called an Interferometer. They are large enough to contain, not only our sun and the earth's orbit as well, but even up to the orbit of the planet Mars. An example of a Red Giant is the star Betelgeuse in the constellation of Orion. These Red Giants are not numerous, and there are none in proximity to our Sun.

In the next place, there are a small number of relatively small stars called White Dwarfs. These are white because they are intensely hot at a white heat on the surface, and are so dense in structure that a mere handful of their material would on our earth weigh many tons. They have enormous temperatures at their centres. A White Dwarf the size of the earth may contain 10,000 times the mass or matter of it. The third and by far most numerous class of stars, comprising 80 per cent. of all, are called Main Sequence stars, of which our Sun is one. They vary greatly in size and brilliancy, and temperature, and therefore in surface colour, from large blue hot stars to small red and cooler stars.

Then as regards distance and methods of measuring it. There are three ways in which we can plumb the depths of space and find the stellar distances.

The first method is by ordinary surveying. When a surveyor wishes to find the distance of some inaccessible object, he marks off on the ground a measured base line, and observes at each end the angle between this base and the bee-line to the object. Then a simple calculation gives him the distance to it. For certain near stars the same procedure can be followed. The base line, however, is the diameter of the earth's orbit, which is 186 million miles, and the observations are made by photographing the same group of stars at six months' interval. Then, by very exact measurements on the plates, it is possible to determine what is called a star's parallax, or the angle subtended by the earth's orbital radius at the star, and hence its distance.

Perhaps about 100 or more stars have had their distance determined in this manner. These distances are expressed in

Light-Years, a light-year being equal to six million million miles, which light would travel in one year.

The nearest star is called *Proxima Centauri*, and is about  $4\frac{1}{4}$  light-years distant. To realize what this means, place a good-sized orange, to represent our Sun, at one end of a long room, and 30 feet away put a small fig-seed, which will represent the earth; then to denote the nearest star, we must place another orange 1,500 miles away. Such is the scale on which the Universe is constructed. A second method for determining the stellar distances depends on the fact that there are certain stars similar to one in the constellation of Cepheus which wax and wane in brightness. It has been found that there is a definite relation between the time-period of variation and the absolute brightness or candle power of these short-period variables. The distance of some of them has been measured by the surveyor's method, and hence their absolute brightness is known.

Now we can easily measure the apparent brightness of stars, and this is measured by the absolute brightness or candle power, divided by the square of the distance of the star. We can tell from the periodic time of the variable stars their absolute brightness, and hence determine its distance. The star called Delta Cephei has a period of  $5\frac{1}{3}$  days, and stars like his occur in all parts of the sky. This star emits 600 times the light and heat given by our Sun. If, then, we find a Cepheid variable mixed up with other stars, and if we measure its apparent brightness, we can tell at once its distance from us. In this manner the distance of many star clusters and nebulae have been determined.

There is a third method of finding the absolute brightness or candle power of a star from its spectrum, and the relative strength or intensity of certain lines in this spectrum, but it would occupy too much time to go into details. The method of sounding the depths of space by Cepheid variable stars is of the utmost importance, because whilst the surveyor's method is not possible for greater distances than about 100 light-years, there is no limit to the use of the Cepheid method.

The general result of all this work has been to show that all the stars we can see with the naked eye, or with a telescope of moderate power, are arranged over a space in the form of a flat circular disk of biscuit or watch-shape called the Galactic area or system. Its greatest diameter is about 220,000 light-years and its thickness perhaps about  $\frac{1}{4}$  or 40,000 light-years.

Our Sun is a member of a smaller collection of stars contained within the Galactic area, but not at its centre. The whole Galactic area has been estimated to contain about 30,000 million stars. The faint nebulosity we see across the night sky, which extends right round the sky called the Milky Way, is simply the crowd of indistinguishable stars on the periphery or edge of the Galaxy. Scattered about in this area there are also about 100 so-called globular clusters of stars, each containing many thousands of stars; the nearest of these is about 18,000 light-years distance, and the farthest about 185,000 light-years. Sir Arthur Eddington has shown that this Galaxy rotates round a central point probably in 250 million years.

In addition, there are some hundreds of so-called planetary nebulæ in the Galactic area, which may be stars surrounded with a garment of luminous haze. Also there are irregular wisps of gaseous matter or dust, some of which are luminous and some are dark.

Recent research with the large telescopes in America has shown that far outside this Galactic system there lie "Island Universes," of vast size and spiral form, which are masses of gas, condensing or condensed into stars. They lie at distances (from us) of 1 to 140 million light-years, and some two million of them are within range of the Mount Wilson 100-inch reflector telescope. Our Galaxy is probably one of the largest of these separate Universes of stars.

These immense and separate galaxies of stars are in rotation. The most astonishing observation about them, however, is that they are most of them apparently running away from us, with stupendous speeds, from 1,000 to 15,000 miles a second. The question is not yet settled whether these speeds, as determined by the shift of spectral lines, are due to an actual motion of recession, or due to some other cause. If it is real, then the Universe is expanding at an inconceivable rate.

#### IV.

Leaving, however, for the moment these question of theory, we pass on to notice:—

##### 2.—DISCOVERIES WITH REGARD TO RADIATION.

We know that Light takes time to pass through space, and that it conveys energy. Mark off a square area on the ground,

each side of which is 8 yards, and suppose brilliant tropical sunshine to fall vertically on it. If we could collect all the heat and light then incident on it, and use it, it would work a 100 horse power engine. All this energy comes out of the Sun, and travels to us at the rate of 186,000 miles per second.

Whilst the Light is travelling to us, it is called Radiant Energy. In this radiant energy something oscillates very rapidly, and the number of oscillations or vibrations per second is called the *frequency*.

Also at certain intervals of space called a *wave-length* the same sort of change is taking place at the same instant. If one vibration has twice the frequency of another, they are said to differ by 1 octave. We are acquainted with 60 or 70 octaves of radiation. The waves which produce the sensation of light in our eyes lie within 1 octave; the average wave-length of which is  $\frac{1}{500000}$  part of an inch, and average frequencies is 600 billion. The waves mostly used in wireless broadcasting are about 300–400 metres in wave-length, or about 600 million times as long as light-waves. There are certain very short waves called Cosmic Rays, which come to us from distant parts of the Universe, which have a wave-length as much shorter than light-waves as light-waves are shorter than wireless-waves.

These Cosmic rays are so penetrating that they will pass through 16 feet of lead or 200 feet of water, whereas the thinnest film of gold-leaf stops all light. Between the light and the Cosmic rays lie the ultra violet and the radium rays, now so much used in medicine.

The impulse which starts these oscillations is when an electron, which is an ultimate atom of negative electricity, has its motion arrested or changed.

The difference between the energy of the electron before and after that event is shed off as radiation. The remarkable thing, however, is that the frequency of this radiation is always such that its numerical value, multiplied by a certain constant called after its discoverer Planck's Constant, is equal to the difference of the electron energy before and after the change or collision. The product of the frequency and the Planck Constant is called 1 Quantum.

For this reason the X-rays and Cosmic rays—which have vastly greater frequency, the latter nearly 500 million times that of visible light—can exert such destructive action. The Cosmic rays destroy every second about 20 atoms per cubic

inch in the atmosphere, and millions of atoms per second in our human bodies. Whether this is helping to keep us alive, or hastening our decease, we do not know.

## V.

We must then pass on to notice

### 3.—PROGRESS IN OUR KNOWLEDGE CONCERNING THE ULTIMATE NATURE OF MATTER.

The idea that the chemical atom of matter was a small solid bit of matter, which could not be broken or divided, was destroyed in the closing years of the last century, when Sir J. J. Thomson proved experimentally that from atoms of all kinds we extract still smaller atoms, which were found to be atoms of negative electricity. Then Rutherford's discovery of the nucleus, and Thomson's of the proton, gave us the astronomical theory of the atom, that in it a collection of planetary electrons revolve round a nucleus built up of protons and electrons, compacted into a mass vastly smaller than the over-all size of the atom.

Thus for instance the atom of Hydrogen gas consists of the proton with the electron revolving round it at various distances. This orbital distance may be 100,000 times or more the diameter of an electron or a proton.

In other atoms the nucleus is a more complicated structure of protons and electrons, with a group of electrons revolving round it at various distances. An atom is therefore a very open or transparent structure, and might be said to resemble the case of a few dozen gnats buzzing round a grain of sand in a space the size of Westminster Abbey or St. Paul's Cathedral. Quite recently at Cambridge it has been proved that it is possible to have a structure called a *neutron*, consisting of a proton and an electron, so close together that the electric charges neutralize each other, and this small particle, possibly about one-tenth of a billionth of a centimetre in diameter, has no electric charge at all. It can therefore pass freely through other atoms.

This astronomical theory of atomic structure has been supported by, and suggested, much valuable research, but it has been found to fail to give a full interpretation of the spectra. Moreover, the extremely important discovery has been made



lately, that an electron and also a proton behave sometimes as if they were a system of waves, and not as mere particles.

Just as we formerly thought of the atom as an indivisible particle, so when that idea was found to be erroneous we still thought of the electrons as particles. But now, we have to abandon that idea also. It has been proved, by the work of G. P. Thomson, Davisson and Germer, Rupp and Dauvillier, that when a narrow stream of electrons either passes through a very thin sheet of metal, only a few atoms thick, or else is reflected from the surface of a smooth crystal of nickel, on a photographic plate, then a diffraction pattern is obtained similar to that which would be found if for the stream of electrons we were to substitute a slender beam of X-ray Radiation. This proves that, associated with the electron is a set of waves, or else the electron itself is only a group of waves. The same is true of the proton, as proved by Prof. A. J. Dempster of Chicago.

Hence all matter may be only a set of waves, and this indicates that what we call Radiation, and what we call matter may after all be only different aspects of the same ultimate entity.

## VI.

### 4.—INVESTIGATIONS RESPECTING GRAVITATION AND ITS CONNECTION WITH OTHER PHYSICAL AGENCIES.

Newton laid the foundations of exact astronomy by his enunciation of his famous law of gravitation, namely that every atom of matter attracts every other atom with a force which varies inversely as the square of the distance. Hence Newton considered that atoms pull one another together. There are two facts, however, which are important. The first is that the action of gravity is instantaneous. Light, heat, and electric force are propagated or act through space, but they occupy time in travelling. Again, if an atom can act on another atom at a distance, in what manner is this action transmitted? The validity of Newton's law is confirmed by the fact that it enables us to predict astronomical events such as eclipses which happen in accordance with the prediction. Then again, no one has yet been able to find any relation between the force of gravitation and other physical forces of attraction or repulsion.

Gravitation, then, is something unique, and Einstein was the first to point out that a limited gravitation field can be exactly

imitated by an inertial field. To understand this imagine a weight of 1 lb. hung by a spring balance from the ceiling of a lift. If the lift were moving uniformly up or down, then after the first start the spring balance would record correctly, a weight of 1 lb. If, however, the lift were moving up or down with an accelerated motion, then the spring balance would record an increase or diminution in the weight, just as if gravity had been increased or diminished. It can be proved from this fact that a ray of Light should be bent on passing near a heavy mass of matter. This was found to be the case of observations made on May 29th, 1919, at Sobral in North Brazil, and at Principe in the Gulf of Guinea, on the occasion of the total Solar Eclipse on that date. Thus Einstein's prediction of the bending of a ray of light round the Sun was substantially fulfilled.

Einstein has also enunciated a broad general principle, which has been confirmed by its consequences. It is that all laws of Nature must be stated in such a form that they are equally true for all observers. This shows that Newton's law of gravitation cannot be absolutely exact, because when we say the force is inversely as the square of the distance, the question arises, distance measured by what observer? Einstein has given an exact law of gravitation, which has been confirmed by its ability to explain a certain anomaly in the motion of the orbit of the planet Mercury, which Newton's law could not explain.

Nevertheless Newton's law is substantially exact, and the difference between the two laws is very slight.

## VII.

### 5.—GENERAL TREND OF SCIENTIFIC THOUGHT.

Broadly speaking, we may say that the general trend of Scientific thought at present (1932) is toward certain conclusions as follows :—

1. We are by no means so certain as were our predecessors in the middle or the third quarter of the 19th century that we have reached finality in our investigations of Nature or that it is entirely comprehensible by our minds. On the contrary, matters that seemed plain to them are very obscure to us.

2. There is a very much stronger conviction now that ultimate or final causes are beyond reach of the human intellect and that our scientific theories are as it were but transient pictures we make of the supposed mechanism of the Universe based on imperfect knowledge of it which may be useful up to a certain point but have to be then discarded and replaced by others.
3. There is in the minds of many scientific workers a strong sense that there are evidences of purpose and design in natural phenomena, which are not the result of chance, but indicate teleological aims, though at the same time there is much which seems to us at present purposeless and meaningless. The quantitative or numerical aspects of multitudes of phenomena suggest that the physical Universe is not so much a Thing as a Thought and Thought implies a Thinker.
4. There are unquestionable evidences that the material Universe had a beginning in the sense that it has not endured in its present form for an infinite past nor can it be the result of a chance development, though our modern investigations have enormously enhanced our ideas of its age and size.
5. There seems to be proof that the physical Universe is not in itself eternally enduring, but is as it were wasting away and moving towards a state in which some fresh act of creation will be required if physical phenomena as we know them are to continue. It is not therefore self-produced or self-maintained, but the result of a Creative Power, and requires a continually operative Directive Agency.
6. There is a considerable body of opinion that the word Evolution may be used legitimately to describe the *process* of gradual changes in phenomena or things advancing from simplicity to complication, but its use as a term to connote a self-acting impersonal causative or *Creative Agency* is unphilosophical; for the reason that such use attributes to a mere impersonal abstract idea of increasing perfection the powers and qualities found only in association with a self-conscious personal Mind or Intelligence. There are unquestionably in the physical Universe things that stimulate our appreciation of Order, Beauty, Adaptation, Numerical Relations and

Purpose in our minds, who are thinking, feeling persons, and hence the qualities which excite these psychic reactions must have been bestowed on the Universe by a Sentient Intelligence at least as personal as ourselves.

7. Another very significant change in scientific opinion is the altered view as regards physical determinism. The 19th century held the opinion that the state of the Universe at any moment was rigidly determined by its previous states. There was as it were an inflexible causality or "reign of unbroken law." The modern introduction of the Principle of Indeterminism in Physics has shown us that it is impossible to define precisely the physical state of any material system, and all that can be said is that one sequence may be more probable than another. This principle has not only invalidated former statements as to the inviolability of so-called natural law but extended into the region of psychology has cut the ground from under some of the old arguments against the possibility of Free Will in rational man.
8. There is a by no means negligible conviction that the phenomena of life cannot be wholly explained by atomic mechanism but involves some factor which is non-material or perhaps we should say super-material.

At the same time it is necessary to note that much of the instruction put forth in the daily press, magazines, and popular books on the subject of Science is uncritical, and often accepts half baked scientific hypotheses as scientific knowledge. There is a widespread effort to discard definite belief in creation by adherence to a vague doctrine of Evolution which has no solid basis of proof.

This is seen particularly in connection with some popular teaching on the subjects of biology and anthropology. Confident statements on the evolution of humanity from the animal races and the enormous age, even to millions of years, over which this development by natural selection has extended are put forward for public acceptance as facts, whilst no sufficient evidence for them is vouchsafed. At the same time it is difficult to secure attention to, or publication for, the arguments or facts opposing these conclusions. Hence there is abundant room and indeed necessity for such a Society as the Victoria Institute

which affords a platform on which can be discussed questions lying on the borderlands of Science, Philosophy, and Religion.

None of the other existing Societies have exactly the same *métier*, and it would be a serious loss if our activities were limited or arrested by insufficient public support. Looking back on the papers read during the present session, I think they will not be found to be of less interest than any of those read in our past 65 years. Our aim is to endeavour to reach on questions in dispute reasonable certainty on the side of truth, or at least to clear away the mists of unconfirmed hypotheses or erroneous assumptions and justify our motto, *Ad majorem Dei gloriam* ("To the Greater Glory of God").

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