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JOURNAL OF THE TRANSACTIONS
OF
THE VICTORIA INSTITUTE

VOL. LXXI

1939

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THE TRANSACTIONS

OF

The Victoria Institute

OR

Philosophical Society of Great Britain

VOL. LXXI

1939



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PREFACE

IN the present volume the Victoria Institute will be found to be continuing its efforts to defend and extend the conservative and evangelical presentation of Scriptural and scientific truth. It was founded with that end in view more than seventy years ago, and in all the revolutionary changes in the world of scholarship, which have taken place during that period, its annual volumes of transactions will prove that it has ever remained loyal to its basis, which may be briefly defined as the supremacy and sufficiency of Holy Scripture, regarded as a criterion in the pursuit of knowledge. The Institute strives to keep alive and aflame the convictions of those who hold our views, and the papers of Sir Ambrose Fleming and Sir Charles Marston should do much to strengthen weak hands, to confirm feeble knees, and to say to such as be of a fearful heart that the good fight of faith is still being fought.

May it not also be that the distinctive witness of the Institute renders useful service to that vast multitude of thinkers and teachers who differ fundamentally from it? In that connection I am reminded of an observation of the late Professor George Milligan of Glasgow University to the effect that, even although the conservative position may not be taken by very many in the Christian Church, those who do maintain it are rendering valuable service to the cause of Christ.

Every question has two sides. There are problems created by the doctrine of evolution even graver than those which it seems to solve. Papers like that of Colonel Merson Davies will thus serve as a reminder that popular scientific teaching is not free from serious difficulties. It is well that the existence of these difficulties should be emphasised, even for the benefit

of those who do not attach crucial importance to them. He is a wise scholar who can learn from his opponents. The Institute, while continuing to investigate academic questions from a standpoint, which in some quarters may be dismissed as old-fashioned, no less claims to justify itself by exhibiting the other aspects of those truths which by them are questioned.

Considerable latitude is allowed to the contributors to this volume in the expression of their conclusions, and it is necessary to remark periodically that the Institute does not identify itself with all the statements in its volumes of proceedings. It is glad to make provision for the discussion of disputed questions within reasonable limits with the result that there is considerable inter-play of views, characterised by that freedom and flexibility which ought to characterise a learned society. With these preliminary observations regarding the aims and methods of the Institute, these ten papers may be left to speak for themselves.

H. S. CURR,

Hon. Editor of Transactions.

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* * * The object of the Institute being to investigate, it must not be held to endorse the various views expressed either in the papers or in the discussions,

VICTORIA INSTITUTE

REPORT OF THE COUNCIL FOR THE YEAR 1938,

TO BE READ AT THE

ANNUAL GENERAL MEETING, MAY 22ND, 1939.

1. *Progress of the Institute.*

The Council present the 71st Annual Report concluding 73 years of the Society's operations. As in recent years a reduced syllabus of ten papers was adopted for reasons of economy ; the standard of quality was, however, fully maintained, and the Council here record their thanks to all Authors for their valued contributions to that end and result.

2. *Meetings.*

Ten ordinary meetings were held during the Session 1938, the papers published being :—

“ Facts at Variance with the Theory of Organic Evolution,”
by E. L. GRANT WATSON, Esq., B.A. (being the
Dr. A. T. Schofield Memorial Lecture).

Douglas Dewar, Esq., B.A., F.Z.S., in the Chair.

“ The Interior of the Earth,” by R. STONELEY, Esq., Sc.D.,
F.R.S.

Sir Frank Dyson, K.B.E., F.R.S., in the Chair.

“ The First Two Chapters of Genesis considered as a Basis of
Science ” (being the Gunning Prize Essay, 1937), by the
Rev. D. E. HART-DAVIES, M.A., D.D.

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

“ Genesis and Archæology,” by WING-COMMANDER P. J.
WISEMAN, R.A.F.

Brig.-General H. Baker Brown, C.B., in the Chair.

“ From the River of Egypt unto the Great River, the River of
Euphrates ” (a suggested solution of the Arab-Israel
problem in the Promised Land), by A. HIRTH, Esq., C.E.

Lt.-Col. F. A. Molony, O.B.E., in the Chair.

“The Teaching of Jesus about Non-resistance to Evil,” by
EDWYN R. BEVAN, Esq., O.B.E., D.Litt., LL.D.

Lt.-Col. F. A. Molony, O.B.E., in the Chair.

“Fallacies underlying the Einstein-Eddington Conception of
Curved Space,” by ALBERT EAGLE, Esq., B.Sc., Reader in
Mathematics, University of Manchester.

Robert E. D. Clark, Esq., M.A., Ph.D., in the Chair.

“Some Fresh Light on the Greek Scriptures,” by MAJOR R. B.
WITHERS, D.S.O., late R.A.

The Rev. W. J. Downes, M.A., B.D., in the Chair.

“Synoptic Meteorology the Basis of Weather Forecasts,” by
LIEUTENANT-COLONEL E. GOLD, D.S.O., F.R.Met.S., F.R.S.

B. A. Keen, Esq., D.Sc., F.Inst.P., F.R.S., Pres-Des.R.Met.S.,
in the Chair.

“Biblical Sites in the Cuneiform Records of the later Assyrian
Empire,” by E. W. B. CHAPPELOW, Esq., M.R.A.S.,
F.R.S.A.

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

3. Council and Officers.

The following is a list of the Council and Officers for the
year 1938:—

President.

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

Vice-Presidents.

(Limited to seven.)

Lt.-Col. F. A. Molony, O.B.E., late R.E.
A. W. Oke, Esq., M.A., LL.M., F.G.S.
Lt.-Col. Hope Biddulph, D.S.O., late R.F.A.
Prof. A. Rendle Short, M.D., B.S., B.Sc., F.R.C.S.
L. E. Wood, Esq., M.B., D.P.H., F.R.S.A.
Rev. H. Temple Wills, M.A., B.Sc.
Sir Charles Marston, J.P., F.S.A.

Executives.

Alfred W. Oke, Esq., M.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., M.A., LL.M.,
F.G.S.
Lieut.-Col. F. A. Molony, O.B.E., late R.E.
Lieut.-Col. Hope Biddulph, D.S.O., late
R.F.A.
Avery H. Forbes, Esq., M.A.
Prof. Arthur Rendle Short, M.D., B.S.,
B.Sc., F.R.C.S.
William C. Edwards, Esq.
Robert Duncan, Esq., M.B.E., I.S.O.
Louis E. Wood, Esq., M.B., D.P.H., F.R.S.A.
Lieut.-Col. T. C. Skinner, late R.E.
F.R.Met.S.

Rev. Principal H. S. Curr, M.A., B.D.,
B.Litt.
Douglas Dewar, Esq., B.A., F.Z.S.
Lieut.-Col. L. M. Davies, M.A., Ph.D.,
F.R.S.E., F.G.S., F.R.A.I., late R.A.
Wilson E. Leslie, Esq.
Rev. Charles W. Cooper, F.G.S.
Percy O. Ruoff, Esq.
Lieut.-Col. Arthur Kenney-Herbert, late
Northampton Regt.
The Rev. W. J. Downes, M.A., B.D.
R. E. D. Clark, Esq., M.A., Ph.D.

Honorary Officers.

Robert Duncan, Esq., M.B.E., I.S.O., Treasurer.
 Lieut.-Col. T. C. Skinner, late R.E., F.R.Met.S., Secretary.
 Rev. Principal H. S. Curr. M.A., B.D., B.Litt., Editor.
 Lt.-Col. F. A. Molony, O.B.E., late R.E., Papers Secretary.

Auditor.

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

Assistant Secretary.

Mrs. L. L. Malcolm-Ellis.

4. Election of Officers.

In accordance with the Rules, the following Members of the Council retire by rotation: Douglas Dewar, Esq., B.A., F.Z.S., Lieut.-Col. F. C. Skinner, late R.E., F.R.Met.S., Louis E. Wood, Esq., M.B., D.P.H., F.R.S.A., Prof. A. Rendle Short, M.D., B.S., B.Sc., F.R.C.S., and W. C. Edwards, Esq., who offer (and are nominated by the Council) for re-election.

R. E. D. Clark, Esq., M.A., Ph.D., is nominated by the Council for election as a Trustee.

5. Obituary.

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

Wm. Hoste, Esq., B.A.; Rev. D. M. McIntyre, D.D.; R. G. Lundy, Esq., I.S.O.; Col. W. W. Baker, late R.E.; Lt.-Col. W. H. Turton, D.S.O., late R.E.; Rear-Adm. Sir Harry Stileman, K.B.E.

6. New Fellows, Members and Associates.

The following are the names of new Fellows, Members and Associates up to the end of 1938:—

FELLOWS: Rev. G. B. Myers, LL.B., B.D.; A. da Rocha, Esq., F.R.S.A., A.R.I.P.H.H.; W. M. Clayton, Esq.; W. Wardle Sales, Esq.; Lt.-Col. A. C. Macdonald, D.S.O., late R.E.

MEMBERS: The Rev. J. J. Blomerus; Miss F. L. Ovens; Major A. N. Skinner, M.V.O., R.A.; Lt.-Col. G. B. F. Turner, D.S.O.; Lt.-Col. J. A. McQueen, D.S.O., M.C., late R.E.; Lt.-Col. E. W. S. Mahon, late R.E.; Maj.-General H. N. Sargent, C.B., C.B.E., D.S.O., late R.A.S.C.; F. W. Jameson, Esq., D.S.O., M.C., M.A.; Rear-Admiral Errol Manners, R.N.; Rev. J. P. Macqueen; Rev. T. C. Hammond, M.A.; Jeffray Mills, Esq., A.B.I.A.

ASSOCIATES: R. D. McAllister, Esq.; A. J. Stubbs, Esq., Rev. K. N. Shelley, Esq.; C. C. Sands, Esq.; Graham Delbridge, Esq.

7. *Membership.*

Life Fellows	...	...	...	15
Annual Fellows	...	...	...	79
Life Members	...	...	...	40
Annual Members	...	...	...	265
Missionary Associates	...	...	...	11
Student Associates	...	...	...	9
Library Associates	...	...	...	42
Total Nominal Membership				461

8. *Donations.*

A very handsome gift of £400 was made by Mrs. Clara Mildred Craig, to found a Memorial to her late husband, the Rev. S. Runsie Craig, F.R.A.S. The money has been invested, the income from which is to be employed under terms of the Trust to defray cost of production of the paper of the year which, with the discussion thereon, best contributes, in the judgment of the Council, to the defence of "the Faith once for all delivered to the saints" as embodied in the Apostles' and Nicene Creeds as ordinarily understood, and/or of refuting philosophies and theories opposed thereto; the selected paper to be distinguished in the Transactions and all separate issues as the Rev. S. Runsie Craig Memorial.

Other donations during 1938 were: H. R. Kindersley, Esq., £1 1s.; A. Heath, Esq., £1 1s.; Rev. Bishop C. J. Ferguson-Daire, £1 1s.; Mrs. Farquharson, 10s.; K. S. Maurice Smith, Esq., £1 1s.; G. Brewer, Esq., £2 2s.; Rev. B. F. Buxton, £1; E. J. G. Titterington, Esq., 5s.; Rev. Rowland A. Smith, £5; Rev. H. Richardson, 10s. Brig.-Gen. W. Baker Brown, 10s.; Canon Mansell Pleydell, £1 10s.; Miss G. Biddulph, £1; Miss E. J. Boord, £1 1s.; Major W. J. Rowland, £1 11s.; W. Wilson, Esq., £3 3s.; Miss E. D. Jones, £5 5s.; Dr. Louis E. Wood, £7; R. A. Laidlaw, Esq., £5; S. Collett, Esq., £1 1s.; Capt. R. Biddulph, 10s.; E. A. Molony, Esq., £2; Dr. Eliot Curwen, 10s.; J. F. W. Deacon, Esq., £1 1s.; Cyril Van Lennep, Esq., £2; H. H. Goodwin, Esq., 10s. 6d.; R. S. Timberlake, Esq., £2 1s.; J. W. Laing, Esq., £5; Miss A. M. Naish, £1; Rev. H. T. Rush, £1 16s.; G. Neville, Esq., 4s.; Lt.-Col. T. C. Skinner, £10; R. Duncan, Esq., £10, making the handsome total of £77 4s. 6d.

In response to the appeal of October 3rd, the Fellows and Members named below offered to increase their subscriptions by the stated amounts, with effect of about £13 added yearly income, viz.: Sidney Collett, Esq., £1 1s.; Rev. Principal H. S. Curr, £1 1s.;

R. Duncan, Esq., £1 1s. ; Lt.-Col. T. C. Skinner, £1 1s. ; Brig.-Gen. H. Biddulph, £1 1s. ; Mrs. A. B. Frome, 10s. ; Martin A. F. Sutton, Esq., £1 1s. ; Capt. R. Biddulph, 5s. 3d. ; Lt.-Col. F. A. Molony, 10s. 6d. ; H. R. Kindersley, Esq., 10s. 6d. ; Brigadier N. McLeod, 10s. 6d. ; Dr. B. P. Sutherland, 10s. ; Lt.-Col. C. S. Campbell, £1 1s. ; W. Poynter Adams, £1 1s. ; H. E. Fitzgibbon, Esq., 10s. 6d. ; Col. A. H. Van Straubenzee, £1 1s. Total, £12 16s. 3d.

A number of others contributed to the funds materially by transfer, *e.g.*, from Member to Fellow or from Life Member to Life Fellow.

9. *Finance.*

1938 has been a year of difficult finance. All adventitious aids to a balanced budget, other than special donations, had been exhausted, while the annual deficiency of revenue from normal sources, which has averaged more than £100 over a long term, rose in this year to £182, second highest in the past 12 years.

It was possible, however, to close the year without an overdraft, and as the greater part of the excess expenditure will be non-recurrent, the prospect for succeeding years is not too unfavourable.

To secure stability, however, a big drive for increased membership is in progress on novel lines, involving a programme covering two, three, or even four years duration, the results of which so far, while even in the experimental stage, are such as to justify confidence of ultimate recovery. The effect, however, must obviously be gradual rather than spectacular, and meanwhile, with the support of your prayers and the blessing of Almighty God, your Council will continue to do their best in handling a difficult situation.

Apart from finance the progress of the work gives every cause for satisfaction, a vast amount of reorganizing having been put through during the year, including the indexing of the Library ; the issue of a further Index of Transactions bringing the earlier Index up to date ; revision of Life-Composition on actuarial lines ; and revision of the Constitution and By-Laws. The onerous nature of the work involved may be inferred from the fact that four additional Council meetings were called, over and above the normal twelve or thirteen, during the year.

A. W. OKE,
Chairman.

BALANCE SHEET, 31ST DECEMBER, 1938.

LIABILITIES.			ASSETS.				
	£	s.	d.		£	s.	d.
SUBSCRIPTIONS PAID IN ADVANCE			27	6	0		
SUNDRY CREDITORS FOR EXPENSES			183	15	5		
SUSPENSE ACCOUNT :—							
Special Donations re 1939			20	0	0		
LIFE SUBSCRIPTIONS :—							
Balance at 1st January, 1938	307	19	0				
Additions :—		£	s.	d.			
Fellows		28	0	0			
Members		25	6	0			
			53	6	0		
			361	5	0		
Less Amount carried to Income and Expenditure Account			11	5	0		
						350	0
						508	0
GUNNING " FUND (per contra)							
Balance at 1st January, 1938	37	14	3				
Add Dividends and Interest	23	13	2				
			61	7	5		
Deduct :—							
Expenses			1	1	0		
						60	6
"LANGHORNE ORCHARD" FUND (per contra)						200	0
Balance at 1st January, 1938	24	19	1				
Add Dividends received	9	1	2				
			34	0	3		
Deduct :—							
Prize and Expenses....			29	18	6		
						4	1
						220	0
SCHOFFIELD " MEMORIAL FUND (per contra)							
Balance at 1st January, 1938	3	18	0				
Add Dividends received	9	9	4				
			13	7	4		
CASH AT BANK :—							
Current Account	98	1	5				
"Gunning" Prize Account	61	7	5				
"Langhorne Orchard" Prize Account	4	12	3				
"Craig" Memorial Trust	2	16	0				
						166	17
						18	16
CASH AND STAMPS IN HAND							
SUBSCRIPTIONS IN ARREAR :—							
Estimated to produce						43	11
INVESTMENTS :—							
"Gunning" Fund :—							
£673 3½ per cent. Conversion Stock at cost						508	0
"Langhorne Orchard" Fund :—							
£258 18s. 3½ per cent. Conversion Stock at cost						200	0
"Schofield" Memorial Fund :—							
£378 14s. 6d. 2½ per cent. Consolidated Stock at cost						220	0
"Craig" Memorial Fund :—							
£200 Merchant's Trust Limited 4 per cent. Perpetual Debenture Stock at cost						209	9
£180 Trust Union Limited 4 per cent. Debenture Stock at cost						188	11
						1,326	0

<i>Deduct :—</i>			
Prize	10	0	0
			<u>3 7 4</u>
“CRAIG” MEMORIAL FUND (<i>per contra</i>)			400 0 0
Dividends received	2	16	0
<i>Less</i> Expenses	0	18	0
			<u>1 18 0</u>
SPECIAL APPEAL :			
Fund A (Mr. A. E. Montague)			
As at 1st January 1938	75	7	0
Further Donations	13	8	0
			<u>88 15 0</u>
Fund B :			
As at 1st January 1938	238	5	6
Further Donations	26	3	0
			<u>264 8 6</u>
<i>Less</i> Amount Expended and Donation returned	105	7	6
			<u>159 1 0</u>
Amount transferred to Income and Expenditure Account	159	1	0
			<u>£1,978 14 11</u>

“CRAIG” MEMORIAL TRUST :—				
Balance uninvested				1 19 6
INCOME AND EXPENDITURE ACCOUNT :—				
Balance at 1st January, 1938	425	15	9	
<i>Add</i> Excess of Expenditure over Income for the year 1938	182	6	1	
				<u>608 1 10</u>
<i>Deduct :—</i>	£	s.	d.	
Donations received	23	6	7	
“Langhorne Orchard” Fund	4	4	0	
Balance of Special Appeal, Fund B, transferred	159	1	0	
				<u>186 11 7</u>
				421 10 3
				<u>£1,978 14 11</u>

I report to the members of The Victoria Institute that I have audited the foregoing Balance Sheet dated 31st December, 1938, and have obtained all the information and explanations I have required. I have verified the Cash Balances and Investments. I am of opinion that the Craig Memorial Trust Investments are not in accord with the terms of the Trust Agreement. By resolution of the Council, the balance of Special Appeal, Fund B, has been appropriated in reduction of the adverse balance of Income & Expenditure Account. 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 explanation given to me and as shown by the books of the Institute.

E. LUFF-SMITH,
Incorporated Accountant.

143-145, Abbey House,
Victoria Street, Westminster,
London, S.W.1.

24th April, 1938.

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST DECEMBER, 1938.

EXPENDITURE.		£ s. d.	£ s. d.		INCOME.		£ s. d.	£ s. d.
To Rent, Light, Cleaning and Hire of Lecture Room	....	78	18	6	By SUBSCRIPTIONS :—			
„ Salary	....	139	2	7	Fellows	....	157	10 0
„ Pension—E. A. Montague	....	52	0	0	Members	....	233	2 0
„ National Insurance	....	3	5	0	Associates	....	8	8 0
„ Telephone	....	8	4	8	Library Associates	....	20	17 6
„ Printing and Stationery	....	298	7	2		-----	419	17 6
„ Postages	....	53	19	9	„ Voluntary increase	....		3 3 0
„ Audit Fee	....	3	3	0	„ Proportion of Life Subscriptions	....		11 5 0
„ Fire Insurance	....		12	0	„ Sale of Publications	....		30 10 9
„ Bank Charges and Sundries	....	9	9	8	„ BALANCE, being Excess of Expenditure over Income for the Year 1938	....		182 6 1
		-----		647 2 4			-----	
				<u>£647 2 4</u>			<u>£647 2 4</u>	

SPECIAL GENERAL MEETING.

In accordance with the notice dated April 24th, 1939, a Special General Meeting of the Victoria Institute was held in Committee Room B, Central Hall, Westminster, S.W.1, at 4.20 p.m. on Monday, May 22nd, 1939, under the Chairmanship of A. W. Oke, Esq., M.A., LL.M., F.G.S. The following three Resolutions for Amendment of the Constitution and By-Laws were submitted, viz. :—

1. RESOLVED that Section ii, Rule 2, be amended by addition of the words "HONORARY SECRETARY" after the words "HONORARY TREASURER", and that elsewhere throughout the Rules the words "HONORARY SECRETARY" be substituted for the word "SECRETARY" wherever the latter occurs.
2. RESOLVED that Section ii, Rule 20, be amended by substituting the words "ANNUAL GENERAL" for the word "ORDINARY" in line 2; and the words "FOR THE FOLLOWING YEAR" for the words "PRECEDING THE ANNIVERSARY MEETING" in line 3. And further by adding the words "NEXT FOLLOWING" after the words "ANNUAL GENERAL MEETING" in line 7.
3. RESOLVED that Section iv, Rule 1, be amended by addition of the words "AND AUDITOR'S REPORT" after the words "REPORT OF THE COUNCIL" in line 5.

Being purely formal the three Resolutions were, by common consent, taken together, and on being proposed by the REV. Principal H. S. CURR, M.A., B.D., B.Litt., and seconded by MR. DOUGLAS DEWAR, B.A., F.Z.S., were put to the Meeting and carried unanimously.

THE ANNUAL BUSINESS MEETING

OF THE

VICTORIA INSTITUTE

WAS HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,

WESTMINSTER, S.W.1, ON MONDAY, MAY 22ND, 1939,

AT 4.40 P.M.

The Chair was taken by A. W. Oke, Esq., M.A., LL.M., F.G.S., in the unavoidable absence of the President, Sir Ambrose Fleming, F.R.S.

The Minutes of the Meeting of May 8th were read, confirmed and signed.

The Reports and Accounts for 1938 having previously been circulated, were taken as read. After some explanatory remarks on the work of the Society and the state of finances, the Chairman called upon the Rev. Arthur E. Hughes, M.A., B.D., to propose, and Major H. B. Clarke, R.E. (retd.) to second, the *First Resolution*, viz. :—

“ That the Report and Statement of Accounts for the year 1938, presented by the Council, be received and adopted ; and that the thanks of the Meeting be given to the Council, Officers, and Auditor, for their efficient conduct of the business of the Victoria Institute during the year.”

There being no questions, the Resolution was then put to the Meeting and was carried unanimously.

The Chairman then called upon Mr. J. R. CROOK, O.B.E., to propose, and Mr. H. W. BRYNING to second, the *Second Resolution*, viz. :—

“That D. Dewar, Esq., B.A., F.Z.S., Lt.-Col. T. C. Skinner, F.R.Met.S., L. E. Wood, Esq., M.B., D.P.H., and Wm. C. Edwards, Esq., retiring members of Council, be, and hereby are re-elected.

Also that R. E. D. Clark, Esq., M.A., Ph.D., be, and hereby is elected a Trustee.

Also that E. Luff-Smith, Esq., Incorporated Accountant, be, and hereby is re-elected Auditor at a fee of three guineas.”

There being no questions, the Resolution was then put to the Meeting and was carried unanimously.

The Chairman then called upon Mr. W. E. LESLIE to propose and Mr. E. LUFF-SMITH to second the *Third Resolution*, viz. :—

“That the President, Sir Ambrose Fleming, M.A., D.Sc., F.R.S., The Vice-Presidents, Lt.-Col. F. A. Molony, O.B.E., A. W. Oke, Esq., M.A., LL.M., F.G.S., Lt.-Col. Hope Biddulph, D.S.O., Prof. A. Rendle Short, M.D., B.S., B.Sc., F.R.C.S., L. E. Wood, Esq., M.B., D.P.H., Rev. H. Temple Wills, M.A., B.Sc., and Sir Charles Marston, J.P., F.S.A., The Hon. Treasurer, Douglas Dewar, Esq., B.A., F.Z.S., The Hon. Secretary, Lt.-Col. T. C. Skinner, F.R.Met.S., be, and hereby are re-elected to their offices.”

There being no questions, the Resolution was put to the Meeting and carried unanimously.

The Chairman then called upon the Hon. Secretary to read the notification of and rules for the Gunning Prize Essay Competition for 1940—the appointed subject “Inanimate Nature: Its Evidence of Beneficent Design.”

There being no other business, the Meeting was brought to a close by a vote of thanks to Mr. Oke for presiding, proposed by Dr. Wood and carried with acclamation.

823RD ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, JANUARY 9TH, 1939,
AT 4.30 P.M.

THE REV. H. A. EDWARDS, L.Th., IN THE CHAIR.

The Minutes of the Meeting of May 23rd, 1938, were read, confirmed and signed, and the Hon. Secretary announced the following elections:—
As Fellows: The Rev. G. B. Myers, LL.B., B.D.; A. da Rocha, Esq., F.R.S.A.; W. M. Clayton, Esq.; W. Wardle Sales, Esq.; Lieut.-Col. A. C. MacDonald, D.S.O., late R.E., and the Rev. Harry T. Rush. As Members: the Rev. J. J. Blomerus, Miss F. L. Ovens, Major A. N. Skinner, M.V.O., R.A., Lieut.-Col. G. B. F. Turner, D.S.O., Lieut.-Col. J. A. McQueen, D.S.O., M.C., late R.E., Lieut.-Col. E. W. S. Mahon, late R.E., Maj.-Gen. H. S. Sargent, C.B., C.M.G., D.S.O., late R.A.S.C., F. W. Jameson, Esq., D.S.O., M.C., M.A., Rear-Admiral Errol Manners, R.N., the Rev. J. P. Macqueen, the Rev. T. C. Hammond, M.A., and Frank Fitzgibbon, Esq., K.C., B.A. As Associates: R. D. McAllister, Esq., A. J. Stubbs, Esq., K. N. Shelley, Esq., C. Craven-Sands, Esq., Graham Delbridge, Esq.

The CHAIRMAN then called upon the Rev. F. D. Wilkinson to read Sir Ambrose Fleming's paper entitled "A Discussion on the Recent Report of the Commission on Christian Doctrine appointed by the Archbishops of Canterbury and York in 1922."

The meeting was then thrown open to discussion in which the following took part: Mr. A. W. Payne, Mr. Sidney Collett, Mr. J. Harrison Hill, Mr. H. R. Kindersley and the Rev. F. D. Wilkinson.

A DISCUSSION ON THE RECENT REPORT OF THE COMMISSION ON CHRISTIAN DOCTRINE APPOINTED BY THE ARCHBISHOPS OF CANTER- BURY AND YORK IN 1922.

By SIR AMBROSE FLEMING, M.A., D.Sc., F.R.S., President.

I.—THE DIVISIONS IN THE CHURCH OF ENGLAND.

IT is probable that many of the Fellows, Members and Associates of the Victoria Institute have seen notices or reviews of this Report published at the beginning of 1938 or have perhaps read the document itself.*

As there are many statements in it with which the Members of the Victoria Institute will no doubt disagree, it seemed to your Council that an opportunity should be given to them and others

* The Report is published by the Society for Promoting Christian Knowledge (S.P.C.K.), of Northumberland Avenue, Charing Cross, London. Price 2s. 6d. net.

for expressing their opinions on this Report in a discussion opened upon it. The present writer therefore undertook to facilitate this expression by giving a brief statement on the origin, aims and conclusions of the Report and indicating those points on which there is likely to be strong disagreement with its statements by Members of this Institute.

There have been for quite a century or more three schools of belief and practice in the Church of England denoted by the terms High Church, Low Church, and Broad Church. These divisions have become more sharply separated in recent times by the influence of that attitude of mind towards the Bible called the Higher Criticism, as well as by the popular, but erroneous, conviction that scientific investigation has proved the unquestionable truth of the hypotheses of absolutely necessary uniformity in natural events and of the development by evolution of all nature, organic and inorganic, by processes which are automatic, and operate without the immediate control of any supernatural Power. These opinions widely diffused have destroyed the faith of many in the historical actuality of those events related in the Bible which are out of accord with present experiences of the processes of nature. This has brought into existence a forceful group of teachers and adherents who regard all accounts of so-called miracles recorded in the Scriptures as mythical and not to be taken as literal fact.

On the other hand, there has been in another section of the Church an augmented attention to beliefs, ritual and forms of worship approximating to those in the Roman Catholic Church. Hence the three divisions now existing in the ambit of the Church of England are generally denoted by the terms, Modernist, Anglo-Catholic and Evangelical.

II.—THE ORIGIN OF THE COMMISSION.

These divisions in faith and practice caused the Archbishops of the Church of England to nominate in 1922 a Commission composed of learned theologians and laymen to consider and report upon "the nature and grounds of Christian doctrine with a view of demonstrating the extent of the existing agreement within the Church of England and with a view to investigating how far it is possible to remove or diminish existing differences" (see page 19 of the Report).

The Commission as originally appointed consisted of 25 members

chosen to represent the different schools of thought and practice now included in the Church of England. But death and changes reduced the number to 20 final signatories comprising the Archbishop of York, the Bishops of Chelmsford, Derby, Glasgow and Galloway, 5 Professors of Theology, 7 Canons and Deans, and 4 Laymen. The considered opinions of such an imposing group of learned theologians and leaders of the Established Church must therefore exert an immense influence on the minds, not only of English Church members but also on those of Christian believers generally. Hence any differences from them must be based on very adequate reasons.

As the terms of reference included the consideration of the removal or diminution of differences of opinion, the Commission devoted its attention largely to the discussion of those matters on which there is marked difference of opinion. But as they explain in the Report (page 25), the majority of the Commission do not desire there should be any system of distinctively Anglican theology. They say (p. 26) that "the removal or diminution of differences within the Church of England can only be rightly effected by the discovery of the synthesis which does justice to all of them." But this statement of the Commission seems to give insufficient weight to the fact that whilst on some points of faith or practice differences may be necessary or allowable because sufficient knowledge or revelation to remove them has not been given to us, yet on a large number of matters there must be some absolute truth, departure from which is error. In these things it is not a solution to compromise or by the skilful use of language to endeavour to bridge the differences. We must try by all means to ascertain that truth and then earnestly contend for the faith "which was once for all delivered unto the saints." If the Church speaks with an uncertain voice on fundamental facts or condones or permits irreconcilable opinions to be uttered it thereby loses power to arrest the attention of the careless or ungodly and its message tends to be reduced to the mere inculcation of philanthropy and what are called the social implications of the Gospel.

In addition to a special introduction by the Archbishop of York as Chairman of the Commission and a general introduction by the Commission itself, the Report is broadly divided into two parts. The first part comprises the Doctrines concerning God and Redemption, and the second part the Doctrines relating to

the Church as a Body and to the Sacraments. Your attention in this opening to our discussion will be restricted to the consideration of the first part as the writer does not feel qualified, nor is time available, to discuss the second part of the Report.

III.—THE SOURCES AND AUTHORITY OF CHRISTIAN DOCTRINE.

Following on the Prefaces above mentioned, the Report passes on to consider some fundamental questions, the first of these being the Inspiration and Theme of Holy Scripture and the authority to be attributed to it.

With some of the statements made it is possible entirely to agree but to others we think some exception must be taken. The Commission rightly assert that the Bible is the inspired record of God's self-revelation to man and man's response to it. Also it is stated that "the Bible is not only about God but is of God. God speaks to man through the Bible which is therefore rightly called the Word of God."

Whilst agreeing that all parts of the Bible do not stand on one spiritual level, they admit that all parts have their place in contributing to the completeness of the revelation as a whole.

On the other hand, we meet here with some statements with which many will disagree or which may mislead some. Thus on page 29 it is said that "the tradition of the inerrancy of the Bible commonly held in the Church until the beginning of the nineteenth century cannot be maintained in the light of the knowledge now available." But the Report fails to state in what parts, or in what subjects this error in the Bible exists which is disclosed by modern knowledge. The Bible contains besides its spiritual teaching much history, biography, prophecy, and accounts of events we call miracles. We may then ask, in which of these departments has modern knowledge discovered error? On the contrary, we can now say with confidence that the archæological explorations in the Near East in recent times have confirmed in general the truth of much of the Bible history and disproved some of the confident assertions of the so-called Higher Criticism formerly made.

On page 29 of the Report we meet with an assertion which is not adequately proved. It is as follows:—"We cannot now regard as a principal purpose or evidence of inspiration the giving of detailed information about the future." Let us contrast this assertion with some given by Scripture itself, in Deuteronomy

(xviii, 22) where it says :—“ When a prophetspeaketh in the name of the Lord if the thing follow not nor come to pass that is the thing the Lord hath not spoken but the prophet hath spoken it presumptuously.” The clear deduction from this verse is that prediction of future events is an exclusive prerogative of God. Hence fulfilled prophecy is a proof of Divine inspiration.

Bible students have always held as one important proof that the Bible is not a mere man-made literature its remarkable and exact predictions of events then far in the future. Thus we have concerning the appointed Messiah precise details of his birth, native place, teaching, rejection and sacrificial death given 700 years previously by Isaiah (liii), in Psalm xii and other places. Also we have many predictions of the history of the Chosen People and especially of one part, the Jews. So accurate is all this that when the chaplain of Frederick the Great was suddenly asked by his master to give the shortest possible proof of the inspiration of the Bible he replied, “ The Jews, your Majesty.”

The Old Testament contains predictions of the downfall of great empires and cities made when they were at the height of their power, and this could not have been done by the light of any merely human knowledge. Then on page 32 we meet with another assertion to the effect that “ The authority ascribed to the Bible must not be interpreted as prejudging the conclusions of historical, critical and scientific investigation.”

This seems to mean that a God-Inspired literature must not be taken as an accurate witness of fact until confirmed by secular human testimony. But experience decides quite otherwise and shows us that in certain things the Bible has long anticipated the results of subsequent human investigation. As regards the teaching of our Lord, we have on pages 32 and 33 of the Report statements which may seriously imperil the faith of unlearned readers of the Gospels of the New Testament. These are as follows :—“ The record cannot be accepted as always reproducing the words themselves of our Lord.” Also “ There is some reason to think that in some cases the words attributed to our Lord reflect rather the experience of the primitive Church or utterances of Christian prophets than the actual words of Jesus.” It would be interesting to learn what evidence there is for this confident statement. Again it is stated that “ appeal to isolated texts in our Lord’s teaching is liable to error.” Now against these vague suggestions of possible error and uncertainty in the transmission

to us of the *ipsissima verba* used by our Lord we can set the assurance given by Himself, that there should be a supernatural preservation of his utterances by the Holy Spirit, for He said (John xiv, 26): "But the Comforter which is the Holy Ghost, whom the Father will send in my name he shall teach you all things and bring all things to your remembrance whatsoever I have said unto you." Even if the accuracy of the above quotation is impugned, we have yet much evidence to show that we *do* possess substantially correct records in the synoptic gospels of our Lord's words. The astonishing originality, authority and Divine power of his words impressed all hearers of them. The popular verdict was "Never man spake like this man." (John vii, 46.) Hence, as St. Luke tells us in the preface to his gospel, many had taken in hand the making of written records of them. Scholars recognise the existence of one such record called Q, where this letter stands for *Quelle*, the German word for *source* because it is considered that it was a source used by Matthew and Luke in the compilation of their gospels. Professor K. Lake of Leyden said in 1909: "Every year after A.D. 50 is increasingly improbable for the production of Q." This means that within twenty years of the Crucifixion there was a record in written documents of much said by our Lord. As at this time (A.D. 50) many persons must still have been living who heard His discourses it would be highly improbable that quotations not entirely correct could have been included in Q or other written records made at the time when they were spoken.

The suggestions in the Report of possible inaccuracy or imperfection in our Gospels of our Lord's sayings give a very one-sided view of the facts and do not sufficiently emphasise the truth, for the sake of unlearned readers of the Report, that there is the highest probability we *do* possess in our English Bible a substantially correct record of our Lord's teaching on all important matters concerning human conduct and salvation.

We then pass on to notice some very serious statements with regard to the Creeds of the Church, found on page 37 of the Report. It is there said, with regard to the Creeds, that "it is not their purpose to affirm either historical facts or metaphysical truths as such." Also it is said that in the above sense "every clause in the Creeds is *symbolic*." "Statements affirming particular facts may be found to have value as pictorial expressions of spiritual truths even though the supposed events did not actually happen."

It is difficult to reconcile the above statement with the practically unanimous resolution of the Upper House of Convocation of Canterbury passed on April 30th, 1914, "That this House is resolved to maintain unimpaired the Catholic faith as contained in the Apostles' and Nicene Creeds and in the *Quicumque vult*" and also: "That the denial of any of the historical facts stated in the Creeds goes beyond the limits of legitimate interpretation."*

Most instructed Christians hold to the belief that the purpose of the creeds is to state in simple language the historic facts and supernatural events past and to come which are the essential basis of the Christian faith. They are not symbolic in the sense that anyone is free to read into them some meaning other than that implied in the words themselves as commonly used. They were intended to preserve the faith of the Church and not to afford an opportunity for deviations from it or permit those who disbelieve in the supernatural to put their own "symbolic" meanings to the words and statements made in the creeds.

IV.—CREATION OR EVOLUTION.

On pages 44 and 45 of the Report are a set of statements with which some of the Members of the Victoria Institute will no doubt strongly disagree. The Report says (page 45) quite truly:—"The universe depends upon the Creative Will of God. Any such view as that the universe proceeds by emanation from the Divine nature, as opposed to the view that it originates in the Creative Will of God is non-Christian." This is a definite repudiation of the view called Pantheism. But then the Report goes on to say: "It is to be recognised that the Christian doctrine of Creation as thus generally stated leaves abundant room for a variety of theories as to the Evolution of the World." "No objection to a theory of evolution can be drawn from the two Creation narratives in Genesis i and ii since it is generally agreed among educated Christians that these are mythological in origin and their value for us is symbolical rather than historical."

This is a most astonishing statement to be made by a Commission of learned theologians in face of the immense amount of refutation given of late years to the theory of organic evolution

* See The Preface to *The Present Controversy on the Gospel Miracles*, by Dr. F. R. M. Hitchcock. S.P.C.K., London.

and especially to any inclusion in it of the origin of the human race. Not only have we had many such papers and books written by our Victoria Institute Members but also many competent biologists have rejected it in whole or in part. To read the above statement in the Report would lead one to believe that there had been no such refutation given at all. Even strong evolutionists such as Alfred Russell Wallace and T. H. Huxley have admitted that no theory of evolution has given any valid account of the origin of the actual or potential spiritual and mental qualities of man. There is a gulf between animal and man that no evolution hypothesis has been able to bridge.

The bald statement about the mythological origin of the creation narratives exhibits a singular indifference to the strong disproof, given by Dr. W. Schmidt of Vienna and the late Dr. S. H. Langdon of Oxford and others, of the fashionable evolutionary theory of religion. This is especially emphasised in Sir Charles Marston's book *The Bible Comes Alive*.

V.—ON MIRACLES.

A section of the Report which will no doubt also meet with widespread disapproval on account of its insufficient character is that on pages 50 and 51, dealing with the subject of miracles. The Report there says :—“ It is felt by many that miracle has a special value in that it is a striking demonstration of the subordination of the natural order to spiritual ends and affords particular points at which God's activity is manifested with special clarity and directness.

“ On the other hand, it is to be recognised that many others feel it to be more congruous with the wisdom and majesty of God that the regularities such as men of science observe in nature and call the Laws of Nature should serve His purpose, without any need for exceptions on the physical plane.”

It should have been pointed out in the Report that the question whether there have been any exceptions to the so-called uniformities in Nature is a matter for evidence and not for opinion or presuppositions. Our experience or knowledge of these Laws of Nature has been acquired over such a comparatively brief time that we are not entitled to say *a priori* whether any exceptions are possible or not. Hume's argument against miracles depends, as Charles Babbage has shown in his *Ninth Bridgewater Treatise*,

upon the assumption that the improbability of the falsehood of the testimony against a miracle having happened *must* always be greater than the probability of the occurrence of the miracle itself. But Babbage proved mathematically that if sufficient evidence is available an exception to any uniformity can be proved.

If there is an Almighty Creator by whose word and will the universe has come into existence, and those uniformities of action we call the Laws of Nature, surely it is presumptuous to say that He cannot vary or has not varied their operation for special purposes! It is true that this may be effected by certain natural agencies specially guided for the purpose or by a direct exceptional exercise of Almighty Power. If the walls of Jericho were cast down by an earthquake, that event was controlled to happen at a particular moment and is therefore not less a miracle. But in other cases there must have been a supernatural manifestation of Divine power—as in raising the dead, multiplying instantly food or stilling a storm.

Then as regards the supreme miracle of the resurrection of the Lord Jesus Christ from the grave there is a vast amount of direct and indirect proof as to the literal truth of the account of it in the New Testament. This proof is partly documentary, partly circumstantial, but the space at disposal inhibits our giving it in any detail. Suffice it to say it has convinced an immense number of acute minds. It is satisfactory to find from the Report "the majority of the Commission are agreed in holding the traditional explanation," namely the bodily resurrection of our Lord and that the tomb was found empty because He had in fact been restored to life. But nevertheless the body of His resurrection was not limited in its powers as are our human bodies but possessed exalted powers of movement although perfectly real in actuality and not a subjective illusion of the witnesses of His post-resurrection appearances.

As regards the other great miracle of the Virgin Birth, the members of the Commission seem to be more divided. It is stated on page 82 that some of them adhere to the actual event as narrated, but others do not accept it. Bearing in mind that one item in the reference to the Commission was to investigate how far it is possible to remove or diminish differences of opinion or belief it is difficult to see how the mere statement of opposing views satisfies the requirements of this part of the reference. It is clear, however, that when as in this case there is no half-way

house between acceptance of and disbelief in the statements of Scripture the attempt to find a *via media* is futile. On page 89 of the Report the position taken up with regard to the Ascension is also unsatisfying.

The Commission say :—“ They have not felt called upon to discuss in detail the narratives of the Ascension or allusions to it in the New Testament. Whatever may have been the nature of the event underlying those narratives and whatever its relation to the resurrection its physical features are to be interpreted symbolically since they are closely related to the conception of heaven as a place locally fixed beyond the sky.” The phrase “ interpreted symbolically ” may induce some readers to think that the Commission intended to imply that the event itself never occurred. The expression is not happily chosen.

We know that in explaining physical phenomena to persons of limited intellectual powers we have to use words which convey ideas to their minds but are not necessarily strictly scientific. Thus we speak of the times of “ rising ” and “ setting ” of the sun and the moon being “ full ” or “ new ” without being accused of untruth. Now although it is the custom to speak of the abode called “ heaven ” as if it were some region in our space of three-dimensions, yet scientific analysis has shown that our space may be only as it were one section of a larger four-dimensional space-time continuum, and that passage from one to the other is by a movement in a fourth dimension. It has been more than once pointed out that the sudden appearances and disappearances of our Lord in His post-resurrection period are all consistent with such movement in a fourth dimension in space. At His final departure from earth He could no doubt have vanished as He did to the disciples at Emmaus. But such act might have perplexed the simple disciples who witnessed it. Hence His initial movement was a short one in our three-dimensional space until a cloud received Him out of sight. There is nothing in the New Testament account of His Ascension which conflicts with scientific truth or need cause its rejection.

In this connection it is noteworthy that the Archbishop of York, the Chairman of the Commission, says in his Preface to the Report, “ In view of my own responsibility to the Church I think it right here to affirm that I wholeheartedly accept as historical facts the birth of our Lord from a Virgin mother and the Resurrection of the physical body from death and the tomb.” On the

other hand, the Report asserts that belief in this event (*i.e.*, Virgin birth) cannot be independent of the historical evidence and they think that this evidence is inconclusive.

VI.—GENERAL CONCLUSIONS CONCERNING THE REPORT.

Taking the first Part of the Report as a whole, it is evident that whilst stating clearly the matters on which the Members of the Commission are divided in opinion no effective reconciliation between these different schools of thought has been effected, and indeed it seems almost impossible that agreement should be reached when certain statements in Scripture and in the Creeds are taken by some to be records of historical facts and by others to be merely "symbolical." It can hardly be denied that the general tone of the Report is more in sympathy with Modernist views rather than with the so-called Evangelical or Fundamentalist beliefs. The doctrines of the Church of England, judged by her official documents, the Articles of religion, the Creeds, and the words of the book of Common Prayer are precisely scriptural and wholehearted in acceptance of certain miraculous or supernatural events as historical facts with a tone of certainty pervading them all. The Report, on the other hand, is somewhat non-committal and inconclusive on these same matters. In his short preface to his gospel, St. Luke tells us that his object in writing it was "that ye might know the *certainty* of those things wherein ye have been instructed," but it is to be feared that the general effect of this Report on the minds of many people may be to produce a feeling of *uncertainty* as to the actuality of events of supreme importance. The ultimate test of any system of religion is the pragmatic test, that is how does it work in practice? Can we go down into the slums and alleys of a great city and hope to achieve any results by presenting a non-miraculous Christ? Let practical evangelists give us the answer to this question. Can Modernism show any achievements such as those of the London City Mission, the Church Army or Salvation Army in raising the degraded, converting the sinful or giving faith and hope to those in the hour and article of death? The foundations of the Christian faith are laid in miraculous events. The forgiveness of sins is miracle, for there is no such thing in Nature. The new birth, the gift of the Spirit of holiness and of eternal life are all supernatural events. Hence the denial of the supernatural, which is the main element in

Modernism, cuts away the foundations on which the Gospel of the Grace of God rests.

That there are deep mysteries in connection with the facts of human salvation cannot be denied, but assurance about them cannot be reached by the human intellect alone. It requires also the exercise of faith without which it is impossible to please God.

It is hardly possible to say that the Commission has fulfilled that part of its reference concerned with removing sharp differences of opinion. It has stated very fairly the opposed opinions but left them, in short, existing as before.

It is the opinion of many competent minds that this Report will not bring about unity of thought and belief in the Church of England but will emphasise those differences and perhaps increase the uncertainty in some minds as to the things which should certainly be believed.

REMARKS BY THE CHAIRMAN, THE REV. H. A. EDWARDS, L.T.H.

I feel it a very great honour to have been asked to take the Chair this afternoon. It would be a great privilege to take the Chair at any meeting of the Victoria Institute ; but I feel that the importance of the subject, and the eminence of the distinguished Author of the paper to which we have just listened, constitute this a rather special occasion.

You will all agree with me, I know, in expressing sympathy and regret at the unavoidable absence of Sir Ambrose Fleming ; we fully understand that it is impossible for him to be with us, and I feel that I may assure him on your behalf that his absence does not in any way detract from the deep debt of gratitude which we owe to him for the clear and concise way in which he has presented the subject to us. We are all grateful, too, to the Rev. F. D. Wilkinson for undertaking what is always a very difficult and responsible task, namely, the reading of another's paper.

As we want to leave as much time as possible for discussion, I will take as little time as I can in these remarks. Certain points in Sir Ambrose Fleming's treatise strike me as being very penetrating—

His statement—

“ . . . yet on a large number of matters there must be some absolute truth, departure from which is error,”

seems to me to hit the nail right on the head. There must be some foundation body of revealed truth on which a Christian can stand firm. He cannot go on retreating before the attacks of unbelievers for ever ; there must come a point at which he can say " Here I stand, and here, if need be, I will die."

This foundation body of Truth—" to depart from which is error "—I have always understood to be contained in the three great Creeds of Christendom. I still believe that to be so, and there is nothing in the Commission's Report to persuade me otherwise. Indeed, no arguments are put forward to that end ; we are simply told that some of the Commission do, and some do not, believe things which are contained in these ancient Confessions of Faith. But, gentlemen, these things about which some of them confess disbelief, *are all things which each one of them swore by solemn oath before God and Men, that they DID believe.* They took this oath before they could be ordained Deacon, again, before being ordained Priest, again, before being instituted to any Benefice or Office in the Church. They are all, as has been pointed out by Sir Ambrose, men of great eminence in the Church ; they have, therefore, solemnly sworn this oath many times. It is permissible to ask, therefore, are their signatures to these solemn declarations merely so many scraps of paper ? or have they only now—after having gone from preferment to preferment, changed their minds ? and if they have changed their minds, is not the only honest course to resign those positions which they hold only in virtue of a sworn declaration which has become untrue ?

They are in a position which to honourable men must be intolerable ; and I think that this is at the bottom of that strange and sinister statement about " symbolic belief " to which Sir Ambrose has drawn attention. The Creeds and Articles of the Church contain positive asseverations concerning the Virgin Birth, the Resurrection, Ascension, and future Return of Christ. Every Priest holding Benefice or other Ecclesiastical Office in the Church must swear that he believes these things, that he will teach them to those committed to his charge, and that he will banish all contrary teaching. It is illegal for him to hold office unless he does so swear.

Two attempts have been made to abolish the present Book of

Common Prayer containing these Creeds and Articles, and substitute another. They failed. Now, for the first time in Anglican history, the doctrine is promulgated that every clause in the Creed is "symbolic" and that it is legitimate to give assent to them, even though believing "that the supposed events did not really happen."

That, to my mind, is the most important part of the whole Report, because it is the most dangerous and deadly. Under such a sanction, an atheist might become Archbishop of Canterbury, or head master of one of our great schools; it smacks of the casuistry of the Schoolmen, and I am persuaded—whatever the officials of the Church may do—that the rank and file, the devout laymen of England, will repudiate it.

Ladies and Gentlemen, I wish to propose a very cordial vote of thanks to Sir Ambrose Fleming for his thought-provoking Paper.

[The vote of thanks having been carried with acclamation, a discussion followed in which seven Fellows, Members and others took part, in strong support of the criticisms of the Doctrinal Report. Two written communications to the same effect were received later.]

DISCUSSION.

Rev. A. W. PAYNE expressed himself as very grateful for Sir A. Fleming's valuable paper. He seemed to be taking the part of the Good Samaritan. When the poor parishioner or member of the Church had been robbed and wounded by the Higher Critics, he had come nobly and boldly to his aid while the priest, the Levite, often passed by on the other side.

He thought that the Commission's report was a threefold disloyalty. It was disloyal to the Lord of Glory who was not only the Logos, the Word of God made flesh, but who also declared that He gave us the Rhemata, the very breathings from His Heavenly Father in every message.

Then there was the disloyalty to the Church, for with the prayer in such common use when the people assemble and meet together, it is to "hear His most Holy Word"; hardly the attitude taken up by this finding of these distinguished Anglican divines. Thirdly, it was disloyalty to the King who is called "By the Grace of God the Defender of the Faith," and that Faith is contained in the Holy

Scriptures, the living oracles of the Old and New Testaments presented to His Majesty at his coronation as True Wisdom.

Mr. SIDNEY COLLETT said: We are always delighted to have anything from the pen of our gifted, and I may say beloved, President, Sir Ambrose Fleming. This latest paper is no exception. In it he has called timely and solemn attention to some very serious statements in the Report of the Archbishops' Commission on Christian Doctrine.

So serious are some of these statements that one wonders what our National Church is coming to when its authoritative leaders can hold so loosely, and treat with such indifference, some of the most fundamental doctrines of the Word of God, when they ought to use their great influence to encourage faith in its divine teaching!

On the one hand they go too far by saying:—"The Bible is not only about God, *but is God!*"—a foolish and manifestly incorrect statement. Then they swing right round the other way, and many of their "conclusions" tend to undermine the vital doctrines of God's Holy Word. For example, Sir Ambrose shows how the authors deny first the inerrancy of the Bible. If that goes, then we have no sure foundation for our faith. On this subject I see reference is made to Luke's preface to his gospel. I should like, therefore, to call attention to what does not seem to be generally known. When Luke, according to our Authorised Version, tells us that he had "perfect knowledge of all things from the very first," the correct translation from the Greek is "*from above*"—a wonderful claim to inspiration! That same Greek word occurs several times in the New Testament, and is always elsewhere translated "from above." See, for example, John viii, 23: "Ye are from beneath, I am from above."

Secondly, they deny the accuracy of its prophetic teaching. Yet there is nothing more manifestly true than the prophetic teaching of the Bible—especially in the present day.

Thirdly, they say "the Gospel records of our Lord's words are unreliable!" Thus they would rob us even of our blessed Lord's own words!

Then, we learn also that they definitely favour the theory of Evolution, which has been proved again and again to be without

foundation, while they treat the sober and scientific account of Creation, as given in Genesis, as mythological! Also it is shown that they practically deny the miraculous in the Bible. Then it is stated that the members of the Commission were divided on the vital doctrine of the Virgin Birth of our Lord! Surely nothing could be more serious than that, for if Christ had had a human father He would have been a descendant of Adam, and, as such, would have inherited Adam's sin—for "in Adam all die" and, in that case, He could neither save Himself nor anyone else!

Even the Ascension of our Lord is to be interpreted symbolically! While the paper also shows that the members of the Commission were largely in sympathy with modernism, which plays havoc with the Bible.

Mr. HARRISON HILL said:—I speak as a member of the Church of England and particularly as a member of the Church Schools Committee of a London parish. I desire to thank Sir Ambrose Fleming for his paper, and I feel sure that all who, like myself, are interested in the religious education of our young people will share that gratitude.

In Section IV of his paper, the President discusses the subject of Creation or Evolution in regard to a set of statements on pages 44 and 45 of the Report, and to the immense amount of refutation given of late years to the theory of organic evolution. On that subject, I hold in my hand a small but important pamphlet by Lt.-Col. L. M. Davies, M.A., F.R.S.E., F.G.S., entitled *Scientific Opponents of Evolution*. (Covenant Publishing Co., Ltd., London.)

The pamphlet contains an impressive list of eminent scientists in France, Germany, and Italy who are opposed to the theory of Evolution. Though Col. Davies needs no confirmation from me, I have myself read the biographies of these scientists in the Encyclopædias of the three countries mentioned, and I hope soon to give at least an extract in *The National Message*, to which I contribute articles.

It was my duty recently to review in that journal an excellent book by Mr. Douglas Dewar. It is entitled *More Difficulties of the Evolution Theory*. It is dedicated to one of the scientists mentioned in Colonel Davies' pamphlet, Dr. Albert Fleischmann,

Professor of Zoology and Comparative Anatomy in Erlangen, "who for thirty-seven years has openly opposed the theory of organic evolution."

On the page opposite to the title are these words by Professor Lemoine, Director of the National Museum of Natural History, Paris (translating freely) :—

"The theory of evolution is impossible. It is a sort of dogma in which those who teach it no longer believe."

Mr. H. R. KINDERSLEY said :—All Christians who stand unashamed for "the Faith once delivered to the Saints," and have had the advantage of hearing or reading his address, must feel deeply grateful to Sir Ambrose Fleming for his vigorous and masterly denunciation of the treatment in this Report of the essentials of the Christian Faith by many leaders of the Church of England. In this Report two items in particular have evoked from Christian people widespread feelings of amazement and indignation, viz., "The Virgin Birth" and "Prophecy."

Though said to possess value as a parable, yet the story of the "Virgin Birth," as found in the Gospels and hitherto regarded by the Church of Christ as the keystone to the whole Christian edifice is declared by an important section of the Commission to have no historical foundation.

Then what do these sceptics make of the Gospel records of the Incarnation? This great doctrine is dismissed in the Report with a bare page and a half of comment which leaves nothing clear but the distressing fact that many leaders of the Church, holding modernist views, simply regard the Gospel records as fiction. But the minute details of these records are either true or false. If false, who is responsible for these shocking fabrications? Clearly the only person in a position to give first-hand evidence was the Mother of Jesus. Are the leaders of the Church of England, signatories to this Report, prepared to charge her with these foul inventions? For obvious reasons Modernists have never ventured to face this question; for instead of her prediction being fulfilled that all nations would call her "blessed," no language would be too strong to mark their sense of disgust at her supposed attempt to cover the fact of her sin.

But if this crime is not to be laid to the door of the gentle Hebrew Mother of Our Lord, then will anyone in their senses believe that the writers of the Gospels were guilty of inventing the amazing details of the Birth of Christ; a work which offered for them no better prospect of reward than persecution and death?

As it has been pointed out, "Jesus was either God-made man or man-made God." The modernists adopt the second alternative, asserting that He was the natural Son of Joseph and Mary. But "Natural generation always and necessarily produces a new person." Moreover, "Christ's Birth . . . is not the origin of His Personality, but only its entrance into the conditions of a human life (Orr)."

There is no place here for the Eternal Son of God!

But what of prophecy? The wording of the Report on page 29 is incapable of misunderstanding:—"We cannot now regard as a principal purpose or evidence of Inspiration the giving of detailed information about the future." Then how do they explain Micah v, written 750 B.C.:—"But thou Bethlehem Ephratah though thou be little among the thousands of Judah, yet out of thee shall He come forth unto me that is to be ruler in Israel; whose goings forth have been from of old, from everlasting"? True prophecy, as distinguished from intelligent anticipation, lies outside the capabilities of human beings. To God alone belongs the power to predict the far future in detail. This agrees with the verdict of Isaiah xvi, 23:—"Show the things that are to come hereafter, that we may know that ye are gods."

The proof of prophecy lies in its fulfilment. Unlike the sacred writings of the other great religions of the world, which according to Dr. H. A. Ironside do not contain a single instance of the fulfilment of a genuine prophecy, the Bible stands unique in being "sealed with prophecy in all its parts."

The Rev. H. K. BENTLEY said:—Might I be permitted in all humility to call attention to a slight blemish in the otherwise wonderful paper prepared by Sir Ambrose Fleming. There is one statement that needs slight modification. On page 5 Sir Ambrose draws a slightly incorrect deduction of Deut. xviii, 22: "When a prophet speaketh in the name of the Lord, if the thing follow not,

nor come to pass, that is the thing which the Lord hath not spoken, but the prophet hath spoken it presumptuously." Sir Ambrose goes on to say that "the clear deduction from this verse is that prediction of future events is an exclusive prerogative of God."

Might I venture to say that this not so. Deut. xiii, 1-3, warn against being led astray by men who, under other inspiration than that of God, foretell the future in a successful manner. "If there arise among you a prophet, or a dreamer of dreams, and giveth thee a sign or a wonder, and the sign or the wonder come to pass whereof he spake unto thee saying, Let us go after other gods which thou hast not known, and let us serve them; thou shalt not hearken unto the words of that prophet, or that dreamer of dreams: for the Lord your God proveth you to know whether ye love the Lord your God with all your heart, and with all your soul." In other words, a man speaking under demonic influence may be able to predict the future with a certain degree of accuracy, and this success may be a means in the hand of the enemy of souls to draw people away from the truth of God. This passage is given us as a warning of that danger. Prophets must be tested in other utterances to see whether they are in accordance with the whole revealed will of God.

In the next place, with reference to the Virgin Birth of our Lord, which has already been mentioned, I venture to suggest that no one who believes the Creation story should have any difficulty in believing the Gospel account concerning our Lord's miraculous birth. If God could create with a word a man who had neither father nor mother, surely it would be a simple matter for Him to give us His Son without the aid of a human father. Whilst our Lord had a human mother, Adam had neither father nor mother.

May I also say that the Bible and our Lord stand together. In each case we find that they owe their existence on earth to the power of the Spirit of God acting miraculously on chosen human vessels which thus received the God-given and supernatural ability to bring forth His Word for the salvation of men.

Might I further say that seeing that Christianity is based entirely on the teaching of the Apostles, any departure from the clear meaning of Apostolic teaching is a departure from Christianity. Anyone who does not agree with the Apostles thereby proclaims

himself to be faulty in his Christianity, and those who are against the Apostles' teaching are anti-Christian, to that extent.

With regard to verbal inspiration, it is clear from many passages of Holy Writ that God gave not only the thoughts but the very words. Have we not read, "Behold I have put My words into thy mouth" ? Furthermore, when we turn to such passages as Lev. i, 1 and 2, we see that what is written there is clearly what God actually said : "The Lord called unto Moses, and spake unto him out of the tabernacle of the congregation saying, speak unto the children of Israel, and say unto them, if any man of you bring an offering unto the Lord, ye shall bring your offering of the cattle, even of the herd, and of the flock." We see there, Sir, that we are given not merely what Moses said to Israel, but what God said to Moses. God told Moses exactly what to say, and what follows is not between the mouth of Moses and the ear of Israel, but between the mouth of God and the ear of Moses. The words are God's words, and not Moses'. I submit, Sir, that it is a clear case of dictation, and there are many such instances. Besides, was it not Dean Burgon who said that, as you cannot have music without notes, nor arithmetic without figures, neither can you have thoughts without words ? Let anyone here present try to think without words, and see how he succeeds.

WRITTEN COMMUNICATIONS.

Rev. Principal H. S. CURR wrote : Many of the statements contained in the document with which our President has dealt so effectively must rouse grave concern in the minds and hearts of all who care greatly for the progress of true religion in this realm. The Church of England is by law established as the national church, a fact which invests with unusual importance and influence such pronouncements on Christian doctrine as the Report of the Archbishops' Commission. Dangerous concessions are made to humanistic modernism which is virtually a different religion from Christianity, if indeed it be a religion at all.

There is, however, one sentence quoted in the paper which has rejoiced my soul. It is concerned with that event which Sir Ambrose justly describes as "the supreme miracle of the resurrection of the Lord Jesus Christ from the grave." The words in question

are these: "the majority of the Commission are agreed in holding the traditional explanation." In conjunction with that, there may be taken the explicit declaration of Dr. William Temple, the Archbishop of York, a great scholar and philosopher, that he wholeheartedly accepts the historic teaching of the Christian Church on the rising of Our Lord from the dead. We need not be unduly disturbed by the obvious inference that there was a minority of members who refused to believe in the empty tomb. We read that when Our Lord appeared to His followers after His Resurrection, some doubted (Matthew xxviii, 16-17).

The connection which has troubled me is that a company of theological specialists has been constrained to accept the teaching of the New Testament regarding the literal reality of Our Lord's Resurrection. His Virgin Birth seems to have been a stone of stumbling. The Ascension is regarded with some degree of dubiety but of the physical return to life of Jesus of Nazareth soon after His Crucifixion no serious question is raised, and that by scholars who challenge the inspiration of the Bible, and accept the evolutionary theory regarding the origin of the universe. The evidence must have been simply overwhelming to secure such a verdict in favour of the time-honoured belief of the Christian Church that Our Lord actually rose from the dead, and appeared again to His disciples. Sir William Robertson Nicoll was in the habit of saying that there is no fact in history so well attested as the Resurrection of Jesus Christ. The conclusions of the Archbishops' Commission bear out that contention. They express themselves as dissatisfied with the historical evidence for the Virgin Birth and for the Ascension, but the many infallible proofs of the Resurrection seem to have convinced them. As to the significance of that, let Paul be heard, "If Christ be not risen, then is our preaching vain, and your faith is also vain. But now is Christ risen from the dead, and become the first fruits of them that slept" (7 Cor. xv, 14, 20).

Mr. GEO. BREWER wrote: I feel that our President has rendered a valuable service in his masterly dealing with the first part of this Report, which although it has served a useful purpose in revealing the wide differences existing in the Church of England, Sir Ambrose has conclusively proved to be a very humiliating and inconsistent document.

Putting aside the fact that in the New Testament no mention is made of a universal visible Church, nor of any body representing a confederation of local assemblies (the invisible Church as the Body of Christ being one and indivisible), the fact remains that the Church of England at the Reformation declared unmistakably for the fundamental doctrines of the Christian faith, as set forth in the New Testament, which with the Old Testament Scriptures they regarded as the inspired Word of God, and affirmed the historical accuracy of the events recorded therein.

Sir Ambrose also refers to statement on page 29 of the Report, that the evidence of the "inerrancy of the Bible commonly held in the Church until the beginning of the nineteenth century cannot be maintained in the light of the knowledge now available." Here the impregnable rock of Holy Scripture is surrendered as an untenable fortress to the enemy; for while, as Sir Ambrose says, it fails to state which parts are erroneous, it leaves to each individual or group to decide, and to expunge or explain away such portions which militate against their preconceived opinions. In fact, the way is carefully prepared for the unbeliever to treat the inspired Word with indifference.

Luke, the intelligent physician, in writing to his friend Theophilus, assured him in the opening verses of his gospel, that having himself obtained the testimony of those who were eyewitnesses, he had received from above perfect understanding of all things, and writes in order that he might know the certainty of those things wherein he had been instructed.

Of the signs and miracles recorded in his gospel, the Apostle John says in the closing verses of twentieth chapter: "Many other signs did Jesus in the presence of His disciples, which are not written in this book; but these are written that ye might believe that Jesus is the Christ, the Son of God; and that believing ye might have life through His name."

The contention that many events recorded in both Old and New Testaments as historic facts, and as such, some were quoted by our Lord Himself, are merely symbolic, reduces Holy Scripture to a book of fables.

Our Lord spoke as one having authority, and not as the Scribes. These would appear to include scribes of the present day as well as those of our Lord's time

82TH ORDINARY GENERAL MEETING,
HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, JANUARY 23RD, 1939,
AT 4.30 P.M.

COMMANDER F. C. CORBYN, R.N., IN THE CHAIR.

The Minutes of the previous meeting were read, confirmed and signed, and the Hon. Secretary announced the election of T. A. N. Barnett, Esq., as an Associate.

The CHAIRMAN then called on Lieut.-Col. F. A. Molony, O.B.E., to read Dr. Holland Rose's paper entitled "Seafaring and its Results in the Apostolic Age."

*SEAFARING AND ITS RESULTS IN THE
APOSTOLIC AGE.*

By PROFESSOR J. HOLLAND ROSE, Litt.D., F.B.A.

(Fellow of Christ's College, Cambridge; formerly Vere Harmsworth Professor of Naval History in the University of Cambridge; Hon. LL.D. of the University of Manchester, of the University of Nebraska, and of Amherst College, Mass.; Hon. Fellow of the Polish Academy, the Polish Historical Society, and the Carlyle Society (Edinb.).)

THIS is so wide and little-known a subject that we shall do well to limit our study of it almost entirely to the life of St. Paul, which ended at Rome in A.D. 62. So wide was his vision, and so deep his faith in Christ Jesus, that he was the first of the apostles to carry out our Lord's last command to them, to be His witnesses "Unto the uttermost parts of the earth" (*Acts* i, 8). Therefore St. Paul has been entitled "The second founder of Christianity." Moreover, St. Luke has, in the *Acts of the Apostles*, described his chief mission tours, including the last voyage to Malta and Rome. So we have more details about these missions, especially those overseas, than about those of the other apostles. Indeed, there is no writer in ancient literature who so fully and vividly describes a voyage and shipwreck as does "the beloved physician," St. Luke, record that of "the apostle to the gentiles" from Caesarea to Myra, Crete, and thence to Malta. For St. Luke accompanied him on this and some other voyages. But only this one has he described fully; for it was the most important of all.

Indeed, Saul of Tarsus (or Paul) was the first of the apostles to realise the great opportunity opened up by the Roman Empire for travelling safely all over the Mediterranean. Shortly before the birth of Christ, the first Emperor, Augustus, had thoroughly suppressed piracy in that sea. Thus, for the first time in human history he had made trade and travelling safe over that vast expanse, thereby guarding the great ships which carried corn from Egypt and Syria to Rome. More about them presently. Meanwhile, note that Augustus had also brought about a period of world peace and order. Nobly has Milton commemorated the dawn of this new age in which occurred the birth of Christ. His "Hymn on the morning of Christ's Nativity" opens thus:—

"No war or battle's sound
Was heard the world around :
The idle spear and shield were high uphung.
The hooked chariot stood
Unstained with hostile blood :
The trumpet spake not to the armed throng ;
And kings sat still with awful eye
As if they knew their sovran Lord was nigh."

Our great poet does not hail the advent of peace and order at sea. But that event brought new prosperity and happiness to Eastern peoples, and it bound all Mediterranean lands in far closer union, thus paving the way for the spread of Christianity as far as Italy, and, ultimately, Spain.

Now, is it not strange that, alone among the apostles, St. Paul realised the great possibilities more and more opening up overseas? Though "a Hebrew of the Hebrews" by family descent, yet he grew up as a Roman citizen, at Tarsus, a Roman City in Cilicia, and near the sea. As Sir William Ramsay has pointed out in his book, "*The Cities of St. Paul*," that city brought about "a union of the Oriental and Occidental spirit." This lived on in Saul, especially after he became converted to Christianity on his way to Damascus. Then he ceased to be a persecuting Pharisee and became an ardent Christian missionary, with an outlook far wider than that of the Jews who knew only Palestine.

Even Jewish Christians still adhered to the old Jewish thought and customs. Indeed, the Jews were still a landlocked people, who regarded the great sea with almost as much terror as did the

Psalmists. (*See* Psalm civ.) "The earth is full of Thy riches. Yonder is the sea, great and wide, wherein are things creeping innumerable, both small and great beasts. There go the ships : there is that leviathan, whom Thou hast made to take his pastime therein." (That is a passage which reminds us of what befel Jonah, when he fled away from Israel on a ship to escape to Tarshish in Spain.) So too in Psalm c the Psalmist proclaims to God—"We are His people, and the sheep of His pasture." Yes ; the Jews were essentially land-loving and looked up to the hills "whence cometh our help." True, God made the sea and kept it from overflowing the land ; but the psalmists and prophets regarded it with deep apprehension. Thus in Psalm lxxiv we read—"Thou didst divide the sea by Thy strength. Thou brakest the heads of the dragons (*i.e.*, sea-monsters) in the waters." So too Isaiah li 9, 10) besought God thus—"Awake, put on strength, O arm of the Lord. . . . Art Thou not it that dried up the sea, the waters of the great deep ?"

Now, all this dread of the sea, whence came their oppressors, the Philistines, and their demoralisers the Phœnicians, lived on until the time of our Lord. Latterly, too, had come the Romans, who subjected Judæa to the rank of a province. This again was resented by patriotic Jews ; and though the great port of Caesarea brought to them trade and wealth, yet they disliked the Roman connection. Perhaps this accounts for the Jewish apostles neglecting the last command of Jesus, to bear witness of Him "to the uttermost parts of the earth." (This would be over the great sea, even to Spain.)

Far from that, the apostles at Jerusalem, who at Pentecost were inspired by the Holy Spirit to proclaim God's works in their own languages to those who had come to Jerusalem for the feast, nevertheless took no steps to follow them to their own lands. For these were as far distant as Parthia in the east, Pontus and Macedonia in the north, Crete and Rome in the west, and Egypt and Libya in the south (*Acts* ii, 2-11). St. Peter, the chief of the apostles, urged the Jews and others who dwelt there to repent and be baptised ; and about 3,000 joined the Christian fellowship. But St. Luke does not record any immediate effort by St. Peter to follow the others to their own lands.

Later on, as St. Luke records in chapter x of the *Acts*, St. Peter had a vision which warned him that nothing which God

had cleansed was to be regarded as common or unclean. This led him to go and convert the Gentile Cornelius, the centurion, also to regard converts of all Gentile peoples as acceptable to God—(*Acts* x and xi). Though the Jewish Christians at Jerusalem objected to this at first, yet they finally accepted this truth.

Nevertheless, the mission journeys of St. Peter to the Gentiles are not recorded in the *Acts*. But that apostle, in his first *Epistle General* writes to "Sojourners of the Dispersion" who dwelt in Pontus, Galatia, Cappadocia, Asia (*i.e.*, Asia Minor), and Bithynia. Almost certainly he had visited these and perhaps he had converted them. But none of them was oversea. Also, as we shall see later, St. Paul and St. Luke in their voyage to Italy did not meet St. Peter there, though finally he did proceed thither.

What a blessing it was that Saul of Tarsus, and Barnabas of Cyprus were converted to Christianity! Thereafter they worked most cordially together, especially at the Church of Antioch, whose members (the first to be called Christians) had a wide outlook into Asia Minor, and longed for the Gentiles to accept the gospel. Finally, the word of God came to that Church urging it to separate Paul and Barnabas for the work of converting the Gentiles (*Acts* xiii, 1-3). Therefore in A.D. 47 these two proceeded to the port of Seleucia, and thence set sail for Cyprus. We hear no details of this little voyage, which is the first of the missionary voyages. So too, Salamis in Cyprus is the first place of a mission to the Gentiles. Finally, at Paphos, Paul converted the proconsul, Sergius Paulus. Thence he and Barnabas sailed over the narrow sea to the mainland port opposite, Perga of Pamphylia, and thence proceeded into the inland parts of Asia Minor.

We must pass over that long inland mission, after which they returned to Antioch. There Paul decided to visit again their converts in Asia Minor. But, as Barnabas differed from Paul, who declined to take Mark with them, these two leaders separated, Paul taking Silas with him, and later, at Lystra, Timothy. Finally they came to Troas, the chief port of the Troad. There by night he had a vision of a man of Macedonia beseeching him to come over the sea and preach the gospel there. Forthwith he decided to do so, and they "Made a straight course to Samothrace," an islet off the coast of Thrace. Again we hear

nothing of this little voyage, which probably was in a row-vessel, for the course was straight and short. Thus was it that the first Christian missionaries landed in Europe, a fact which then counted for little, because both the Troad and Thrace were parts of the Roman Empire.

On the next day they proceeded to Neapolis and thence to Philippi, the capital of Macedonia and a Roman colony. After a terrible experience there they left for the great port of Thessalonica. Fanatical Jews compelled them to seek refuge in Beroea, whence again those fanatics turned him out. His friends took him to the sea and then brought him to Athens, where, later on, Silas and Timothy rejoined him.

At that intellectual city the high-brow Athenians scoffed at the idea of Christ's resurrection from the dead. Therefore Paul departed forthwith to Corinth. The people of that port were far more open-minded. Indeed, so many believed his teaching that he remained there a year and six months, as a guest of the Jews, Aquila and Priscilla. For the Emperor Claudius had expelled them and all Jews from Rome. Finally Paul, when again attacked by many Jews, decided to leave Corinth along with Aquila and Priscilla, and sail away for Syria. But instead of that they sailed to Ephesus. There he soon left them and sailed away to Caesarea. Having saluted the church there, he proceeded (probably by land) to Antioch and spent some time there. Next, he departed for the region of Phrygia and Galatia to "establish all the disciples" (*Acts* xviii, 18-25). Thereafter he went on to Ephesus, and he used this great city as a centre during two years, so that "all they which dwelt in Asia" (*i.e.*, Asia Minor) "heard the word of the Lord, both Jews and Greeks. . . ." "So mightily grew the word of the Lord and prevailed."

When these things were ended, Paul purposed in the spirit to go again to Jerusalem and said to himself—"After I have been there, I must also see Rome" (*Acts* xix, 9, 10, 20, 21). This is very noteworthy; for it shows that he regarded that as almost his final objective, though elsewhere in his *Epistle to the Romans* (xv, 24) we read that he purposed, after reaching Rome, to sail on to Spain.

But facts which are not described by St. Luke altered these plans. Let us see briefly what came to pass. After the great uproar at Ephesus on behalf of Diana of the Ephesians, Paul

exhorted the disciples there to hold firm, and he himself sailed away to Macedonia, doubtless establishing the churches there, and then those in Greece. When the Jews there plotted against him he returned to Macedonia, and thence, along with St. Luke, sailed over in five days to Troas (*Acts* xx, 1-7). There he restored to life that sleepy listener, Eutychus. Next, Paul and Luke sailed down the Ægean sea past the islands of Chios and Samos, and then landed at Miletus in Asia Minor. At that port the elders of the Church of Ephesus met him, and he spake and then prayed with them; so that they fell on his neck, kissed him and wept sore because he told them that they would see his face no more. Thus was it that they accompanied him to his ship and bade a sorrowful farewell.

From Miletus he and Luke made straight for the island of Cos, and the next day reached Rhodes. Thence they reached the port of Patara and, finding there another ship bound for Caesarea, boarded it and so reached that port, and thence Jerusalem.

Alas, few details are given by St. Luke about the voyaging during this long and varied mission. What is certain is that in it he encountered no danger at sea, either from storms or pirates. Indeed, he never was assailed by pirates. At least he does not name any such mishap in that well-known passage of II *Corinthians* (chap. xi, 25, 26) written to them in or just before A.D. 55. In it he mentions all his chief hardships, including perils from robbers and three shipwrecks, and his having been "a night and a day in the deep" (*i.e.*, probably clinging to a plank). Unfortunately, there are no passages in the Bible or elsewhere which record when and where these shipwrecks happened. Probably they occurred in his later mission voyages; but certainly not in his last voyage, to Malta and Italy, which took place some time after he wrote the *Second Epistle to the Corinthians*.

Let us now give more consideration to this voyage, of which St. Luke, who was on board, gives the fullest account of any voyage of that great epoch. Indeed, it is the most complete account in the Bible of any voyage; and it is so lifelike as to win the admiration of all our seamen, especially Nelson, who praised it warmly.

First, let us note why St. Paul had to make this lengthy voyage to Rome. During his last visit to Jerusalem he was attacked by the Jews, and was soon rescued by the Roman chief captain, who handed him over to Governor Felix at Caesarea. Finally

Paul appealed unto Caesar for judgment, and King Agrippa ordered that he be sent as a prisoner to Rome (*Acts* ch. xxvi). Now, as we have seen that Paul had a long time previously desired to go to Rome, is it not likely that he, a Roman citizen, made the appeal to Caesar in order to induce, or even compel, Agrippa (who was only the vassal King of Judæa and subject to Rome) to send him off to the capital of the Empire? For there alone would the Emperor give his decision. It seems to me probable that St. Paul made his appeal unto Caesar because only so could a prisoner at Jerusalem make his way to Rome. The beloved physician St. Luke gained permission to accompany him.

Also with several other prisoners Paul set sail from Caesarea under the command of Julius, a centurion of the Augustan band, *i.e.*, of the Emperor's guard. They voyaged at first in a coasting vessel from Adramyttium and next day touched at Sidon. There Julius gave leave to Paul to go ashore and meet his friends—a rare privilege which showed that Paul was highly respected by Julius.

Next they struggled on towards Cyprus against contrary winds, and sailed along under its lee, that is, on the side facing Cilicia and Pamphylia. The ship must have been a well-rigged and lightly burdened coaster; for she beat up against the west wind until she reached Myra, a good harbour in the province of Lycia. There they found a great imperial corn-ship of Alexandria, which, though bound for Rome, had been compelled by the west wind to sail northwards to Myra in order to find breezes from the land and so proceed westwards. She did so (writes St. Luke, who was on board) "slowly during many days" (*Acts* xxvii, 7).

Clearly this great corn ship, which carried 276 people beside a quantity of corn, was poor at tacking. Let us see what she was like. Dr. Sottas, of Paris, a specialist on ancient shipping, has prepared a model of her, which shows her as a broad and rather clumsy cargo craft. In order to face high waves, she has a high bow bearing a leaning mast with a foresail hanging from it called *artemon* (*i.e.*, "hanger"). (The word "foresail" is correctly used in the Revised Version of *Acts* xxvii, 40, in place of the word "mainsail," incorrectly used in the Authorised Version.) But even higher is her stern, over which gazes a figure of a great guardian goose. As geese of the Capitol had saved

early Rome, so this goose was to guard the stern and helmsman against mountainous waves of a storm before which the great ship was fleeing.*

This terrible danger flashed upon Julius's ship off the south of Crete. The N.N.W. wind off the S.W. corner of Asia Minor had compelled her to turn southwards to the east of Crete and along its southern coast off Salmone she sailed along slowly until she neared a harbour called Fair Havens. Off there Julius permitted Paul to speak forth and advise the master (as it was now after the fast of Octr. 5th) to put in and winter there. For we must here note that in the eastern Mediterranean the weather is nearly always calm from mid-April to the second week of October. So all lengthy voyaging there took place between those dates; and very little, if any such, occurred from early autumn to early spring. Therefore, after October 5th, this great cornship was nearing the time of danger during her still long voyage.

Nevertheless the majority objected to St. Paul's proposal to winter at Fair Havens, because that harbour faced E.S.E., and was therefore exposed to a tempestuous wind, termed Euroclydon. Besides, forty miles further west along S. Crete was a safer harbour, Phœnix, where the imperial corn ships could safely winter, and often did. So they sailed slowly on thither, when suddenly Eurocydon burst upon their stern. "The ship could not face the wind" (writes St. Luke): "we gave way to it and were driven." While under the lee of the islet of Cauda (or Clauda) they all, including Paul and Luke, with difficulty hauled on board the large rowboat. †

Next they used helps (probably thick ropes) for undergirding the hull, then lowered the top gear, and began to throw the freight overboard, also the "tackling of the mast" (*Acts* xxvii, 18, 19). These precautions are of interest as showing how, in a storm, a broad heavy hull had to be strengthened by ropes lest the timbers should separate. Also they lowered the great yard-arm and the mighty sail which it supported, along with ropes and topmast. Overboard also was cast the great cargo of corn so as to lighten the monster. Thus the lightened but still almost helpless ship sailed across Hadria Sea during fourteen gloomy days and nights.

*A reproduction of Dr. Sottas's model of this ship is in my book, "*Man and the Sea*," opposite page 57. As I there point out, the goose is the bird of the Egyptian goddess, Isis, the guardian of their ships.

†The chart shows four islets, any of which might be Clauda.

Alone among those 276 sailors, soldiers and prisoners. St. Paul and St. Luke kept up their spirit, and on the last night, as they neared Malta, the apostle, who had already experienced three shipwrecks, urged them to take food so as to be fit for the coming crisis. This might have happened at the Syrtis sandbanks, to the S.E. of Carthage, if the foresail had not enabled the ship to keep her course about due west, and not W.S.W. as would have happened if she had merely drifted before that E.N.E. tempest. Again, when off Malta, the foresail helped her to make for a bay now known as St. Paul's Bay. It is N.W. of Valetta.

Once more St. Paul had acted wisely and bravely in warning Julius and the soldiers that the sailors were planning to use the ship's boat as if to put out anchors aforeship, but really in order to escape quickly ashore. So the soldiers cut away the boat, and the sailors had to remain aboard and help the ship to get ashore in that bay. Then Julius, desirous of saving Paul, prevented the soldiers' killing the prisoners lest they escape. So, either by swimming, or clinging to planks, etc., "they all escaped safe to land." This happy ending to a terribly long crisis was mainly due to the heroic apostle, whose faith and experience, raised him, a prisoner, above all the officers, sailors and soldiers, and made him the saviour of the crew.

Then they all spent three winter months in Malta, and the work of Paul and Luke there doubtless prepared for the later conversion of that island to Christianity. Next, they departed on another great ship of Alexandria which had wintered there. After tarrying three days in the great harbour of Syracuse, they made Rhegium, near the most southerly point of Italy. Then a favouring wind arose which brought them to Puteoli, the harbour well to the south of Rome, which was used by the imperial cornships. There Paul and Luke found brethren who entertained them seven days. In all, their voyage from Caesarea to Puteoli had lasted from mid-August to mid-February, *i.e.*, six months, but three had been spent in Malta. It is well to note here that St. Luke does not mention either there or at Rome the presence of St. Peter. Surely that chief of the apostles would have been named if he had been there!

As we have already seen, Paul had planned to voyage to Spain, taking Rome on his way thither. This plan never came to pass; but it is remarkable that he had resolved to go ultimately to

Spain (*Romans* xv, 24). This proves his determination to carry out our Lord's order to the apostles to be His witnesses "even unto the uttermost parts of the earth" (*Acts* i, 8). Had he lived on longer, he might perhaps, after visiting Spain have come to Britain, then held by the Romans. Even when he was detained two years as a prisoner in Rome before his unjust execution, he preached in his own hired dwelling to all who came there, proclaiming the gospel of Christ "with all boldness, none forbidding him." Thus ends the *Acts of the Apostles*. And undoubtedly his work at Rome helped to spread Christianity there, and consequently over part of the Roman Empire.

This, then, was the all-important result of Christians voyaging over the Mediterranean, which widened gloriously the narrowly Jewish outlook of the early Christian Church.

Yet there are few signs of rejoicing in the later books of the New Testament at this carrying out of Christ's last instruction to His apostles. Of course, the imprisonment of Paul, and finally his execution at Rome, aroused indignation and horror. So did the later efforts of one or two of the Roman Emperors to stamp out Christianity there. Hence the dark outlook which appears at most parts of the *Revelation of St. John the Divine*, during his last years, spent in the Isle of Patmos. In chapter xxi he visions a new heaven and a new earth, in which there is no sea; for, like most of the Jewish Christians, he still looked on the sea as the cause of separation.

Nevertheless, in chapter xi, 15, he records great voices in heaven which declare "The Kingdom of the world is become the Kingdom of our Lord and of His Christ; and he shall reign for ever and ever." Also in chapter xix he voices the praise ringing forth from heaven "Hallelujah; for the Lord our God, the Almighty, reigneth. Let us rejoice and be exceeding glad."

Thus St. John at Patmos had a glorious vision of a new world now opening up. Was not this due largely to the missionary efforts of St. Paul oversea? No longer was Christianity limited to Palestine and parts of Syria and Asia Minor. It was spreading over the mighty Mediterranean; and its new centre was at Rome, the capital of the World Empire. This promised to make it no longer a Judaic religion but a religion that would bring all peoples to the love of God and the love of one another.

To sum up: The title of "The Second founder of Christianity" which has been applied to St. Paul, is by no means extravagant.

For until he and Barnabas began to spread the gospel oversea to Cyprus, no one of the apostles had made any such effort. Then work had been confined to Judæa, Samaria and as far as Antioch in northern Syria. It was at this last place that converts had begun to have a wider vision; and probably this was one reason why the converts at Antioch were the first to be termed "Christians." Thence also was it that Paul and Barnabas started for the mission which aimed first at Cyprus, then at Asia Minor, and finally at Macedonia and Greece. Paul met with a contemptuous reception at Athens, where intellectual pride was paramount; but at the other chief cities he founded churches which were permanent.

So far as we know, St. Peter for a long time limited his new missionary efforts to the lands near Palestine. Of these St. Luke gives no definite account in the *Acts of the Apostles*, but St. Peter in his *First General Epistle* addresses his converts who were in Pontus, Galatia, Cappadocia, Asia (*i.e.*, Asia Minor), and Bithynia. He also refers to the Church that is in Babylon, which is believed to mean Rome. His final work in Rome is recorded clearly in legends which have generally been accepted. Yet St. Luke in the *Acts* refers to no voyage of St. Peter, and does not mention him as being among the "brethren" whom St. Paul and he met at Puteoli and Rome. Therefore it is unlikely that St. Peter arrived in Rome until a later time.

Nevertheless, we must remember that St. Luke in the *Acts of the Apostles* does not record all their acts, which was impossible in those twenty-eight chapters. Indeed, as we have seen, he did not mention the three shipwrecks of St. Paul, to which that apostle referred in II *Corinthians*, chapter xi. Thus it is clear that no complete account of all the apostolic voyaging has come down to us. Probably St. Peter and Barnabas carried out more missions oversea than are recorded by St. Luke. But those of St. Paul were of such prime importance that St. Luke called attention to them as spreading Christianity oversea to Macedonia, Greece, and finally to that mighty centre, Rome. That work showed not only devotion and enthusiasm for the gospel of Christ, but also strategic foresight as to its making a new Europe and a New World. Verily, St. Paul was the "Second founder of Christianity."

DISCUSSION.

The CHAIRMAN (Commander CORBYN) said : Crete* is 140 miles long, from 6 to 30 miles broad. It is traversed through its whole length by a mountain range, in the west the lofty ridge of Madara or white mountains, 8,100 feet high. Near the middle, Mount Psiloriti (ancient Ida) culminates in three lofty peaks, the highest point attaining 8,060 feet. Near the eastern end are the Lasethe mountains 7,100 feet and Sitia mountains, 4,800 feet.

The stormy wind, called Euroclydon in the Acts of the Apostles, and the Meltem of the modern Greek navigators, seem to be identical, for, to the Levantine sailor, the Meltem is always a tempest to be guarded against, especially from its squalls when passing under any high land, which are often of great force. It is possible that its character, and not so much its direction, is meant by the word Euroclydon in the description of St. Paul's voyage by St. Luke ; for in the Black Sea and the northern parts of the Archipelago the Meltem or northern gales are invariably from the north-north-east, but in the southern parts and Cretan areas they are from the north-north-west, whilst in Egypt and Syria they are frequently between north-west and north-north-west.

Kalo Limiones, the Fair Havens from whence St. Paul sailed previous to his shipwreck at Melita, is a small bay $3\frac{1}{2}$ miles eastwards of Cape Littinos. It is open to the eastward but partially sheltered from the southward by two islets, St. Paul and Megalo Nisi, the latter being 196 feet high. The ancient town of Lasea or Thalassa is situated at the north-eastern end of the bay.

Port Lutro (Ancient Phœnix or Phœnice), immediately under Madara, is the only bay on the south coast where a vessel would be quite secure in winter. The port is open to the eastward, but is sheltered from the south by a rocky shoal on which lies the islet of Lutro, extending $1\frac{1}{2}$ cables eastward from the south point of the entrance. It is represented to be safe in the winter, as the south winds seldom blow home against the lofty and precipitous mountains which rise above, and the swell which then reaches the shore is not sufficient to cause any harm. The winds mostly to be

* Authority : *Mediterranean Pilot*, Vol. IV, "The Islands of the Grecian Archipelago, including the Island of Crete," etc.

feared in the winter are the northerly gales during which the gusts descend from the mountains with hurricane force.

In considering the journey from Fair Havens to Phœnice one has to remember that on rounding Cape Littinos, only $3\frac{1}{2}$ miles to the westward, one immediately enters Messara Bay. Experience teaches that Fair Havens is a much more tranquil anchorage in northerly gales than Messara, as in the former a moderate and steady breeze is often blowing, whilst in Messara Bay it is a strong gale, especially in the beginning of the day as St. Paul experienced it, and as was also experienced by H.M.S. *Spitfire* on one occasion in leaving Kalo Limiones for the western part of Crete. This circumstance and experience first threw light on the true meaning and character of the Euroclydon of St. Luke.

Principal H. S. CURR said : The Acts of the Apostles is renowned for its accuracy of detail. It abounds in a thousand little touches dealing with the political conditions of the Roman Empire during the first century of our era, and with geographical references. These have been carefully investigated, and the result has been the complete vindication of the author's trustworthiness as a historian. It is hard to convey an impression of the endless pitfalls which the writer avoids. Here is a simple analogy. At Oxford and Cambridge there are colleges called after the Queen but in the one case the word is singular, and in the other plural : Queen's College, Oxford, and Queens' College, Cambridge. Errors as easy and as subtle are absent from Luke's pages.

This amazing accuracy has been said to reach its climax in the famous chapter which recounts Paul's shipwreck at Malta. To give some idea of the thoroughness with which its veracity has been tested, let me say that an investigator actually sailed over the course followed by the apostle on that momentous voyage, and the result of his journey was the publication of a book in which he demonstrates again and again that the narrative is absolutely trustworthy (*The Voyage and Shipwreck of S. Paul*, by James Smith, 1848). That is all the more astonishing when it is remembered that Luke was a landsman. It is true that he was interested in navigation, but that is no guarantee that his story should be such a miracle of accuracy. Indeed, as one examines the narrative, it

is hard to resist the temptation to compare Luke to Rudyard Kipling, whose intimate knowledge of all manner of crafts and callings is the delight and despair of his readers. A more remarkable instance of such encyclopædic knowledge is Shakespeare, who seemed to know something of everything, and everything of something, the latter being the mind of man. But Luke is even greater still. His range of accurate information is incredible.

The interest of that fact lies in its bearing on the doctrine of Scriptural infallibility. Let it be said at once that nothing magical or mechanical is contemplated. When we speak of the Bible as the infallible book no more and no less is claimed than that it is the truth of God, the whole truth, and nothing but the truth. Luke's references to ancient seafaring harmonise well with that doctrine, old but ever new.

Rev. ARTHUR W. PAYNE, in thanking the reader of the paper and the Chairman for his most illuminating remarks on Crete and the winds, agreed heartily with Principal Curr in his statement as to the perfect accuracy of the historical and geographical details of the book of the Acts and the Apostles.

Having been in a storm in the Mediterranean at the same period of the year as the Apostle travelled (when escaping from the Holy Land as a former civil prisoner of war of the Turks) with a similar number of sailors and passengers on the boat (which was afterwards sunk by a submarine), he could appreciate the beauty of the description of Luke's account in Acts xxvii.

With regard to the reference to Peter writing from Babylon as meaning the city of Rome, he believed it was the literal city of Babylon and its district where Peter founded a church. There are proofs of a very early Hebrew Christian community in the province and the Jewish Encyclopædia corroborates this fact.

Col. SKINNER, paying tribute to Commander Corbyn's own masterly handling of the nautical problems involved in St. Paul's voyage, asked if he would kindly explain the manœuvre of the shipmen (Acts xxvii, 30) in trying to cast anchors out of the foreship on a lee shore; obviously a ruse on their part, but what, in terms of

navigation, was the nature of the operation they were pretending to carry out ?

AUTHOR'S REPLY.

I cannot undertake to make any comments on these contributions, though they mostly add interest to my essay.

Reference might be made to Dr. Sottas's learned work on the great ships of that age. I refer to him in my paper.

Colonel Skinner's problem I am unable to explain.

825TH ORDINARY GENERAL MEETING,
HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, FEBRUARY 6TH, 1939,
AT 4.30 P.M.

R. E. D. CLARK, ESQ., M.A., PH.D., IN THE CHAIR.

The Minutes of the previous meeting were read, confirmed and signed, and the Hon. Secretary announced the following elections:—As a Life Fellow: Sir Frederic G. Keynon, K.C.B., D.Litt., LL.D. As a Fellow: Leslie James Moser, Esq. As a Member: A. R. B. Morrisby, Esq.; and as Associates: J. J. Young, Esq., A. P. Kelsey, Esq., Richard Allen, Esq.

The CHAIRMAN then called on F. T. Farmer, Esq., B.Sc., Ph.D., to read his paper entitled "The Atmosphere: Its Design and Significance in Creation"

The meeting was then thrown open to discussion in which the following took part: The Rev. Principal H. S. Curr, Mr. R. Duncan, Mr. H. W. Molesworth, and Dr. J. Barcroft Anderson.

Written communications were received from Miss C. M. Botley and Mr. E. L. Hawke.

THE ATMOSPHERE : ITS DESIGN AND SIGNIFICANCE IN CREATION.

BY F. T. FARMER, ESQ., B.Sc., PH.D.

THE idea that the world consists of strata, lying over one another like layer upon layer of onion coats, dates back to ancient times. Aristotle held that the four elements, earth, water, air, and fire, always tended to move into positions one above the other and, after that, he was obliged to postulate not less than fifty-six concentric spheres in which the planets moved under unseen impulses.

Perhaps the human mind has a natural tendency to think in terms of cosmic layers; but whatever may have been the grounds for these ancient speculations, there is no doubt that they were on the right lines. To-day, we are all more or less familiar with the structure of the earth—it starts with a central iron-nickel core, followed by several distinct layers of rocks; after that there is the surface, consisting either of granite continents or oceans; then comes the atmosphere with its

Troposphere, its Ozonosphere, and higher still, its Kenelly-Heaviside and Appleton layers; and finally, situated an enormous distance away, there is believed to be yet another layer of electrons which move in tortuous trajectories about our planet like tiny rockets.

This afternoon we shall be concerned with but a part of this complex array of strata—the part that lies above our heads. We shall seek to discover the main facts about the layers which surround us day and night, and inquire how far they serve a useful purpose to man.

To tackle this problem it will be necessary, first of all, to pass in review the early stages of this world's history.

Much light has recently been thrown on this interesting subject, particularly by the advance of seismology and geology, and, as we shall see, it has a very important bearing on the condition and nature of the atmosphere now surrounding the earth.

To begin with, there is much evidence that the earth, together with the other planets of the solar system, was at one time ejected from the sun, or at least from a star occupying approximately the same position as our sun. It has been found, for instance, that the proportion of different metals (as distinct from the light elements) in the earth is practically identical with that in the sun.* Again, all the planets move round the sun in approximately the same plane, and this could scarcely have come about if they consisted of matter which had been captured by the sun from some other part of space.

Many views as to how the sun gave rise to the planets have been put forward, though we do not need to go into these in detail. One of the best known is that of Laplace, according to which "planetary rings" were formed as a result of the gradual cooling of the sun. But to-day this mechanism is not considered tenable as there seems to be no way in which such rings could condense to form the large planets of the solar system. It was to avoid this and other difficulties that Jeans put forward the now well-known theory that the planets were formed from a "filament" of matter which had been drawn out from the sun by the close encounter of another star. Calculation shows that if this star had moved past the sun fairly slowly it would have had time to transfer a large amount of angular

* V. M. Goldschmidt, *Journ. Chem. Soc.*, Apr. 1937, p. 655.

momentum to the filament. In this case the latter, instead of falling back into the sun, would have continued to rotate round it in an orbital manner.

The way in which such a filament of gaseous material would separate into individual masses has been examined in detail, and it appears that the theory gives a satisfactory explanation of most of the features of the solar system.

Yet it has turned out that even this view is not without difficulties. The chief of these is to account for the large angular momentum associated with the outermost planets, which seems to be much in excess of the predicted value. This and other difficulties can be resolved if we assume that the sun was initially a member of a binary system, and that the encounter of a third very massive star removed one of the pair, at the same time leaving a vast extension of matter from the remaining sun.

Whatever the exact details, however, it seems certain that the earth and other planets of our system were formed as a result of the collision of stars. We may proceed, therefore, to examine the subsequent behaviour of the hot filament of gaseous matter after it was thrown out into space and left to cool.

At first, heat would have been lost very quickly indeed ; in fact, it is easy to show that after only a few years the planets must have begun to appear in a liquid form. This would be followed by a much longer period of cooling, probably of the order of a few thousand years, before the first solidification of rocks set in. The earth would then begin to take the form in which we know it. But, during this cooling process, important changes in the composition of the earth as well as of the other planets would be taking place ; for since the outer layers of gas surrounding a planet consist of molecules, some of which have a proportion of energy much greater than the average corresponding to the temperature of the gas, there must of necessity be a continual escape of those molecules which happen to have sufficient energy to fly right out of the gravitational field in which they move. Moreover, since in a mixture of molecules of different kinds the light ones have just as much energy as the heavy ones, it is obvious that the loss will consist chiefly of those of the smallest mass.

Thus we should expect to find that the smaller planets, where the gravitational fields are weaker, would lose a large proportion of their light elements during the cooling process, while the larger

planets would retain most of their original atmospheres. Calculation shows that this must indeed have been the case, and that the smaller planets, including the earth, must have lost the entire layer of light gaseous elements which would otherwise have remained surrounding them while the crust solidified. Jupiter and Saturn, on the other hand, which have much stronger gravitational fields, should have lost a far smaller proportion of their light elements during the cooling process. That this was in fact the case is strikingly confirmed by the known distribution of density between the planets. Although the volume of Jupiter is 1,300 times that of the earth, its mass is only 317 times greater. In other words, its mean density is less than one-quarter of the density of the earth despite the fact that pressures in its interior are very much greater. This can only be explained if we assume that both Jupiter and Saturn contain large proportions of hydrogen, helium, carbon, and perhaps other light elements which are relatively uncommon on the earth.

The planet Mercury, on the other hand, which has a mass of only one-twenty-third of that of the earth, is known to have no appreciable atmosphere surrounding it. This indicates that the gravitational field is too weak to retain any of the ordinary gases.

We have seen that the earth, by the time it had formed a solid crust, must have lost all the atmosphere which originally surrounded it. But we are now faced with the problem of explaining how the very considerable atmosphere which now exists could have come into being.

From the work of Jeffries* there seems to be no doubt that our entire atmosphere was liberated from the molten rocks during their solidification. The liquid magma contained quantities of dissolved gases which escaped as the temperature was reduced—just as they escape to-day in the lava lakes and during volcanic eruptions. In addition to the permanent gases, steam was evolved during the cooling of the earth—indeed, it is still evolved in huge quantities from volcanoes. Calculation shows that the primitive earth must have lost all its original water, together with the other gases, so that the whole of the water in the oceans must have been liberated from the molten

* *The Earth*, Camb. Univ. Press (1929). *Monthly Notes of Roy. Astr. Soc.*, Geophys. Supp., Feb. 1937.

magma. In conformity with this conclusion, recent measurements have shown that, under pressure, molten lava is able to absorb a very considerable quantity of water, which has the effect also of reducing its melting-point. A continuous liberation of steam must therefore have occurred from the crust of the primeval earth, and when the temperature fell sufficiently this must have formed first vast masses of cloud and finally the extensive oceans now in existence. The chief gases liberated as the result of volcanic action in the early age of the earth were, presumably, nitrogen, carbon dioxide and water vapour. Other more chemically active gases—such as ammonia, sulphur dioxide and hydrochloric acid (which provided the chlorine in the sea)—were rapidly removed when once the sea had condensed, leaving carbon dioxide and nitrogen as the chief constituents. Specimens of this early atmosphere, trapped in the form of bubbles in once molten rocks, have been analysed and bear out these conclusions. In addition, there is much geological evidence which leads to the same conclusion—thus the earliest sedimentary iron ores were deposited in the non-oxidised (ferrous) condition while, owing to the abundance of carbon dioxide, limestones could not be deposited until a later epoch.

Since the earth, even after solidifying, remained at a high temperature for a considerable time, it is obvious that its newly formed atmosphere must have tended to disappear into space by the process already described, although of course slowly. Thus a "sorting" of the atmosphere must have taken place; light gases, especially hydrogen and helium, which were almost certainly liberated with nitrogen and carbon dioxide, were thus lost completely into space, and it is probable that, were it not for this loss, we might to-day have considerably more nitrogen than we actually have.

It is of interest to note that considerable quantities of hydrogen and helium are still being liberated from the earth, and for a long time it was difficult to reconcile the known rate of issue of these gases with their very small concentration in the air. At first, it was supposed that owing to their extreme lightness, these gases were rising right through the atmosphere and forming layers on top. Observations on luminous clouds in the upper air showed, however, that this could not be the case since there was far too much turbulence for separation to take place.

In recent years the upper atmosphere has been the subject of

extended research. It has turned out to be very different from what we had imagined, but newer conceptions make it easy to understand, not only the disappearance of hydrogen and helium, but also many other related phenomena.

To begin with, various observations—such as the measurement of the absorption of wireless waves—have shown that at a level of about 200 miles the atmosphere is at a very high temperature indeed, probably at least 1,000 degrees Absolute.* This is sufficient to cause a continuous loss of such light gases as hydrogen and helium from the earth, which easily explains why there is so little of them in the air.

It is obvious that this high temperature cannot be maintained by heat supplied from the earth, for it is far above that of the earth's surface. Moreover, we know that the air lower down is very cold, for direct measurements made with the use of balloons up to heights of about 25 miles have shown that the mean temperature at that height is considerably less than it is at ground level.

Thus, the great temperature must be maintained by some source outside the earth, and it is now known that the gases at these great heights are kept hot by their absorption of the sun's rays. As a result of this absorption large numbers of ions are formed, and it is these which are responsible for the ionised regions of the upper air which play so great a part in the reflection of wireless waves down to the earth.

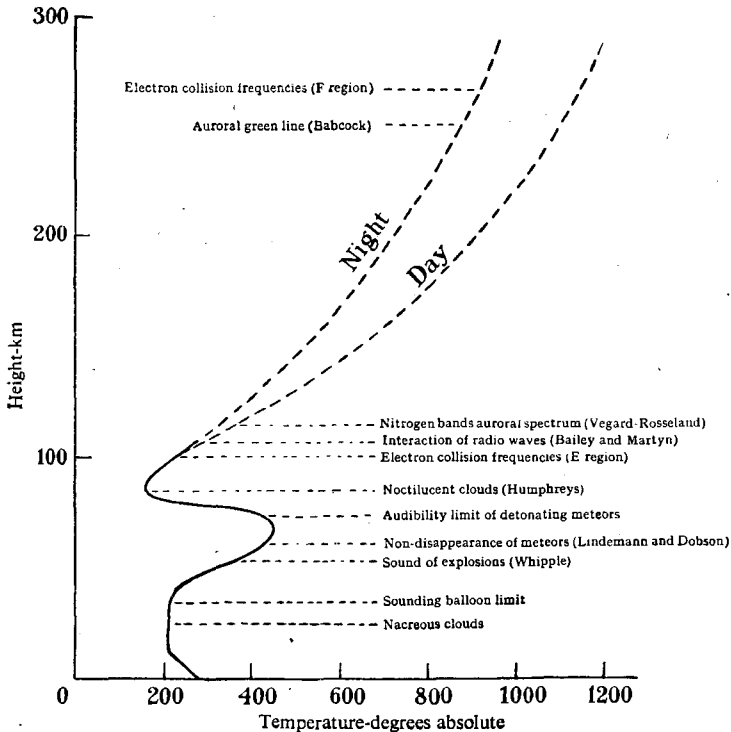
By various methods it has now been found possible to obtain more or less reliable estimates of the temperature of the atmosphere at various levels, and the accompanying figure shows a graph in which all the data have been collected for heights up to two hundred miles.† From this graph it will be seen that at a height of about 90 km. (65 miles) the temperature is as low as 160 degrees Absolute, after which it begins to rise rapidly.

The temperature of the upper atmosphere is of no small significance from the point of view of living matter. Even at 1,000 degrees Absolute there is a slight escape of oxygen from the earth, and only a small rise would cause the removal of this element from our atmosphere altogether, and so make animal life impossible.

* D. F. Martyn and O. O. Pulley, *Proc. Roy. Soc. A*, **154**, 455 (1936).

† I am indebted to Messrs. Martyn and Pulley for permission to reproduce this figure.

Let us now turn to consider the changes which have taken place in the atmosphere since its first formation, and their relation to the existence of life on the earth. We have seen that after the sea had condensed, the gases which initially formed the atmosphere were in all probability carbon dioxide and nitrogen, no oxygen being present. This atmosphere, though very different from our own, is one which is entirely suitable for many



forms of plant life. It is now believed that in the early ages of the world the carbon dioxide was gradually used up by the luxurious vegetation which then covered the hotter parts of the earth, and that under the influence of sunlight it was slowly replaced by oxygen. In this way the world was gradually made suitable for the support of animal life. It thus seems reasonable to suppose that the stages of creation of life fitted in with this process of change in the atmosphere.

Up to the present we have been considering the atmosphere from a purely scientific standpoint. We have seen how the earth on cooling from a nebulous state lost vast quantities of gaseous constituents ; how it passed through a stage in which it had no appreciable atmosphere ; and how the present atmosphere came into being as a result of the liberation of gases from the molten rocks. We must now consider the question from a different point of view. Let us inquire whether the processes which have led up to the formation of our present atmosphere are the mere working of chance, or whether they are suggestive of design—perhaps the design of a Mind who had planned to make a world on which life could exist.

In seeking to reach a conclusion on this question, we are naturally confronted by certain difficulties. It can be argued, for instance, that there is nothing significant about a world in which the conditions are suited for the support of life : for if the conditions on the world had been different from what they are, the forms of life on it would have been correspondingly different.

This point of view is very plausible, but, unfortunately, there is no space to give it detailed consideration in this paper.* However, we may notice a few important points which are relevant to the issue. In the first place chemical considerations indicate that the choice of basic elements which are capable of forming pliable compounds, such as our bodies are composed of, is very limited. It appears, indeed, that, apart from the very exceptional properties of carbon in forming long chainlike molecules, such structures could not be formed at all.

This at once sets a very definite limit to the temperature range at which life might be able to exist ; for it is only over a very restricted range of temperature that carbon compounds are stable. Other considerations, moreover, make it fairly certain that living matter can only exist within the range of temperature at which water remains in a liquid state. It is now nearly a century since Whewell pointed out that the earth is one of the few planets that has a temperature lying within these limits, and since that time it has become increasingly clear that the question of temperature alone sets a sharp limit to the possible existence of any kind of life.

* See N. V. Sidgwick, *Science*, 86, 335 (1937).

By itself, the fact that the earth is at the right average temperature for life is nothing remarkable; if the earth had not fulfilled this requirement, it is likely enough that another of the planets would have done so. But it is just here that other factors essential to the existence of life become significant. In order that living creatures should be able to exist and move about from place to place on the earth, it is obvious that they must have available some source of energy. Although energy can be obtained in other ways than by the absorption of oxygen to react exothermally with carbon compounds, it is not easy to find any other reaction which would meet all the requirements. Indeed, a chemically active constituent in the atmosphere seems to be essential if creatures are to gain a continual supply of energy without being tied to one place on the earth. Thus the presence of an atmosphere containing a proportion of oxygen becomes a factor of great importance—and incidentally oxygen is absent in the atmospheres of all the other planets. The process by which this oxygen came into being has already been considered; but we may well inquire whether it was a necessary feature of a planet situated at our particular distance from the sun. Would there, for instance, have been any oxygen if the earth had happened to be of a different size?

We have seen that the rate of escape of gases into space depends very greatly on the gravitational field of the planet. If the mass of the earth had been somewhat smaller, therefore, instead of the oxygen escaping slowly, as it does at present, it would have escaped rapidly all the time, and in all probability there would have been a negligible proportion of it left in the air. This alone would have destroyed the possibility of animal life, as we have seen.

Suppose, on the other hand, that the earth had been larger than it actually is. We know that in this case the proportion of light elements which escaped from the planet while still in the gaseous state would have been very much less, and a proportion of the original atmosphere would have remained round the planet throughout the cooling period. The resulting change in the composition of the earth's atmosphere would have been very great. It would have contained vast quantities of hydrogen and helium, and the presence of the former would have made the existence of free oxygen impossible, besides making the atmosphere very much more dense. Observations made recently on the

large planets Jupiter and Saturn have shown that they are surrounded by enormous atmospheres; indeed, according to the best estimates available, nine per cent. of Jupiter's and twenty-three per cent. of Saturn's radius consist of atmosphere. Although these values may not be accurate, it is easy to see that if they are of the right order of magnitude the pressure at the base of the atmospheres must be many thousands of tons to the square inch, which would obviously render life in any ordinary form quite out of the question. Secondary effects of such an increase in pressure would also be extremely marked. For instance, turbulence in the atmosphere, instead of taking the forms of winds such as we experience on the earth, would be violently destructive, and probably eliminate any vegetation on the planet. Another effect even more serious to the existence of life would be the almost complete absorption of radiation from the sun in such an atmosphere. This would deprive the living matter of its primary source of energy.

A further feature of the earth highly dependent on its size is the proportion of its surface covered by water. In its present state the sea covers four-fifths of the total area and a relatively slight increase in its gravitational field would have caused a sufficient proportion of light elements to remain to result in the whole surface being covered. The possibility of marine life would, perhaps, have remained; though even this is doubtful when the influence of vegetation and land life on the ocean is taken into account.

From these considerations it is obvious that the ability of the earth to support life depends on many features besides its mere location in the temperate region of the solar system. Other factors, such as those which we have been considering; and also others again which we cannot consider here, such as the length of day and night and the inclination of the earth's axis to the plane of its orbit, have all a fundamental bearing on the possibility of life on the planet.

When we view all these factors together, it becomes apparent that the existence of life on the earth is far from the natural result of its position in the solar system, as we might at first sight suppose. Rather, the whole set of conditions, which make our very existence possible, is so out of the ordinary that if we will not recognise any purpose in the universe, we must surely describe them as a *freak*. Not only is the existence of our solar system

almost a unique feature of the universe, but the earth itself shows still further signs of having violated the laws of probability in becoming an abode for living creatures.

But at the present time there is less and less need to speculate along such lines. When we view these features of our earth scientifically the hypothesis that the earth is the outcome of a chance evolutionary process from chaos becomes less and less credible. The more science shows us of the structure and history of our world, the more do we see the evidences of design and purpose on every hand. The earth's atmosphere which we have been considering this afternoon is but one of many cases where closer inquiry shows the handiwork and forethought of God in place of the cold working of chance.

DISCUSSION.

The CHAIRMAN (Dr. R. E. D. CLARK) said: Dr. Farmer has mentioned, I am afraid all too briefly, a number of topics which are of absorbing interest at the present time. Among these are one or two which I should like to single out for comment. To begin with, there is the rather surprising discovery that the steam which later formed the oceans issued first of all out of the molten rocks. Now it may have occurred to you to wonder what was the future history of this steam. So let us try to piece the story together.

At first the atmosphere consisted chiefly of hot, dry steam together with some carbon dioxide and nitrogen. Its pressure near the surface of the earth must have been very high—comparable, in fact, to the pressure in the depths of the oceans—while no light from the sun pierced the thick blanket of gases. By and by, as the earth cooled, there came a time when the critical temperature of steam was reached—the temperature below which highly compressed steam becomes a liquid.

When this happened the oceans began to condense. But the process must have taken place in a very remarkable way. In the first place the earth was still cooling from the outside. This means that the steam high up in the sky must have reached its critical temperature before that lower down, so that for a time a layer of water was actually left floating on the steam below. But as this state of affairs is unstable at the lower surface where the water and

steam meet, there must have been violent convection currents, as a result of which the temperature tended to be equalised. This would cause the oceans slowly to descend to the ground.

Even after the oceans had descended to the earth they must have been in a state of violent commotion. When liquids condense near their critical temperatures there is, at first, very little difference between the densities of the liquid and the vapour. So during the period of condensation the condensed water must have been in constant agitation. Disturbances which to-day would make waves a few feet in height would then have raised gigantic walls of water, hundreds, and perhaps thousands, of feet high. The moon, then nearer to the earth than now, would have had a correspondingly greater influence, and it is probable that at one stage the continents were periodically covered and uncovered by water. Then again, with heat still escaping from the earth, the boiling cauldron of waters would in places be turned to steam, so that great pockets of vapour would be produced in the oceans, covered by liquid at a higher level. Indeed, an onlooker might never have guessed that water tries to find its own level!

Such, so far as we can tell to-day, must have been the story of the sea at its birth. And it is interesting to compare it with the brief description of those days given to us in the first verses of Genesis. Here we read that there was a waste and a void, and that darkness was upon the face of the deep. In that darkness the Spirit or Wind of God moved upon the waters. Now, elsewhere in Genesis we find the words "of God" are used to convey the meaning "very great": thus in Genesis xxxv, 5, a great terror in certain cities is spoken of as a "terror of God." From this it would seem to follow that the Genesis passage is intended to convey the idea that a *very great* movement of the waters took place at this time. But however this may be it seems fairly clear that the writer is talking of some mysterious moving of the waters before the light had penetrated to the surface of the earth.

Moreover, the writer of Genesis correctly puts the separation of the dry land at a later stage, and is undoubtedly correct in several other geophysical details he gives us, though in one or two there is still doubt from a strictly scientific standpoint. So here, within a few verses, there is a remarkably accurate account of what

happened. Moreover, it is hard to see why anyone should mention the violent commotion of the waters at all, without possessing a knowledge of the critical states of liquids. To my mind, the extraordinary accuracy of these early verses of the Bible constitutes very real evidence that the critics are not right in assigning them to the products of ordinary human intelligence. The traditional view of the Bible seems to be more in keeping with the facts.

Dr. Farmer has also alluded to the coming of oxygen into the atmosphere. The reaction by which the green leaf makes oxygen is one of remarkable complexity. Some years ago Molisch found that certain leaves, when moistened with water and put in the sun, could be made to evolve oxygen. But subsequent research has shown that neither under these, nor any other known conditions, can a dead plant be made to produce oxygen from carbon dioxide in sunlight. Indeed, quite a small injury often stops the entire photosynthetic activity of a plant. Furthermore, although a large number of autotrophic bacteria (sulphur bacteria, iron bacteria, etc.) are known, not one of them possesses the power of making oxygen, although some of them (the purple bacteria, etc.) can obtain energy from sunlight.

These discoveries are of some interest in view of the common evolutionary idea that life started as very simple organisms in the sea, and gradually got more complex as the years passed by. As none of the simplest organisms can make oxygen, and all are in fact dependent on oxygen for their existence, it is difficult, as Jeffries points out, to see how life could have evolved from unicellular organisms at all. Indeed, it would seem from this evidence alone that green plants must have been the first forms of life. If subsequent research confirms this view it will add yet a further confirmation of the truth of the simple narrative given in Genesis.

J. B. S. Haldane has attempted to avoid this difficulty by suggesting that large quantities of proteins were first formed in the sea by the action of sunlight upon water, carbon dioxide and ammonia, so that a suitable environment for the first living cells was made available. That is not an unreasonable point of view— if only proteins could come into being by such means. The fact that no reputable research worker in the last twenty years has claimed to make a trace of protein in this way suggests, however,

that they are not produced by photosynthesis. (A claim to make amino-acids was made by Baly soon after the war, but it is generally regarded as mistaken.) I think, then, that we may disregard Haldane's view, together with his further opinion that the sun's light made proteins in such abundance that the sea became "as thick as soup" with them, and the protein molecules, now able to collide frequently, formed the first living matter by chance! (*Fact and Faith*, 1934 ed., p. 45.)

There is one more thing I should like to say. Dr. Farmer has placed a good deal of emphasis on the remarkable plan of the world. The way in which this apparent "design" is becoming more and more obvious as research progresses is certainly very significant. The idea that a correct theory is one which fits the facts of subsequent discovery is a principle which lies at the basis of materialistic philosophy; yet it is now transpiring that materialism fails when judged by its own criterion. According to materialistic philosophy, the subsequent trend of discovery ought to be one in which the apparent "freakishness" of the world becomes less and less as new discoveries are made. But the very opposite is happening to-day. Everywhere the unexpected seems to have taken place in the world of nature, and modern research merely goes to multiply examples. This being so, it is surely increasingly clear that the world cannot be explained on the basis of a materialistic philosophy.

Well, perhaps I have occupied too much of your time already. I am sure you will all desire to join with me in giving a hearty vote of thanks to Dr. Farmer for his valuable and stimulating paper.

The Rev. Principal H. S. CURR said: I have thoroughly enjoyed Dr. Farmer's paper, not because I can lay claim to specialised or even general knowledge of the subject, but rather due to his admirable methods of exposition which made a subject of considerable complexity to be full of interest. None of us, perhaps, with the exception of our distinguished Chairman, appreciates how abstruse Dr. Farmer's subject has been. If we had tried to read it up in scientific books, the task would have been found to be no easy one.

I should like to advance the suggestion that an interesting point might have been made by the lecturer, if he had referred to the

dimensions of this planet, on which man lives, and moves, and has his being in comparison with those of the other stellar bodies. Sir James Jeans was reported in the Press to have stated in a lecture that, in comparison with the astronomical scheme of things, the globe on which we dwell for "life's little day" is no larger than a grain of sand in comparison with the bulk and distance of other galleons voyaging in the seas of space. When Dr. Farmer's very interesting conclusions regarding the suitability of the earth for man's life are placed side by side with these estimates of its relative magnitude, one marvels and feels constrained to apply to our world the words of Micah with reference to Bethlehem, destined to be the birth-place of Our Lord and Saviour: "But thou, Bethlehem Ephratah, though thou be little among the thousands of Judah, yet out of thee shall he come forth unto me that is to be ruler in Israel; whose goings forth have been from of old, from everlasting" (Micah v, 2). The earth may be amongst the least of the stars in size, but in other respects it takes precedence before them all since quality is ever superior to quantity.

I wish particularly to make some observations with reference to the bearing of Dr. Farmer's conclusions on the ancient argument from design as a proof of the Being and Excellence of God. He himself claims in the concluding sentences of his paper that he has furnished additional evidence for the validity of that phase of apologetics. Need I remind you what the argument from design is. It has never been illustrated more effectively than in Paley's famous analogy of the savage and the watch. He pictures a barbarian of considerable intelligence finding a watch for the first time. As he examines this remarkable combination of wheels and levers and springs, he concludes that its maker must have been an individual who was much more clever and ingenious than he could ever hope to be. In the same way man finds himself in a world where the adaptation of means to ends can be his daily delight and despair if he have but eyes to see, and a mind to perceive. The earth is full of the glory of God Who has made all things in wisdom and power and love. Dr. Farmer has provided fresh proofs of that inference, and these are as persuasive as they are novel.

While I yield to nobody in my reverence and admiration for the argument from design, I wish to point out that its effectiveness is

limited. As a logician of great eminence observed, we can never be sure that these marvellous aptitudes and adaptations which abound both in animate and in inanimate nature, are not the result of chance. That may only be one in a million, or in astronomical figures, but it is still a possibility. It may be improbable, but it is not impossible. While I welcome the remarks made by the Chairman that all suggestion of what he describes as seeming freakishness is tending to disappear from scientific theories regarding the origin of the universe, I fear that it is necessary to sound a note of caution by a reminder that certitude cannot be obtained by such inductive methods.

That brings me to refer to the clamant need of revelation. Neither by search nor research can man find out God. Unless His Maker manifests Himself to His creatures in a more sure and personal and direct way than by the evidence of what has been created, man is condemned for ever to grope after God if haply he may find Him. It is the privilege of the Institute to bear witness to the truths of revealed religion as contained in the Living Word and the Written Word. In the light which streams from these supernatural sources, all things become new, and old things pass away, and one of these things most surely established by this method is the saying of the Psalmist that "the earth is the Lord's, and the fulness thereof; the world and they that dwell therein. For He hath founded it upon the seas, and established it upon the floods" (Psalm xxiv, 1-2).

Mr. W. H. MOLESWORTH said: It is difficult to understand how a high temperature zone such as is referred to on page 43 could accumulate heat, since it only faces the sun for a short part of the day, unless its outer surface is always in contact with a substance of still higher temperature and density.

WRITTEN COMMUNICATIONS.

Miss C. M. BOTLEY, F.R.Met.S., wrote: Dr. Farmer's paper is so lucid and so well planned that comment seems superfluous except to congratulate him upon the way he has presented his thesis. One or two thoughts, however, occur to me.

(1) The high temperature of the upper air may be designed partly as "Air Raid Precaution." Lindemann and Dobson, in their

classic paper, have shown how it would facilitate the dissipation of meteors which otherwise might be rather troublesome to us below.

(2) The statement that oxygen is absent in the atmospheres of all the other planets is perhaps a little too sweeping, for there is the possibility that the atmosphere of Mars may contain it in small quantities. I think it is certain that there is vegetation on Mars, though that can exist in the absence of free oxygen, *e.g.*, anaerobic bacteria.

Mr. E. L. HAWKE, M.A., F.R.A.S., Secretary R. Met. S., wrote : I have read Dr. Farmer's paper with much interest, and consider it an excellent treatment of the subject.

It always seems to me that the majority of astronomers and physicists put an unnecessarily limited interpretation on the word "life." Personally, I share Sir Oliver Lodge's conviction that the entire universe is "pulsating with life" not, of course, as *we* know it ; and I can see no reason why any environment whatsoever should be regarded as incapable of forming the seat of the particular sort of life that is appropriate to itself. May we ourselves not be likened to minute organisms inhabiting one apple growing on one tree in an orchard of enormous extent ? We can see some of the other trees (perhaps most of them with the most powerful telescopes), but have the presumption to doubt whether any of them has produced an apple crop, and, if it has, whether organisms, even of an entirely different nature from our own, can exist on more than a very small minority of the apples. This is clumsily put, but no doubt you will get my meaning.

By the way, have you ever come across the following remarkable passage from the works of that strange and now largely forgotten essayist of the Victorian age, Ambrose Bierce ? It was written long before Einstein's time : "Magnitude being purely relative, nothing is large and nothing small. If everything in the universe were increased in bulk one thousand diameters, nothing would be any larger than it was before, but if one thing remained unchanged, all the others would be larger than they had been. To an understanding familiar with the relativity of magnitude and distance, the spaces and masses of the astronomer would be no more impressive than those of the microscopist. For anything we know to the

contrary, the visible universe may be a small part of an atom, with its component ions, floating in the life-fluid (luminiferous ether) of some animal. Possibly the wee creatures peopling the corpuscles of our own blood are overcome with the proper emotion when contemplating the unthinkable distance from one of these to another." I think there is much food for thought in that.

AUTHOR'S REPLY.

I am much indebted to our Chairman for the valuable contribution he has made to this subject. He has given us an illuminating picture of the early stages in the development of the atmosphere, and shown the remarkable accord that exists between this development and the historical account in the early chapters of Genesis. It is unnecessary for me to elaborate the points he has made, except that I would like to draw attention to an interesting result which has recently emerged from a study of the upper atmosphere by means of wireless waves. It has been found by careful measurements that tidal movements exist in the high regions of the atmosphere and, at a height of some seventy miles, these have an amplitude of as much as half a mile. This has an interesting bearing on the Chairman's view that the primitive atmosphere exhibited vast tidal disturbances (actually moving in the opposite direction to the tides with which we are familiar). As he pointed out, the atmosphere containing water at about its critical temperature represented a state of affairs in which slight changes in gravity must have had a profound effect, and the relatively large movements which are now known to take place in the upper air make the tides he has described seem less startling than would at first sight appear.

Principal Curr has drawn attention to the essential uncertainty of the inductive method of reasoning as a means of finding out the truth about nature. His argument is doubtless correct, though to discuss the question adequately would take us too far from our subject. It is essential to realise that to the scientist, as indeed to any inquirer into nature, all knowledge suffers from this drawback. However sure we may feel of the correctness of certain laws of physics, such, for example, as the law of gravitation, we are bound to recognise that the experiments upon which they were based may

ultimately have happened to be "freaks," and so given rise to a misleading interpretation of the phenomena. It would be futile, however, to discredit all knowledge on this account; our duty as scientists is surely to use the reason given us to the best advantage and make the most reliable inductions possible. To deny the value of induction is to close the door to any further knowledge, a course which cannot be considered as God's purpose for man. It is, of course, true that revelation often gives us a certainty where we might otherwise be in doubt. But this certainty, while satisfying to the Christian, can never carry conviction when we seek to give a reason to others for the "faith that is in us."

Mr. Molesworth's inquiry about the way in which a high temperature may be maintained in the upper atmosphere when the sun's influence is removed, may be answered without much difficulty. In the rarefied gas which we are considering hot molecules are dependent primarily on the process of radiation for dissipating their heat energy. The energy they receive, however, is due to ultra-violet light from the sun and after absorption a large part of this degenerates slowly into thermal energy, thus raising the gas to a high temperature. Now, large molecules such as are common on the earth are able to re-radiate thermal energy readily, but this is not the case with the atoms and small molecules of the upper atmosphere. The result is that when once the energy has fallen to the thermal level it can only be dissipated very slowly, and a high temperature may be maintained even though the source of energy is absent for long periods.

Miss Botley raises the point that the high temperature in the atmosphere may be vital in safeguarding us from bombardment by meteors. It is true that in a hot gas meteors are dissipated more rapidly than in a cold one; but it seems doubtful whether the high temperature we have been considering can be of importance in this connection since it occurs at a height considerably greater than that at which the dissipation of meteors takes place. The high-temperature zone exists only above about 120 miles from the earth, whereas meteors first experience sufficient air density to cause evaporation at heights of the order of 90 miles. It would appear that the atmosphere would have to be hot down to much lower levels to permit this factor to be of importance.

With reference to the possibility that oxygen exists on Mars, the only evidence appears to be the red colour of the planet, which is interpreted to mean that iron compounds have been oxidised on its surface. This gas may have been present in the early history of the planet, but recent measurements show that its concentration is less than one-thousandth of that in the earth's atmosphere, if indeed there is any at all. (See W. S. Adams and T. Dunham, *Astrophys. Journ.*, 79, 308 (1934).) The evidence for vegetation does not seem very weighty, for there are other possible explanations of the change in colour of the planet with the seasons. An excellent popular account of this interesting subject will be found in Dr. R. E. D. Clark's recent book, *The Universe and God*, p. 63 ff.

I should like, in conclusion, to express my thanks to all those who have contributed to the discussion this afternoon.

826TH ORDINARY GENERAL MEETING,
HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, FEBRUARY 20TH, 1939.
AT 4.30 P.M.

THE REV. PRINCIPAL H. S. CURR, M.A., B.D., B.LITT.,
IN THE CHAIR.

The Minutes of the previous meeting were read, confirmed and signed and the Hon. Secretary announced the following elections :—As Members : Dr. J. R. Howitt, V.D., M.D., and Noel Paul, Esq. As Associate : Colonel G. M. Oldman, D.S.O.

The CHAIRMAN then called on the Rev. John Thomas, M.A., to read his paper entitled "The Spiritual Nature and Constitution of the Universe."

The meeting was then thrown open to discussion in which Dr. Barcroft Anderson, Mr. Sidney Collett, Lt.-Col. Skinner and Mr. Philip Dive took part.

THE SPIRITUAL NATURE AND CONSTITUTION OF THE UNIVERSE.

By the REV. JOHN THOMAS, M.A.

I FULLY realise the immense difficulty of dealing with such a subject as this within the allowed limits of the present paper ; but for the seemingly rash adventure I am able to plead some justification. The privilege of presenting this lecture to this distinguished assembly is the fruit of my Book on *Philosophic Foundations*, which I published in the spring of 1937. I am therefore able to appeal to this book as the background of my present exposition of the subject I have chosen, and can in this way economise and condense my presentation of the philosophic conception which it implies. For those members of the Victoria Institute who have already become familiar with the book, such a link of association will effectively compensate for the brevity of the present treatment. For the rest, I trust that the ideas now presented will be arranged and related with sufficient force to induce them to continue the study of this profoundly vital subject in the comprehensive treatment given to it in my book. For I venture to say that in the whole round

of human thought, outside the revealed Word of God, there is no subject comparable in importance with the one which is to occupy our attention here and now.

THE MODERN ATTITUDE TO TRADITIONAL IDEALISTIC PHILOSOPHY.

In these present times the old deep foundations of Philosophy are being forsaken over a large area by professional philosophers, with deplorable results to the æsthetic, moral, and religious ideals of the rising generation. This unfortunate change in the view-point of philosophic thought is partly the result and partly the cause of a general degeneration in the spiritual feeling and outlook of the times; but, whatever may be its origin, it has now become a general infection poisoning the springs of faith in the highest ideals of the human spirit. This reasoned and widely circulated scepticism concerning the profoundest visions of the spirit is largely responsible for the growing infidelity and irreligion which we plainly see in our own land, and which has produced a horrible miasma of evil in the international relations of the wide world. It provides an evil and far-reaching discipline which is driving the minds of the young age far from every approach to the Christian revelation, and fixing them in early neglect, and even contempt, of the gospel of salvation. In this way we are likely to breed a race of sceptics, almost as completely cut away from the message of salvation in the Son of God as the heathen to whom the revelation has never come. It is this tragic peril of the times that has led me, by the grace and help of God, to try to restore the spiritual ideals that are being widely despised and rejected in modern philosophic teaching, and to restore Philosophy to the reverence and nobility of its traditional depth, as the lowly handmaid of the highest truths. But there are reasons why I should, at the outset, justify such an attempt by giving assurance of its validity and effectiveness.

THE CONTENTION THAT THE PHILOSOPHY OF IDEALISM HAS FAILED.

The modern sceptical philosopher will probably tell you that the great idealistic philosophies proved a failure, and ended in a *cul-de-sac*. This will be given as one of their reasons, perhaps their chief reason, for relegating every such Philosophy to

permanent ostracism, and confining themselves to the shallower speculations of the modern sceptic. We shall find other reasons in a wider trend of modern thinking, but this criticism of the validity of philosophic idealism is so vital that it needs to be dealt with without delay. If the exploitation of this false idea were confined to the sceptic, it would not be very serious, because it could be countered at once by pointing to the greater futility of the modern sceptical guesses. But I have discovered that there are good Christian people whose minds have gone curiously astray on this subject, so that they imagine they are honouring the revealed will of God by discrediting the lowly and reverent use of the mind in quest of ascertainable truths which the sacred Scriptures do not give us. This misconception is to be deplored, for these good people unconsciously range themselves on the side of the enemies of Divine truth, and discourage those whom God enables to discomfit the enemy with his own weapons. It is safe to say that men with such a mistaken idea would have forbidden the great Bishop Butler to publish his philosophic *Analogy*, a book that did so much to stem the tide of scepticism in his day.

THE CHARTERED RIGHTS OF THE REASONING MIND.

The greatest thing in Man is spirit, and the next greatest is the reasoning mind. Remember that all the natural powers with which God has constituted Man are sacred ; that is, all the powers of spirit and mind and body. They can all be vitiated by sin, and they can all be consecrated to God and holiness. When they are consecrated to God and truth they are good. And to this end we are expected to use them all with reverent prayerfulness and diligence. Without the exercise of reason we could not know or understand anything ; therefore it is amazing to me that any man who honours God and truth should cast discredit upon powers of mind devoted to the love of truth. I affirm as strongly as any one that Holy Scripture gives us a revelation of Divine truth beyond the powers of the human mind to discover ; but even to the understanding of this Divine revelation the powers of the mind have to be applied with all diligence. Christian theology is the product of human thinking applied to the oracles of God. When the thinking is wrong, the theology is also wrong. In truth some theological thinking is as sadly wrong as some philosophical thinking ; but we do not argue from

this fact that all theology is a useless blind alley. Yet this is precisely the argument that a certain type of dogmatist flings at us with the view of summary condemnation of all philosophic thought. Such inconsistency as this is, however unconsciously, the enemy of the truth, because it violates the sacred balance of true reason.

THE LEGITIMATE FUNCTION OF THE REASONING MIND.

This unreasonable limitation of the functions of reason hides or obscures the vital relation between the Divine Revelation of Holy Scripture and the range of truths that are within the rational quest of the mind of Man. The revelation of Holy Scripture is *sui generis*, and every reasonable man must admit that outside of that revelation God has allowed and arranged a wide field of truth for the investigation of the human mind. I suppose that most or all of the stereotyped objectors to philosophic thinking admit the legitimacy of the investigations of Science, and are greatly pleased when scientific conclusions confirm the faith in which they stand, and the revelation in which they believe. In this fact we clearly perceive an important connection between truths gained by rational investigation and truths received by Divine inspiration. Yet Science has made as many mistakes as Philosophy without being anathematised out of all credit on this account. Such treatment of Philosophy has no Christian merit, for even this one fact shows it to be unreasonable.

THE INTIMATE RELATION OF PHILOSOPHY TO RELIGION.

I go further, and confidently affirm that the relation of Philosophy to religion is more vital than the relation of Science. Physical Science has chosen to approach the phenomena of being from a material standpoint, which shuts it up into a limited association with being as a whole. As Professor Whitehead has emphasised, it determines its own bounds by excluding at the start the highest forces and ideals of the human mind and spirit, an exclusion which condemns it to the investigation of a skeleton universe, from which the secret of universal being can never emerge. In contrast with this limitation, a true Philosophy is inclusive of all the knowable facts and forces of universal being, including all the ideals and aspirations of the human mind and

spirit, in which, of course, religious facts and forces are included. The conclusion from all I have said is this: While Divine Revelation has its own special range, the quest of mind has also an appointed range of its own, and this quest in a true Philosophy is in necessary and vital alliance with true religion and its Divine Revelation. There is a true Philosophy of being, whether we have discovered it or not, on which all the truths of life, from the lowest to the highest, must be based, and with which they must be in harmony. It is on these foundations of universal reason that all the heavens rest, and truth towers upwards into its highest Divine Revelation.

THE SANCTION OF HOLY SCRIPTURE TO THE PERCEPTIONS OF THE MIND.

Holy Scripture, being the Word of Truth, recognises this underlying foundation of truth, and emphatically appeals to it as sufficient to condemn the falsehoods of idol worship. The inner light of reason leaves the idolators, as Paul puts the case, "without excuse." As an instance of how a narrow bias can darken the understanding, I may state that the challenge has been flung at me, and that not by the uneducated, that the thinking mind of Man cannot, by reason alone, know anything whatever about God, not even that He exists. A more guarded denial, in a book by a Christian thinker, while admitting that the *existence* of God may be recognised by reason alone, strips that recognisable God of moral attributes, so that no rational relation can be established between Him and the righteous God of the Christian faith. From this it would follow that the moral quality of the Absolute Spirit cannot be used as the basis of any legitimate system of Philosophy. Such a limitation is more than arbitrary; it is irreconcilable with philosophic reason, and is clearly contradicted by Holy Scripture. It was through the truths which God has placed within the reach of human reason that Paul introduced the message of the Gospel to the Athenian idolators. He told them that God had so arranged the scheme of things that men might "seek God, if haply they might feel after Him, and find Him; though He is not far from each one of us. For in Him we live and move and have our being. As certain even of your own poets have said, For we are also His offspring." It was by this clear journey of the rational mind that Paul led the Athenians to the gates of the gospel,

and some of them entered in, and found life. This rational ground of approach is still more impressively elaborated by the apostle in his great Epistle to the Romans. In reference to the heathen nations he writes: "That which may be known of God is clear unto them, for God has made it clear to them. For His invisible things are seen by intelligent perception through His works of world-creation, even His eternal power and Godhead, to the end that they should be without excuse." This is the consistent teaching of Holy Scripture, that God has supplied a deep and extensive knowledge of Himself to the reasoning mind of man, that "the heavens declare the glory of God and the firmament showeth His handiwork," that "day unto day uttereth speech, and night unto night showeth knowledge." The Scriptures also clearly indicate that this important source of knowledge should be investigated with the reverent diligence of consecrated minds, lest we miss part of the truth which God has placed within our reach, and thus miss the holy light which one God-given truth always throws upon the others. If we exclude or neglect any God-given source of light and truth, we make ourselves responsible for what may prove a grievous loss.

THE UNDERLYING PHILOSOPHY OF THE BIBLICAL REVELATION.

To my mind it appears beyond controversy that this knowledge of God as conveyed to the human mind is the knowledge of the secret of the universe, so far as the human mind can discover it. If all created things "live and move and have their being in Him," He must be in a fundamental sense "All and in all." If He is Absolute Spirit, then the whole nature and constitution of the universe must be spiritual. It appears irrational to try to find the secret of universal being in any other way, and this is, in a phrase, the complete condemnation of all the sceptical or godless philosophies of our time. The philosophic reasons for positing the Absolute Spirit as the ultimate explanation of the universe are fully unfolded in my book, and will be briefly set before you in this paper this evening. For the moment we stress the philosophic importance of the knowledge of God attributed by Scripture to the rational human understanding. Since all creation is the product of His "eternal power and Godhead," and He is therefore "before all things," He is eternally self-sufficient and transcendent. Since the creation, as

the product of His power, "lives and moves and has its being in Him," He is necessarily immanent, the Life of its life, and the Power of its power. He is therefore both transcendent and immanent, "above" all things and yet "in" all things, He is the infinite Reason, for all things declare His wisdom as well as His power. This foundation of truth is emphasised by the apostle John, when He declares that all things were made by the LOGOS, or the eternal REASON. We are told in the Epistle to the Colossians that not only is this Infinite REASON "before all things," but also that "in Him all things consist." This clearly means that the essential ground of the whole universe is in the Absolute Spirit, and that the essence of all being flows from a spiritual fountain. The Scriptures assume that the Absolute Spirit must be Absolute PERSONALITY, because personality is the perfection of SPIRIT. They also assume that the Absolute Reason is a righteous personality, because absolute moral perfection is the fundamental quality of rational personality. This is what I may call the underlying philosophy of Biblical revelation, the self-manifestation of God to the reasoning mind of man, preparing the way for the higher Revelation of redeeming love and grace in the incarnate Son of God.

THE NEED FOR PHILOSOPHIC EVIDENCE LIBERATED FROM AUTHORITY.

All these great truths, so the Word of God affirms, can be known about God by rightly directed reason. Then what is the use or need of independent philosophical research? Why not direct the attention of the world to this sublime Philosophy that is embedded in the oracles of inspiration, and challenge men to reject at their peril the truth which comes from such a Divine source? That is the course which some dogmatically affirm we ought to pursue. I reply, with as little censure as possible, that there is in this attitude a narrowness which misses the world's great need. We cannot justly lay down conditions until we have gone as far as we can to lend a helping hand to the lame and the blind. Before we condemn the unbelieving minds of men, we must meet them as far as possible in the outer courts of the temple of truth, until a holier light guides them into the inner sanctuary of salvation. It is natural for the mind of man to desire to make an independent search into the meaning of nature and of life, lest he should be unduly fettered with the

bonds of unreasoning authority. Many sincere minds feel that the authority of Scripture is so overwhelming in its claim that the surrender of life and reason to such a sovereign and absolute demand, must be preceded by a sincere inquiry into the truths that lie within the quest of the reasoning mind. We must not shirk this challenge. Such a Philosophy as mine meets it fearlessly in this domain, and makes the independent search for truth subservient to the final message of life in Holy Scripture. In the phrase of Scripture, when the knowledge of God that is made manifest to the reasoning mind is clearly demonstrated, the unbeliever is left "without excuse." This, stated briefly, is the object of a true Philosophy.

TRUE PHILOSOPHY CANNOT FAIL, BUT MAY NEED A CORRECTED REASONING.

The narrow dogmatic contention that Philosophy has failed, and proved itself finally useless in the quest of truth, is both foolish and fatuous, as the Scriptures, in their own language, themselves bear witness, affirming clearly a sphere of truth discoverable by, and revealed by Divine purpose to, the reasoning mind. That human reasoning is fallible and makes mistakes is not disputed, but the history of Philosophy is not alone in this. The way of Science and reasoned Theology is marked by similar fallibility. But there is ever a truer reasoning diligently engaged in correcting these mistakes and leading the minds of men ever nearer to the truths which God has given to the quest of man. The past mistakes and failures of Philosophy furnish no reason for abandoning the quest of reasoned truth, but rather urge us to a more reverent, earnest and sincere quest. This is the answer, not only to those who rashly condemn all philosophic effort, but also to the numerous sceptical thinkers of the day who impatiently reject all the magnificent vision of philosophic idealism, and proclaim it obsolete through failure. This has become almost the philosophical slogan of the hour, and the philosophical idealist need not expect respect, or even toleration, from the serried ranks of modern scepticism. Yet I boldly maintain that the fundamental conceptions of idealism must triumph, that there is a way out of temporary failure into permanent success, and that my Philosophy is a valid contribution to this development. I also confidently prophesy that a

renewed and illuminative idealism in Philosophy will be the rational triumph of the days that are coming.

PHILOSOPHIC MATERIALISM AND PLURALISM ARE FATALLY IRRATIONAL.

In justification of this faith, the following facts must at present suffice. It remains true that philosophic foundations must be either spiritual or material, and one can say without hesitation that philosophic materialism is so crowded with irrationality that it can never become a permanent resting-place for the deeper reason of man. Reason is obviously the lord of creation, and the only clue to its nature and meaning. Materialism is therefore a meaningless nullity. Besides, the vastest and loftiest forces in human life are the forces, ideals, and aspirations of the spirit, of which materialism takes little account. No permanent philosophy can be fashioned out of a depleted universe. All kinds of philosophic pluralism are equally condemned by the fundamental intuitions of reason, which can never be shaken from its insistence on the essential unity of being. These facts leave us with the conception of a rational universe, or the Absolute Reason, as the only philosophic conception that can compass the whole of being. All other philosophies deal with broken parts of a divided universe, and inevitably lead, as they are doing at the present time, to intellectual scepticism, and to moral and spiritual despair. To this irrational chaos of futility and hopelessness the philosophy of the Absolute Spirit is the rational antidote. It will be stubbornly resisted by the prevailing sceptical forces; but its final triumph is assured.

IN A NEW AND LIBERATED IDEALISM THE IDEA OF NON-RATIONAL MATTER IS REJECTED.

The philosophy of Absolute Spirit, which I have offered in my book, is directed to removing the difficulties which brought the great history of developing philosophic idealism to a standstill, and stirred up the present prejudice against its conceptions. It goes further, and propounds and elaborates a new philosophy of the Absolute Spirit, in which the fetters that impeded the old idealism are no longer found, in which account is taken of all the highest forces and visions of mind and spirit, in which the constitution of Nature and its forces is rationally explained, in

which the highest ideals and aspirations of mind and spirit are shown to be valid, and in which a sure foundation is laid for a still higher faith in the self-revealing God. Such an aim may be anathema to stereotyped scepticism, but it meets the crying needs of the deepest heart of man. To develop the philosophy of the Absolute Spirit into this liberative form, two great changes have been found necessary. In the first place, the idea of matter as a non-rational opposite to spirit must be finally and completely rejected, and the conception of Absolute Spirit as the full and complete explanation of all being must be boldly and unequivocally affirmed. This is an easier step to-day than it would have been at any previous period; for the supposed solidity of matter is curiously vanishing before the search even of the physical scientist, while he has been obliged for a considerable period to invest his material "ether" with non-material, or even anti-material, qualities. The early English psychologists reduced what was regarded as matter to mental sensations and perceptions. Plato had his rational *Forms* and Forces obscured by a material medium that was both *formless* and meaningless. Kant was hampered by some mysterious material "thing-in-itself," which had no meaning at all for himself, or for anybody else. Idealistic philosophy, not having the courage, or perhaps not having reached the point of development, to cut away non-rational matter completely, timidly allowed it as "*phenomenal* reality," but no one even to this day has the faintest idea what that means. To deal sincerely and faithfully with the philosophy of Absolute Spirit, this irrational duality must cease, and Absolute Spirit must be fearlessly accepted as the "All and in all" of universal being. This is the first foundation-stone of the New Philosophy.

A LIBERATED IDEALISM AFFIRMS THE ABSOLUTE FREEDOM OF THE ABSOLUTE SPIRIT.

This was the first necessary act of liberation. The second necessary act was the philosophic liberation of the conception of the Absolute Spirit. In Hegel's system the freedom of the Absolute Spirit had vanished. The whole universe, the Absolute Spirit included, was imaged as a vast rational and inevitable machine. This closed-up conception of the universe precluded all further development on these lines. I saw that the freedom of the Absolute Spirit must be as absolute as His rational essence.

I know it was a daring step to take, but further philosophic investigation has convinced me of its fundamental necessity and truth. I set idealism afresh on the way of development by affirming the absolute freedom of the Absolute Spirit as the second foundation-stone of the New Philosophy. I know that such a fundamental revolution as this in Philosophy will startle many minds, and will surely meet with all possible criticism and opposition from the sponsors of modern scepticism ; but I have found it shed such amazing light upon the problems of the universe that I am convinced that it, or some philosophy closely akin to it, will shape the thoughts of the philosophic future.

IT ALSO AFFIRMS THE MORAL PERSONALITY AND FREE
WILL OF THE ABSOLUTE SPIRIT.

It follows from the freedom of the Absolute Spirit that the secret of the universe must be sought, not in reason as a dialectical process, but in the Absolute Reason as Absolute Moral Freedom. I am certain that we cannot conceive infinite rationality as other than infinite personality. Nor can we conceive infinite rational personality as other than infinite moral personality. To conceive a non-moral personality is to conceive an irrational personality, for the moral consciousness is the supreme quality of pure reason. Therefore the supreme dynamic quality of the Absolute Spirit is not a rational dialectical process—such as Hegel worked out into a final mechanical routine of barren necessity—but the ordered energy of an infinite moral personality expressing the perfection of moral activity, and ever perfectly fulfilling the moral ideal through the fundamental laws of moral perfection. For the moral life of the Absolute Spirit is the moral law of the universe. Thus the mechanical necessity imposed by Hegel's rational dialectic is dismissed, for the essence of morality, whether finite or infinite, is the freedom of the will. The universe is the product, not of mere rational necessity, but of God's free will and purpose. Of course, perfect righteousness is the highest fulfilment of perfect reason ; but what we sometimes call the necessity of righteousness in God is fundamentally the expression of His absolutely free will. Of that will the universe is the essentially free and full expression. It is the Absolute Spirit in action, expressing and realising His infinite moral self.

THE FREEDOM OF THE ABSOLUTE SPIRIT CREATES THE
FREEDOM OF THE UNIVERSE.

Thus we conclude that both the creation and the history of the universe arise out of a moral motive and purpose, through the will of the Absolute Spirit. The essence of the universe is not mechanism, but rational freedom. By this conception the universe is enfranchised, and Philosophy itself is set free for rational development. Through this conception new light is shed upon the warfare of Nature, and upon the perplexing problems of human history in gross, and the experiences of individuals in detail. Man's spiritual aspirations and ideals are here based on eternal foundations, the hopes of religion are set in the essential purpose of creation, the man who lives for this Divine reason is assured that the whole scope and purpose of the universe is on his side, and that the eternal Spirit, in Whom all things "live and move and have their being," is omnipotently shaping events towards the final moral harmony. I have not attempted more than to suggest the direction and scope of this lofty and liberative philosophical principle, with its great possibilities of development, and its manifold application to the problems that beset us on every hand in the facts and forces of Nature and of the life of man. For it is impossible to do more than this in a brief paper. But this new vision has brought a new joy into my life. The strong and organised forces of modern scepticism had troubled me greatly, for I could not see in any quarter an enlightened philosophy which might break down the intellectual barriers that were keeping thousands of men and women from all approach to the Divine wisdom of the gospel of the Son of God. Then the vision came to me, which I have now given you in brief glimpses. I want to spread it far and near, for it leads to the very gates of the Christian faith. In this vision of the spiritual nature and constitution of the universe in which we live, faith will have room to flourish.

DISCUSSION.

The CHAIRMAN (Rev. Principal H. S. CURR) said: There are many points of interest raised by Mr. Thomas's paper. It is my purpose to draw attention to some of these as having been of special significance for me personally. In the first place, I wish to associate myself very cordially with the lecturer in the references which he

made to the influence of philosophy on public life. That is much more powerful and pervasive than might be imagined largely owing to its subtle character. It is not so much in evidence as such scientific doctrines as organic evolution, but it is none the less potent, and of many modern tendencies in philosophical thought it may be truly said that their effect on the minds and hearts of their champions is as inimical to the acceptance of Christianity as much scientific doctrines. An excellent illustration is furnished by the philosophical and ethical teaching which was so popular before the outbreak of the European War in 1914. The evil seed was sown in the classrooms of the German universities, and almost the whole world had to reap the harvest in blood and ashes and tears. That is an example of what philosophic propaganda can accomplish. Mr. Thomas has then rendered useful service to the cause of Christianity by emphasising the perils which are associated with the popularity of a metaphysic which provides a soil uncongenial for the truths and principles of Holy Scripture which must be received with intellectual, in addition to spiritual, meekness as the engrafted word.

I am also in hearty accord with Mr. Thomas when he offers such a spirited defence of the rights and privileges of man's reason. It reminded me of the words inscribed on the walls of the Logic class-room in Edinburgh University. Sir William Hamilton is said to be responsible for their appearance. The motto runs thus: "In this world there is nothing great but man; and in man there is nothing great but mind." If the last word be understood as including the soul and spirit as well as the intellect, no fault can be found with it. As the paper has reminded us, we are living in an age when the human reason is no longer regarded as a trustworthy guide to truth. Mr. Thomas has dealt trenchantly with these aberrations. I should, however, like to add a footnote. On the one hand, the authority of reason is assailed by modern scepticism. But in so doing it seems to be forgotten that reason is being criticised by reason. It is by reason that reason is pronounced to be a blind leader of the blind, and there is no scepticism exhibited with reference to that conclusion. What is thus thrust out at the door returns through the window. On the other hand, reason is denounced by the Barthian School as impotent by searching to find out the truth of God. No true and wise defender of reason would challenge that

position, but he would argue that it is possible to acknowledge the inexorable need of revelation without disparaging reason. I do not need to belittle silver that I may extol the merits of gold. On the contrary, injustice, intellectual or otherwise, has got a wonderful way of avenging itself. It seems to me, therefore, that there is nothing to be gained by deprecating reason in the quest for truth. It can never be a substitute for revelation. If that were possible, there would be no such thing as revelation, since God never does for man what he can do for himself. The magnitude of revealed truth only proves the poverty of the results obtainable by the exercise of unaided reason. God never does more than the barest minimum for man. That being so, the extent of revealed truth is a strange commentary on the limitations of pure reason.

With the lecturer's contention that the ultimate reality is spirit and not matter, I am also in hearty agreement. The task of philosophy is not unlike that operation in simple arithmetic known as finding the least common denominator. A series of fractions of varying denominations are examined until the least common measure to which they can be reduced is discovered. In the same way the student of metaphysics endeavours to find the least common denominator for existence and reference. That must be either matter or spirit. It is impossible to argue the point in detail or at length. My only comment would be that those who postulate matter as ultimate are guilty of what St. Paul calls the worship of the creature, rather than the creator. There is no limit to the power of mind over matter. Mr. Thomas then would seem to be amply justified in making spirit the basic principle of the universe. As he reminds us in his paper, the conclusions of modern science point in that direction.

In conclusion, may I express to our lecturer in your name our deep appreciation of what he has said to us. I do so with all the more enthusiasm because, as he himself remarks in his prefatory sentences, he has purposely avoided the language of the schools. Philosophy has its distinctive vocabulary like any other branch of science, and it is as unintelligible to the layman as any other form of jargon. In these circumstances, we are all very grateful to Mr. Thomas for clothing his ideas in words which all can understand and follow. I described him in my introductory remarks as an evangelical

philosopher. To my thinking, it would not be easy to pay a higher compliment.

Dr. J. BARCROFT ANDERSON said : The Author of the Scriptures fourteen times (Matt. ii, 6-18, iv, 16, xii, 19, xiii, 35, xxi, 9, 42, xxii, 37, xxiii, 39, Mark i, 3) uses the Greek word $\epsilon\nu$ -EN as the equivalent of the Hebrew word \aleph — B.

If Mr. Thomas understands the $\epsilon\nu$ -EN is elsewhere used in the Scriptures to mean more than does \aleph — B in the Scriptures : would he define exactly what he understands to be such additional meaning?

In Jeremiah, chapter one, we read : “And Word-Jehovah (\aleph \aleph — DBR IEFE) was existing to me to say : Before I formed thee I knew thee . . . I have appointed thee Prophet to the Nations . . . I am with thee to deliver thee saith Jehovah . . . and Jehovah was stretching forth his hand : and He was touching my mouth : and Jehovah was saying to me : Consider, I have given My words, by Thy mouth : see, I have this day set thee over the Nations.” This title “Word-Jehovah” appears over seventy times in the Scriptures. Does Mr. Thomas believe it implies anything different from “The Word”— δ $\lambda\omicron\gamma\omicron\varsigma$ —of John’s Gospel ? And if so, what additional does either title imply ?

Mr. SIDNEY COLLETT said : Mr. Chairman, I only wish to make two brief remarks on this very able paper. First, the lecturer misquotes the words of Acts xvii, 28, by saying : “If *all created things* live and move and have their being in Him.” What the Bible says is : “For in Him *we* (*i.e.*, human beings) live and move and have *our* being.” Such words surely cannot refer to “all created things” : for many created things neither live nor move ! and I merely suggest that the words the Holy Spirit uses in the Bible are so carefully accurate that they cannot safely be altered by any words or phrases of our own.

Secondly, I notice the very frequent use of the expression “Absolute Spirit”—always with a capital “A” and a capital “S.” and sometime it *seems* to refer to the Holy Spirit ; while at other times it refers to something which is not made sufficiently clear. I am not forgetting that this is a philosophic lecture. But it would be very helpful if this point were clarified.

Lt.-Col. T. C. SKINNER said : In the second paragraph on page 68 the author links the Absolute Reason with Absolute Moral Freedom and cites the moral consciousness as the supreme quality of pure reason. Does not this throw a flood of light on man's original status before the Fall ? Created in the image and likeness of God, he was endowed with the faculty of pure reason coupled with perfect freedom in its exercise. Nor can the divine purpose be in doubt that he should develop his reasoning powers to the full by suitable exercise ; his commissions in the garden—horticultural (Gen ii, 15)—and in the field as a naturalist (vv. 19, 20) necessitate this. But with all the potentialities of a rational being Adam was as void of experience as a child, and the risk of his tasting evil experimentally ere his senses had been exercised to discern both good and evil was imminent from the outset. Hence the ban on the Tree of Knowledge of Good and Evil alone among all the trees (including even the Tree of Life in the midst of the Garden). Knowledge *was* good and a thing to be desired, but only under restraint and direction of the Divine Wisdom, and then only as they were able to bear it. And the moral test was the simple one of obedience to the God and Father in whose image and likeness they had been created. Do we not see Man's fatal choice of knowledge in independence of God working itself out in all its evil consequences to-day ?

We owe much to Mr. Thomas for his thesis of Philosophy's true foundation to which we have had so interesting an introduction this afternoon.

Mr. PHILIP DIVE said : Mr. Thomas proposes that "In the first place, the idea of 'matter' as a non-rational opposite to spirit must be finally and completely rejected." (Pages 66-67.) But, as Professor Whitehead remarks, "Matter . . . expresses something so evident in ordinary experience that any philosophy must provide something which answers to that experience."* It will be agreed, I think, that "knowingly," we never come into contact with "matter" in the sense of a primary physical substance—the "stuff" of the universe. The term, when so employed, represents a convenient "abstraction," merely. *Our*

* *Science and the Modern World.*

contact is made, solely, with organised entities ; such, *e.g.*, as wind, rain, soil, rocks, plants, *et sequentia*. Moreover, dissection into "parts" of these organic entities cannot bring us nearer to an imagined "matter."

Where philosophy (until very recently) spoke of an implied opposition between "matter" and "spirit"*, it is noticeable that in the rarer instances in which the sacred scriptures speak of a successive cosmic order ; that which belongs to the natural and temporal order (*ψυχικός*), is put in contrast with that which belongs to the spiritual and non-temporal order (*πνευματικός*). I Cor. xv, 46.

In an earlier passage, in the same epistle (vii, 31) it is the *σχημα*—the "outward fashion" of the cosmos—which is said to be destined to "pass away" (*παράγω*).

This distinctive way of approach to basic questions raised by philosophic inquiry, may, I think, prove fruitful to the reverent mind that will value the least hint from the Holy Writ.

AUTHOR'S REPLY.

I counted myself happy in having a chairman who is himself a philosopher, and imbued with the spirit and vision of the philosophic quest when legitimately and earnestly pursued. This was all the more important for me, as my philosophy is starting on a revolutionary and militant campaign against the subtle scepticisms that are being sedulously spread at the present time in our philosophic seats of learning. The philosophy I offer is not only startling for the ranked votaries of Scepticism, who will bitterly antagonise it, but many Christians of the Barthian type will hinder, rather than help, me to fight the foe with a reverent and reasoned philosophy. So I might easily have had a chairman in agreement with my aims, but out of sympathy with any reinforcement which the reasoning mind can give to the cause of truth. I know that I am fighting a very necessary battle, and in a legitimate way, the way of consecrated reason, whoever may help or hinder. But it was a joy to have in the chair a man who realises that the reason in man is a sacred charge from God, to be used for the highest ends, and has

* Descartes, and the seventeenth-century philosophers who followed would probably have discriminated the two entities as "matter" and "soul."

often, as in the case of Butler's *Analogy*, been a very serviceable handmaid to the cause of Divine revelation.

It pleases me that our Chairman spoke so strongly about the absurd use of the processes of Reason to disqualify reason itself. Reason and Revelation are so sharply distinguished that there need be no confusion between them. Human reason cannot attain to Divine Revelation, for the latter is the prerogative of God. But even that revelation has to be accepted and understood by Reason, so that, if Reason is to be utterly discredited, even Revelation must leave us in a hopeless case. But, if Reason can be trusted to interpret the oracles of God, it may well have an important range of its own in which to render preliminary service. That it has such a range is made clear even by the Word of God itself. There can be no conclusion *against* REASON because Reason is always necessarily the *author* of the conclusion.

The Chairman suggests a footnote on this crucial point. I have, however, dealt very fully with it in two sections of my lecture, "The Contention that the Philosophy of Idealism has Failed," and "The Chartered Rights of the Reasoning Mind." If it is thought well to do so, a footnote may be added at the end of the second of these sections, thus: "It is obviously foolish to try to discredit Reason by means of reasoning. Nor is the Divine Revelation exalted by decrying the legitimate use of Reason in its own quest, or by labelling as blind the noble faculty of thought which we must of necessity apply to the oracles of God."

I believe that the Lord has given to my searching mind this new and startling vision of philosophy. Wherever it is able to enter, it will flash a deadly ray on the scepticisms of the hour.

I am obliged to Dr. Anderson for his critical hearing of my paper, although the point of his first question is not clear to me. I understood him to contest my statement that the fundamental meaning of the Greek preposition *ἐν* is "in" or "within," and in some manner to prove his negative by the equivalence of the Hebrew preposition *ב*. But I cannot see how his quotations serve his purpose at all. They undoubtedly have considerable area of equivalence, but it would be a curious philological freak if they were found to be inseparable twins, in two languages so remote from one another as Hebrew and Greek. According to the best

Hebrew authorities, the fundamental meaning of the Hebrew preposition is "into" and then "in." According to the best Greek authorities the fundamental meaning of the Greek preposition is "in." Other meanings, secondary ones, arise through varying idioms, ellipses, and other causes, but the fundamental meanings still govern, and demand to be used when not clearly modified by the context. This is the law that has been observed by recognised scholarship up to date. My Greek Concordance informs me that the translators of the New Testament into the Authorised English version translated the Greek *ἐν* by the preposition "in" 1,863 times. That is the verdict of Greek scholarship.

Dr. Anderson prefaces his next question with a spice of unusual philology which ignores the acknowledged world of Hebrew scholarship. His translation of DAVAR YEHOVAH (the word of Jehovah) as WORD-JEHOVAH, thus assigning Divine Personality to DAVAR, has no foundation either in philology or theology, and is, therefore, as all the great translations have indicated, inadmissible and even eccentric. The meaning is made so clear throughout the Old Testament in various ways that there is no reasonable excuse for such mistranslation. In Isaiah lv, 11, it is clearly defined:—"So shall My word be that goeth forth out of My mouth." DAVAR is here the word that is *spoken* by Jehovah, and not Jehovah Himself. It is a spoken word, and not a Divine person; and there is no exception to this in the whole of the Old Testament. I know that attempts have been made to find genuine exceptions, but without success. No quality can be found assigned to the Word of Jehovah which does not rightly belong to it as the *spoken word* of the Eternal God.

In emphatic contrast to this, the LOGOS of the beginning of the gospel of John is emphatically and fundamentally a Divine PERSON. The Hebrew DAVAR is simple in meaning, and in that simplicity it is IMPERSONAL without exception. The Greek LOGOS differs significantly in that it is complex in meaning, and thus presents both a PERSONAL and IMPERSONAL aspect. In this word both REASON and rational EXPRESSION are included. When the emphasis is on the EXPRESSION, the word LOGOS becomes impersonal, as it is throughout the New Testament with few exceptions. When the emphasis is on the Rationality behind the expression, the LOGOS becomes personal, as it is in the beginning of John's gospel. For

there cannot be PERSONALITY without RATIONALITY. This is why DAVAR is always impersonal, while LOGOS rises into this unique revelation of PERSONALITY. This *personal* LOGOS is obviously a difficult word to translate into English, because its emphasis is on REASON and not on verbal expression. To translate it as the ETERNAL REASON is completely justifiable, while it is greatly misleading to try to put it on a level with the essentially impersonal DAVAR.

It only remains to add that the adjective λογικος appears twice in the New Testament, and is translated RATIONAL by the best Greek scholarship. I know of no corresponding derivative from the Hebrew DAVAR.

I deeply appreciate Mr. Collett's generous tribute to my paper, and sympathise with him in seeking accuracy in the quotation of Holy Scripture, but such accuracy is not at variance with reasonable interpretation. This statement brings me to his complaint of misquotation. When I gave full quotation marks to Paul's great utterance, I quoted the sentence with careful accuracy. When I *interpreted* his saying as inclusive of all created things, I showed by the quotation marks that these words were not in the quotation. Mr. Collett does exactly the same thing in his criticism, and is as assured that the "we" covers only human beings as I am that it logically includes the whole creation of which man is a part. Paul had already declared that the God Who had "made of one blood all nations of men," had also "made the world and all things therein," so that all things had a common derivation in God. Such a context is by no means friendly to Mr. Collett's limitation. And in the light of Science to-day it is strange for him to say that "many created things neither live nor move." Science affirms that there is *nothing* that does *not* move. As to LIFE, it is too abstruse a term to deal with here, but more than a passing thought may be given to Paul's amazing statement in Romans viii, 22: "For we know that the *whole creation* groaneth and travaileth in pain together until now."

My philosophy makes it perfectly clear that as the philosophy of Absolute Spirit, that is, of pure Rational Idealism, it does not enter into the revealed mysteries of the Christian faith. It is an ultimate philosophic conception, and has nothing to do with the Christian revelation of the Trinity in the Godhead. My philosophy

only lays rational foundations of truth, and allows another and higher range for the oracles of God. When Jesus said, "God is Spirit," He was obviously not speaking merely of the Third Person in the Trinity, but of the Absolute Deity. That is the nearest analogy in Scripture to my use of the term. The Absolute Spirit of my philosophy is the Absolute Infinite.

I am greatly obliged to Lt.-Col. Skinner for his appreciative and suggestive remarks, and the opening out of a very important standpoint from which reasoned philosophy is variously judged. There is such a thing as the prostitution of the reasoning faculty to evil desires and godless prejudices, to the craving for the pride of a knowledge which is divorced from the vision of God. We have abundant evidence of this in the wild riot of godless psychologies and philosophies of the present time. The result is a parade of knowledge falsely so called. On this account there are those who rashly condemn all philosophical thinking. But, if they do this, they must condemn all the reasonings of the human mind, and this, of course, would make a clean sweep of all thought, including theological thought. For an evil mind can distort theology just as it can distort philosophy.

The only cure for false thinking in theology is true thinking, and it is a true philosophy that must destroy false philosophies. We cannot accept the demands of Divine revelation except by the assent of the reasoning mind. It is in such acceptance that faith comes to lift us a step higher. The philosophy of truth will not disdain the light that has come in Jesus Christ, but will let all light from the heavens as well as from the earth light up the way of holy and reverent thought. No evil and godless mind will ever evolve a true philosophy. For a true philosophy can never be divorced from the greatest and highest and best. It cannot be a substitute for Divine Revelation, but it can catch its glory from afar.

I fully appreciate Mr. Dive's difficulty in my Philosophy of a completely rational universe, in which the old non-rational *surd*, distinguished as MATTER, is dismissed as incompatible with pure rationality; for my Philosophy is confessedly revolutionary, and a reasoned advance upon the long-held idea of some non-rational and for ever unknowable, "stuff of the universe." My philosophy urges Mr. Dive to move forward from this non-rational *surd* to a

purely rational conception of the universe and all its stuff. My reasons for making this great revolution in philosophy are fully worked out in my *Philosophic Foundations* to which I must again refer him, as it is impossible to expound those reasons here. His quotation from Professor Whitehead, to which I must refer the reader, gives him no new proof of a non-rational "stuff" of the universe. For what is the "experience" of so-called "matter"? The ordinary experience of the man in the street is one thing, the experience of modern science is another, the experience of the psychologist is another, and the experience of an idealistic philosopher may transcend them all. Man can know only by means of REASON, and no philosophic thought can legitimately go beyond the bounds of Reason. If there is non-rational "stuff" in the universe, then Reason is not ultimate and Infinite, and a true philosophy is impossible.

Mr. Dive's quotations from Scripture have nothing to do with the rationality of the universe, for the terms "psychical" and "spiritual" are used in a Divine revelation of successive kinds of "corporeality." As to "the outward fashion of the cosmos," which is to pass away, I don't suppose that Mr. Dive imagines that only the "non-rational stuff" of things will remain. The Scriptures teach that "the creation itself also shall be delivered from the bondage of corruption into the liberty of the glory of the children of God." But these are regions that belong to revealed theology. Philosophy has to be content with the discovery of a rational universe, without seeking to discover the future unfoldings of the cosmos and all its thought-forms. But Philosophy can show that the possibilities of these thought-forms are immense.

827TH ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, MARCH 6TH, 1939,
AT 4.30 P.M.

DOUGLAS DEWAR, ESQ., B.A., F.Z.S., IN THE CHAIR.

The Minutes of the previous meeting were read, confirmed and signed and the Hon. Secretary announced the following elections:—As a Member: Dr. Albert Spanjer (Cand Notaris). As Associate: Colonel F. C. Molesworth.

The CHAIRMAN then called on Mr. B. D. W. Morley, Esq., F.R.E.S., F.R.H.S., to read his paper entitled "On Ants' Ninth Sense."

The meeting was then thrown open to discussion in which the Rev. A. Payne, Mr. R. Duncan and Lt.-Col. O'Gorman took part.

ANTS' NINTH SENSE—ONE OF THE MYSTERIES OF ANT LIFE.

BY B. D. W. MORLEY, ESQ., F.R.E.S., F.R.H.S., M.I.C.Ent.,
M.S.B.E., Memb. soc. ent. de France, etc.

BEFORE actually discussing the reasons for concluding that the existence of a "ninth sense" in ants is possible, if not probable, and the nature of that sense, it is proper that I should offer a few words of explanation as to why I began my researches. The original aim of my research was an attempt to establish the means by which the sub-family *Formicinae* Mayr, of the ants (Fam. *Formicidae* Mayr) communicate when at a distance from one another. The family *Formicidae* is divided into eight sub-families, and have attained their highest development in the *Formicinae*. (See phylogenetic chart.) It is known that the sub-families *Ponerinae* Mayr, *Cerapachyinae* Wheeler, *Pseudomyrmicinae* Wheeler, *Dorylinae* Skuckard, and the most primitive species of the sub-family *Myrmicinae* Mayr communicate by means of stridulation, sounds being elicited by means of rubbing one smooth, hard surface against another uneven, hard surface. It is possible that some species of the sub-family *Dolichoderinae* Forel also communicate by this method, but it is

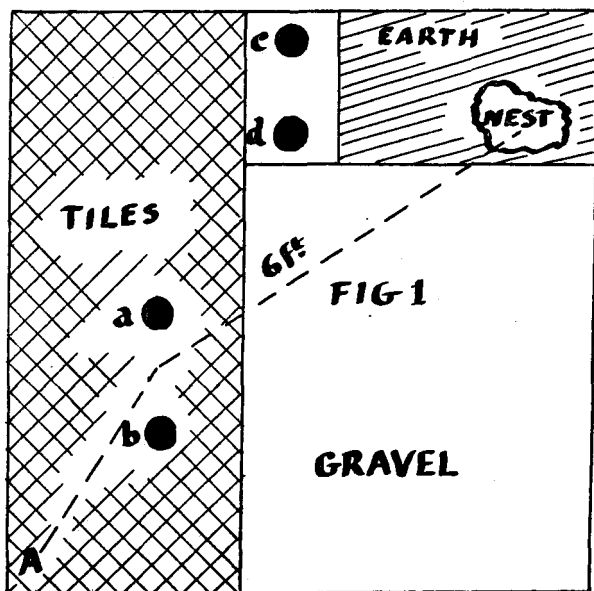
certain that the highest developed species of this sub-family and all the species of the sub-family *Formicinae* do not communicate by this method. It is probable that the species of the eighth sub-family, the *Leptanillinae*, communicate by stridulation. I entered on this difficult and complicated problem in what seemed to me the most obvious and promising manner. I made a list of all the possible methods of distant communication between ants, and, after having obtained the opinion of various specialists on these, I summed up the possibilities of each. This reduced the possible methods to three:—Smell, Stridulation, and Ninth Sense. (See "On Ants' Methods of Communication," B. D. Wragge Morley, *Trans. Suffolk Nats. Soc.*, 1937.) I then proceeded to do a number of experiments after the following manner:—

Data.

- 12.21 a.m. An ant was out exploring. Sugar put down at (A), fairly near it.
- 12.22 a.m. Ant found sugar.
- 12.25 a.m. Ant still at sugar, four other ants came straight from nest to sugar, via (a). They did not visit *a* or *b en route*.
- 12.25½ a.m. One ant came from nest, missed sugar and went back again.
- 12.26 a.m. Ten ants at sugar, five more having come from the nest.

It is worthy of notice that the four ants when they went out to the sugar did not follow the trail of the first ant, but went direct. Thus communication was not effected by following a trail of scent, as suggested by Professors Julian Huxley and von Frisch. Neither was communication affected by means of tapping on the ground, since the vibrations could not possibly carry over that distance. Also the surface, apart from its not being the same in substance over the whole distance, was unsuitable for the latter. More experiments of a similar nature were done, communication being effected in a like manner in approximately 67 per cent. of the experiments; thus establishing that communication was not effected after the manner put forward by Huxley or by vibration communicated through the ground. This did not mean that scent as a method of communication was disproved by these experiments, since another method of communication by scent can be put forward as

follows :—the ant, on finding the food, produced by some method a scent which was noticeable to the other ants over long distances, causing them when they smelt it to follow it up and thus arrive at the required place. This method of communication would have been possible, of course, under the conditions existing in the experiments just described. It was therefore necessary to determine whether communication could take place under conditions where this method of communication by scent was made impossible. If communication was effected under those



KEY TO DIAGRAM.

a, A flower pot, containing flowering plants which the ants were in the habit of visiting; *b*, flower pot containing fern. The ants did not visit this; *c*, and *d*, posts, with lattice work in between, supporting a verandah; *n*, nest under stone; *A*, first lot of sugar.

circumstances it meant that it was effected by stridulation, or some unknown sense. A good deal of consideration was given to this question—how to evolve an experiment which would supply these conditions—and a great deal of time was wasted in trying out experiments which proved unsatisfactory. It was, after all, quite an ordinary observation which showed me that

I was correct in considering this type of communication by scent as an unlikely method of communication from a distance amongst ants. Some ants had escaped (I killed them immediately) from one of my wooden observation nests, resulting in the remaining ants also endeavouring to escape. The nest was, of course, resealed before they were able to do so. The excitement had apparently been conveyed to two ants, taken from the same colony, which were in another observation nest, since they also started to rush about. If communication was effected by scent, it would be impossible, for reasons gone into in an earlier paper, for the ants to convey more than the most elementary message. It is certain that no message expressing such a communication, as would be necessary under the conditions existing at the time of this observation, could be made by means of this method of communication. This was confirmed by later experiments.

Though I was certain that communication amongst ants, far apart, was effected by one of two methods, stridulation or ninth sense, I was unable to progress any farther. It was in endeavouring to do this that I received confirmation of the conclusion drawn from the observation cited earlier. I had some ants, taken from a nest about half a mile away from where I was staying at that time, in a jam jar; an article which is often used as a temporary observation nest. I kept them for about a week, in order to give them time to settle down to a life of set habits, as is usual in an observation nest. I then proceeded with the experiment.

A jam jar was taken to the place where the first lot of ants came from, the other (first) jam jar being left behind. Both jars had tin lids. About 160 ants, together with a certain amount of earth, were scooped up into the jar, the ants being, of course, taken from the same nest as those in the first jar.

The second jar was then taken back to the place where I was staying, but was left outside the room where the other ants were, about twenty-four feet away. The windows were shut and the second jar was fairly air-tight. The ants in jar No. 2 were, of course, shaken and disturbed by the journey. The ants in jar No. 1 were, however, when I left them, as they usually were at that time, peaceful and below the surface of the earth. Entering the room I found two ants in the original nest (No. 1) running round, apparently looking for something; they continued doing so for about two minutes.

It was obvious that communication had been effected between the two jars of ants. This communication could not have been effected by smell, and it seemed probable that it was not effected by stridulation. The results of the experiment were not, however, conclusive on this point, and in any case this type of experiment is rarely conclusive, even if it be repeated many times.

Normally, one would take into account the possibility of the existence of an unknown sense, and would therefore conclude that these ants communicated by means of either that or by stridulation. In this case, however, it was necessary to bear in mind the results obtained by other entomologists, when experimenting in order to try to solve this same problem. These entomologists put forward good reasons, as mentioned earlier in this paper, for the existence of communication by means of stridulation amongst the more primitive ants. Indeed, it has been known for some time that certain ants of the family *Dorylinæ* often make, when out hunting for prey, a sound similar to, though very much weaker than, that produced by the *Orthoptera*. This aspect of ant communication will be dealt with later in the paper.

To continue now the consideration of the results of the research undertaken by other entomologists into the possibilities of stridulation as a method of communication amongst ants. Sulzer, Scarpa, Schneider, Hicks, Lespès, Landois, and Wolff considered the existence of hearing in ants, as did many others, the majority deciding that such a sense did exist, which means, also, that they thought that the ants were able to produce sounds. Since the chief method of production of sound amongst the *Insecta* where such a sense exists, is by stridulation, this can be taken to mean that they considered that ants communicate by stridulation. But their reasons for coming to that conclusion were based on such theoretical considerations as the lack of "damp mucous membrane" on the antennæ, where the chordotonal organs were supposed to be situated, and these reasons have not been, and cannot be, accepted as satisfactory.

Wheeler, Donisthorpe, and Lubbock (Lord Avebury) have, however, found stridulatory organs in the more primitive sub-families, and the degenerate remains of these can be seen in the more well-developed ants. Wheeler and Donisthorpe agree

in believing that the more primitive ants (see beginning of paper) communicate by this method, but do not state their views concerning the method whereby the more well-developed ants communicate. Sir John Lubbock, however, believed that all ants communicate by stridulation, though the results of his experiments with regard to ants' hearing pointed to the opposite view. Dr. Forel used the experiments of Lubbock to prove, as he thought, that ants did not possess the power of hearing. I am in agreement with Wheeler and Donisthorpe in regarding both these conclusions as incorrect. The great mistake which most of those who have applied themselves to this problem seem to have made is that they have confined their studies to either one genus, or species, of ants, or to only one side of the question—studying only the chordotonal organs, or only the stridulatory organ. They then proceeded to theorise on their results, bringing about great confusion. Taking this into consideration, together with the enormous volume of literature written on the subject and also the fact that much of the latter has been written by people who were “mere dabblers,” and knew little about the other branches of myrmecology (study of ants), one can gather how confusing the subject is to study. For this paper it must suffice to say that though no one has succeeded in proving any particular organ to be a chordotonal organ, ants of the genera *Ponera*, *Atta*, and *Dorylus* have been definitely heard to stridulate, while stridulatory organs have been proved to exist in other more primitive ants.

On the other hand, the following observation of Dr. Rusby, noted in an Andean forest, is of interest. Dr. Rusby, on opening the door of his cabin one morning, noticed an irregular line of crumbs, starting on the step, and leading towards the bush. This line he eventually traced to an ants' nest a mile away. Inside the cabin the line was traced to the table leg, and on the table directly to a small hole in the corner of a box in which there had been packed fifty pounds of biscuits (double baked). The box was empty except for a few crumbs in one corner, and had been cleaned in one night. He continues:—“ . . . The information of the presence of the biscuits must have been communicated by some method unknown to science, for it is incredible that any ant messengers could have travelled the distance, at least more than a mile, to the ant hill. Speculation as to the procedure suggests some strange possibility as to

future discovery. The message being received at headquarters, there must have been some very efficient system by which countless thousands of ants could almost instantly be martialled and sent to the exact spot in a great mountain forest, where the store was located." Dr. Rusby goes on to say how extraordinary it is that the ants managed to carry fifty lbs. of biscuit crumbs over the rough and obstructed trails of the Andes.

(It will be noted that Dr. Rusby, like Maeterlinck,* mentions the fact that there must be some extraordinary power of communication in existence amongst ants. It seems unbelievable that no detailed research should have been made.) In dealing with this observation, it must be borne in mind that the ants had to make at least two journeys of a mile, this journey had to be done in twelve hours, presuming, which is unlikely, that the ants found the biscuits immediately after Dr. Rusby had retired. This means that they would have to travel at $\frac{1}{2}$ m.p.h. in both directions, one mile being done carrying a large piece of biscuit. But this would only be the case if communication with the rest was effected immediately the biscuit was found. Otherwise, most of the ants (marauding parties at that distance are very small, and the ones nearer home would not be very large at night) would have to travel two miles at $\frac{1}{4}$ m.p.h., or probably faster. This would be impossible. In fact, it would only just be possible for the ants to make two journeys at $\frac{1}{2}$ m.p.h., it being probable that slightly longer than twelve hours was taken (it would be unlikely that Dr. Rusby would investigate until after breakfast).

Therefore communication must have taken place over a distance of over one mile, and since smell (I doubt whether it would carry that distance under the circumstances, in any case) has been proved not to be the method used, and stridulation does not seem probable in this case, communication by means of a "ninth sense" is indicated. However, taking all this information, together with that gathered from my other observations and experiments, I decided that it was impossible to definitely determine whether ants of the sub-family *Formicinae* communicate by means of stridulation, or some ninth sense, unless I could evolve some novel method of research, although it was obvious that my book work and earlier experimental work would be of great help in deciding the nature of this unknown

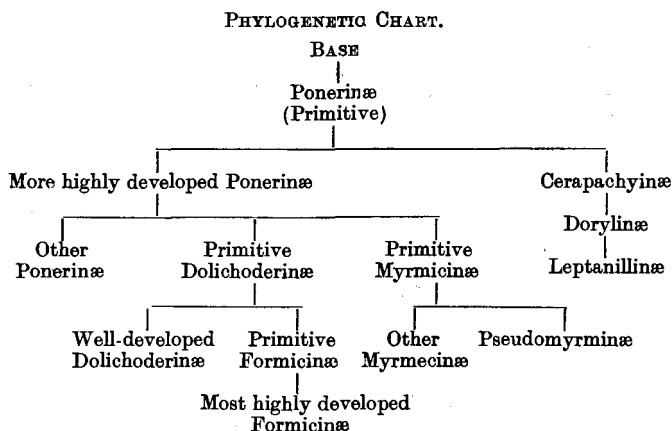
* *The Life of the Ant.* London, 1930.

sense, if it could be proved that communication was not effected by the emission and reception of sound (stridulation). At first I could think of no such novel method of research, but one day, when reading a description of the ravages of an army of ants of the genus *Dorylus*, their horrible smell, and the curious peeping noise they made (stridulation), an idea occurred to me: Surely it is very strange that the stridulation of these ants is audible, while that of more well-developed ants, which are supposed to be able to stridulate, is not. Has, therefore, the stridulatory organ decayed? I determined to pursue this line of research.

Before acting on this it was necessary to make a thorough study of the phylogeny of ants and, in fact, to settle the confusion which existed concerning this subject. The reason for the existence of confusion in this subject was very different from that which caused the confusion concerning myrmecological (study of ants) communication. My study of the subject has, I think, enabled me to get rid of a great deal of this confusion; nevertheless, it is impossible to give more than an abbreviated and simplified outline of the phylogeny of the *Formicidæ* in this paper. Before doing that I had better give the reader some idea of the confusion that existed concerning this subject, the reasons for it, and the manner in which I have tried to clear much of it away. The cause for the confusion was disagreement amongst those best qualified to give their opinion on the subject. For Emery, Wheeler, and Forel were undoubtedly the three people who were (all three are now dead, Wheeler dying in 1937) best qualified to solve correctly the difficult problems which have to be faced when studying ant phylogeny. It would not be right to say that the opinion of any one of these three should carry more weight than either of the others, but it must be borne in mind that Emery's opinions were formed at a much earlier time than those of the other two, and should, I think, therefore, carry rather less weight.

Now both Forel and Wheeler agree that the sub-family *Ponerinæ* is the base of the phylogenetic tree, though Emery placed the *Dorylinæ* in that position. I think there is no doubt that Forel and Wheeler were right. The position of the *Cerapachyinae*, *Dorylinae*, and *Leptanillinae* is disputed only by Emery. Wheeler and Forel disagreed, however, over the fact that the *Myrmicinae* were directly descended from the *Ponerinae*. I agree with Forel that the *Myrmicinae* are directly descended

from the *Ponerinæ* (through the genus *Metapone*). The fact that the *Dolichoderinæ* are directly descended from the *Ponerinæ*, through the genus (fossil) *Protaneuretus*, is indisputable; but the manner in which the *Formicinæ* descended from the *Ponerinæ* was, when I started my study, the subject of dispute. Forel said that the sub-family *Formicinæ* was descended from the *Ponerinæ* through a missing link. If, however, one examines the internal anatomy of both the sub-families; take, for example, the poison apparatus, one will see that the position is untenable. The *Ponerine* poison apparatus could not have degenerated so quickly into a structure like the *Formicine*, as would be necessary if the *Formicinæ* developed directly from the *Ponerinæ*, through a missing link, as suggested by Forel. On the other hand, the poison apparatus of the *Dolichoderinæ* forms a direct transition. This has been gone into fully in another paper. The external anatomy of these two sub-families also agrees with my theory concerning this point, it being noteworthy that in the last century the *Dolichoderinæ* were classed as belonging to the *Formicinæ*. Having determined the correct base and branches of the phylogenetic tree* (see chart), I proceeded to study the stridulatory organ in relation to the former.



The stridulatory organ is situated at the joint between the first and second segments of the gaster, the third and fourth segments of the abdomen, in the *Ponerinæ*, *Dolichoderinæ*,

* *An Outline of the Phylogeny of the Formicidæ*, Bull. Soc. ent. de France, 1938.

Formicinæ, *Cerapachyinae* and *Dorylinae*, but in the *Leptanillinae*, *Pseudomyrmicinae*, and *Myrmicinae* is situated on the post-petiole (third and part of fourth segment of the abdomen). The reason for this apparently different placing of the organ is the anatomy of the *Myrmicinae*; these ants having a post-petiole, as well as a petiole (the *Leptanillinae* and *Pseudomyrmicinae* are similar in this respect). Thus the organ, though appearing to the layman as being in a different place, in reality is not so. The result of this research, as to whether the stridulatory organ developed, or atrophied, as the ants developed from the primitive *Ponerinae* to the highly developed *Formicinæ*, was conclusive. In the *Ponerinae* the organ is well developed, it then atrophies, the teeth become rounded and ridged, and the curve of the base of the second segment of the abdomen flattens out, until in the *Formicinæ* the organ has so atrophied as, I consider, to be incapable of producing sound. This means that the organ must have been functionless after a certain period, presumably while some new method of communication was being evolved, for organs which are in constant use, as a stridulatory organ would be, do not become atrophied, but more highly organised.

Thus it is probable, I consider, that there exists among the *Formicinæ* some ninth sense.

It will be seen that the requirements of this "ninth sense" are as follows:—(1) Communication must be instantaneous, and must not be affected by atmospheric or other mechanical physical conditions. (2) The method of production whereby communication is brought about, and the method by which the communication is received, must not be mechanical. (3) The method must be such that it can be produced under the required conditions, and by the required means, by ants. Communication is instantaneous, as was shown by my experiments and observations. This is supported by the observations of M. Maeterlinck, as is shown by the following quotation from his book, *The Life of the Ant*: "Whenever two ants meet, they almost invariably tap one another rapidly with their antennæ, as though they had something to say. Have they no other means of communication? It is certain that the alarm, when a formicary is attacked, or merely disturbed, is propagated with such lightning-like rapidity that we are almost compelled to explain it by a complex of cellular reactions, instantaneous and unanimous

such as occurs in our own bodies when they are seriously threatened or injured." It is obvious that communication would not be instantaneous if it were affected by atmospheric or other mechanical physical conditions. The reason that the method of production must not be mechanical is that if it was, it would necessitate there being organs for the production and reception of the means whereby communication was established. There seem to be no such organs. The reason for the third condition is obvious.

The conditions set forth above rule out the method of communication that, among entomologists, is wrongly known as "wireless telepathy," or sometimes "telepathy." This "wireless telepathy" is communication by means of waves produced aëroscopically in the ether (I do not, myself, believe that waves in the ether can be produced aëroscopically). Thus we are left, I believe, with one possible form that this "ninth sense" can take, that is, the transference of waves produced by the brain of one ant directly to the brains of the rest of the community. This complies with all the conditions; also the fact that this method would explain that phenomenon that develops, curiously enough, with the atrophy of the stridulatory organ, namely, that a colony of ants seem to act as one body, and not as many independent bodies, gives added support.

NOTE 1.—The *Formicidæ* have eight other senses: sight, smell, touch, taste, a kinæsthetic sense, a sense of orientation, a sense of topochemical smell, and in those sub-families which communicate by stridulation, hearing. In the *Formicinæ*, sense-motility, though this is not usually classed as a major sense, I have called this sense, whereby the *Formicinæ* are held to communicate, "ninth sense" to avoid confusion.

NOTE 2.—Although I am of opinion that all species of ants have evolved from a few basic species, as I have demonstrated in several papers on the phylogeny of ants ("An Outline of the Phylogeny of the *Formicidæ*," Bull. Soc. Ent. de France, 1938; "The Phylogeny of the *Pomerinæ*," *Idem.* March, 1939, "The Phylogeny of the *Cerapachyinae*, *Dorylinae*, *Leptanillinae*," *Idem.* April, 1939), this does not mean that I, of necessity, concur in the view that ants have evolved from other *Hymenoptera*. It has been suggested by some entomologists that the *Formicidæ*

(ants) might have evolved from the *Mutillidæ*, and I myself have elsewhere pointed out that this group most nearly resembles the *Formicidæ*, but the only Formicine species which might form a link with the Mutillids is *Mystrium voelzkowi*, a primitive and specialised ant, it is true, but one which differs greatly from the Mutillids in all but its external anatomy. Also the Mutillids have lost their wings once, would they therefore be likely to acquire them again in the ants? Surely not. It has more recently been suggested that the *Formicidæ* have evolved from the *Scoliidæ*; but several missing links must be found before this can be stated with any certainty. Thus there seems to be some doubt whether the ants have descended from any other group of insects; but a problem of such magnitude, concerning as it does the whole structure of the theory of evolution, can hardly be discussed in such a small space as this.

DISCUSSION.

The Chairman (Mr. DOUGLAS DEWAR) said: As a fellow field naturalist I welcome Mr. Morley's paper. Not being an entomologist I can remark on this interesting paper only as a naturalist interested in all living creatures. In my view the adoption of the theory of transformism has tended to retard the study of animal psychology, because the theory assumes that the senses and faculties of animals differ in degree rather than in kind from those of human beings. This notion, I think, is wrong, and I feel sure that Mr. Morley is right in believing that ants have at least one sense quite unlike any possessed by human beings.

Having discarded the theory of evolution, I am particularly interested in the part of Mr. Morley's paper dealing with the phylogeny of ants. While I grant that it is possible that all the sub-families of ants are descended from one sub-family, I do not consider this proved. If, however, this be the case and Mr. Morley's researches have enabled him to draw up a correct family tree, we are forced to the conclusion that what he terms the ninth sense of ants has evolved independently on at least two occasions, viz. in the *Formicinæ* and in the *Myrmecinæ*, and perhaps on a third occasion in the *Dolichoderinæ*. Now, I find it extremely difficult to believe that an entirely new sense can have come into existence *gradually*

in any species. I cannot conceive how it could have thus originated, or that it can have been of the least use to its possessor until it had developed to a considerable extent. If this ninth sense be merely an alternative to stridulation, why did it arise, and why, after it developed, did stridulation cease? Before believing that this happened twice or thrice I should require very strong evidence. The earliest known fossil ants are fully developed and the rocks have yielded no intermediaries between them and the non-ant ancestors imagined by evolutionists. May it not be that from the beginning there have existed non-stridulating and stridulating ants? May not some ants all along have possessed the ninth sense of Mr. Morley?

Dr. Rusby's ant story fills me with astonishment. The first thing that strikes me, a mere dabbler, as strange is that in the part of the Andean forest to which the story refers there was apparently only one ant's nest in an area of which the diameter was two miles. Secondly, is it usual for ants carrying food to leave crumbs strewed all along the track from the food supply to the nest? If this happened then thousands of ants must have left untouched food lying in their tracks and have taken an unnecessarily long journey, and, at the end, the climb up the leg of the table. Thirdly, is it usual for ants to forage as far as a mile from the nest? Fourthly, as there were still crumbs left in the biscuit box, why were the ants not still at work when Rusby returned? Finally, the ninth sense of Rusby's ant (he gives it no name) must either have enabled it to discover food from a distance of nearly a mile, or, if the discovery was made by one straggling ant, have enabled this individual to communicate to the occupants of the nest not only its find, but the precise location of this. I am sure we shall all be very grateful to Mr. Morley if he will answer my questions which, perhaps, are merely those of a cobbler who has left his last. In conclusion, I ask you to accord a hearty vote of thanks to Mr. Morley for his valuable paper.

Lt.-Colonel P. W. O'GORMAN, M.D., made the following observations: Although not a scientific entomologist nor a myrmecologist, during residence in India and East Africa I have been interested in insect life, and I have hatched many caterpillars from eggs to

maturity. I have also made a personal collection in India of butterflies, moths, and stick insects equal if not superior to many collections I have seen.

I have long maintained that all animals communicate ordinarily with each other and with other species by a species of mental wireless telegraphy or telepathy, as well as by various physical means. When congregated together in groups circumstances dictate whether the sounds they yield, vocally or by stridulation, are indicative of pleasure or of the discovery of food, or of anger and pugnacity or fear and alarm, or, if on the wing, of direction of flight. But generally silent telepathy seems to be the usual mode of communication. The term "telepathy" is employed for want of any better word, for we do not quite know what it is. And man is also endowed with the same power, and it can be cultivated to keen sensitivity. It is a psychical and not a spiritual power, and so we must be wary of reading high intellect into its manifestations among animal life, although in man its implications or conclusions may be heightened by abstract reflection.

Striking examples are numerous. I make mention of just a few. In India food has to be protected against the inroads of ants, for instance, by placing the legs of a table containing articles of diet in bowls of water. Ants circumvent this by climbing up the walls of the room to the ceiling and aeroplaning down to the desired quarry. Here surprising intelligence is shown, no doubt sharpened by hunger and aided by their sense of smell; but the information of discovery may be conveyed to fellow ants by telepathy. The latter is a common method adopted by scouts from the nest when searching for food, soon resulting in the arousing of swarms. Direction is observed either by telepathy or by communication by touching of the antennæ of returning messengers. The carcass of a dead cricket, for example, is assailed by numerous labourers, each often pulling in wrong directions, yet there seems to be some right directing force which moves the mass towards the nest entrance.

Again, female silk-worm moths just born from their chrysalles, have been placed in cages and otherwise watched, and have been visited by male moths at night in a mysterious way. How do they communicate their presence? It appears they do so by means of vibrations of their antennæ which seem to carry to immense circum-

ferential distances. Experiments, I remember reading somewhere, clipping off these antennæ arrest their communications.

A remarkable confirmation of the possession of this mysterious power of telepathic influence is given in a recent highly interesting book by Eugene N. Marais, *The Soul of the White Ant* (Methuen). He spent ten years in experimentation and careful observation on animal life in South Africa, rivalling the renowned Fabre, "the Insects' Homer." He maintains that instinct is really hereditary or racial memory, which, however, is apt to be interfered with by experiences from individual memory. In the higher animals it is less durable than among the lower and is amenable to modification by environment and experience. It is not our purpose here to go further into this very important subject, but the author concludes from his experiments that the subconscious mind of man is nothing more than the old race-memory in a state of abeyance subject to be aroused into action under favourable conditions.

What concerns us here is Marais' experiments on the termite or white ant which led to the discovery that this insect in its various forms, living in complete darkness, is totally blind and possesses no vestige of free will, but is guided throughout its sleepless days and nights by an outside power. He discovered that this power emanated from the queen ant herself. "This invisible influence streams from the organism of the queen alone. It is a power beyond our senses; it can penetrate all material barriers, even such as thin steel or iron plates." He evolved a strange theory that the termitary or ant-heap is in some way intimately connected with the lives of its inhabitants somewhat though distantly akin to the corpuscles of blood which circulate in our blood-stream, so that when the inhabitants die the whole termitary disintegrates. He suggests that the healthy maintenance of the termitary is dependent on some kind of power projected from the living stream of insects which influences the chemical constituents of organic bodies as in the human body. To our thinking, who know the habits of the termite, the more prosaic reason appears to be the withdrawal of the continuous supply of moisture which the white ant is well known to be the conveyor from very great depths in the soil during its life time. Yet it is the cessation of the activities of the termites which bring this about.

But the matter which concerns us particularly is Marais' discovery that convinces him that the queen ant possesses some power of "signalling" which eludes explanation. The queen, from her hidden cell, broadcasts continuous messages to every member of her enormous family. These messages penetrate to the colony isolated by means of a thick metal plate or even rock. If the queen were injured or killed, their whole activity and even life would suddenly be extinguished as if a switch had been turned off at the power station! Separated thus for months even, the termites continued to work systematically, but no sooner was the queen injured or removed from her cell, their activity came to an end. This invisible influence operates within a certain radius only. On one occasion, while examining the queen in her cell, Marais witnessed an accident to the queen, a piece of hard clay fell from the roof of the cell and struck her on the head. Although she seemed not to mind overmuch and merely moved her head rhythmically once or twice, the incident threw the whole of the termitary into panicky confusion. Even to the remotest recesses of the nest the ants stopped working and the usually semi-conscious "guards" which surrounded her awoke from their lethargy and ran away. After certain curious "treatment" by the alarmed ants, the queen recovered and the termitary resumed its normal life!

These observations indicate the existence of a peculiar yet vital "telepathic" influence which certainly affords us much room for thought. If among insects, why not among higher classes of animate life, and even in man? These observations, however, which we quote tentatively need to be confirmed by other experimenters.

Marais, however, relates another discovery which confirms his view of wireless insect telepathy. Periodically after rain swarms of newly developed winged termites escape into the air as emigrants seeking new colonies. The female may fly long distances but instantly on landing she casts her wings and with uplifted tail sends forth some kind of "vibrations," until they are responded to by a winged male. The pair then enter the soil to begin a colony, the prospective queen yielding a constant stream of eggs which eventuate in developing the requisite forms of worker and soldier termites.

A very interesting article by L. Hugh Newman, "The Butterfly Farmer," in *Pearson's Magazine* for September, 1937, p. 354-363, supplies confirmatory information in regard to psychic "wireless" communication amongst insects, derived from both observation and experiment. The female Vapourer moth is one of the wingless varieties, similar to the wingless Winter moths that we try to trap on greasebands round the trunks of fruit trees. At "the sembling hour" the winged male manifests a curious faltering flight, flying round and round in wide circles, or up and down in the air in spirals. "This suggests they are sensitive to electric disturbances in the atmosphere and are in their own way attempting to pick up messages transmitted by the wingless females." Mr. Newman discovered by experiment on the Emperor moth that the newly-hatched female enclosed in a cage at a certain hour, began without any warning to violently tremble her wings and the body began the familiar rhythmical pulsations that are the two signs that she is "calling" for a mate. Only a few minutes later male moths scented the female and whirred around and soon almost buzzed round his head, and shot straight towards the cage, running feverishly up and down searching for an opening. Mr. Newman recognised, by a clip of the corner of each wing he had made, one of certain males he had removed to Dartford Heath, about two miles from his farm, but the other two were perfect wild ones. The "scent" is the terminal indication of the presence of the female. A male moth has been known to diligently search, for hours at a time, an empty box which had previously contained a virgin female! "But this does not explain how moths travel considerable distances, and on windy days *against* as well as *with* the prevailing wind." Mr. Newman says: "I have also been able to show by a simple experiment that males will come to a female in a closed wooden box; but if the box is made of metal and earthed, they will *not* come. This would appear to strengthen the theory of communication by some form of electricity." A photogravure of the antennæ of the male and female Emperor moths shows that those of the male are pectinated and resemble a large double tooth-comb or fern-leaf appearance, while those of the female are plain and with pointed ends, and present only a few shortened comb-teeth. The former are apparently receivers and the latter are transmitters in a type of "wireless."

AUTHOR'S REPLY.

In reply to Mr. Dewar, I should like to point out that in my paper I only *actually claim* the existence of a "ninth sense," for communication, in the *Formicinæ*, not in the *Dolichoderinæ* or in the *Myrmecinæ* as Mr. Dewar states. It is true that the more highly developed species of the *Dolichoderinæ* may communicate by means of ninth sense for they do not communicate by stridulation (*see p. 80*); indeed, it seems probable that they do. This does not mean, however, that the sense need have arisen twice, for the *Formicinæ* are descended from the *Dolichoderinæ*; the "ninth sense" having presumably existed in some degree in the common base of both the *Formicinæ* and the highly developed *Dolichoderinæ*.

I can find no statement in my paper which refers to the existence of "ninth sense" in the *Myrmecinæ*. I make no such claim and (*see p. 80*) believe that the ants of this sub-family communicate by stridulation.

In answer to Mr. Dewar's query with regard to the possibility of the gradual development of this "ninth sense," I would point out nowhere in the world of nature can one find instantaneous perfection—wireless had to be developed through many years of experiment before it reached its present reasonably perfect state; plants when they are moved to new climates change their habits gradually, not all at once, until they once again suit their environment to perfection; man had developed his various languages over a long period of years from a very imperfect vocabulary, supplemented by a more frequent use of gestures, to the fluency of speech which exists to-day.

Surely one would expect a new sense to develop gradually? Who can say whether our own very primitive "extra-sensory perception" may not overthrow speech as our primary means of communication in the years to come? This seems even more probable when we realise that God Almighty uses this method of informing us of His wishes (only we call it conscience and other such names), in preference to vocal speech.

With regard to the disappearance of stridulation after the development of "the ninth sense," I would point out that the usual rule of this world is the survival of the fittest, both in animate and inanimate things. "Ninth sense" being better than stridulation, the latter disappeared.

Some South American ants might quite well forage a mile away from the nest, the first ants who find any food claiming it for their colony.

Crumbs might well be left on the track while the main body of the food was being removed, though they would presumably be taken to the nest later ; this was, one gathers, what they were doing when Dr. Rusby found them. "Ninth sense" is not a sense capable of being used for finding food, though it could certainly be used to communicate the precise locality, etc., over a distance of a mile. With regard to Lt.-Col. O'Gorman's citation of M. Marais' observations and conclusions as set forth in the book *The Soul of the White Ant*, I feel that I must say that though Marais spent much time observing Termites (which are not, of course, *ants* despite their name "White Ants") and doubtless knows a great deal about those insects, I cannot accept his observations or his conclusions on *this* matter as scientific data, unless it be with great reserve ; though doubtless he made many observations in other branches of termitology which have much scientific value.

With regard to Mr. Newman's observations which Lt.-Col. O'Gorman cites, I felt that, though not in any way discounting them, I should point out that some of our most eminent entomologists have put forward strong evidence supporting contrary, and much less intriguing, explanations of the "assembling" of moths, such as scent scales, etc. There does, however, seem to be considerable doubt as to how the "assembling" is actually brought about, neither side having, I consider, adequately proved their case.

The Rev. S. Runsie Craig Memorial was founded on June 30th, 1938, by a donation to the Victoria Institute of £400, from **MRS. CLARA MILDRED CRAIG**, of 59, David Place, Jersey, C.I., in memory of her late husband, the **REV. S. RUNSIE CRAIG, B.A., LL.B., F.R.A.S.**, to be utilized under, *inter alia*, the following general terms and conditions.

(a) The Fund to be held in Trust as the Rev. S. Runsie Craig Memorial, for production, printing and publishing of Papers (and the discussions thereon), written with the object of maintaining the integrity of the Holy Scriptures of the Old and New Testaments and contending earnestly for the Faith once delivered unto the Saints, as embodied in the Apostles' and Nicene Creeds as ordinarily understood; and/or of refuting philosophies and theories opposed thereto.

(e) All papers and discussions thus produced, in the "Transactions" and in the form of "separates," will be shown as "Under the Rev. S. Runsie Craig Trust." They will not be chosen in advance, but will be selected by the Council at the end of the session as, in their judgment, best fulfilling the objects of the Trust from among all the papers read during the session.

In accordance with the terms of the Trust, the Council have selected for the 1939 Memorial the paper on "Survival of Old Testament Forms of Religion on the Western Frontier of Modern China," read before the Institute on March 20th, 1939, by the **Rev. T. TORRANCE, F.R.G.S.**, as embodying the results of an original investigation of unique evidential value in confirmation of the Old Testament Scriptures.

The Rev. S. Runsie Craig Memorial, 1939.

828TH ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1., ON MONDAY, MARCH 20TH, 1939,
AT 4.30 P.M.

LT.-COL. F. A. MOLONY, O.B.E., IN THE CHAIR.

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

The CHAIRMAN then called on the Rev. T. Torrance, F.R.G.S., to read his paper entitled "The Survival of Old Testament Religious Customs Among the Chiang People of West China."

The meeting was then thrown open to discussion in which Dr. Barcroft Anderson, Miss A. Duncan, Miss L. C. Ord, Mr. Sidney Collett and Mr. R. Duncan took part. A written communication was received from the Rev. Principal Curr.

THE SURVIVAL OF OLD TESTAMENT RELIGIOUS CUSTOMS AMONG THE CHIANG PEOPLE OF WEST CHINA.

By THE REV. T. TORRANCE, F.R.G.S.

WHAT an astonishing part the Jewish nation has played, from first to last, on the stage of the world's history! Born on Mount Moriah, cradled and schooled in Egypt, disciplined in the wilderness, and domiciled in a land far too small to sustain its ever-increasing numbers, it very early became a Divinely governed commonwealth, sending forth, from sheer necessity and by express calling, her products of saving truth and God-fearing men to all peoples. This export was remarkably facilitated because Palestine lay at the cross-roads of the then known earth, from which travel and traffic followed well-known land and sea routes towards every quarter of the globe. In a word, Israel was a missionary nation. No nobler destiny could have been conferred on any people. To this she owed her greatness and her prosperity. Her sons were ordained to flit hither and thither like bees fructifying the races of the earth with the pollen of a heavenly revelation.

If the *Diaspora* in the sixth century B.C. left the hive of the land empty for a little, this but accelerated the fulfilment of the appointed mission. Cast out upon the world at large, only a fraction of the Israelites returned. The others remained abroad.* When the land again grew full to overflowing, more colonies pushed out everywhere. Between earlier and later emigrations, settlements occurred in Asia Minor, Greece, Rome, Egypt, along the North African coast, through the Pillars of Hercules to the Gold Coast, while successive waves of Semitic influence swept westwards across the Sudan from the Nile to the Niger, of which distinct traces can still be found, especially among the Ashantis, who retain a fusion of Jewish blood and a long list of Hebraisms.† Maccabean coins have been found in Natal and Zululand. The Masai have a version of the Decalogue. The Falushis of Abyssinia are well known. So are pockets of Israelites in Arabia. "The Jews," Luther says, "inhabited Ratisbon a long time before the birth of Christ."

To the East the Beni Israel live in India. Numerous Afghans claim descent from King Saul. A converted Jew, Dr. Wolff, who travelled in Central Asia from 1843 to 1845, found ancient settlements of Israelites in different parts. Those in Bokhara and Mowr told him that Israelites of the tribe of Naphtali and Zebulon lived in the Hindu Koosh, among the Balkwee and used the expression, "Hear, O Israel."‡ The Bokharan Jews possess an ancient MS. of Daniel§ which chapter viii, 14, has 2,400 instead of 2,300.

Other Jews, in their trek eastwards, travelled on more than one occasion to China. Their presence here was first made known to the West by Jesuits, who found a small colony at Kaifungfu in Honan. Since then different writers have written on the Chinese Jews, the sum of their findings being that they were once numerous in China, and a special official dealt with their affairs. They arrived about 221-206 B.C.; had their Scriptures, maintained customs of ceremonial purity and were called "The People of the religion that extract the sinews."|| The Honan colony is now extinct.

* Cf. 2 Esdras xiii, 40-45. 1 Kings xiv, 15.

† Cf. Williams, *Hebrewisms of West Africa*.

‡ Dr. Wolff, *Bokhara*, p. 317.

§ P. 201.

|| *The Jewish Encyclopædia*, vol. 4, p. 33.

The earliest settlement of "Jews" in the Far East was, undoubtedly, on the western frontier of China. But since these lived among mountains little traversed by Europeans, their presence was not early recognised. About twenty years ago, in our travels there, we found that people locally known as Chiang-min were indeed descendants of ancient Israel. Numerous villages of them are found in the Min river region. The Min is a tributary of the Yangtse-kiang.

One saw they were a unique people. Their features were Jewish. Even those of mixed blood did not have that small eye-membrane, the epicanthus, which is peculiar to Mongol races. Their address and manners were un-Chineselike. Their architecture, villages, defence towers, husbandry, laws, social and domestic relations proclaimed their Biblical origin. Their religion, especially when investigated, told plainly the same tale. And it is of it now we speak particularly. For its old-world character deserves to be widely known.

They worship only God. To them the Creator of heaven and earth is one and supreme. His Name is Abba Chee, the Father Spirit, or Father of men's spirits. They think of Him as neither remote nor aloof, but as a Personal Being, who has a heart of affection for His offspring—an affection distinguished by that righteousness which is becoming to such an intimate relationship to men.

The immaculate purity of His transcendent unchanging nature is symbolised by a conical, or mount-shaped piece of white glistening rock standing in its natural unhewn state on the roof of every house. In the villages these upstanding white stones draw the eye at once of every traveller. It is impossible not to ask what they mean, so unique are they. When this is learnt the thought immediately follows, that as much as their appearance is singular and outstanding, so is the truth they teach concerning the God the people love and worship. There is no word in any ethnic religion equivalent to the Bible holiness, but this Chiang symbol plainly expresses it.

That God is holy, just and good is the firm belief of this people. He is the moral Governor of the Universe, the sure Rewarder of good and evil. To His justice the oppressed can appeal for redress; before Him the unjust are certain to be condemned.

All moral and temporal blessing flows from Him. He is the light and life of men. Such a creed rises immeasurably above the inventive power of human reason. For it demands that God be worshipped in the way of holiness. The condition of blessing is holiness. Naturally, this is impossible with men, yet the conviction prevails that, by the goodness of God, the condition is provided. It may be obtained by way of sacrifice when sin, in the revelation of the Divine power, is righteously judged and cleansed away.

The conception behind this belief is radically different to the heathen evaluation of sacrifice. The heathen have no true sin-offering. The Chiang hold the necessity of the removal of sin's impurity before the Father Spirit extends His forgiveness and protection to man. He cannot overlook sin. It has to be dealt with. The very heart and motives of the worshipper He scrutinises to see that they are sincere. The penalty of hypocrisy, as expressed by their symbolic language, is transfixion by a brazen arrow from heaven. They mean a direct stroke of judgment from God.

The Chiang faith is inscribed indelibly and unequivocally in their ritual. Sacrifice requires an altar. On that the sin-offering may alone be made. The reason given is that it is there that God chose to reveal His mercy and His light. It is His trysted place of meeting with men. That is sufficient. It behoves man to accede to His authority. There is no other reason. If salvation is to be secured, naturally it must be after the manner of its own laws, and at the required place.

It follows that the erection of the altar cannot be left to chance or caprice. Its stones are to remain unhewn. Upon them a shaping, embellishing tool is forbidden. Human invention has no place in the approach to God. Salvation is divinely provided for man apart from his imagination or help. Cut or polished stones in the altar would defile its holy purpose.

A flat rock *in situ*, or a natural slab of rock placed on supporting stones, may be utilised. But, generally, the altar is a bank of earth faced with stones. Nothing could be simpler or easier of construction, and its site is ground chosen, set apart, and sanctified for the one holy purpose of sacrifice.

Moreover, the altar requires to be named. Whose is it? By what exactly may it be known? Since it is for Abba Chee, His sign on it is demanded. The white stone of His holiness, accordingly, is as a mark set up thereon. It at once lets its identity be known, and prohibits the service of any other god there. The glistening unit of rock seals it with the Divine name.

Tradition ordains that the place of a public altar should be on a mount, or eminence. Each community has its own. To it, men should betake themselves at stated seasons, notably thrice yearly. Chiang worship is essentially a high place worship even as in early Israel, though it is without the corruptions or perversions of the Canaanites. Fascinating, then, is the study of its Old Testament procedure, even if that is lacking somewhat in perfection owing to the lapse of years. What remains is much, and of comparative purity.

To quote from my book: "A high place is not chosen, as might be supposed, for its commanding elevation. It is rather chosen because they think of God as dwelling in the heavens, and ascent to His altar gives natural expression to their desire to meet Him. Upon the Mountain side the soul is shut in with God and the world shut out. Nothing intervenes between man and his Creator. Here amid unspoilt surroundings in the true sanctuary of nature, the Father Spirit is pleased to meet with the humble suppliants of His grace.

"Those who doubt this have to explain why the Chiang worship takes place at night. There is nothing then to be seen but the starry lights of heaven. Absolute silence reigns. Distraction is far removed. The whole thought is centred on the act of worship. Only a true seeker after God cares to make the climb. To him the darkness is no deterrent, the risk of inclement weather no hindrance. The securing of the Divine Presence is the quest of the soul. Into his own moral darkness he wants the light to shine."*

The altar is in the midst of a grove. The grove may be simply a clump of trees, or an extensive wood. Its trees are sacred in the sense that none may be cut. But there is one tree that is peculiarly sacred behind the altar. It forms an indispensable

* *China's First Missionaries: Ancient Israelites*, Thyne & Co., 3s. 6d.

feature in Chiang worship, not for itself but for what it represents. It is not called the Tree of Life, though it seems to lend itself somewhat to this idea. It is affirmed that it is God's tree. To it may be tied the animal for sacrifice. The stone, the tree, and the altar give locality, centralisation, and reality to worship.

The sacrifice is mostly that of a lamb. It has to be without blemish, and without spot. If it has a spot then a white cock is slain to atone for that. Very carefully is the lamb inspected beforehand and cleansed. Only when pronounced perfect is it passed as acceptable. The scrupulosity here is as strict as in the order of the priesthood. No novice, or unsanctified person, even the son of the priest, may presume to officiate at the altar. Similarly, the elders of the people must be men of acknowledged uprightness. God is holy. He can only be approached in the sanctity appropriate to His nature. Every vessel, utensil, and article used at the altar is cleaned and set apart for its holy purpose. Never can anything at the altar, not even the rope that leads the lamb to the grove, be put afterwards to a profane use.

In conformity to the need of sanctity, the worshippers have to bathe their bodies, wash their clothes, separate themselves from all defilement, and wear white garments. Body and soul require to be clean. A good man is called a white man, a bad man, a black man.

The initial act of worship is to surround the white stone in a cloud of "incense" smoke. Then sin is transferred to the head of the lamb by the laying on of hands. This constitutes the crucial act in the whole altar ritual. It indicates what all positively declare, that the lamb bears their sin by way of substitution. With one voice it is insisted that this is the method of the forgiveness of sin originally made known of God to their fathers. The judgment of death has to fall on iniquity before God will bless men. Without the sprinkling of blood on the altar, on the white stone, and on the worshippers, which is done by a wisp of grass, there can be no cleansing of sin and uncleanness. No person, not even the priest, has the right to pray apart from the judicial removal of what is offensive to God.

Unanimity of belief on this point is remarkable. Sin is something abhorrent to God and that leads irrevocably to death.

A weird, plain token of its deadly effect rises grimly before the altar. A pole on which hangs coiled the likeness of a serpent tells of its awful origin and result. The people retain the tradition of the brazen serpent in the wilderness, and its important lesson is continued by this visible replica in the solemn hour of their assembly before God. The penalty of sin is death.

An emblem of life stands over against this emblem of death. It equally excites interest. It is a white banner with (1) two holes in its upper surface indicative of the all-seeing eyes of God, and (2) with a bow and arrow of judgment. It is thus a banner of righteousness. At the instant the lamb is slain the arrow is removed. Then life and righteousness are communicated to men. Righteousness makes judgment essential to life, and judgment becomes the prelude of life. Could any thing be more eloquent or undeniable than this strange symbolism of this unique people? Its exact form may not be Biblical, but the thought behind it is certainly Biblical. And we may mention in passing that it was a leper who first told us that this righteousness was called the garment of God.

These emblems of death and life, moreover, have a personal signification. They represent the Messianic hope of the Chiang. Their sacrifices, they say, are provisional; all are to culminate in a supreme sacrifice yet to come. A Sin-Bearer is to appear from heaven who personally will put through the reality of their symbolic rites. He will be to men the Interpreter of the Father Spirit. As becoming this office He is called Abba Malach—the Malach (Messenger) of the Father, a name easy for us to identify as Malachi, the messenger of the covenant. Another name given Him is Je-Dsu, or Nee-Dsu. The names are interchangeable.

But the Sin-Bearer has a third emblem, expressive of His fullness and work. A sacred roll embodies His very Presence with men. The people had once their Scriptures. Though now, from the lapse of time, no longer extant, their form in this roll is preserved. So much is it venerated by the priests that no non-worshipper may see it. The people speak of it—of Him—with the most intimate affection and joy. At every sacrifice the roll accompanies them to the altar. Its presence is as essential as the lamb, for the persuasion is that at every sacrifice Je-Dsu, though unseen, is verily present. He comes down to the altar by way of the tree, to meet those who seek Him after the

appointed manner. And it is one of the first petitions of the priest that since all are assembled in obedience to the Divine will that He will come down to reveal His light and salvation. This light, they "see" in the refulgence of the white stone at the head of the altar. In the glow of the sacrificial fire which either consumes the offering, or is used to prepare it for eating, the white stone mirrors the shining of the mercy and blessing of God.

Truly it is here that the religious conceptions of the Chiang rise to their highest, and disclose their Old Testament origin. We are taken straight into the Holy of Holies to see Him who is invisible. We are face to face with the Father of all mercies and tender compassions. Theirs is not a formal religion, but purely a spiritual religion. It may be a pathetic copy outwardly of what their fathers left so long ago, but its spirit is still alive and strong.

That Je-Dsu gives life as well as light is again evidenced by the manner the priest brings the sacred roll to the grove. It—He—is planted in a measure of wheat-seed until the close of the ritual. As He returns to heaven by way of the tree, the life-giving seed is scattered over the worshippers who collect it to take back to their homes. This is the assurance of the life and prosperity granted to them at the altar:

It will be noted how the various parts of the ceremonial interlock as a whole. They present a co-ordinate system of truth, the several parts of which, like the Ten Commandments and the Levitical offerings, mutually interpret each other. To break one is to break all. Each amplifies its neighbour. The task of the critic, to discredit or discount their true significance, is hopeless.

The Jews spoke of their Messianic hope as the mercy promised to the fathers. They dated it from the vision given to Abraham on Mount Moriah, a vision confirmed by our Lord when He said: "Abraham saw My day and was glad." The Messiah was to be a second Isaac, of whom the first was typical. "In the Mount of Jehovah it shall be seen," became their greatest of proverbs. Or as the Seventy translate it: "In the Mount Jehovah shall be seen." The Chiang, too, express their hope as the mercy promised to the fathers. Abba Malach is to fulfil it.

They claim they are the descendants of the twelve sons of one patriarch. This means Jacob, though they seem to have lost his name. They have waited all these many centuries for their Sin-Bearer, envisaging the past and the present as linked up with the future in Him. What astonishing constancy they have shown to their hope! Think of the thrill they have when the missionary tells them that He has come. And with what joy do they claim the Pentateuch when given to them as their own long-lost Scriptures, and as the title deeds to their religion.

The question has been put whether the Chiang practise circumcision. The answer is indefinite. Time failed us to visit all their remote abodes. Those we knew did not. This was the more singular because among them were the faithful who refused to eat blood. Readers of my book will have traced the identity of so many of their customs to those of the Hebrews, and the wonder is that they have preserved so many in comparative purity. Certainly no deviation is lawful in the altar ceremonial. That being by Divine decree is immutable. High-handed disobedience brings certain retribution. God hedges up the misleading side-paths with thorns to keep their feet on His own royal highway. His judgments forbid change in the essentials of salvation. It is the sure working of cause and effect. This belief has operated strongly in the purification of the morals of the people. Their standard of conduct is much higher than among their neighbours. They have thus the substance, if not the outward symbol, of the removal of moral impurity which constitutes men as the people of God. Religion with them is not divorced from morality, but is its spring and mainstay.

Of their character in general, *The History of Lifan*, a Chinese work, bears this testimony: "The men are strong and resolute, but in disposition are simple and true. They make expert hunters. Their lands are hard to cultivate, and the people are poor. Frugality and diligence mark their habits. In their dealings they are honest, and litigation is rare. Their scholars are well informed and self-respecting." *The History of Wenchuan* says: "They are accustomed to hard work on their unproductive lands; nevertheless, they are correct in their moral principles. Their kindly disposition makes them respond quickly even to small acts of kindness. The men farm; the women weave; the husband sings, the wife responds; mirth

and laughter come naturally to them." From long observation we personally can say that these statements are true to the letter. They have a happy infectious way with them. Their primitive sing-song can be heard exactly at any time to-day on the shore of the Lake of Tiberias. We append this further testimony from a Chinese monument in Honan *re* the Jews who once lived there: "They excel in agriculture, in merchandise, in magistracies, and in warfare, and are highly esteemed for integrity, fidelity, and a strict observance of their religion."*

The Chiang have been in their present habitat for at least 2,500 years. This does not support the far-fetched theory of the post-exilic date of the Levitical sacrifices. Doctrinally, of course, no supposition is more intrinsically false than this, and does not need refuting to any man of true spiritual discernment; yet one welcomes more historical truth that the Divine mercy and the symbolic explanations of its efficacy did not wait until the days of Ezra to be given to needy men. The love of God shone forth from the beginning, and righteousness characterised its display. That it was written in pictorial language of stones, altars, and symbols when "books" were laborious to multiply, became the wisdom of God. By this method the divine salvation was not simply given in an appropriate form to the poor and unlettered for easy reading, but given in such a way as to preserve the truth of the Atonement from the perverting influence of fallen human reason, and science falsely so called. Those who dared to attack it, made known simply their bias against it and their sinful ignorance. Here the Chiang worship presents invaluable evidence of the utility of the Old Testament types and shadows; for it demonstrates how these have kept alive for milleniums the knowledge of the grace of God.

A favourite assertion of some is that the ancient Israelites were so mundane in their religious conceptions that they scarcely entertained the idea of eternal life. And this is often glibly repeated, despite the fact that the very atmosphere of the Psalms is the longing for the vision of God and the making of Jehovah Himself their dwelling-place. We mention this to point out that the Chiang have a lofty conception of the future life. At death a sacrifice of two birds is made, one to be slain, and the other to be liberated, the latter in token of the flight of the soul to paradise. The evidence once again is sure, for the life-giving

* *The Jewish Encyclopedia*, vol. 4, p. 34.

seed is carefully broadcast as at the altar. Heaven is a land of purity to which the cleansed are given entrance and life. The Chiang bride, in full faith of this, lays aside her wedding robe to be worn again on the day of her departure from earth to heaven; for the joyousness of the first occasion heralds the joyousness of the second.

We cannot claim that this ancient people, dwellers on these far-off mountains, simple farmers, shepherds, and hunters, have preserved entire all their ancient religious forms, or that all among them have risen to a uniform high level of faith, but we are deeply indebted to them for having preserved so much. They possess in germ, at least, the great vital essentials of revealed truth. Mercy and judgment balance each other as twin revelations of the saving righteousness of God. He who gave man life, takes care to renew it to all who call upon His name at the altar; and nowhere else can His holy name be invoked. Symbolic sacrifices are to pass away in an ultimate mercy to be revealed when the Messiah comes. There is a banner to be displayed because of the truth. The Rock of their salvation will never fail: He remains sure and steadfast for ever.

We assert that those who are well-versed in the spiritual lore of the Old Testament cannot fail to recognise how at every turn the Chiang religion bristles with allusions to its well-known truths, and explains much that to us was before hard to understand. The effect of our own travels among this people was to enhance enormously our respect for the earlier revelation, and give us fresh visions of the amazing love and mercy of God. It was among the great mountains and vast depths of the valleys of their land, with its peculiar climate so dependent on the rainfall, that we learnt the beautiful lessons of the thirty-sixth psalm. Its contrast of the sinner and the saint was exact to that of the Chiang with their pagan neighbours. And the statement of their faith in it was true to the letter.

Every year I paid the people a visit. They received me always as one of themselves. This gave me exceptional opportunities for intimate investigation which was aided by a knowledge of provincial history, and what archæological work I was able from time to time to carry out. My regret constantly was the lack of time to pursue investigation further, but I trust that what I have said will tend to confirm your joy in the Old Book of books on which our knowledge of the Eternal depends.

DISCUSSION.

THE CHAIRMAN (Lieut.-Col. F. A. MOLONY) said: The Chiang-min were much persecuted by the Chinese, and especially by Buddhists. Hence they became a very shy, reserved people. What an immense amount of courtesy, patience and tact Mr. Torrance must have exercised to win their confidence! To appreciate the importance of his discoveries you must bear in mind that there is an important controversy now going on amongst scholars as to whether Almighty God did, or did not, inspire the institution of the sacrifices. We must admit that there are a few texts which may be read as implying that He did *not*, but, after studying the passages, it seems to me that the position is well summed up by Chief Rabbi Hertz, who writes, "The prophet's call is not, Give up your sacrifices, but, give up your evil doing." The matter is of great importance for us Christians, for if God *did* inspire the sacrifices, it must have been with a purpose, and the traditional view has always been that that purpose was to tell of a Saviour who was expected to come down from heaven, and make atonement for sin like the lamb at the altar. And this is precisely what the Chiang-min maintain. This, surely, is the most important part of Mr. Torrance's discoveries. It affects our beliefs about our own salvation. It shows that the Church of England is right in saying that Christ "Made there, upon the cross, a full, perfect and sufficient sacrifice."

If the Chiang-min were not firmly convinced that their sacrifices were inspired by God, how are we to account for their keeping the essential points of the ritual unchanged through so many centuries?

There is another matter which I hope you will discuss. Are these Chiang-min descended from the so-called lost ten tribes, or from Jews? Mr. Torrance, being a cautious Scot, has never committed himself to a positive opinion. There are, apparently, two lines of evidence to show that they probably sprang from the ten tribes. Mr. Torrance quotes the thirteenth chapter of the second book of Esdras, which says: "These are the ten tribes which were led away out of their own land in the time of Osea the king whom Salmanasar the king of the Assyrians led away captive, and he carried them beyond the river, and they were carried into another land. But they took this counsel among themselves, that they would leave the multitude of the heathen, and go forth into

a further country where never mankind dwelt, that they might there keep their statutes which they had not kept in their own land. And they entered by the narrow passages of the river Euphrates." Mr. Torrance has given us some of the evidence that they got to India. But that was not uninhabited. What more probable, then, that they held on eastwards through Central Asia into West China, and got to the upper reaches of the waters of the Yang-Tze and Yellow rivers? But these flowed generally east, and the travellers would reason that, if they went on, they would soon be stopped by an ocean. Also the country was getting more and more peopled; so they decided to stay where they were, and thence the Chinese pushed them back into the mountains where Mr. Torrance found them. All this seems to fit together well.

Mr. Torrance hints at another line of evidence when he states that the Chiang-min worship is "High place" worship. Presumably he means in contrast to the Jewish centralised Temple worship. There are several Old Testament precedents for the setting up of stones to mark the places where God ought to be worshipped. Now the kings of Israel would not allow their subjects to go to Jerusalem to worship. What, then, could Elisha do but encourage the setting up of local altars? We know that he went on circuit. Was not his object to teach the people the ritual pleasing to God, and to stop heathenish practices? Mr. Torrance traces the Chiang-min worship right back to Abraham.

When Abraham had been stayed from offering up his son Isaac on Mount Moriah, he felt that what had happened was so important that he must give the place a significant name. "We are told that he called it Jehovah Jireh, which means "The Lord will provide," or, "The Lord will see." I prefer the former alternative, because those were the very words which Abraham had said to his son in the morning, and said, mark you, in connection with a proposed sacrifice: hence it seems to me perfectly legitimate to conclude that, in calling the place "Jehovah Jireh," Abraham meant to record his conviction that God would one day provide the real sacrifice for sin, of which the animal offerings were meant to be prophetic pictures.

We know from Deut. xviii, 15, that Moses looked forward to the coming of Christ. Isaiah liii, 10, reads, "When Thou shalt make His soul an offering for sin," and in verse 6, "The Lord hath laid upon

Him the iniquity of us all." True, the prophet was doubtless a Jew, but in such a matter Elisha would probably share his views. Now we have Mr. Torrance's evidence that these Chiang-min have always looked for one who is to come down from heaven and make atonement for sin like the lamb at the altar. Thus we have Abraham, Moses, Isaiah and the Chiang-min all holding the same blessed truth. Surely it is legitimate to believe that this same truth was passed down through all the centuries, and to rejoice that the Israelite had more insight into spiritual truth than we have heretofore supposed.

Mr. SIDNEY COLLETT said: We have listened this afternoon to a most interesting lecture on what Mr. Torrance rightly calls the "astounding part the Jewish nation has played on the stage of the world's history." The lecture goes to prove the *truth* of the Bible and the *necessity* of the Bible. First it is quite evident that these Chiang people of West China *are of Jewish descent*, for they have so many of the ideas of the Pentateuch—unfortunately, in a corrupted form. Incidentally their existence proves the truth of God's Word, as found in Deut. xxviii, 64: "The Lord shall scatter thee among all people from the one end of the earth even to the other." Secondly, it proves the wonderful *influence* of the Bible. Here is an almost unknown tribe, largely cut off from other people, yet strangely influenced in their religion and morals by the *corrupted remains* of the Bible truth which they evidently once possessed. Thirdly, nevertheless their forms of worship are so far removed from the spiritual truths taught in the Bible that it proves the necessity of not only having a vague knowledge of the teaching of the Bible but of knowing and adhering to *its verbal teaching*. Fourthly, further they do not seem to have any true knowledge of the Jews' Messiah—our Saviour Christ—as taught in the Old Testament. Fifthly, hence the need for missionaries to *take the true Bible to them* as our lecturer himself has done.

WRITTEN COMMUNICATION.

The Revd. Principal H. S. CURR wrote: There is an exquisite touch in the opening paragraph of Mr. Torrance's admirable paper. He compares the Jewish people scattered abroad to the four winds of heaven to bees "fructifying the races of the earth with the pollen

of a heavenly revelation." This is as true as it is felicitous. The Acts of the Apostles proves that the scattering of the Jews through the Roman Empire was a kind of *preparatio evangelica*. Their proselytes lent a ready ear to the preaching of the gospel.

It would, of course, be ridiculous to suppose that this truth is always and everywhere true. There are few things of which that can be said. I should gather from Mr. Torrance's paper that this pocket of Israelites in Western China have not done very much in the way of influencing their neighbours through the centuries, due, as he reminds us, to Buddhist persecution which has driven them in on themselves. It may be, however, that they have served some useful and beneficent purpose in the history of redemption in the Celestial Empire. If Mr. Torrance can give any information on the subject, it would be welcome. Failing any contribution in the past, I wonder if he thinks that God may have some unrevealed purpose in planting the Chiang where they are found. He is always moving in a mysterious way. Nothing surprises one in dealing with Divine things. They will help one day to fulfil Isaiah's prophecy that Israelites will come from the land of Sinim, which has for centuries been identified as China, to inherit again the Holy Land. (Isaiah xlix, 12.) It may be that their place of habitation has been chosen for them by the God of Israel for other reasons as well. What men call chance is the foolishness of heaven which is wiser than men.

AUTHOR'S REPLY.

If an opinion is wanted regarding the relation of the West China Israelites to the so-called lost Ten Tribes, may we say that the question has not given us any concern? The fact that the Israelites were scattered over the face of the earth scarcely warrants the conclusion that, if we cannot distinguish as to who is who among them, the Ten Tribes were at any time lost. The thrill to us was that the Chiang-min were indeed of the seed of Abraham, Isaac, and Jacob, and, moreover, that they had preserved for so long in such comparative purity their Old Testament beliefs and customs. Here was the miracle of the Jew over again.

Prof. Sayce, in his work, *The Higher Criticism and the Monuments*, mentions an inscription of Sargon, King of Assyria, which says that when this monarch carried away the Israelites he yet left some in

their own land and appointed a governor over them. Naturally this remnant would cling to their native soil. How, then, were they ever wholly lost? Undoubtedly some of the Ten Tribes returned after the captivity. When we personally visited Palestine after becoming intimately acquainted with the Chiang-min we were amazed to find that the sing-song of the Galileans in its peculiar style and cadences was so exactly the same to the sing-song of the Chiang-min that we imagined ourselves for the time being back in the mountains of West China.

The sacred Tree with the Chiang-min is a fundamental part of their belief. But there is no corruption connected with it. In central Asia among the Mohammedans pieces of cloth after a sacrifice are tied to sacred trees. Heathen priests in China have copied this feature apart from sacrifice. We have heard how in Ireland a member of the Victoria Institute has, at one place, come across the same custom. To the sacred Tree of the Chiang-min nothing may be tied except the lamb previous to its being slain. And it is offered in judgment for the sin of the worshippers, even as the Patriarchs offered sacrifice on an altar beside a tree when they called on the Name of Jehovah. An administration of justice takes place before mercy is granted.

The use of sacred trees is still common among peoples of Semitic origin. In Palestine such trees are not uncommon. In Southern Arabia judges to-day sit under trees of justice to dispense justice, as, for instance, at San'a. At another place there is a tree of justice in close proximity to a rock called the Rock of Salvation.*

Neither is there any corruption attending the Nehushtan Pole of the Chiang-min. It represents a dead not a live serpent. It is, therefore, the antithesis of serpent worship, or the cult of Æsculapius. Moses, it is supposed, copied the Egyptian rod used in the worship of Thoth, but, being made the image of sin, judged and slain, the Israelites saw also in their Brazen Serpent the condemnation of this Egyptian form of idolatry.

The value of these religious customs of the West China Israelites lies in their wonderful testimony to the real significance of the Atonement. It is truly expiatory. In these days this is so largely

* Dr. Bernard C. Walker, *San'a*.

denied that probably a third of our ministers have no Atonement left unless in name. It has been evacuated of its vital force. But we find from this unique people that the expiatory meaning of sacrifice formed the basic belief in the worship of ancient Israel. It may be of interest to you to hear that the lecturer has actually eaten of a bloody sacrifice. He was once informally invited to a meal the lamb of which had been offered in sacrifice. But he asked no questions for conscience' sake.

Regarding the influence of the Chiang-min on their neighbours in West China, a reference to my book will make it plain how extensively this was exerted. The traveller and missionary can trace many usages to-day springing from the propagation of their monotheistic and sacrificial form of worship. These are too numerous to mention here. The Chinese copied largely from them though, like the Greeks and Romans, they confessed not the source of what they learned and appropriated. West China, we may say in conclusion, presents a fine field to the patient, sympathetic, religious investigator. The people of Togarmah who, as Ezekiel tells us, visited the Fairs of Tyre, now called the Turkomans, frequent West China even now, and are still famous for their horses and mules. A section of the Miao people, missionaries* have found, have an ancient song which traces their genealogy up to Japheth, one of the three sons of Noah and his wife Gawboluen. The Karens, the Nahsi, the Nosu and Bolo peoples have all their contributions to offer. There was in early times, as Prof. Max Müller suspected, a real historical intercourse between the East and the West. The religious customs common to both, he said, forbade an accidental explanation. You will now, we venture to believe, follow this opinion; and we trust that what we have now told you in our own faltering way regarding these Israelites in the land of Sinim will serve to enhance your estimation of the Old Book you so dearly love.

* Rev. E. A. Truax.

829TH ORDINARY GENERAL MEETING,
HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, APRIL 3RD, 1939, AT
4.30 P.M.

THE REV. W. J. DOWNES, M.A., B.D., IN THE CHAIR.

The Minutes of the previous meeting were read, confirmed and signed and the Hon. Secretary announced the following elections:—As Members: Arthur Pierson Kelley, Esq., M.A., Ph.D., George H. Ramsay, Esq., Vernon Hewes, Esq., and William Brooke Grant, Esq., A.M.I.Mech.E.

The CHAIRMAN then called on R. E. D. Clark, Esq., M.A., Ph.D., to read his paper entitled "The Mystery of Evil in Relation to the Divine Economy" (being the Langhorne Orchard Prize Essay, 1939).

The meeting was then thrown open to discussion in which the Rev. A. Payne, Dr. Barcroft Anderson and Mr. G. Brewer took part.

Written communications were received from Lt.-Col. T. C. Skinner, Mr. L. G. Moser, Mrs. M. W. Langhorne Cooper, and the Revd. Principal H. S. Curr.

THE MYSTERY OF EVIL IN RELATION TO THE
DIVINE ECONOMY.

BY R. E. D. CLARK, M.A., Ph.D.

(Langhorne-Orchard Prize Essay, 1939.)

"We never see evil of any kind take place where there is not some remedy or compensating principle ready to interfere for its alleviation."

ROBERT CHAMBERS,
*Vestiges of the Natural History
of Creation, 1844, p. 378.*

WHETHER or not we think evil is a mystery depends chiefly on our theological beliefs. If there is no God and therefore no Divine Economy to be considered, evil presents no moral problems and it must simply be accepted as a fact. In this connection Dr. G. B. Brown has compared the "problem of evil" with the "problem of imperfection" (non-circularity) in the orbits of the stars which puzzled an earlier generation of astronomers. He rightly points out that

knowledge could not progress until such conceptions were disregarded. (*Science Progress*, 1934, 29, 744.)

The mystery of evil cannot, however, be dismissed so lightly. There is abundant evidence that Mind, or something with properties akin to mind, lies at the back of nature. This Mind must be concerned with the welfare of His Creation for, unless this were the case, it is hard indeed to understand the careful planning which has been responsible for the intricacies of biological organisms or the general evidences of design in the world on which we live. In addition, Christians are convinced that Jesus Christ revealed God and in doing so revealed more of the Divine love than human reason could ever have fathomed.

Thus we have a God of love on the one hand and a world in which His love is but partly expressed on the other. These two facts appear to be contrary the one to the other. They can most easily be reconciled by the discovery of some purpose which evil fulfils in the Divine economy. But this is by no means the only possibility, and before returning to it it will be well to consider very briefly the different types of solutions to the problem which have been put forward in the past.

Fortunately, the conceivable solutions of the problems of evil are not innumerable. Indeed, the simple process of exclusion would appear to confine the possible explanations within the sharpest limits.

To begin with, evil is either real or unreal. Many philosophers have decided that it is mere illusion—that things are only evil because we regard them so. But such a solution is no solution at all and rests in the last resort upon a purely verbal definition of “real” which differs from the meaning usually attached to the word. It is enough that created beings think they suffer, for the very meaning of evil lies in thought and consciousness, not in physical events of themselves.

The reality of evil must, then, form the starting-point of all discussion. But then there comes the crucial question: Is it God's fault? If it is God's fault and He actually planned the miseries of man and beast long before they had consciously sinned against their Creator—if indeed children and animals are capable of deliberate sin—then it would seem as if He must lose our respect and devotion. No earthly father gives a stone when his children are in need of bread, and the Lord Jesus taught us that His Heavenly Father far surpasses in His goodness those who, being evil, give good gifts to their children.

It is at this point that the Gnostic and the modern Unitarian enter the argument. They urge with every show of reason that we have here an unassailable dilemma: if God made evil He is not perfectly good; if He did not, He is not almighty. Of the two they choose to believe in a limited God Who is ever struggling onwards with, or perhaps "within" His creation in one great triumphal evolutionary march. Or, according to another view, there is a devil or a "demiurge" ever thwarting the plans of God and causing Him to do other than He would, and it is against this being that God is always striving—piteously unable to subdue His bitterest enemy. Or, yet again, it was suggested in ancient times that God did not create the world but fashioned it, as best He could, out of a pre-existing amorphous mass which was too intractable to function in accordance with the Divine desires.

Thus a discussion of the mystery of evil seems to lead at once to a dilemma. God is either not good or not almighty, and in either case the traditional Christian doctrine falls to the ground. So strong is this argument felt to be that many Christians have come to the conclusion that the problem cannot be solved by the human mind at all.

Before continuing, it will be well to inquire carefully into what is meant by the term "evil." Observation reveals at once that evil is of two kinds—which may roughly be divided into *moral* and *physical*. Moral evil is the evil which we choose to do ourselves and, if we accept the view that the will is free, it does not implicate the Creator. But there is another kind of evil in which the situation is quite different. Forces of destruction sometimes work indescribable havoc, yet they do not appear to be the result of anyone's wrong choices, but rather of the way the world in which we find ourselves was made by God.

Evil of the second kind is conveniently grouped under the word "physical," though it is as often caused by biological organisms as by earthquakes and floods. Now a little thought shows that all such evil is really of the nature of maladjustment. Thus cocaine is not of itself evil; indeed, it is a valuable material to the optician and the surgeon while the world would in some respects be a poorer place if it had not been discovered. It only becomes an evil when it is used in a particular way. Similarly disease germs are not harmful except when they are allowed to multiply under special conditions. It is true that most of them

are not of any particular value at the present time. Nevertheless, despite the harm they have done in the past, man may one day be profoundly thankful for their existence. Perhaps, for instance, they will ultimately be employed to synthesise complicated compounds, just as to-day we employ moulds for preparing citric acid from sugar. Or again it is possible that some of the most dangerous viruses and microbes may yet be found essential to forms of life which, in turn, are of benefit to man.

What is true of poisons and germs is also true of other forms of physical evil. Road accidents, shipwrecks, earthquakes, volcanoes and fires are all nothing more or less than maladjustments. The same is true of the cruelty in nature. Cats do not play with mice out of cruelty, for they treat paper in the same way, while birds of prey and poisonous snakes only kill for food or in self-protection. If the different species were better adapted to one another's needs nature would be no longer red in tooth and claw.

Then, again, there is the difficulty of pain. Pain in moderation, is no doubt an essential of life. It gives warning when any of our organs are wrongly treated and it tells us to alter their environment immediately. Without such warnings we should destroy ourselves by fire or machinery, or by eating poisonous foods. Pain may well have been designed by God and it is more suggestive of His love than otherwise. But here, once more, there is a fundamental lack of adjustment. There seem to be some relics of a mechanism in the human body by means of which pain may be stopped if it becomes too severe—a mechanism for producing unconsciousness. But often this mechanism fails to function and long agonies result, even when there is no hope of alleviating their cause. Here, again, there is some fundamental maladjustment.

Concerning death, of course, we know very little. But biologically it is by no means impossible that man was designed to be immortal. The cells of which the body is composed are able to function for long periods and to react continuously to changes in the environment. Many cells are known, such as those of cancer, which never lose this power and are in the strictest sense immortal. But for reasons as yet quite unknown, the cells of which the body is composed lose their powers with advancing age. Here again, it appears that something goes wrong with the cell mechanism.

Such maladjustments are the order of the day in nature. They are to be found even among the instincts. A good example is afforded by comparing the dog and the cat. Both are innately endowed with a scratching reflex which causes them to cover up their excreta. In the cat this is often very effective, but the dog will scratch without looking to see whether the earth he removes is being thrown in one direction or another, or for that matter whether he is merely pawing the ground. In both cases the facts suggest that a beneficent Mind has planned that dung should be covered up, but something has gone wrong in the case of the dog, where the relics of the "instinct" perform no useful function. And what is true here is true throughout the whole realm of nature. Everywhere adjustment and maladjustment lie side by side. The mystery of evil is the mystery of maladjustment.

Having determined the real meaning of evil, the Gnostic argument of "either-or" appears in a very different light. Maladjustment is not something positive which needs creating. Rather it is something negative; it is one of those things which ought to have been done and yet have been left undone. And the question now is not: "Why did God create evil?" or "Did someone else create it against His will?" but "Why did God not finish His creation?" There is thus no reason at all to bring in a Gnostic demiurge who stopped the work of creation or who waited until it was finished and then undid a great deal of it. True, such a view is not finally excluded, but it is by no means the most obvious solution to the difficulty. It is more straightforward to inquire whether a perfectly good God could have created the world and yet failed to do all that was necessary, knowing that the incompleteness of His work might cause suffering and misunderstanding.

A hint of a reason for the unfinished work of creation is given repeatedly in the Bible. In Genesis we read that God made man in His own Image and after His own likeness. Moreover, He commanded man to multiply so that he might replenish the earth and subdue it and wield dominion over "the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth." (Gen. i, 26-28.) There can be little doubt what these words mean. They mean that God intended to retire from His creation and, instead of exercising control over the world Himself, He created man in His own Image as a guardian of what He had created.

That this is the meaning of the passage is strongly confirmed by what follows. After man's first failure "The Lord said, I will destroy man whom I have created from the face of the ground; both man and beast and creeping thing, and fowl of the air; for it repenteth me that I have made them." (Gen. vi, 7.)

Now it is clear that snakes and birds had not offended God. His ground for destroying them also lay in the fact that there was now no guardian of creation, no one to have dominion over the world and use that dominion for the right ends.

The same view is put forward again in later times. Thus the Psalmist says that man was made but little lower than God and was created to have dominion over the work of the Creator's hands. (Ps. viii, 4-8.) But in the New Testament it is recognised that man himself will never take this Divine trust seriously until the coming of Christ, Who with the saints will rule as man himself should have ruled. (Heb. ii.)

In the light of these suggestive passages the eternal mystery of maladjustment largely disappears. Far from having deliberately left evil to work in its own cruel way, the Creator was most careful to create a being in His own Image who could eliminate maladjustments continuously every time they threatened to appear.

But could man have done what was required of him? That is a big question; yet, to-day, no one with imagination is likely to answer it in the negative. The resources of science are great indeed, but nothing compared with what they might be. In the last three centuries a minute fraction of the human race have applied themselves to discover the secrets of nature and, in the last few years alone, their efforts have met with prodigious success. What might not have been the result if man had from the first set to work to do his duty?

In the days of our forefathers, when an anti-scientific attitude had sunk into the very bones and marrow of society, it was no cause for wonder if the problem of evil baffled men beyond their powers. Lacking in imagination, it must have seemed impossible to them that man could ever grapple with the inclemencies of the weather, with meteorites or earthquakes, let alone with disease, famine and storms. Yet to-day our imagination knows no such bounds. Weather prediction is becoming ever more reliable and the weather can even be controlled in part by

afforestation and the breaking of icebergs. The exact location of a future earthquake is well within our powers, while earthquake-proof houses can be made without difficulty at an additional cost of only $1\frac{1}{4}$ –6 per cent. Only the failure to use the methods which have already been made available is responsible for the devastations which periodically occur.

Recent investigations have shown how even avalanches can be predicted to some extent, and ultimately there is hope that such predictions will prove thoroughly reliable. In any case, it is possible even at the present time to protect important places from their destructive action, as has already been done on an ambitious scale at the entrances to the Loetschberg tunnel in Switzerland.

Again, the gigantic water-pockets which form in the glaciers of the Alps used at one time to burst forth and cause appalling disasters. But to-day an aerial watch is kept and long before the crisis comes the imprisoned waters are harmlessly released.

Immense numbers of other examples of the triumphs of technical and scientific methods over the forces of nature might easily be cited. Perhaps it is no exaggeration to say that there is not one of the evils which our fathers regarded as wholly beyond man's control which is either not already under control or where at least substantial progress has not been made.

Thus there is no reason why man should not subdue the physical world. But what of the lower creation? Is it conceivable that man's dominion should extend to the countless fishes of the ocean, to the birds and to "every living thing that moveth upon the earth?"

Far from this creating a difficulty, it is the very thing which is now happening throughout the whole realm of biology wherever it is economically desirable. Man and not chance determines the number of whales in the ocean, while oysters and herrings and many other fish are carefully controlled. In addition, modern research on genetics has shown that it is possible to pick out certain desirable characters in an animal and to ensure that these and no others shall be carried forward to the next generation. Recently the possibilities of speeding up such changes have increased enormously. A technique has been developed by which the spermatozoa of a selected male can be carried hundreds of miles by air and then successfully used to fertilise a female animal, so that one male might be used to fertilise millions of females in a season.

So far, the dominion of the world has been undertaken for economic rather than for moral ends. Men talk as if the problem of evil in the lower creation was a first-class philosophical difficulty, but they do so little to alter the present state of things that it is hard to believe that such difficulties are always real. It is as though a very wealthy man complained bitterly of the way God had arranged the social system of the world because he saw thousands around him dying of starvation, yet did little or nothing to help them. In like manner, perhaps a few relatively small societies for the protection of domesticated animals from cruelty, or for the preservation of wild animals, is the sum total of human endeavour in the direction we are considering, save in those cases where purely economic interests are at stake. No wonder if, as St. Paul remarked, the whole lower creation being in travail, is yearning for the day when the Governments of the world will consider its interests in addition to the interests of man.

Perhaps we may permit our imagination to soar further than this. Who knows that in the end it might not be possible to produce peaceful and contented lions and eagles with which a child might play, just as to-day the child plays with the descendants of ferocious dogs and cats. Perhaps Isaiah's picture of the child and the wild beasts could be realised in years to come if man showed a determined desire to see its fulfilment. Such a speculation is no more absurd than many another which has seen fulfilment.

A concrete instance of the possibilities ahead would not be out of place. It is found among chickens that if one is wounded and blood is lost, all the rest peck it to death. On the face of it this appears to be sheer cruelty about which man can do very little—except, perhaps, to isolate wounded chickens. But in point of fact no cruelty is involved. Chickens simply peck at anything that is red, and if they are kept under coloured glass so that red looks black, the wounded individuals are not attacked and are able to make a satisfactory recovery. Doubtless the apparent cruelty is due to a gene, and it might be possible to eliminate it altogether by breeding.

Of course, the task of eliminating all the cruelty in the world is stupendous. However, we have abundant evidence that there is no acute suffering in the case of low forms of life or even in small though highly complex creatures such as the insects, so the task is by no means indefinitely great.

However, it is, perhaps, becoming more difficult as the ages go by and biological maladjustments have greater and greater chances to establish themselves. W. H. S. Jones, for instance, has pointed out that the ancient Greek physician had incomparably fewer diseases with which to deal than has the doctor of to-day. (*Malaria and Greek History*, Manchester, 1909.) It is possible, then, that the problem confronting early man was not so great as it is for us.

But even so, God has made careful provision against the repeated failure of man. The world has not been made like some vast airship which will crash in flames as the result of the slightest mistake on the part of the navigator. Far from it. There is throughout nature a tendency for things to restore themselves so that maladjustment cannot continue to increase indefinitely. Thus, if man makes no serious attempt to stop a new disease, the processes of nature may eventually give the inhabitants of a country a relative immunity, though at the cost of much suffering. In just the same way, the sufferings of the lower animals often benefit their species, although the species could doubtless be benefited just as well by scientific means and the suffering is totally unnecessary.

Thus the door to world dominion is not finally closed, even if it becomes more difficult to enter as time passes by.

Finally, it is of course true that man does not at the moment possess anything like enough knowledge to do all that is required of him. But that is beside the point. If there were a determination to obtain and apply the necessary knowledge, the right discoveries would be made in the end. "He that seeketh findeth and to him that knocketh it shall be opened" applies to scientific as well as to religious knowledge.

Such is a picture of what the world might be, if men were not given up to selfish pursuits. Indeed, the very contrast between things as they might be and things as they are should of itself be enough to make us say with the Psalmist: "There is not one that doeth good, no not one."

But before continuing, it will be well to ask whether evil could be *entirely* eradicated by the right use of science or whether, no matter how carefully man attempted to control the world, a certain amount might yet remain.

The answer is that we do not know. It is easy to suggest certain things, such as vivisection, which seem at the moment

to be necessary though cruel. But here it is quite possible that cruelty could be avoided. More to the point, perhaps, is the possibility of accidents. However careful man tries to be, he may occasionally make mistakes or, again, he may occasionally be the victim of some quite unforeseen circumstance. Surely such occurrences could never be avoided, no matter how seriously man were to take his trusteeship of the world.

Now it is on this very subject that abundant evidence has come to light. Again and again tragedies are preceded by a foreboding of ill to come and, very frequently, these forebodings have resulted in the saving of life. Thus it seems as if God has actually supplied that which is lacking in man's capabilities. It is interesting to note that though these warnings of coming death or danger have come to men and women of all opinions, yet those who have had them most strongly developed have often been Christians. Many of the early Quakers, for instance, had the power to a remarkable extent, as has been shown by the researches of J. W. Graham. (*Psychical Experiences of Quaker Ministers*, Friends' Hist. Soc. Supplement No. 18, 1933, etc.) These powers are still present in our midst, but, as the late Dr. A. T. Schofield was able to show, they are now heeded so little that disasters often occur despite the warnings.

A consideration of this strange assistance which, perhaps, is often sent directly by God, opens many possibilities. The old motto to the effect that God helps those who help themselves may be to the point in this connection. It is surely perfectly possible that if we as a race were to try to live up to the Divine trust, God would Himself, in answer to prayer, assist us in the case of all those evils with which we cannot deal unaided.

But in addition to this, it is perfectly true that certain theoretical difficulties might yet be unsolved. The lower animals were apparently created long before man, so that perhaps the problem of evil would have to be regarded in a different light in the days when there was no guardian of creation. But this is a merely theoretical difficulty which would only trouble the learned. And besides, it would be difficult to rule out the view that God had been trying some other scheme before He made man—a view which is still held by some people at the present time on other grounds. In any case, it is impossible to deny that if men did their utmost to look after the world, the problem of evil as we know it to-day would not exist. The sceptics, in

particular, who so constantly make use of the evil argument against Theism, would not find a hearing.

So far this inquiry has been concerned with the nature of evil and the possibility of overcoming it with good. But it is time to consider the probable reason for its existence. Why has God left man to deal with maladjustment in all its forms? Why did not the Creator deal with all these imperfections Himself? In short, what is the position of evil in relation to the Divine economy of the world?

In the past some philosophers have made goodness the defence of evil. They argue that, just as light might mean nothing to us save in contrast with darkness, so good might mean nothing save in contrast with evil. In this form such a view has little to commend it, yet it seems to contain a germ of truth.

A more careful analysis suggests that what we mean by "goodness" in its moral sense would be impossible were it not for two main factors. In the first case there must be a desire for achievement and in the second there must be the possibility of working together with others for the good of all.

The first point is obvious enough. Character cannot develop unless there is a desire to act and achieve something by acting. It is a fact of universal experience that when this longing for achievement has failed, either under the influence of narcotic drugs or as a result of mental disease, that which is good in character disappears, or at least cannot increase. Now this longing for achievement is exactly what we find in all normal people unless it has been crushed by failure. But what is there to achieve? As it is there is nothing less than dominion of the world in which all men might have a share. But suppose there were no maladjustments in nature, so that man could find nothing to do which seemed "worth while," would not the inevitable consequence of such a state of affairs be that the desire for achievement would become misdirected into evil channels? In other words, does it not look as though goodness and physical evil would have to be sacrificed together—as though it were impossible to have the one without the other? Or to put the matter more precisely, if there is to be any "goodness" in man's character, must there not also be maladjustments in the world of nature which can be righted by man?

If these views are well grounded, evil must appear in a new light. Instead of casting a slur upon the character of the

Creator it will make us adore Him for His love and kindness for having entrusted us with so much and for having given us a task which fires our imagination as nothing else could do.

In actual fact, of course, we men have misdirected the Creator's gift. Instead of rejoicing at the sight of mighty rivers harnessed at last to give comfort and light in thousands of homes, or at the thought that through our efforts we have made the lot of many a dumb creature far happier than it was before, we more often take pride in wielding dominion over one another. In much of the education of the youth of the world at the present time, this is the sole outlet for our God-given instinct which is presented to the minds of children. History is distorted into the story of wars and battles and the exploitation of man by man. The very idea of man's trusteeship of the world scarcely ever has a hearing.

Despite all these abuses, however, the presence of physical evil in the world has, nevertheless, had a great effect in limiting the perversion of our desire for achievement. To some extent men realise the desperate necessity for looking after the world in which they live and in every war of history this vital necessity has reduced bloodshed to a minimum. Never has it been possible for more than a few per cent. of a population at war to remain fighting for long. Even so war has usually caused the breakdown of adequate protective measures against disease, starvation and floods, and these factors have frequently been far more disastrous than war itself, and have brought fighting to a close. Hans Zinsser, in his fascinating book *Rats, Lice and History* (1935), has shown how little actual fighting has settled the destinies of nations.

In this respect the presence of maladjustment in the world has been of incomparable value throughout the ages. Sooner or later the horrors of moral callousness become replaced by the equally terrible horrors of physical and biological maladjustment. This acts as an automatic reminder to us that we cannot long choose wrongly with impunity. It serves to remind us of the true values when we have cast them aside.

The second essential to the development of character lies in the possibility of joint co-operation with others. The control of the physical world and of the lower creation cannot be achieved by a few individuals, but only by the mass of mankind working together for the common good. Now there is no better way by which friendships may be deepened or kindness and sym-

pathy shown than by being fellow-workers with others towards the same ends. Indeed, probably none of the higher qualities of human nature would be able to show themselves were it not that individuals are able to work and strive together. But if this be so, then the presence of maladjustment becomes once more a sign of God's deep love for the human race. He has given us all, every individual in the world, a common interest and one which is of the greatest importance. Thus although there is no uniformity in our other desires and interests—and the world is the more interesting for the varieties of men which it contains—yet the most vital of all practical endeavours has been designed to make us feel love for our fellow human beings.

From such arguments as these, it seems to follow that the presence of evil is of great value to mankind and, in fact, if man had not been given maladjustments to put right he would inevitably have been slow and characterless with ambitions no higher than that of an animal.

These considerations seem so straightforward that the question naturally arises as to why they have been all but obscured in recent times. The answer to this question is apparently to be found in the evolutionary philosophy which has swept over the modern world.

A century ago and upwards men saw their responsibilities even less than they do to-day, so that God was freely blamed by the sceptics for having created such an imperfect world. But at least the outlook of the time was still humble. The theologians held that man was a sinner and that in some way his sin was responsible for the suffering of the whole creation. True, no very concrete idea of how this result followed was put forward, but the existence of such a possibility held scepticism in check.

In the ordinary course of events, the opening up of the possibilities of scientific achievement would doubtless have been followed by a gigantic decline in scepticism. People would have been convinced as never before of the sinfulness of man. Throughout the civilised world they would have seen as in a flash the possibilities that have been missed. They would have seen at last a vision of that selfishness which makes people spend all their spare energies upon amusement and pleasure, wholly regardless of the "reign of terror, hunger, sickness, with oozing blood and quivering limbs, with gasping breath and eyes of innocence that

dimly close in deaths of cruel torture" (G. J. Romanes) which is to be seen on every hand.

Indeed, the light actually began to dawn in the minds of a few. We see clear glimmerings in the writings of Robert Chambers, while A. R. Wallace, the co-discoverer with Darwin of the theory of evolution, actually had a perfectly clear vision of the situation. "It is quite possible," he wrote, "that all the evil in the world is directly due to man, not to God. . . I myself feel confident that this is really the case and that such considerations, when followed out to their ultimate issues, afford a complete solution of the great problem of the ages—the problem of evil." (J. Marchant: *A. R. Wallace: Letters and Reminiscences*, vol. ii, p. 148.)

It is likely enough that in time every thinking man would have come to agree with Wallace. But just as the new truth began to dawn it was circumvented by the evolutionary philosophy which soon removed all hope of the awakening of a sense of responsibility. So long as men think that they are more highly developed than their ancestors, they will be satisfied. Instead of feeling deep shame that the human race has only now begun to study seriously the world in which it is placed, men are actually proud of the past. What is more, they are only too content with a slow rate of progress, only too content to do glaring wrong in the exigencies of our time and justify it with the vague hope that thousands of years hence man will be a little bit better than he is now.

Behind this smoke screen of philosophy the true nature of the mystery of evil is never discerned. As a result, sceptics urge it ever and ever more forcibly as a reason for disbelieving the Christian revelation of God. Evil, they say, can have no place in the Divine economy of the world: rather it is a positive disproof that God has the least concern for His creation, if indeed there happens to be a God at all. And Christians, their minds obscured like those of their enemies with the philosophy of evolution, often reply by saying that they have no explanation to offer or even that the mystery of evil is insoluble.

Yet, when once the subject is seen in its true light and freed from the new philosophy, everything is changed. The Christian will no longer feel that evil is a mystery of any magnitude. Rather, he will thank God unceasingly for His long-suffering patience with sinful man and for having brought even evil within the orbit of the Divine economy.

DISCUSSION.

The CHAIRMAN (REV. W. J. DOWNES) said: I have to thank Dr. Clark for a Paper which stimulates thought by its suggestiveness. It is an interesting contribution towards the solution of a problem which has baffled human minds through the centuries. The idea of "maladjustment" is not new, but Dr. Clark's treatment of it is fresh and helpful.

I offer the following criticisms in the hope that they may be useful:—

1. Dr. Clark states that "moral" evil, if we accept the view that the will is free, does not implicate the Creator. I believe that it does, in the sense that God must be indirectly responsible for it. He made man in such a fashion that it was possible for him to sin; He must therefore bear responsibility to that extent for what happened, and still happens. I believe, too, in this connection, that God is implicated by the fact that the innocent suffer so disproportionately for, or with, the guilty. There seems no limit to the tragedy that can befall the innocent, and often it is excruciating. The absence of this limit, the absence of the restraining hand of God, raises the question as to God's goodness and love in its acutest form. It is here that for the majority of people the crux of the problem lies. God is implicated—if there be a God at all!

2. This criticism is underlined if we ask the question, "If man were created in a situation offering him the really worth-while task of adjusting maladjustments, as Dr. Clark maintains, why should God allow, or need to allow, the possibility of moral *evil* in the sense of definite, positive harm-doing?" On Dr. Clark's view, it would seem sufficient for the development of human personality and character if man were free "upwards," *i.e.*, to work or not to work along the line of God's purpose, namely, that he should co-operate with his fellows in bringing to completion the unfinished creation. Choice, will, resolution, heroic facing of odds, and all else that is character-making, are provided by that alternative to work, or not to work, according to God's will. There seems to be no reason why man is free "downwards," *i.e.*, to do downright evil, to persecute, murder, steal, oppress, exploit. This freedom "downwards" means that man was made with the ability to create

still more maladjustment in the world ; and man has used that freedom with truly tragic results. Dr. Clark's theory does not seem to touch this feature of moral evil.

3. On page 121 the statement is made that all " physical " evil is of the nature of maladjustment. I have not been able to make clear to myself whether Dr. Clark means that physical evil is *equivalent* to maladjustment, or whether he means that physical evil is a *consequence* of maladjustment. In the paper these two quite different things seem to be confused, *e.g.*, an earthquake is a physical evil ; is an earthquake itself a maladjustment (as the statement on page 121 would seem to indicate) or is it a consequence of a maladjustment ? I imagine that Dr. Clark would reply that physical evil is both the original maladjustment *and* all the recurrent consequences of it. But it is difficult to see, in any case, how man, notwithstanding all his marvellous powers, could ever remove the cause or causes of earthquakes, whether as original maladjustments or as consequences of maladjustments. And the same difficulty applies in the case of all natural phenomena which are regarded as " evils." Here it cannot be true that " the Creator was most careful to create a being in His own image who could eliminate maladjustments continuously every time they threatened to appear."

4. There is obviously a difference between the two ideas :—

(a) That God left His work of creation *unfinished* so that man could complete it ; (b) that God made the world *maladjusted* so that man could put it right. There seems to be some confusion of these two ideas in the paper, and in either case there are difficulties.

(a) God's leaving His creation unfinished would not in any wise involve that He should make it *positively* maladjusted. If He left it merely unfinished, He would, one would suppose, leave it perfect so far as it went. The lines would be laid down, and all " set fair," upon which man could complete the unfinished work. But in that case it is difficult to see how human sin, however it be regarded, could have *caused* the maladjustments which have appeared, *e.g.*, earthquakes, cyclones, and all that in Nature which is summed up in the phrase " red in tooth and claw." An *unfinished* world does not account for the origin of these physical evils.

(b) The only alternative in the paper is that God deliberately

made the world with positive maladjustments which it is man's duty to put right. This seems to be the position which Dr. Clark actually accepts, as his question would show:—"Why has God left man to deal with maladjustment in all its forms? Why did not the Creator deal with all these imperfections Himself?" But if that be the case, then two alternatives are open to us, and both seem quite unacceptable. (a) Either man was created with the ready-made ability to "eliminate maladjustments continuously every time they threatened to appear"—i.e., to inhibit earthquakes, cyclones, the predatory instincts, etc., at once before they could come to pass; (b) or God must be directly responsible for all the suffering and tragedy intervening between the time of the Creation and the day when man, as a result of his striving, discovery and applied science, should have put all the original maladjustments right. It seems clear to me that man was not created with an original ability at once to prevent such things as earthquakes from ever happening. It also seems clear to me that God did not create the world in such a fashion that inevitably, whether he sinned or not, man for an indefinitely long period would have to endure tragic suffering and death.

5. As it stands, the outlook of the paper is quite Deistic. It maintains that God made the world, and has left man to get on with the task of finishing or completing it. I feel sure that Dr. Clark would agree without hesitation that that is not a true picture of the facts. The truth is that in this business of daily living God is with us, never leaving nor forsaking us; and that (be the philosophical difficulties here what they may!) God suffers along with all who suffer.

Rev. ARTHUR W. PAYNE thanked the writer of the paper and said he had read it and heard it with real interest and profit.

Referring to the problem of imperfection and the orbits of the stars mentioned in the first paragraph, he remembered how Kepler, the great astronomer, when he discovered that the stars move not in an ordinary circle but in an ellipse, exclaimed "I am thinking Thy thoughts after Thee, O God," and it seems that the key to the mystery of Evil is in the same category of two *foci*, the Cross and the Crown, the Atonement and the Advent of Jesus Christ, or the

triumph over sorrow and sin. It has been well said, "We must not quarrel with God's unfinished providences."

The Chairman spoke of the "job" of dealing with the maladjustment of "the Economy of things," the speaker thought the Book of Job was the key to the mystery. It was probably the oldest portion of Inspired Holy Scripture, and it was natural that the subject of evil should be treated so fully there. The first two chapters introduce Satan as the accuser and cause permissively of so much calamity, and the key to the whole problem, as has been pointed out, seems to be in the verse "God is greater than man" (chap. xxxiii, 12).

Dr. BARCROFT ANDERSON said: The Council, in presenting this paper to us, has completely identified itself with it, by making it a prize essay. Through this paper, the Council asserts that birds had not offended God. Whereas God stated that: "all flesh corrupted the way of themselves upon the earth," and: "end of all flesh has come before my gaze, for the earth, it is full of autocracy from their presence. And I behold their causing corruption of it the earth." Now birds are flesh. (Gen. vi, 12, 13.)

The Council asserts in this paper that "the lower animals were apparently created long before man." God states they were created on the same day as man, and aquatic life and birds, one day earlier.

The Council in this paper translates מִלֵּא—MLA in Genesis i, 28, as "replenish," which means "re-fill," thereby implying that the earth had been full before. The divine record shows that when God used this word "FILL," the solid matter of this planet had been but three nights above sea level.

The Council here identifies itself with the belief that God's creation was "unfinished," notwithstanding his words (Gen. i, 31) "God saw all which he made, and behold it was good exceeding."

In support of this view that creation was unfinished, it gives a mistranslation of Psalm viii, 5, 6, 7, "man was made but little lower than God and was created to have dominion." The word Enosh—ANUS—אָנוֹשׁ—which the Council translates as MAN. Was the name given to our ancestor, Adam's grandson? We next find it describing the mongrel cross between the sons of God and the daughters of the Adam. It is elsewhere used of God himself, of angels, and of human beings, but nowhere of the man Adam.

In verse 4, it is given as an alternative title to Ben Adam (or builder up of Adam), which is of necessity the highest earthly title, and so used by the Lord of Glory, before Caiaphas the High Priest (Matt. xxvi, 64). Consequently the claim that in this verse the word translated man, can, or even may, mean Adam, must be rejected.

The Council's use of the English word "made," in verse 6, is what, in my student days, would have been described as a "howler." It appears in the translations as part of a clumsy way of rendering the verb—**חָסַר**—HXR, which means to diminish, "Thou hast diminished him a little while from angels." If the Council translates Elohim as a singular in this verse, does it do the same in Psalm lxxxii, 6. Ex. xx, 3 and xxi-6?

But the Council in accepting, as it has done, this translation of this passage in Psalm viii, has consequently repudiated belief in the divine accuracy of the translation thereof found in Hebrews ii, 6, 7, 8.

[In awarding the essay prize to Dr. Clark, the Council did not endorse all his arguments, but desired to recognise a very scholarly and suggestive discussion of a perplexing subject.—EDITOR.]

Mr. GEORGE BREWER said: I think that it is generally agreed that all imperfections or maladjustments, moral or physical, in this world and probably in the Universe, are the results, directly or indirectly, of sin; that is the action of the creature contrary to the will, or independently, of the Creator.

The key may possibly be found in Rom. viii, 20: "The creature was made subject to vanity, not of its own will, but by reason of Him, who hath subjected the same in hope." Hope, the natural desire to attain to, or achieve something, if exercised in simple dependence upon God and according to His will, results in blessing; while hope or trust in the creature becomes vanity.

This is strikingly apparent in the case of Satan, originally the most wonderful of God's created beings, who is addressed in Ezek. xxviii, 12-17, in the prophet's message to the King of Tyrus, "Thou art the anointed cherub that covereth: thou wast perfect in thy ways until iniquity was found in thee. Thine heart was lifted up because of thy beauty, thou hast corrupted thy wisdom by reason of thy

brightness: I will cast thee down to the ground." Instead of reflecting the glory of his Creator, he was taken up with his own brilliance and wisdom, as in Isaiah xiv, 12-13: "Thou hast said in thine heart, I will ascend into heaven, I will exalt my throne above the stars of God; I will be like the Most High." His fall from heaven, and a waste and empty earth mentioned in Gen. i, 2 being the result.

It was even so with our first parents; the desire for self-pleasing in independence of God and His revealed will resulted, not only in the moral degradation of the race, but in physical maladjustments, the ground being cursed for man's sake. This curse, however, necessitating strenuous toil, became in the wisdom of God a blessing to mankind.

Thus every apparent success of the adversary works eventually to the glory of God and for blessing to those who trust Him. Satan through the ages sought to destroy the line of the promised Seed, who was to bruise his head, and eventually succeeded in bringing about the crucifixion of God's anointed Messiah, thus providing a sacrifice for the redemption of mankind.

WRITTEN COMMUNICATIONS.

Col. T. C. SKINNER wrote: Dr. Clark has given us a thought-provoking paper and one that makes a real contribution to our knowledge of the outworkings of evil and of their remedy. Other contributors to this discussion have referred to important omissions which have the effect of weakening the thesis and must hence be regarded as serious, and I will not go over the ground again in detail, but will merely observe that there would appear to be a lack of sharpness of definition in the discrimination between moral and physical evil, while of appreciation of the real nature of sin which is at the bottom of it all, there would seem to be almost complete absence. The edges are too blurred for the thesis to go unchallenged. In explanation it may be said that the author's approach to the subject would seem to be directed rather from the standpoint of modern science, which aims at taking physical facts only as it

finds them, and not seldom in disregard of valid contributory sources of information.

But in saying this I do not for a moment wish to suggest that the thesis is vitiated by these defects. So far as it has gone or can go, the discussion is of real value, though without the contributory facts supplied freely by Divine revelation, a completely rounded interpretation must be looked for in vain; and in offering these comments I do so in hope that our author may be led to place us under yet greater obligation by embodying, perhaps in some larger work, a fuller and more all-round presentation of the subject.

Mr. L. J. MOSER wrote: Dr. Clark's paper does not seem to me to be in accord with Holy Scripture, otherwise I would not intervene in the discussion.

This world is Satan's kingdom (John xii, 31, xiv, 30, xvi, 11), and God did not place us here to readjust Satan's "maladjustments." That will be done when God makes a new heaven and a new earth wherein dwelleth righteousness (2 Peter iii, 13). The question may then be asked why did God create the world and put man in it and give Satan the world as his Kingdom, knowing beforehand that Satan would seduce man from his allegiance to God. The whole Bible is an answer to this question—God is the source of all life, and Satan's sin was that he apostatized and claimed to have life in himself (Isaiah xiv, 12, 15). It seems as though God said to Satan: "If you have life in yourself then prove it by giving life to all these my creatures." We are here to demonstrate and witness to the angels, the good angels and the bad angels that God our Creator is the one and only source of life and that we have not life apart from God. "Know ye not that we shall judge angels," says the Apostle (1 Cor. vi, 3). Your time would fail me to make an adequate reply to Dr. Clark's paper, but consider that holy man Job and the "maladjustments" of Satan that he endured and think of the trust that God placed in him to withstand all Satan's efforts to cause him to apostatize. In the story we are taken behind the scenes, but poor Job could not make out why God had forsaken him, and moreover, God never told him.

It is the same with us. Let us then trust God, like Job, whatever "maladjustment" He permits Satan to put upon us.

MRS. M. W. LANGHORNE COOPER, L.Th., wrote: In this able and original essay Dr. Clark has expounded a theory of the mystery of evil which deserves careful consideration.

That man was originally put into the world to rule it and to subdue it is plainly in accordance with Scripture; also that he failed to do so. The Hebrew prophets depict nature as suffering with man, and the Land of Israel also mourning and withering in sympathy with the apostasy of God's people.

St. Paul declares this suffering and bondage to death to be temporary. It will vanish in the realisation of the glorious liberty of the sons of God (Rom. viii, 20, 21). The writer to the Hebrews shows that where man in Adam failed to rule over nature, man in Christ has triumphed (Heb. ii, 5-9). In verse 5 the R.V. marginal reading "the inhabited earth" is helpful and correctly translated *δὴν οἰκουμένην*.

That man should be placed in an immature world to subdue as well as to rule it would, as Dr. Clark points out, be a valuable moral and mental discipline; that he was endowed by the Creator with the powers needed to do this is being abundantly illustrated in our own day.

Rev. Principal H. S. CURR, M.A., B.D., B.Litt., wrote: There can only be one opinion with regard to the confident optimism which dominates Dr. Clark's very distinguished paper. Every man who believes in the God and Father of our Lord Jesus Christ can only look forward with unquenchable hope. His faith assures him that the end of all things is exceeding gracious, and thus Christians are saved by hope, for their God is the God of hope. It is inspiring to find that Dr. Clark is so profoundly convinced that all things do indeed work together for good to them that love God, despite the existence of so many facts and factors which make such buoyant optimism decidedly difficult.

To my thinking, the paper fails to do full justice to the mystery of evil. It is irradiated by the conviction that evil must pass away for ever, but I am not sure that the tremendous nature of that victory receives full justice, the reason being that evil is a much more serious problem than this admirable paper might lead us to suppose. Was it not Coleridge who remarked that sin is the supreme

mystery whose solution would involve the unravelling of every other enigma of human experience. That is hardly the impression which Dr. Clark's discussion conveys. He does not seem to grapple with the sinfulness of sin as the New Testament does.

The mention of sin raises a point which calls for comment. The writer of the paper does not seem to me to distinguish clearly and boldly between moral evil and other kinds of evil, or, to use popular parlance, between sin and sorrow. One receives the impression that evil is nothing more serious than the fruits of maladjustment, comparable to the awkwardness of adolescence, or growing pains. There is a good deal of truth in that contention. Principal Denney has argued that the ultimate problem of living is just one of reconciliation with inward and outward conditions. Evil is thus the result of imperfect reconciliation.

If I am not doing an injustice to Dr. Clark, I fear that there are sentences in his paper which convey the idea that this imperfect reconciliation is involuntary, and that it will disappear in the light of fuller investigation and invention. Indeed, the history of invention may be described as the history of human reconciliation with its environment. But is that the end of the whole matter? The Bible teaches that these maladjustments and irreconcilabilities are voluntary, not involuntary. They are not inevitable. They are the result of perverted choice. The heart of man is at fault.

In these circumstances, the improvement of human life, of which Dr. Clark writes so attractively, can only be effected by drastic treatment. Indeed, the Bible holds out no hope for the extinction of evil apart from some catastrophic intervention by God that has already taken place, first in the Deluge, next in the Incarnation, and finally in the Parousia, or Second Advent of Christ. These are very radical remedies, and yet it is often possible to measure the gravity of the situation by the cure required. Surgical operations are not performed where ordinary medical treatment will produce the desired effect. It seems, then, to stand to reason that such remedies as those just enumerated indicate a very serious malady. The ordinary processes of history are insufficient for the purpose. They have had to be reinforced in an unmeasurable degree.

Indeed, it is striking that the ordinary processes of nature and history do not achieve the desired result apart from some super-

natural intervention like the Bible. In its train science emerges, and goes from strength to strength and from glory to glory. But where the Bible is unknown the human race languishes in spiritual and intellectual stagnation with all that these imply, or its efforts end in bankruptcy like those of ancient Greece or Rome. Only Christ can put away evil, interpreting the term in its broadest and deepest and largest sense. That is the teaching of Holy Scripture, endorsed by human history, if not always by human reasoning.

AUTHOR'S REPLY.

I am very grateful to all those who have entered into this discussion, especially to the Chairman and Col. Skinner for their thoughtful remarks.

As most speakers have pointed out, my paper contains a good many omissions. But I think the reason for this should be sufficiently plain. The Victoria Institute aims particularly at relating modern knowledge with revealed religion. Now I do not think that science has thrown very much light upon the devil (in any case that is a subject by itself), while it has probably thrown none at all upon the "real nature of sin," the moral sense of injustice and the power of Christ working in the heart of the Christian. But what modern knowledge does show is that were it not for man's stupidity and wickedness, the problem of evil would scarcely exist at all as a moral problem for the bulk of mankind. It is this fact which I have tried to stress in the limited space available to me.

I do not feel competent to answer all that the Chairman has said, but I should like to make a few remarks by way of explanation. With regard to his first two points, I think we can agree that the facts as we find them *might* mean that God is morally implicated; but surely there is no *evidence* that this *is* so. For myself I cannot imagine how a man could be free "upwards" but not "downwards" and I suspect that these metaphors tend to obscure the real situation. It is easy to suggest that man might be free to co-operate or not to co-operate with his fellows as he chooses, without being free to do positive evil. But has the Chairman ever considered by what means this could be brought about? If a man is free to inject morphine when it is medically desirable, he must surely be free to

inject it when that need does not exist ; if he is free to use his muscles to till the land, he must surely be free to smite his fellows. Could we, indeed, even imagine freedom and morality in the world if our consciences were linked by a physiological mechanism which produced paralysis whenever we started to do wrong ? Would not such a world consist of scarcely sane neurotics where fear reigned supreme ?

Be the answer what it may, one thing is clear. Unless we have definite *evidence* that freedom can exist in one direction but not in the other, we surely cannot have any good reason to implicate God.

I am sorry my use of the word "maladjustment" was not understood. Maladjustment is the failure of one phenomenon to be adjusted to another. There is no maladjustment in an earthquake as such, but only if it causes loss of life. Man may not be able to stop the earthquake, but he can prevent the earthquake from causing unnecessary suffering ; he can stop the maladjustment.

As for the situation among the lower creation before man came on the scene, I can see no satisfactory reply. But at best this is an academic problem. It could only trouble philosophers in a world where man was in harmony with the will of God.

I think these observations will suggest a line of reply to the Chairman's fourth objection. All was indeed "very good" when God made the world (I cannot understand why Dr. Barcroft Anderson should suppose that I denied this !) and maladjustments could not be said to exist at this early period. At a later stage man certainly had the power to control the world for good.

Rev. A. W. Payne complains that I have left the devil out of account. So I have ; but I have already commented as to the reason. But in any case, does the devil help us very much ? To invoke the devil *ad hoc* is to indulge in special pleading. Moreover, blaming evil on the devil may be a singularly dangerous proceeding, for :

Bad as he is, the devil may be abused,
Be falsely charged and causelessly accused,
When men, unwilling to be blamed alone,
Cast off on him those sins that are their own.

I am sorry that Dr. Barcroft Anderson should have criticised the Council so severely for awarding me the Langhorne-Orchard Prize,

but I am sure all will agree with me in repudiating the suggestion that therefore the Council necessarily endorses every word of my paper! If Dr. Anderson will be good enough to glance at the bottom of the table of contents in this volume, perhaps he, too, will be convinced.

I cannot attempt to answer Dr. Anderson's criticisms in detail, especially as I am no Hebrew scholar. Yet I could not restrain a smile at hearing his argument about the birds being corrupt before God because they are included in the expression "all flesh." On such a line of reasoning, we should surely have to include the fishes and the whales as well, though they probably quite enjoyed the flood!

I realise that Dr. Anderson holds to the view that the days of Genesis were of twenty-four hours each, but he surely realises that there are others who, like St. Augustine of old, take a different view and yet have as much respect for the Bible as he has. I am also sorry that he takes exception to the R.V. translation of Ps. viii, 5-7 (and blames the Council for it!). But as I never even suggested that the passage referred to Adam, but only to mankind generally (a meaning which he allows), I do not quite see the force of his argument. True, the words are applied to Christ in Hebrews ii, but that is no evidence that they were not intended to apply to mankind generally, as in fact we know they were (Gen. i, 26). Dr. Anderson surely overlooks the close resemblance between Ps. viii and Gen. i.

Carried to their logical conclusion, Mr. L. J. Maser's remarks would seem to require that we should rest content and make no attempt to undo the evil God allows. Or, as the *Freethinker* once put it, God said, Let there be measles: and there were measles. Therefore it must be the devil who prompts doctors to cure measles and so undo the work of God! Certainly we must trust God, but do not let us forget that God trusts us too!

I am sorry that Principal Curr should think my paper is endued with a spirit of confident optimism. I should not have described it like that. Indeed, it seems plain to me with the world as it is, that man will never fulfil his task—and I entirely agree with Principal Curr in thinking that God will intervene at the end. Modern anthropology is to-day revealing how that from the very beginning, every thought of man's mind has been only evil continually. Prof. A. J. Clark has recently reminded us of this remarkable fact in words

which are well worth quoting: "Mankind has shown a precocious ingenuity in finding injurious poisons and drugs of pleasure. For example, neolithic arrows have been found marked with grooves that probably were intended for poison. The bushmen who lack the mechanical skill to build a house use arrow poisons of exceptional potency. The precocious aptitude in the use of drugs for harmful purposes has not been paralleled by any similar aptitude in their employment in healing. Indeed, the contrast between the relative development in the science of poisoning and the science of healing is one of the most marked features in mediæval scientific history."— (*Perspectives in Biochemistry*, Ed. J. Needham & D. E. Green C.U.P., 1937, p. 337.)

830TH ORDINARY GENERAL MEETING,
HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1., ON MONDAY, APRIL 24TH, 1939,
AT 4.30 P.M.

MRS. JOHN EVERSHERD, F.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 Members : L. G. H. Sarsfield, Esq., D.Sc., M.I.E.E., J. C. Scott, Esq. And as Associates : W. Leon Dale, Esq., the Rev. A. K. Cragg, M.A., and E. W. Battersbey, Esq.

The Chairman then called on Mrs. Walter Maunder, F.R.A.S., to read her paper entitled "The History of India, as Reflected in the Astronomy and Meteorology in the Hymns of the Rig Veda."

The meeting was then thrown open to discussion in which Mr. Sidney Collett, Colonel Skinner and Mr. J. H. Harrison Hill took part.

*THE HISTORY OF INDIA AS REFLECTED IN THE
ASTRONOMY AND METEOROLOGY OF THE HYMNS
OF THE RIG-VEDA.*

By MRS. WALTER MAUNDER, F.R.A.S.

YOU all know what the shape of India looks like—rather like a dilapidated leaf. Its widest part is about 25° N. ; south of that it is bounded on its east, south and west by the Indian Ocean, which itself merges without any land barrier into the Antarctic Ocean. North of 25°, it narrows also, but here it is bounded by mountains, some of them the highest on the earth. These mountains and sea boundaries govern its history and its weather. It can suffer no great invasion by land ; in the ancient days the Âryas must have penetrated peacefully, filtering through the passes of the Suleiman and Hindu Khush ranges in the west. In the east, from Tibet and China, the intercourse was almost wholly commercial. So, too, in the south, the fleets that came to India were for commerce, not for war. Probably Alexander the Great was the first to bring an invading army into India through the ranges ; he returned by way of Baluchistan coastland, both by sea and

land. It was in the way of this return that Alexander died in 323 B.C.; the Persians counted him as ruling over them for fourteen years, and as they kept a continuous record of the regnant years, 323 B.C. gives a sure date from which to reckon back to Frêdûn, the greatest of the kings who ruled over Turan and Iran combined. Thereby it also gives a date when the Âryas divided into Persian and Hindu; the Persians settling west of the Hindu Khush, the Hindus going east, in great numbers, into the Panjâb. Though India was free from outside wars, it was not so from internal strife, as the Mahabharata and Ramayana testify.

Still more definitely does India's shape—its contours, its heights and plains—govern its weather. It lies entirely in the northern hemisphere, but the southern oceans largely influence its air currents. India has its seasons, but *the season* is the south-west Monsoon, for then falls its great rain, which lasts normally from June to September, but has the greatest incidence in July. Then the barometer is at its lowest over N.W. India, and the rain-bearing winds strike almost at right angles across Kathiawar and Sind, and stream over the Panjâb, until they come up against the lofty sides of the Himâlayas, and are forced to rise at least as high as their summits; their moisture is condensed as rain on the plains and as snow on the high hills. In this paper, I take account only of India north of 20°, and of the weather of the Panjâb.

For the astronomy of the Âryas in India, we must take into account that they were a nation of astronomers long before they went into the Panjâb. It was they also who brought two things to the Semites and the Egyptians—the knowledge of the constellations and of the horse. Thus we find in Genesis xxxvii, 9–11, the dream of Joseph, in which he tells his father and brethren that “the sun, moon and eleven stars made obeisance to me.” This was in 1893 B.C., and it is the first mention in the Bible of the zodiacal or any other constellations. For the introduction of the horse into Asia, it was brought by the Âryas, first to Babylonia in the nineteenth century B.C., and to Egypt about fifty years later. Thus we find recorded in the sixteenth and seventeenth years of Ammizaduga (the fourth in descent from Amraphel, one of the five kings who fought with Abraham when Lot was taken prisoner by them), that is in our chronology, 1905 and 1904 B.C.: “disaster of the Manda Hordes”—the

Ummān-Manda, being Âryas, and in later centuries, certainly identified with the Medes. In Egypt, the first mention of horsemen in the Bible is on the occasion of Jacob's funeral in 1853 B.C. I am taking Sir Charles Marston's date for the battle of Jericho as given by him in the *V.I. Transactions* for 1934 April 23, as the standard date from which to reckon.

There were four great men associated with *both* the Persian and the Hindu Âryas; two before they separated, and two after. These were: (1) Yama, who was their leader until they came from Europe into Asia by way of the Kirghiz Steppe in lat. 49° N. At this latitude the summer day is twice the length of the summer night, and the Âryas, whether in Europe or Asia, found their latitude by the ratio of the longest to the shortest in days or nights. The "night-day" was thus taken as eighteen "hours" in length, and in the Rig-Veda Hymns we find the night so divided into three divisions of three hours each, called "Yamas" in honour of their first great leader.

(2) Thraêtaona, son of Athwya, was the second. He was the Frêdûn, mentioned earlier, and was famed in both Iran and in the Panjâb for having slain the great snake, Azi-Dahaka. The Panjâb knew him only for this, for he seems never to have entered it, but sent some other leader—possibly Manu, who is counted as the first Hindu man.

(3) Thrîta, the sixth in descent from Thraêtaona, and therefore also an Athwyan; both are named "Trîta Aptya," as meaning "watery," on occasion, but the Hindu Âryas forgot that Athwya was a man, and deemed them sons of world-surrounding Ocean.

(4) The fourth man was Kai Kaus, king of the district just west of the Hindu Khush. He was the grandson of a foundling, adopted by the ruling king and succeeding him. The Hindus knew Kai Kaus as Usanâ Kâvya, and identified him with the planet Venus; he is so identified in the later Rig-Veda hymns. They also identified the planet Jupiter with Brihaspati, the Lord of Prayer or Worship; but so far I have found no records in the hymns of Mercury, Mars or Saturn. We are told in the Iranian genealogies that Kai Usan reigned seventy-five years *before he went to the sky*, and after that he reigned for seventy-five years more. Certainly Kai Usan must have spent much of his lifetime in the Panjâb.

The old forty-seven constellations which we use to-day were originally catalogued at some place of lat. 37° - 38° N., and in the Mediterranean, by men whom Aratos, in his *Phaenomena*, names "The Elder Race." The "Elder Race" was of the descendants of Japhet, *not* of Shem. This fundamental catalogue of stars was made about 2900 B.C., and its object was twofold, both practical. The first was to know the time of year, and especially those times in the year at which God had commanded sacrifices and worship to be offered up to Him. We have a later parallel to this in Exodus xii, when in Egypt, in 1440 B.C., God commanded Moses exactly at what time of the year and the month he should offer up the Passover lambs. The second was to know their whereabouts on the earth when travelling.

The sons of Japhet and of Shem were, equally, the inheritors of God's revelation to man in the first chapters of Genesis. If we, then, find (for example) that there is pictured, in these old constellations, a man strangling a serpent and being stung in his heel by a scorpion, we must not take this as a new and independent revelation from God, but simply as an assurance that the sons of Japhet knew God's promise in Gen. iii, 15.

You all know that because the earth is not a perfectly round globe but has a bulge on the equator, the sun pulls on this bulge and alters slightly the rotation of the earth, so that as the years pass, the equinoctial points "precess" through the stars which are in the sun's wandering path. The spring equinox at one time in the known history of mankind, lay close to the twin stars which we call Castor and Pollux. That method of finding a beginning of the year was used long before the old forty-seven constellations were designed and catalogued; the picture of the Twins, together with the "new moon" setting in the west in spring-time, was probably the method used by Noah, both before and after the Flood. But when the constellations were made the spring equinox lay in the Bull's head, and no longer on the other side of the Milky Way near the Twins. We learn from the Rig-Veda hymns that their authors knew of this older method as well as of the newer. Eventually, they themselves produced a third method (the one used by ourselves to-day), when the equinoctial and solstitial points marked in the Old Catalogue of the Constellations became out of date.

Here I want to state as emphatically as words can make it that this fundamental star catalogue—the basis of those we use to-day—is not to be considered and used as a cryptogram, or in any other way, so as to try to foretell God's future purposes. To do that is nothing less than sorcery and divination, things forbidden of God. I not only speak this for myself, but also for my husband, who often declared this, his opinion also, to me.

Thraêtaona brought the tribes to the seventh "Good Land," mentioned in the Persian Sacred Books of the East. This is "Vaekereta of the evil shadows," which is supposed to be the Kabul Pass. The Iranians remained west of the Hindu Khush; the Hindu Âryas went into the "Good Land" of the Seven Rivers. But before they separated, Thraêtaona made observations at the summer solstice of the midnight stars. The date of this was near 1600 B.C., for the stars he noted were the constellations near the Milky Way, from its rising-point to its setting-point, for this date and time. We know this is what he did, because some five or six centuries later his descendant, Thrita, made his plaint that the times of these constellations at the summer solstice were out of keeping with it by several days.

I, cv, 4. "I ask this last of sacrifice . . . where is the ancient law divine? Who is its new diffuser now?"

5. "What is your firm support of law? What Varuna's observant eye? How may we pass the wicked on the path of mighty Aryaman?"

The Path of Mighty Aryaman is the Milky Way—that way along which the "Fathers" travel to their lucid realm of light, in which they dwell until the Resurrection. Such was the belief in Rig-Veda times; in the hymns there is no trace of the doctrine of Reincarnation.

For the third man, Thrita, I can only give an approximate date, but he must have been living in the Panjâb, probably near the Kabul Pass, for his more famous son, Keresaspa, was killed in the Pisin Valley, south of Kabul. Keresaspa was a contemporary of Ušanâ Kâvya, to whom the Persian genealogies give the date 955 B.C., that being (probably) his accession to the throne. We may therefore put Thrita about a century earlier, and this agrees with the change in position of the Milky Way from the time of Thraêtaona.

In the Helمند district, in 955 B.C., Kai Usan succeeded to the throne. In India, about 60 miles S.W. of Allahabad, in the same year, 955 B.C., on October 4th, a Brahman, Atri Bhauma, was offering up the Noon Oblation, and a total solar eclipse occurred. The Brahman was greatly disturbed, but he offered up the three usual prayers. Then he prayed a fourth prayer, and Sûrya, the Sun, recovered its brightness. Disturbed though he was, yet he looked up to the darkened but starry sky, and he saw there near where the dark circle (light-rimmed, however) that *had* been the sun, stood above Sagittarius, the Man-horse, there was a light brighter than any star. For the planet Venus was blazing at her greatest brilliancy.

I can enter into Atri Bhauma's feelings, for I, too, have seen an eclipse of the sun in India, and not so very far from where Atri Bhauma saw his. I too saw Venus, though *not* at her greatest brilliancy—and even so she dwarfed the glory of the silvery coronal streamer that stretched out in her direction.

The eclipse of 955 B.C., October 4th is the first exact date—exact even to the hour which was noon—that I have found for any Rig-Veda hymn. But it gives us more information than that, for its shadow track had passed over the Murghab and Helمند rivers, and half-way between Kabul and Kandahar, a little after mid-morning, before it entered India. This was the country governed by Kai Usan, and this was the very year of his accession: may we hazard the guess that it was also the day and hour; and that it was this that made him, when seventy-five years later “he went to the sky,” go as the Planet Venus?

Atri Bhauma not only wrote the eclipse hymn, but several others, mostly about the weather, which it seems was much of the thunderstorm type. I will quote a hymn, addressed to Varuṇa, that is to the God of the starry heavens, the Encompasser. It was probably written in the month of May.

V. lxxxv, 3. “Varuṇa lets the big cask, opening downward, flow through heaven and earth and air's mid-region. Therewith the Universe's Sovran waters earth as the showers of rain bedews the barley.

5. “I will declare this mighty deed of magic, of glorious Varuṇa the Lord Immortal, who standing in the firmament hath meted the earth out with the sun as with a measure.

6. "None, verily, hath ever let or hindered, this the most wise God's mighty deed of magic, *whereby with all their flood, the lucid rivers fill not one sea wherein they pour their waters.*

7. "If we have sinned against the man who loves us, have ever wronged a brother, friend or comrade, the neighbour ever with us, or a stranger, O Varuṇa remove from us the trespass.

8. "If we, as gamesters, cheat at play, have cheated, done wrong unwittingly or sinned of purpose, cast all these sins away like loosened fetters, and Varuṇa, let us be thine beloved."

Atri Bhauma observed the solar eclipse of 955 B.C. King Solomon began the building of the Temple at Jerusalem in 960 B.C. They were therefore contemporaries. And King Solomon also observed the meteorological conditions of his time. I quote from the Septuagint version of the book of Ecclesiastes, since Greek and Sanskrit are languages of the same family: Eccl. i, 3. "What advantage is there to a man in all his labour that he takes under the sun . . . 5. And the sun arises and the sun goes down and draws forward to its place. 6. The wind goes round and round and the wind returns to its circuit. 7. *All the rivers run into the sea; and yet the sea is not filled: to the place whence the rivers come, thither they return again.* . . . 18. *In the abundance of wisdom is abundance of knowledge, and he that increases knowledge will increase sorrow.*"

Truly the very same observation of facts was made by the two men, but the conclusions they drew from them were poles apart.

As there was peace in Palestine in King Solomon's days, so there seems to have been peace, also, in the Panjâb in the time of Atri Bhauma. And so indeed for the next 300 years in India there must have been peace and prosperity, else there would have been more Hymns of Prayer. As the poet sings :

"Lips say, 'God be Pitiful,'
Who ne'er said, 'God be Praised.'"

Then suddenly, a few years before 700 B.C., there came upon the land a great evil thing named the Vṛitra. Even in Atri Bhauma's days the god Indra was famed as "the best vṛitra-

slayer," but such small vṛitras were nothing to trouble about. What then is a vṛitra? The Indian commentators say that it is a demon of drought, and that meteorologically it means a "dark overhanging cloud" in which the rain streams are concealed. But this Great Vṛitra is described in scores of hymns, variously—as something that can have its "joints rent as an ox is dissevered" or that can be "rolled in the midst of never-ceasing currents . . . the waters bear off Vṛitra's nameless body." How could such things happen to a cloud? In my opinion, the Vṛitra was an enormous glacier, which obstructed the rivers of the Panjāb near their source, and that source is up in the Himālayas. On a small scale, such an obstruction was the Shyok Dam, in 1926; such a glacier could be well described as an "engirdling rock," as one of the hymns describes Vṛitra.

How long Vṛitra took to grow to his full length I do not know, but his destruction (for which Indra was famed) was very shortly before 700 B.C. Meteorologically, his destruction might be described as a "sudden change from drought to deluge." Such a sudden change in the Alps would mean a catastrophe; in the Panjāb it was just the opposite, for India needs rain rather than sunshine. At this very epoch such a catastrophe *did* occur in the Alps. And about 700 B.C. the weather all over the world was out of the common.

But because of the long drought that preceded the deluge accompanying the destruction of Vṛitra, there was brought about that change in the calendar of which I have written at length in my paper on "Early Hindu Astronomy" (read here on April 9th, 1934), to which I must refer you. I did not know then what had induced the Ribhus brothers to reform the calendar, but I am glad to say that, nevertheless, my dating of it was correct. I can now give some precise dates for this period of the seventh century before our era.

The Ṛishi Kutsa was a kinsman of the three brother astronomers, and he fought two battles against the Dāsas, that is the aboriginal tribes; in both battles the sun was eclipsed, annularly. The dates on which these battles were fought were 690 and 680 B.C. We therefore know their shadow tracks, and one curious circumstance was that the earlier was of the setting sun on the banks of the river Jumna; the later shadow track also crossed the Jumna, at mid-morning, and almost at the very spot crossed by the earlier shadow track. Kutsa fought on

the Jumna in the earlier battle, but on the banks of the " Vipâs " river nearly at dawn in the later battle. From this later battle we learn an important fact as to the change of channel of this river Vipâs, which we now know as the Beâs, and as a tributary of the Sutlej, which now joins the Indus much farther south. In 680 B.C. the Beâs must have joined the Indus at a lower point than either the Chenâb or the Sutlej joins it now, and it was then, according to one Rîshi, " the most maternal of rivers."

There are many records in the Hymns of these two eclipses, and when I put these records together I was struck by the fact that somewhere or other in each hymn there was a mention of Uṣanâ Kâvya, and also of the serpent demon Ṣushṇa. Moreover, at the eclipse of 690 B.C., mention was made that Bṛihaspati had come to Indra's aid in winning the battle, as also in both battles it was Uṣanâ who helped the god. So I found what planets as well as stars were visible during these eclipses, and in both Venus was very near her superior conjunction, therefore fully illuminated and bright; in the earlier battle Jupiter was in opposition and low down on the horizon, just below the star Regulus, the chief star in the Lion. These Hindu Âryas, even in a fight, could be unafraid though the sun was eclipsed. They could look to see what stars and planets were visible.

In the days of Solomon and Atri Bhauma there was great peace. Not so in the days of Hezekiah and Kutsa. Again I must refer you to another paper I have read before you on " The Shadow Returning on the Dial of Ahaz," on February 22nd, 1932. These were the years when from Tiglath-Pileser to Assurpanipal (745-626 B.C.) Assyria was fighting on all sides for world dominion, until the nation was bled white, and then for the first time, I think, we find the Âryas (the Medes in this case) taking part in a world war. At this time the Persian Âryas were taking some part, but not a massed one, in the Hindu Âryas' battles. And the Hindu Âryas never at any time seemed disposed to take a part in warfare outside their own country.

From this time on there was plenty of fighting in India itself. These two eclipse battles were fought by Âryas against the Dâsas, and the Rîshi Vamadeva in a Hymn to India says:—

IV, xxx, 20. " For Divodâsa, him who brought oblations, Indra overthrew a hundred fortresses of stone.

21. "The thirty thousand Dâsas he with magic power and weapons sent to slumber, for Dabhiti's sake."

But only a couple of verses earlier he also says :—

IV, xxx, 18. "Ar̥ṇa and Chitraratha, both Âryas, thou, Indra, slewest swift on yonder side of Sarayu."

From this time, also, we find not only wars against the Dâsas, but civil wars between the Ârya tribes, with (probably) the Dâsas aiding one side or the other. Especially the "Five-fold People" warred with each other. These five tribes were descended from Yayati, a famous king, who ruled over most of the Panjâb, and was a contemporary of Usanâ Kâvya. His sons were Yadu and Turvasa, by his first wife Devajani, daughter of Uṣanâ, and Anu, Druhyu and Puru, the sons of his second wife Sarmishtha, daughter of King Vrishaparvan. Yayati left the central part of his kingdom (the "Central Regions of the Earth," he named it) to his youngest son Puru, and the outlying regions to his brothers.

I do not think that the Âryas had, at this time, conquered the aboriginal tribes east of the Ganges, though certainly they held the whole country in the northern Panjâb, right up the Himâlayas and the River Saraju—that is the modern Sarju, which rises on the eastern side of the Himâlayas. The Âryas, Ar̥ṇa and Chitraratha, mentioned by Vamadeva as being slain by Indra on yonder side of Saraju, were perhaps guilty of merging into the Dâsas both in habits of life and of religion.

In the Rig-Veda Hymns, the great Ṛishi and astronomer, Vasishṭha, gives an account of two great wars waged by the Âryas whom he served as counsellor and priest. The first of these he terms the Battle of the Ten Kings, fought and won by King Sûdas, the son of that Divodâsa mentioned by Vamadeva in his eclipse hymn, a friend and ally of Kutsa. Five of these ten kings were Âryas, five were aborigines. Again a second battle was fought and won on the banks of the Jumna by the same young king, aided by Vasishṭha.

This Vasishṭha, author of the one hundred and four hymns of the Seventh Book of the Rig-Veda, also wrote (amongst others) a treatise on the sun, called the Sûrya Siddhanta, and a part of this has come down to us almost unaltered. He was an observer of the stars as well as a calculator. He lived between 600 and 700 B.C. I cannot find, however, any hymns of which

I can be sure that they were written as late as 500 B.C., or even fifty years earlier. In the later centuries, the Purus, descendants of Yayati's youngest son, warred among themselves; especially we find the five Pandavas fighting with their cousins for the ancestral kingdom; also at times with their more distant cousins, the Yadavas, Anus, Druhyus and Turvasa. These battles are related in the MahaBharata, and are in the Panjâb. The battles in the south of India for the conquest of the aboriginal tribes are related in the Ramayana. For these, also, as yet, I can give no precise dating.

The Chairman (Mrs. JOHN EVERSLED) said: I have been asked to introduce our lecturer, Mrs. Maunder, but surely this is quite unnecessary. The Victoria Institute and Mrs. Maunder are old friends; and five years ago, in April, 1934, I listened here with you to her paper on "Early Hindu Astronomy." But I should like to remind you that she is not only an authority on ancient astronomy (and the number of historical facts which are clear in her mind and at her finger-tips is amazing) but also a practical astronomer, who has added to our knowledge of sunspots and of the solar corona which she has photographed at eclipses. Together, in Norway, we failed to see a total solar eclipse, because of clouds; and together in Algiers we saw a beautiful one. I was not in India when Mrs. Maunder achieved her memorable success of photographing the longest coronal ray ever seen or photographed at that time, but my husband was there.

Mrs. Maunder has pursued her studies, in English translations, of the Rig-Veda (the oldest sacred book of India); and she finds that events in Indian history can be dated by eclipses described in the hymns contained in that book. Eclipses are very useful in this way, as you probably know; because astronomers know so well the movements of sun and moon that they can calculate eclipse dates backwards through the centuries, and also the narrow track on the earth along which each of them should have been visible. If therefore ancient records describe a total solar eclipse, as seen in any given place, and also an historical event, such as a battle or the death of a king, which happened at the same time, the date of this event can often be very accurately determined.

Mrs. Maunder will tell us how by this and other methods she has

tried to fix the dates of some of the hymns in the Rig-Veda. I will ask her to read to us her paper on "The History of India as Reflected in the Astronomy and Meteorology of the Hymns of the Rig-Veda."

DISCUSSION.

Col. SKINNER said : I am sure Mrs. Maunder will bear gently with the ignorant and unlearned in seeking further enlightenment, for I know nothing of the Rig-Veda beyond what I have gleaned from her most interesting papers.

On page 149 are quoted six verses of Atri Bhauma's hymn to Varuna, the god of the starry heavens, which I gather would have been written not far short of 1000 B.C. These verses appear to embody such purity of thought and devotion towards a being with attributes clearly divine, viz., all power, wisdom, compassion and love, that one is constrained to learn more both of the worshipper and of the object of his worship.

Can our author kindly say, from her fuller knowledge, if this divine being, Varuna, was Bhauma's only object of worship, or if Varuna was only one among a plurality of gods? The hymn by itself seems to suggest a worship of one God, so wholehearted and unreserved, that one is loth to entertain the thought of a worshipper so pure minded being other than single in his allegiance.

If this be a correct appreciation, then would not the antiquity of the hymn afford strong support to the belief that monotheism preceded polytheism in place of being a derivative therefrom, since here we have side evidence of a pure worship of God in other than Hebrew tradition?

AUTHOR'S REPLY.

Varuna means heaven, and judging by the high quality of the hymns addressed to Varuna, it means our "Father which art in Heaven." I have no doubt that the Âryas were in their early times the worshippers of One God, as their father Japhet had been. But the One God had many attributes, and He was addressed sometimes by one name and sometimes by another. Very gradually, but with increasing speed in later times, these attributes became minor gods, and especially in India, where the monsoon is of vital importance, the weather gods assumed predominance until in later Rig-Vedic times Indra, with all his faults of pride and terror, became the greatest of the gods and ousted Varuna from his lawful place.

831ST ORDINARY GENERAL MEETING,
HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, MAY 8TH,
AT 4.30 P.M.

BRIG.-GEN. H. BIDDULPH, C.B., C.M.G., D.S.O., IN
THE CHAIR.

The Minutes of the previous meeting were read, confirmed and signed and the Hon. Secretary announced the following elections :—As Members : S. J. Frame, Esq., and E. G. Lee, Esq.

The CHAIRMAN then called on Sir Charles Marston, J.P., F.S.A., to read his paper entitled “How the Old Testament Stands To-Day: The Lachish Discoveries.”

The meeting was then thrown open to discussion in which Mr. W. C. Edwards, Dr. Hart-Davies and Dr. Barcroft Anderson took part.

*HOW THE OLD TESTAMENT STANDS TO-DAY.
THE LACHISH DISCOVERIES.*

By SIR CHARLES MARSTON, J.P., F.S.A.

ONE of the most prominent of our clergy recently summarised the change in the attitude of the so-called critical circles towards the Bible by saying—“They all now treat the Old Testament with respect.” In other words, criticism has definitely passed from the offensive to the defensive. It is busy jettisoning the Wellhausen theory and previous assured results. It can scarcely do otherwise, in view of the unveiling of the remote past which the Science of Archæology has brought about in Bible lands. There is considerable temptation to quote some of the past conclusions of criticism in the light of present archæological discoveries, but we are all prone to be misled, even though we are not critics. It is more satisfactory to find that conclusions advanced in my books are reinforced by further discoveries.

Five years ago I drew the attention of this Institute to the evidence bearing upon the Old Testament which had been found by the Science of Archæology in Bible lands during the previous eight years. The conclusions then reached were—

1. That Monotheism was the original religion.

2. That the Exodus of the Israelites from Egypt occurred in 1440 B.C.
3. That Abraham was born in 2160 B.C.
4. That the Hyksos were Hebrews.
5. That the Canaanites and Amorites were fellahin races ; and that their idolatrous civilisation was sub-ordinate to the Hebrew civilisation in the day of the Patriarchs.
6. That Moses died in 1400 B.C.
7. That the Mosaic code marked the revival of Monotheism.

These are all fundamental discoveries of the first importance, which affect the whole outlook on the Old Testament. The progress of excavations seems to be driving many, more or less, to adopt them. But to pass on to the recent discoveries.

Five years ago the excavations at Tel Duweir, or Lachish, had only progressed as far as the discovery of the Temple, outside the walls of the city. We then possessed no hint of the sensational finds awaiting us. These began with the fragments of a water ewer in the refuse heap of the temple. Round the neck of this ewer were some letters of the alphabetical script discovered thirty years earlier by Sir Flinders Petrie in the Peninsula of Sinai, where Moses led the Israelites after the Exodus. Members are probably aware that this, the earliest known alphabetical script, had been used by Midianite miners who worked the turquoise mines of Sinai at the time of Moses, or perhaps even earlier, certainly not later. Besides the letter on this Lachish water ewer, specimens of this Sinai Hebrew script were next found in the rock tombs round the foot of the Tel on which the city stood. The pottery associated with the finds all gave a date of about 1300 B.C. The script itself is now generally recognised to be the remote ancestor of our own alphabet, through the Phœnician and the Greek. It seems probable that the Israelites brought it with them, when they conquered Canaan under Joshua, and that the Phœnicians afterwards learned it from them. The most important specimen of this script is painted in white letters on a red bowl. Dr. Langdon deciphered it to read "His righteousness is my hand (or support)." And linked it up with the passage in Isaiah—"Be thou their arm every morning." If Dr. Langdon's decipherment is correct, we have here a sentence which might for all the world have come from the book of Deuteronomy.

It must be borne in mind that these invaluable discoveries were made outside the city. The excavations inside on the summit of the mound of Tel Duweir have only progressed as far as the city destroyed by Nebuchadnezzar, for there a later Persian occupation had first to be cleared away. We may expect to find other examples of this Sinai Hebrew script when we get down to the layer of ruins which represents the first Israelite occupation. But that leads to the sad reflection—if we ever do get down to it in our time.

It would almost seem as though the very powers of Evil were endeavouring to thwart the further discovery of outside evidence concerning Holy Scripture. The leader of the Lachish Expedition—James Leslie Starkey—although in entire sympathy with the Arab cause in Palestine, was murdered on January 10th, 1938. The Expedition's Camp at Lachish has since been raided three times, and it is to be feared has been destroyed. Again, Sir Henry Wellcome, whose munificent support alone originally made this expedition possible, died several years ago. His executors, with my collaboration, have since most generously carried on the work. The whole of the discoveries made are now being collated by Mr. Gerald Harding, Mr. Charles Inge, who succeeded Mr. Starkey, and by other members of the expedition, at the expense of the Wellcome Trustees. These will be published in due course.

And lastly, Biblical archæology has also to mourn the loss of Professor Langdon, whose premature death has been another severe blow to Old Testament work.

Mr. Starkey has been described as the greatest archæologist that Palestine has ever known. His untimely death at the age of 43 is an irreparable loss. But before he died, beside the Sinai Hebrew, he discovered another alphabetical script, and this time inside the ruins of the Lachish destroyed by Nebuchadnezzar. It is known as the Phœnician Hebrew, and it has become evident that it was in general use by both Israel and Judah before the Babylonian captivity. This script is of a much more flexible character than the Sinai Hebrew, and seems to have been designed for ink writing on papyrus leaves, or skins. We are ignorant as to when it first came into use. The earliest known example was on the celebrated Moabite stone which dates back to about 850 B.C. But the leading authority upon it, Professor Torczyner, thinks that it may even have been used in the time

of Moses. And there are passages in the Pentateuch which suggest such writing (see, for example, Numbers v, 23).

This Phœnician Hebrew script was first found at Lachish in the remains of a room in the gate tower of the city destroyed by Nebuchadnezzar. When the ruins were cleared away, a cobbled floor was brought to light with a layer of four inches of black mud and ash on its surface. Debris to the height of two feet lay strewn upon this ; debris of burnt limestone, or brickwork, and blackened fragments of pottery. When they were washed from their coating of soot, eighteen of these pieces of pottery showed lines of ink writing upon them. Altogether the group contained ninety lines of readable matter ; and although found only just over four years ago, they have already become world famous as the Lachish Letters. For their decipherment has proved them to be nothing more nor less than a series of personal letters actually written in the days of Jeremiah the prophet. The writer was an outpost officer named Hoshaiah ; the letters were addressed to Jaush, the military governor of Lachish. These are the first personal documents that have been found of the time of the Jewish monarchy. Some say they constitute the most valuable discovery that has ever been made, in connection with the archæology of the Old Testament. All previous outside evidence concerning Israel, or Judah, has come through their enemies, such as Sennacherib's account of his treatment of Hezekiah, or from men who were only partly of Jewish birth, as in the case of the Elephantine papyri. But the Lachish Letters are contemporary correspondence between orthodox Jews written in the last years of the kingdom of Judah.

Before describing the contents of these letters, let us pause and consider what relationship they bear to the oldest existing Hebrew manuscript of the Old Testament. This is believed to be the one in the Synagogue at Cairo, and it dates back to about A.D. 895. It is written in the Assyrian Hebrew script, which was adopted by the Jews after the Captivity. But these Lachish Letters in their Phœnician Hebrew script were written not less than fifteen hundred years earlier than this, the oldest copy of the Hebrew Bible. No wonder the scripts are different. Nevertheless, the phraseology, and spelling, the style, and composition, are the same as those of the book of Jeremiah, or of 2 Kings. Is there any reasonable doubt that the whole of the Old Testament was once written in this Phœnician Hebrew script ?

According to Josephus (*Antiq.* xii, 2-11), the Hebrew version of the Old Testament which was used in the composition of the Greek Septuagint some three centuries before Christ, was written on membranes. And as the writing would be in these Phœnician Hebrew characters that might account for some of the variations between the Septuagint and the present Hebrew Bible. It is interesting to inquire whether in the minute dissections of the text of the Old Testament made by scholars, account has been taken of the fact that the Assyrian Hebrew script would not be the one in which the Scriptures were originally written. Until the discovery of these Lachish Letters, so little seems to have been known of this Phœnician Hebrew that even some of its characters were unfamiliar. Beside the writing on the Moabite Stone, the script was used for the Siloam inscription. It also resembles the writing used for the Samaritan Pentateuch, which suggests that version of the Old Testament to be of far greater antiquity than scholars assigned to it, with what has now proved to be the inadequate knowledge at their disposal.

The process of literary digestion of the Lachish Letters has only begun, but the results must all be favourable to the substantial authenticity of the Old Testament. As one studies the Letters it is interesting to notice that the names of most of the men mentioned in them are familiar to Old Testament readers. Beside the name Jeremiah, there is Mattaniah, Gemeriah, Jaazaniah, Neriah, Hagab, and others. There are frequent appeals to the Deity; in all cases the name used is Jahveh. There is no sign of idolatry, and it would seem as though the religious reforms of King Josiah had been effective, at least as far as the garrison of Lachish was concerned.

That the contents of these letters are of peculiar interest, will be judged from the following further reference to them. Professor Torczyner, who deciphered them with Mr. Harding, carried through a Herculean task with great ability, for the characters are illegible in places. He has been already criticised with considerable assurance by those who of necessity have not had his facilities for studying the originals. I can only write as an outsider in the sense of being unable to read this very ancient script. But there is a saying that outsiders see most of the game; and from that standpoint it would seem as though Professor Torczyner's interpretation of the Lachish Letters is fairly correct. It has been already stated that this correspondence was written

by an officer named Hoshaiiah to a high official named Jaush, who must almost certainly have been the military governor of Lachish. The letters, with perhaps one exception, are all from Hoshaiiah, who seems to have been in charge of some outpost on the route between Lachish and Jerusalem. The theme that runs through most of the letters is Hoshaiiah's endeavour to repudiate and exonerate himself from charges that have been made against him. We have to infer what those charges were, and what makes the inference more difficult is the fact that Hoshaiiah had to employ scribes to write the letters for him. He could only indirectly reply to the accusation lest the scribes should learn too much.

We gather, however, that Hoshaiiah was accused of revealing confidential information that came to his knowledge, or that passed through his hands on its way to or from Jerusalem. The nature of that knowledge concerned the affairs of a prophet. The critics postulate the prophet to have probably been Jeremiah. But the letters contain sufficient evidence to justify Professor Torczyner in identifying the prophet with Uriah, the son of Shemaiah, referred to in Jeremiah in the following terms—

“And there was also a man that prophesied in the name of Jehovah, Uriah, the son of Shemaiah of Kirjath-jearim ; and he prophesied against this city and against this land according to all the words of Jeremiah : and when Jehoiakim the king, with all his mighty men and all the princes, heard his words, the king sought to put him to death ; but when Uriah heard it, he was afraid, and fled, and went into Egypt : and Jehoiakim the king sent men into Egypt, namely, Elnathan the son of Achbor, and certain men with him, into Egypt ; and they fetched forth Uriah out of Egypt, and brought him unto Jehoiakim the king ; who slew him with the sword, and cast his dead body into the graves of the common people.” (Jer. xxvi, 20-23.)

The following extract from Letter III certainly seems to associate itself with the passage I have just read :—

7. “Thy slave's heart is sick, since thou hast sent to thy slave.
8. “And that he says ; my lord I do not know
9. “to read a letter. Jahveh lives (to punish me) if anybody has tried

10. "ever to read me a letter. And also
11. "whatever letter came to me I
12. "have not read it and even have not seen of it
13. "anything. And to thy slave it has been told
14. "saying. Down went the commander of the army
15. "Yikhbariah the son of Elnatan to come
16. "to Egypt. And
17. } "he ordered to bring Hodavieh and his men from
18. } here," etc.

The words "The commander of the army—Yikhbariah the son of Elnatan to come to Egypt" associate themselves with the words "The king sent men into Egypt, namely Elnathan the son of Achbor." This Elnathan was a brother-in-law of the king, and might well have been, therefore, the commander of his army. It is true that the scribe who wrote this Lachish Letter reversed the name, and wrote Achbor the son of Elnatan; but such clerical mistakes even occur in the Old Testament, and are of little consequence in what was probably a letter whispered hurriedly to a scribe, and hurriedly written. Then notice the words in Jeremiah—"Elnatan the son of Achbor and *certain men* with him," in association with the statement of the letter—"he (*i.e.*, Elnatan) ordered to bring Hodaviah and his men from here." It seems obvious that "the certain men" were "Hodaviah and his men."

But where was "here"? From what place were these Lachish Letters written? Professor Torczyner thinks the place was near Kirjath-jearim, the home of Uriah, the son of Shemaiah. And that Hodaviah and his men were taken to Egypt with Elnatan in order to identify Uriah. Now there is other evidence in these letters which links them with Uriah and with Kirjath Jearim. It is contained in Letter IV. As this is one of the most important letters in the group I propose to quote it. It reads as follows:—

1. "May Jahweh let hear my lord even now
2. "tidings of good. According to whatever my lord has sent (written)
3. thus hath thy slave done. I have written on the page according to what-
4. "ever my lord has sent me. And when my lord has sent

5. "about the sleeping house, there is nobo-
6. -dy. And Semachiah him has taken Shemaiah and
7. "Brought him up to the city, and thy slave, my lord,
8. "shall write thither (asking) where he is ;
9. "because if in his turning he has inspected
10. "he would know, that for the signal stations of Lachish
we
11. "are watching, according to all the signs which my
12. "lord gives, because we do not see (the signals of) Aze-
13. "kah."

Here occur two personal names—Shemaiah and Semachiah, the first the actual name of Uriah's father. Semachiah's name occurs again in Letters XI and XIII. And it is associated in the Old Testament both with Shemaiah, and with Kirjath Jearim.

The names of Shemaiah and his son Semachiah occur in the lineage of Obed-Edom, the Gittite, who had charge of the Ark before David brought it to Jerusalem from Kirjath Jearim (2 Sam. vi, 10, 12). The lineage is set forth in 1 Chron. xxvi, 4 and 7. The incident which led to the Ark being taken to the house of Obed-Edom, occurred at a steep ascent—the threshing floor of Nacon or Chidon (2 Sam. vi, 6 and 1 Chron. xiii, 9) near Kirjath Jearim. And it would seem from the context that the house of Obed-Edom and his descendants was situated in the vicinity.

The Lachish Letter that has just been quoted refers to the fact that Hoshaiah and his men were watching the signal stations at Lachish and Azekah. They must have done so from some commanding height such as this threshing floor near Kirjath Jearim. So these two names, Shemaiah and Semachiah, strengthen the identification of the prophet with Uriah, and the identity of the place from which they were written as a height near Kirjath Jearim. The concluding lines of the Letter just quoted establishes the identity of Tel Duweir as Lachish.

It is interesting to speculate whether the original leakage of news of which Jaush complained had to do with the king's threat to kill Uriah and his flight to Egypt. The whole correspondence suggests that Hoshaiah sympathised with Uriah, and that even the governor of Lachish endeavoured to save the prophet, so far as his official position allowed him to do so. Many interesting points arise in connection with these letters, but considerations of space only allow reference to one other. The letters were found between the layers of two

burnings of the city, about ten years apart. So it has become evident that Lachish was twice destroyed by Nebuchadnezzar, once in the reign of Jehoiakim, and once in the reign of Zedekiah. The natural assumption would be that the letters were written in that interval, and that has been adopted by those who identify the prophet with Jeremiah. Now the letters may cover a considerable period of time, but it seems impossible to assign the incident of Uriah the prophet to any other king than Jehoiakim. How, then, did these letters come to be in a room of the gate tower of Zedekiah's reign? In Old Testament days the gate of the city was the place of judgment, and it would seem as though this dossier of Hoshaiiah was brought there for his trial in the reign of Zedekiah. There is now less reason to suppose it had always been kept there.

After Mr. Starkey's murder the Lachish Expedition most courageously continued their excavations until the end of the season. Their pluck was rewarded by the discovery of several more specimens of the Phœnician Hebrew script inside the city. One fragment linked up with the Lachish Letters. Another, broken from a jar, which actually stood alongside it, began with the words "in the ninth year." It was in the ninth year of Zedekiah's reign that Jerusalem was destroyed. And lastly on the steps of the palace of Lachish some schoolboy had scribbled the first five letters of the Phœnician Hebrew alphabet. It is becoming evident that the dossier of Hoshaiiah is not the only writing to be found in Lachish, and that the practice of writing in ink on pieces of pottery was not confined to his messages. It is therefore reasonable to assume that the correspondence from Hoshaiiah may either be dated after the first siege before the death of Jehoiakim, or it may have been in the city's archives during the first siege, and brought to the gate tower, when charges were levied against that officer before the second destruction.

To sum up—the two alphabetical scripts found at Lachish, the Sinai Hebrew and the Phœnician Hebrew, make it manifest that the Israelites, after they left Egypt, always possessed facilities for literary expression superior to those of the other civilised races of antiquity. It has therefore become ridiculous for critics any longer to affirm that the contents of the earlier books of the Old Testament were handed down for many centuries by oral tradition; and only committed to writing immediately before, or during, the Babylonian captivity.

The indications point to the fact that before the great age of Greek literature, there was a great age of Hebrew literary activity. Again the Ras Shamra tablets; the Semitic legislation of Hammurabi; the Egyptian moral code before the days of Moses; the traces of Midianite worship found at Serabit in Sinai; and the recent discoveries at Nuzi in North Mesopotamia, together demonstrate that the background of Mosaic legislation fully fits the time of Moses. So it has also become absurd to date Mosaic legislation to any other period in history than to the period in which the Bible represents it to have been instituted.

A recent review of *The Bible Comes Alive* by a prominent religious journal, represented me as claiming to "Overwhelm the principles of historical criticism." I have made no such claim. The principles may even be sound; those who used them broke down in the application of them. The critics of sixty years ago assumed that Man had attained a plane of knowledge where he could apply such principles of criticism to the Bible with assured results. In common with the leading scientists of their generation, the critics entirely overestimated their knowledge. They thought they knew about all there was to be known!! The dazzling discoveries made in all branches of Science in our time now demonstrate the utter absurdity of that idea. No wonder the archæological evidence that has recently come to light is having such a devastating effect upon assured critical conclusions emanating from those who took small account of ancient civilisations, and knew nothing of the alphabetical scripts used by the Hebrews from the days of Moses, now brought to light in the ruins of Lachish.

DISCUSSION.

The CHAIRMAN (General H. BIDDULPH) said: I am sure that I am expressing the feelings of all present, when I say how indebted we are to Sir C. Marston for a lecture which is not only most interesting but most valuable; and in view of his share of collaboration in recent excavation in Palestine, we are indebted to him in a two-fold measure. The old proverb says that a pound of practice is worth a ton of theory, and in the same way a pound of archæological results is worth a ton of speculative criticism. In recent years archæology has been yielding the most important results, not only in places like Jericho, Samaria, etc., in Palestine, but in Egypt and at Ras Shamra, on the mainland opposite Cyprus. Only within

the last few weeks has the tomb of Shishak been discovered, the Pharaoh who plundered Jerusalem and the Temple in the reign of Rehoboam, and you can now look at the gold mask of his mummy case. The discoveries at Lachish are of great importance, and we shall await with interest future developments and evidence furnished by further excavations. Archæological discoveries, while they support the Bible, sometimes compel us to revise our mental atmosphere of the periods in question. We are apt to surround those ancient periods with the mental atmosphere of the age in which we ourselves live, and not with that which prevailed at the time.

Two points only in this lecture will I refer to briefly. (1) The script in which Moses compiled the Pentateuch—was it Sinai-Hebrew script or cuneiform? It is a most interesting subject. Some experts like the late Professor Naville think that it was cuneiform, and would refer to the Tel Amarna tablets; that eminent Assyriologist, the late Colonel Conder, thought the same, basing his argument on variants in proper names in the Pentateuch, due, in his opinion, to alternative transcription from cuneiform, a very strong argument; it is to be found in his book *The First Bible*, published by Blackwood in 1902.* (2) The second point is the connection of the Lachish correspondence with the incident concerning the prophet Uriah, related in the book of Jeremiah. The date, the place, and above all the names, afford strong presumptive evidence to this effect, and I repeat that we shall await with interest any further discoveries. It only remains for me to propose a very hearty vote of thanks to Sir C. Marston and to throw open the meeting to discussion.

Mr. WILLIAM C. EDWARDS said :—Having twice had the privilege of visiting the Holy Land, and seeing with mine own eyes some of the extensive and expensive excavations which have been made possible through the generosity of Sir Charles Marston, I am glad to have this opportunity of publicly thanking him in the name of many fellow believers for the great services which he has rendered to the cause of truth and for the support of those of us who have

* Isaiah viii, 1, shows us that two scripts were in use, which one may term demotic and hieratic respectively.

long been opposing the enemy who, under the guise of "modern thought" has been attacking the Holy Scripture.

Sir Charles Marston said to the sceptics : " I believe the Bible, you do not ; let the spade decide." With God's blessing it has been done and we thank God and you, his servant, Sir Charles, for your generous gifts which have made it possible to win this victory. Years ago hyper-critics decided " as an assured result " that Homer's Troy and all he wrote were mythologies, but the spade of Dr. Schliemann exhumed the buried city of Troy and buried for a time the critics in the excavations. But the critical mania is a brain and heart disease, and seems, humanly speaking incurable.

In the inspiring paper to which we have just listened you have quoted from the 12th Chapter Josephus' Antiquities. May I beg all to re-read that delightful chapter ?

The King Ptolemy Philadelphus, of Egypt, had the ambition to form a great library which should contain all the books to be found in the habitable world. One day he asked his librarian, Demetrius : " How many ten thousands of books have you ? " The librarian replied : " Twenty times ten thousand and soon it will be fifty times ten thousand." And he added : " I am informed that there are many books of law amongst the Jews worthy of the king's library—they are written in a character and dialect of their own and characters which seem to be like the Syrian and that its sound is like them also." The king was greatly interested and this conversation led to the freeing of thousands of Jews then in slavery and his sending an embassy to Jerusalem with gifts, such as a table, a cistern and thirty vials, all of gold, for the express purpose of obtaining the best copies of God's law and all the inspired writings. The high priest chose from each tribe six men of learning who came with the sacred writings to Egypt. Now, I remember, when in Nablus, being shown the ancient Samaritan copy of the Pentateuch ; I saw the wrapping [folding case] opened, exhibiting the ancient rolls just as described by Josephus. Here are his own words : " When they had taken off the covers wherein they were wrapt they showed him the membranes—so the king stood admiring the thinness of those membranes and the exactness of the junctures—exactly my own experience in the Samaritan Synagogue. They had a dinner and Josephus gives us the words of the Grace, the priest

praying that all prosperity might attend the king and those that were his subjects." I suppose most of us have seen the Lachish letters. It has always been a subject of enquiry as to *why* any messages were written upon shards of pottery. Here is a theory of my own: You remember the white stone to the church of Pergamos (Rev. ii, 17). Some think that it referred to the *tessera hospitalis* and that this was divided, and the two parts had to fit like the indentures of the deeds of ancient times or the Charte Partie. The Hebrew idiom for making a covenant seemed to have been "to *cut* a covenant." Well, if some vessels were broken by a person and parts were given to his friend upon which to write, then, *when* a message came if the part sent fitted a part kept, then it was almost certain that the message was genuine—and not a ruse, deception or forgery. We may recall the forgeries to which the Apostle Paul seems to refer (2 Thess. ii, 2); such forgeries were not uncommon in ancient times.

Dr. HART-DAVIES said: We are all agreed that a great debt of gratitude is due to Sir Charles Marston for the pains he has taken, and the very considerable amount of money he has expended, in his archæological researches, which have so marvellously confirmed the historic integrity of the Old Testament Scriptures. This latest discovery at Tel Duweir, revealing as it does the advanced literary ability of the Hebrews not long after the date of the Exodus, is only one of an immense number that could be cited to demonstrate how precarious was the Higher Criticism of the nineteenth century. Sir Charles has referred to the admission that "the critics now all treat the Old Testament with respect." I myself can vouch for a tremendous change of attitude, evidenced by what I experienced in a Bible lecturing tour in Australia in 1935, and a more recent tour in Australia and New Zealand in 1938. But it must not be forgotten that the majority of the clergy and the laity in the various denominations of the Christian Church are still profoundly ignorant of the vast implication of recent archæological discovery. It is patent that the critical edifice associated with the name of Wellhausen has crumbled to the dust. As Professor Sayce once said, "subjective fantasies must give way to the facts of science."

In the closing paragraph of Sir Charles's paper he refers to the

charge made against him that he is claiming "to overwhelm the principles of historical criticism." But can anyone truly say that the theories and suppositions and speculations which constitute most of the make-up of the Higher Criticism associated with the names of Wellhausen and Cheyne and Robertson Smith, can be accurately described as sound principles? Archæology has dug up the facts of history; and in the clear light of those facts it is now seen that these so-called proofs have been as precarious in their nature as they have proved to be pernicious in their results—in a decreasing respect for the Holy Bible as a divine revelation, and a consequent weakening of the moral and spiritual fibre of the nation. For "where there is no vision the people perish."

832ND ORDINARY GENERAL MEETING,
HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, MAY 22ND, 1939, AT
5.0 P.M.

R. E. D. CLARK, ESQ., M.A., PH.D., IN THE CHAIR.

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

The CHAIRMAN then called on Lieut.-Col. L. Merson Davies (late R.A.), M.A., Ph.D., F.R.S.E., F.R.A.I., F.G.S., to read his paper entitled "Man in the Image of God."

The Meeting was then thrown open to discussion in which the following took part: The Rev. W. B. Monahan, Mr. H. S. Shelton, Mr. George Brewer, Mr. E. J. G. Titterington, and the Rev. E. Rose.

MAN IN THE IMAGE OF GOD.

BY LT.-COL. L. M. DAVIES (late R.A.), M.A., Ph.D., F.R.S.E.,
F.R.A.I., F.G.S.

" Il résulte de cet exposé que la théorie de l'évolution est impossible. Au fond, malgré les apparences, personne n'y croit plus."*—Prof. P. Lemoine, *Encyclopédie Française*, vol. V, 1938, p. 5·82–8.

WHEN Charles Darwin first published his ideas in *The Origin of Species*, he thought it advisable, in view of general opinion at the time (1859), to say nothing about the highest species of all—Man. Twelve years later (1871), the increasing popularity of his doctrines encouraged him to pursue the subject to its logical conclusion, and he produced his next most famous work, *The Descent of Man*, in which he claimed to prove that man is descended from a hairy quadruped with pointed ears and a tail. He did not give the animal a name.

Controversy raged over the subject for some considerable time. It divided both the Christian world and the non-Christian one.

* " It follows from this exposition that the theory of evolution is impossible. At bottom, in spite of appearances, nobody believes in it any longer." Quoted in the *C.R. Soc. Géol. France* for April 4th, 1938, and not disputed by any French geologist, it shows how freely evolution is criticised in France to-day.

Thus, although the Christian Church was much more conservative in its views than it is now, it could even then produce its Henry Drummond, who tried to take the sting out of Darwinism by talking of "Natural Law in the Spiritual World," and the "Ascent of Man" instead of his "Descent." Such verbal play, however, merely served as a spiritual anæsthetic. It did not remove, but actually emphasised, the basic fact that belief in the Fall was undermined; and so by implication was belief in the necessity for the Incarnation, Atonement, and Physical Resurrection of our Lord.

On the other hand, the evolutionary edifice did not stand very firmly. Its builders have never agreed as to the essentials for its structure. What some have treated as fundamental, others have thrown out as worthless. And many a naturalist who had little bias in favour of Scripture has ridiculed evolution belief as contrary to facts, and most of the arguments in its support as obviously absurd. As instances, one might quote A. de Quatrefages and H. Fabre. To judge from the former's writings, he had no belief in Bible Inspiration; but as a responsible scientist, objecting to assumptions and special-pleading being substituted for rigorous proofs, his opposition to Darwin was just as definite as that of Darwin's old teacher, the famous geologist Adam Sedgwick (founder of the Sedgwick Museum at Cambridge), who told Darwin that he laughed till his sides ached when reading parts of the latter's *Origin of Species*.* Fabre was equally critical of Darwinian logic; and it seems that the French Academy of Science kept its doors closed to Darwin on the grounds that the two works on which his fame principally rested were not scientific treatises, but mainly the products of imagination.

Nor has the situation changed materially since that generation passed away. Certainly the Christian Church, as a whole, has now decided to take evolution for granted—with the inevitable result that her emphasis on Sin, Judgment, and man's need for Atonement has faded into the background, while a Social Gospel has tended to replace the Gospel of Jesus Christ. Such changes necessarily follow when man is regarded as a risen creature instead of a fallen one. But the scientific case for belief in evolution is still quite as patently unsound as it was when

* Letter dated December 24th, 1859. See *Life and Letters of Charles Darwin*, 1888, vol. II, pp. 247-248.

Darwin propounded his 800 lesser "may-be's" to prove the final "may-be" of evolution—as Owen (who founded the Natural History Museum at South Kensington) sarcastically remarked.* And to-day, just as eighty years ago, evolution is treated much more sceptically in France than in Britain. To most French scientists, evolution theory is only an instrument for research, not a result of research; and they question its validity with a freedom which is apt to shock its devotees on this side of the Channel.

When we take a broad view of the subject, we find that the evolutionist stands on his firmest ground while claiming that man's physical frame is essentially part of the animal kingdom. That claim must be allowed. All the bones in man's body are matched by corresponding bones in the great apes. All his physical properties and processes are similar to theirs. He fits into place, in any systematic classification of living creatures, as being an animal of a particular known phylum, of a particular class within that phylum, of one of the recognised orders of that class, and as clearly located among the known families of that order.

To the evolutionist it seems unthinkable that any being so hedged in among other animals should not be genetically related to those others. But it is when he tries to identify man's actual ancestors that the evolutionist's embarrassment begins, and one finds that he has reached the end of his legitimate tether. Like Darwin, he has to conjure unknown forms to his assistance.

As I remarked in a previous paper (*Trans. Vict. Inst.*, vol. LVIII, 1926, pp. 229–230, fn.), it is much easier to fill gaps in nature than to construct series by filling the gaps. Intermediate forms have an uncomfortable habit of showing their own specialisations. So we can seldom offer even a possible genetic sequence of forms; and (as I showed in the same paper) we could never prove that the most seemingly perfect series was actually genetic.† The evolutionist always walks by faith, not sight.

The difficulty of constructing a possible genetic series is well seen in the case of man, for each group of forms among the

* *North British Review* for July, 1867, p. 313.

† Dr. W. D. Lang, Keeper of Geology at the British Museum (Nat. Hist.), insists that "it is impossible to prove a true lineage, and extremely improbable that we can ever produce anything but an approximation to one." (*Proc. Geol. Assoc.*, vol. XII, 1930, p. 178.) All fossil genealogies, without exception, are unproved and unprovable.

primates—the order to which man belongs—is aberrant with respect to its neighbours in the taxonomic list. Thus, the anthropoid apes, who stand nearest to man on that list, are much too specialised to link him to the monkeys who stand lower down. This is shown in many ways. Like man, the anthropoids have no tail, but possess a coccyx, sometimes referred to as a “hidden tail.” Actually, the coccyx has nothing to do with a tail, all its functions being internal right to the tip of its last segment, to which the *sphincter ani* muscle is attached. But in any case, the ape’s coccyx is smaller than man’s; so if it is the relic of anything larger, it is easier to regard the apes as man’s descendants than as his ancestors. Similarly the hand of a man, with its large thumb, is more primitive in pattern than the typical manus of the ape, which is specialised as a grasping hook, with the thumb reduced to relative insignificance. The foot of a man and the foot of an ape contain similar elements, but they are specialised in opposite directions; and it is the human foot which emphasises the primitive disposition of the plantar surface, the foot of the apes representing an entirely aberrant specialisation. It is significant that this ape specialisation is never seen in any stage of the development of the human foot, and it is inconceivable that man’s ancestors could ever have possessed the ape structure. Much more evidence could be quoted to the same effect, and H. F. Osborn has well declared that the anthropoid apes are “totally disconnected from the human family from its earliest infancy.” (*Evol. & Religion in Education*, 1926, p. 136.)

When we turn to the monkeys, who stand lower in the list, we find them equally specialised out of series. Man, like the lowest primates (lemurs, etc.), has considerable sense of smell. In his skull, as in theirs, the ethmoid bone is large, and directly connected with the sphenoid bone. But monkeys have practically no sense of smell, and in their skulls the ethmoid bone is very reduced in size and completely surrounded by the frontal bones. It is clear that man’s ancestors never travelled by that route.

Nor do the characters of primitive human races approximate them to the apes, as evolution doctrine requires. The thick lips and woolly hair of the negro point directly away from the thin lips and straight hair of the ape; and if the prognathism of the negro recalls the muzzle of the lower primates, the essentially

human poise of the negro's head (balanced on top of the spinal column, instead of being slung downwards from it as in the apes) is secured by an increase in the essentially human protrusion of the occiput. Thus, if the negro's skull looks less human than ours in front, it looks more human behind; the net result being an equally human relationship to the spine. Indeed, the essential humanity of primitive peoples is often very striking. The most perfect picture of human grace of carriage, poise and motion that I myself ever saw, was exhibited by a string of almost naked Masai warriors going out on patrol.

Similar anomalies meet us when we examine the remains of fossil men of apparently degraded types. Neanderthal man had large supra-orbital ridges; but his palate and teeth were ultra-human, and his brain was larger than that of most men of to-day. Nor did he antedate the modern type of man, whose remains have been found in much earlier deposits.

It was after examining one of the best preserved Neanderthal skeletons that the eminent anthropologist, Prof. Marcelin Boule, concluded that man can have "been derived neither from the Anthropoid stem, nor from any other known group, but from a very ancient Primate stock that separated from the main line even before the giving off of the Lemuroids." ("L'Homme fossile de la Chapelle-aux-Saints," *Ann. de Paléontologie*, 1912.) Now the earliest known fossil primates are lemuroids, so this "very ancient" stock is purely imaginary; and since man admittedly comes from *no known* group, we see that the whole genealogy of man is a figment of the brain from start to finish.

How true to facts the Bible is! It clearly indicates this very situation. For Scripture nowhere denies "Man's Place in Nature," as claimed by Huxley. On the contrary, Solomon declares without hesitation that, as to his visible parts, man is simply an animal (Eccl. iii, 18-21). Physically and physiologically "the sons of men . . . themselves are beasts" and "a man hath no preeminence above a beast." Solomon actually prayed God to make men realise this fact.

And yet Scripture never admits man's derivation from other creatures. It draws the line just where we find it drawn in nature. I often ask those who profess to see evolution in Genesis how they square the origin of Eve with descent, and they never reply. The reason is obvious. Reconciliation is impossible. Hugh Capron admitted this, and while pleading for belief in the evolu-

tion of man, allowed of special creation for woman!* But Adam's origin is also incompatible with evolution, since Scripture indicates that he had nostrils before he had life (Gen. ii, 7).† All naturally-born men, as embryos, possess life before their nostrils develop; and their earliest (invertebrate and lower vertebrate) supposed ancestors, on the evolution theory, must also have possessed life long before the first creatures with nostrils appeared. Thus, by saying that Adam's life entered via his *nostrils*, Scripture very neatly denies his evolution.

In short, the Bible insists that man was specially created; but it nowhere implies that he was created upon special principles—so far, at least, as his physical frame is concerned. He is indeed the chief of the beasts, but—as to his visible parts—he is none the less one of them.

What, then, we may well ask, constitutes man's distinction from the rest of the animal world? For Scripture everywhere implies the existence of this distinction, even Solomon indicating a difference between the invisible elements of man and other creatures. In order to understand the Bible view of man's nature, let us begin with the account of his introduction, for it is found to be most significant.

In Gen. i, 26, we find a solemn conference recorded, the first of its kind in Scripture, of God with God, in the words: "Let Us make man in Our image, after Our likeness." Note the wording of this passage, for the nouns are in the singular, while the pronouns are in the plural. Surely, this plurality, which is to be typified in unity, seems distinctly to imply something very like the doctrine of the Three-in-One God Who is revealed to us in the New Testament, and in Whose image man must exist if Scripture be true? It is not normal, in the Old Testament, for the Godhead to use plural pronouns with reference to Himself; and as Skinner says regarding this verse: "The difficulty of the first person plural has always been felt." (*Crit. and Exeget. Comm. on Gen.*, p. 30.) The appearance of plural

* *The Conflict of Truth*, 9th ed., p. 288.

† Capron saw this difficulty. His attempt (*ibid.*, p. 282) to dismiss it was ridiculous. Because evidence that a child never breathed is legally taken to prove that it was born dead, Capron argued that a child is not alive until it breathes! On the contrary, it could not breathe unless *previously* alive; and unless alive from the first, it would never develop a single stage beyond the initial cell. Good men commit strange mistakes when trying to square Scripture with what Darwin himself called "the devil's gospel." (Letter to Huxley dated August 8th, 1860; vide *Life and Letters*, vol. III, p. 331.)

pronouns here is indeed very striking, and their connection with the origin of man seems clearly to imply man's distinctive resemblances to the *several Persons* of the Trinity.

Let us remember that the Old Testament offers other indications of the Trinity; for it not only refers to Jehovah Himself, but also to the Spirit of Jehovah, and to the Angel (or Messenger) of Jehovah—"Malak Yahweh." This Messenger both speaks and requires worship as Jehovah, which other angels do not (Ex. iii, 2-6; Josh. v, 13-vi, 5; cf. Dan. ix, 21; Rev. xix, 10; etc.). That the Godhead includes an Anointed Son is also indicated in the Old Testament, as I have shown elsewhere (*Trans. Vict. Inst.*, vol. LXV, 1929, pp. 216-217); and since the New Testament calls the Son the "Word" of God, a title which would well suit the Messenger, it seems reasonable to identify the Messenger with the Son.

In any case, the New Testament shows that the God of the Bible is a Trinity comprising the Father or Creator, the Son or Word through Whom He created all things, and the Spirit by Whom He created them. (That the Son was the medium of creation we find in John i, 3; Heb. i, 2-3; etc. Yet the Spirit seems to have been the immediate agent in creation, *vide* Gen. i, 2; Ps. civ, 30; etc.) It is in the image of these three Persons, then, that man is declared by Scripture to have been created; he *as contrasted with other creatures* should show peculiar resemblance to the Father or Creator, the Son or Word, and the Holy Spirit. In other words, it seems that man should be distinguished by his intelligent creative powers, his powers of speech, and his spiritual powers.

This induction from the account of man's creation, in the light of what we are told about God Himself, appears to be not only legitimate (if not inevitable), but also consistent with the rest of Scripture, being confirmed by repeated implications found in both Old Testament and New. Thus, the *understanding* of man is represented as distinguishing him from other creatures (Ps. xxxii, 9), just as divine "Wisdom" characterised Jehovah of old (Prov. viii, 22-30); and the loss of his human understanding reduced even Nebuchadnezzar to the condition of the beasts of the field (Dan. iv, 16, 25, 32-36). Turn, also, to the story of Balaam's ass (Num. xxii, 22-33): it is often ridiculed, but do scoffers at what the ancient writer says appreciate what he *omits* to say? For the ass is represented as seeing the Angel of the

Lord, and as being terrified by what she saw ; yet, even after power of speech is (miraculously) given to her, she seems unable to describe the cause of her fears. By no term conveying a theological or spiritual concept does the ass "appreciate" the situation or explain why she cannot proceed. Something terrible is before her very eyes, but she cannot describe it. She can only plead her own past obedience to show that she is not acting wantonly now. Why is this ? If the story was an invention, why did the writer refrain from making the ass utilise the dramatic opportunity which offered itself when power of speech was given to her ? Why did he attribute strangely indirect questions to her, instead of an impassioned description of what she saw ? Surely, the reticence of the writer bears witness both to the truth of his account and to the consistency of Scripture ; for the story indicates that even if one human characteristic—that of true speech—be given to a brute, it only serves to reveal the absence of another human characteristic—spiritual comprehension.* No human being, however degraded, would have failed to refer to the vision itself by using some term implying a supernatural concept. Whether he called it an angel, god, ghost or dæmon, he would inevitably have found means of indicating that he was opposed by a supernatural being. But that, apparently, was just what the ass could not do *even when speech was given to her.*

Space is limited, so I will only offer one more illustration, and turn to Rev. xiii. We there find what appears to be a dreadful parody of the Christian Godhead. A great red "Dragon," who is identified with the serpent of Eden (ch. xii, 3, 9), seems to represent the first person of a terrible Satanic trinity. This Dragon gives his power, seat and authority to a "Beast," just as our Heavenly Father gives His power to the Son (Matt. xxviii, 18 ; Luke xxii, 69 ; etc.) ; and the Beast also corresponds to the Son by rising from the dead (Rev. xiii, 3 ; xvii, 8-11), and by being the spokesman or "word" of the false trinity (xiii, 5-6). He is also the warrior personality of that trinity (verse 4), just as our Lord is the Warrior Personality of the Holy Trinity (Rev.

* The only other beast that Scripture represents as speaking is the serpent in Eden, whose words show full spiritual comprehension. But the speaker there is Satan, who is identified with the serpent. Whether the Devil took the shape of a serpent, or entered into one and used it as a medium, the words are clearly his, not those of the beast. In the case of Balaam's ass, the animal speaks for itself, and the different *quality* of its speech is most marked.

xix, 11-21 ; cf. Josh. v, 14-15). The third person of the Satanic trinity is a " False Prophet " (Rev. xiii, 11-17) who makes all men worship the Beast, whose deadly wound was healed, just as the Holy Spirit (sometimes called the " Spirit of *Prophecy*"--cf. Rev. xix, 10 ; 2 Pet. i, 21 ; Luke xxiv, 25-27 ; etc.) leads us to worship the Risen Christ (John xv. 26 ; xvi, 7-14 ; 1 Cor. xii, 3 ; etc.).

Whatever the full meaning of this remarkable passage may be, its intention to represent a sacrilegious counterfeit of the Bible Godhead seems unmistakable. Nor is the parody limited to offering counterparts of the Three Persons of the Holy Trinity ; it also offers a counterpart of the creation of man made in the image of the Holy Trinity. For an image is made of the second person of the false trinity, and the third person of that trinity endows this image with life (Rev. xiii, 14-15). What is more, the nature of the life given to this parody man—made in the image of the parody trinity—is equally significant ; for it is not merely vegetative life, or even simply conscious life, but life which exhibits the three distinctive characteristics of man exactly as we have inferred them from other Scriptures, since this parody man both *speaks* and *causes* all who refuse to *worship* it to be put to death. So here again, while details of physical form are ignored, we find particular emphasis laid upon powers of articulate *speech*, powers of intelligent *causation*, and sense of spiritual *worship*.

This cannot be accidental. Though not explicitly stated in so many words, the picture of man in the image of God being forced to worship his own parody in the image of a false trinity is too detailed either to be mistaken or due to coincidence. It is also consistent that those who give this worship are represented as committing an unforgivable offence (Rev. xvi, 2 ; xix, 20), for it obviously reflects upon God Himself when His image bows to the image of another. (This is probably why all image worship is so strictly forbidden in Scripture. Man himself is the supreme image. Ex. xx, 4-5 prohibits the worship of graven images even of the true God. Such worship places man's handiwork before God's. Being what Scripture indicates—an image of God *by* God—man, despite his fallen condition, must worship God direct.)

From the nature, then, of the Holy Trinity in Whose image man was made, from the deficiencies of the brute creation as

compared with man, and from the very qualities of man's parody, Scripture makes it clear that man's peculiar characteristics are to be found in his intelligent *creative* powers, his powers of reasoned *speech*, and his *spiritual* powers.

These are rather remarkable facts, for if we turn to see how they correspond with the data of science, we find them confirmed in a very striking fashion. However little a scientist may know or care about Scripture, however eager he may even be to discredit it, he is compelled to bear witness to its truth here. Whenever we find definitely shaped tools,* traces of communications, or symbols of worship, they are at once referred to man, and man alone.

Perhaps the most significant feature about this is that the evidence is so decisive, even though purely circumstantial. For the actual remains of a creature may arouse doubts as to its status. The Java calvarium is large; the Heidelberg jaw has no chin. Yet even if we see nothing of the makers themselves, such objects as a prepared flint instrument, or dots and scratches suggesting an early code, or lumps of battered clay so associated with the bones of an animal as to imply the mystic rites of primitive hunters, are at once regarded as indicating the existence of men. The ascendancy of *circumstantial* evidence, in this connection, is very noticeable. The bones of the men themselves could not testify more clearly than their works do, as to their human status; and their humanity is always evinced along the three main lines of their *reasoned creative* powers,† their powers of improvising *communication*, and their strange energies (often intrinsically worthless) which testify their *belief in the supernatural*.

Let us then sum up:

- 1.—(a) According to Scripture, man was produced by special creation; and

* The significance of a shaped tool lies in the fact that it implies an involved mental process which is essentially human. An elephant will tear off the branch of a tree to use it as a club; an ape will throw stones, or even use a stick as a lever; but the instrument is used as it stands. Man alone seems capable of shaping an instrument; *i.e.*, putting work of one kind into it, with a view to using it for work of another kind.

† Among the creative works, of course, one reckons not only tools, but all other evidences of culture such as clothes, pottery, musical instruments, etc. Articulate speech, however, suggests a different basic principle; and so does evidence of religious (or superstitious, if degraded) concepts and rites.

- (b) Science shows that his form is not derivable from any other. Nevertheless
- 2.—(a) Scripture asserts man's essential identity, physical and physiological, with the beasts; and
- (b) Science can find no physical difference *in kind* between men and beasts. Yet
- 3.—(a) Scripture teaches that man alone is formed in the image of the Triune God—Creator, Word and Spirit—and repeatedly emphasises man's uniqueness in possessing Reason, Speech and Spiritual attributes; and
- (b) Science recognises the presence of man, even more certainly than by his bones, by his *works* evidencing those same three characters, which are uniquely human.

Thus the concordance between Scripture and science is both intricate and complete; and the question arises as to how this is to be explained. The whole history of other accounts of man's origin shows that the Bible account stands by itself. Man, by the light of nature, either tries to emphasise his *physical* distinction from the beasts, claiming differences in kind which cannot be shown to exist, or he goes to the opposite extreme and claims a genetic affinity with them which also cannot be shown to exist. It is strange that Scripture should have steered a middle course between these two most common errors! The mythologies and pagan theologies of man also show how far he has been from spontaneously conceiving of a Trinity like that of the Bible, or of himself as being formed in the image of such a Trinity. Lower creatures are frequently made to speak, etc., in ancient mythologies, without any suggestion of supernatural intervention being required to make them do so; no attempt is made to emphasise man's singularity in the respects recognised by the Bible and modern science.

Remember, too, that the Scriptural doctrine is integral to the completed Bible rather than explicit in any one part of it. The writer of the story of Balaam's ass makes no comments upon the ass's speech, although its limitations so exactly suit the implications of Gen. i, 26 in the light of the New Testament; nor does the writer of Rev. xiii comment upon the significance of the details given regarding man's parody. Since the Bible was written by many men, separated widely in time and circumstances, the way

in which their statements interlock, and finally by their union afford the most striking conformities to science, shows that there can only be one explanation of the whole. Nothing can account for the facts but the validity of the writers' own claim, that they wrote under the influence of one and the same Spirit; the Spirit of the God of Truth, Who knows the end from the beginning.

Believers in Scripture have the strongest warrant for accepting its literal Inspiration by God; and man himself, even in his most degraded states, witnesses, by his own threefold distinctions from other creatures, to the appropriateness of the ancient statement that he was made in the image of the Triune God—Creator, Word and Spirit.

DISCUSSION.

The CHAIRMAN (Dr. R. E. D. CLARK) said: There are many things about this stimulating lecture which must have impressed us all, not least the manner of its delivery. Speaking for myself, I find that an attempt to read, word for word, anything that I have written reduces me to a state where words cease to have meaning! But with Col. Davies it is clearly otherwise. I am sure we shall long remember the vigour and charm of his delivery.

To turn to the substance of the lecture, Col. Davies has alluded to so many things, that it is hard for me to know where to begin. Let it be evolution!

I had better say at once that the orthodox evolutionist would not regard some of the lecturer's remarks as fair. No one to-day supposes that the apes and monkeys are missing links between man and beast, but only that both man and ape have been derived from the same unspecialised species. This makes much of what Col. Davies has said beside the point, for there is no reason why ancient intermediate forms should be alive to-day. However, I agree with Col. Davies that evolutionists work by faith and not by sight and I am sure that all the bad arguments used on one side of this controversy can be paralleled by an equal number on the other. Here, for instance, is the kind of argument which an eminent biologist seems to find convincing: "The smell cells in the nose... are definitely fishy and will only work if they are immersed in water; so we find in an out-of-the-way corner of the cavity of the nose, a special set of little glands, evolved when the vertebrates came on

to dry land, whose business it is to secrete a film of moisture over the smell cells—a tiny vestigial sea for them to work in" (Wells, Huxley and Wells, *The Science of Life*, p. 726). Now anyone with even an elementary knowledge of chemistry knows that reactions do not occur save in liquids—except at an incredibly small speed. The reason why the sense of smell is connected with liquid is chemical—there is no need to appeal to evolution!

To turn to more serious topics, I should like at this point to refer to two important papers which have a close bearing upon the evolutionary controversy. The first is that of A. S. Barnes (*American Anthropologist*, 1939, **41**, 99), who has made a very careful study of the eoliths or supposed simple flint instruments which are often supposed to have been made by a race of primitive peoples. It appears as a result of a careful statistical analysis of the shapes of the stones, with which I have no time to deal, that the eoliths are no longer to be regarded as the work of intelligence, but were produced by the action of natural forces. It is curious that this view of their origin should once again be accepted after so many years of controversy. Let us hope that popular books on evolution will no longer find cause to mention them.

Col. Davies has based much of his argument upon the so-called Dollo's Law—the law that in evolution species start off unspecialised and only become specialised in the course of time. As apes and men are not, in any case, descended the one from the other, I cannot agree with the lecturer's argument based upon this law. But the law has nevertheless a very important bearing on the evolutionary question. A paper on this subject had recently been published by J. Needham (*Biological Reviews*, 1938, **13**, 225), who has collected scores of instances of its workings from the whole realm of biology. He compares it to the law of entropy in physics—the law that disorder increases in every physical change. In the same way each biological organism starts off with an immense complexity—invisible perhaps, in anatomical structure, but present at least genetically. Then, if it finds itself in a constant environment, many of the complex potentialities become unnecessary and drop off as a result of mutation, as one generation succeeds another. Finally, there results a highly specialised form which is ideally adapted to a particular environment but is at once doomed to extinction if that environment

changes. As Luoff puts it: "The physiological evolution of organisms proceeds by a successive loss of functions. This loss of functions is irreversible."

It certainly looks as if, when its significance is appreciated, Dollo's law will undermine the basis of the confident faith in constructive evolution which is still so prevalent—the faith that real rises in complexity are possible in biological evolution.

But enough of this! Col. Davies has put forward an ingenious and interesting suggestion as to the meaning of the Biblical saying that God made man in his own image. Is his theory correct?

The word "image," if taken literally, would seem to refer to shape. But God is a spirit, and has a spirit shape? Frankly, I do not know. But if some of the materialisations recorded by psychical researchers are genuine, a spirit may well have shape without matter. Moreover, shape is certainly connected with mind and mind is not necessarily connected with matter—as seems to be shown by the apparitions of those in danger who are sometimes seen by their loved ones at great distances away. These are mysterious topics about which we know little, yet I think we should do well to ask whether the passage in question may not, just possibly, mean quite literally what it says—that man was made in the shape of God. But I say this with much hesitation, scarcely knowing what to think.

In his paper Col. Davies has not discussed this possibility at all, but he has suggested that the word "image" stands for behaviour and mental likeness and that this should be applied to all the Persons of the Trinity severally.

Without wishing to be destructive, I feel that we have so little knowledge of these relations of the Persons of the Trinity to one another that his interpretation is a little unconvincing. For instance, it would surely be easy to quote many passages from the Bible which suggest that the Son has creative faculty—indeed, is He not spoken of as Wisdom? This being so, why should the Fatherhood of God have its image or likeness in *our* intelligence, while the Sonship is seen in our speech? These are deep matters and I do not think we have nearly enough information to solve them with any certainty, though I hope Col. Davies may be able to answer the objection to which I have alluded.

Now let us see how we stand. If we decide that the "image" is not literal and if we cannot accept the details of Col. Davies' rather complex scheme, is there yet any sense in which man was made in the image of God? Indeed there is. Man's creative faculties have undoubtedly been fashioned after those of God. We see again and again in the realm of nature that man can think God's thoughts after him—can understand His universe in some measure at least and often design his machines in ways which have been used by God in nature. This suggests, very strongly, that our own thinking powers are made after the likeness of those of God. But perhaps, as a result of this afternoon's lecture and discussion, we shall find out how much farther than this it is permissible to go.

Mr. H. S. SHELTON began by saying that he would not criticise the lecturer's theology, but would confine his remarks to the science. He wished, however, to protest against the mixing of the two. Col. Davies was a geologist of standing, and his opinions on scientific matters deserved a respectful hearing. He implied rather than said directly that he believed neither in organic evolution in general, nor in the descent of man from other forms of life in particular. In that opinion he was in a small minority among competent men of science. It was very unwise to introduce his opinions on this matter into the present paper, and so give the impression that the truths of Christianity were in any way bound up with whether or not man was descended from other forms of life.

Mr. Shelton went on to criticise Col. Davies' reasons for implying that man was specially created. If man and the apes were descended from a common ancestor, it was not to be expected that the apes would remain unchanged. This was an example of divergent evolution. The same remarks applied to other forms of life more distantly related. Professor Boule's opinion that man branched off from the Primate stock before the existence of the Lemuroids was his own, and was not generally accepted.

Nor was it reasonable to ask for a truly genetic series. The geologic record was very imperfect, and especially so with the primates, and it was to be expected that the best series would be only approximate. Those who asked for truly genetic series would do well to try to make one out for the dogs, and show exactly where the pekinese,

the greyhound, the mastiff and the spaniel branched off from the main stem. If it could not be done in a comparatively easy case such as this, it was not to be expected that it would be possible in more difficult cases.

Neither Pithecanthropus nor Neanderthal man could be the ancestor of Homo sapiens, as both were too late in the time scale; but forms such as this gave to those who held that man was a special creation the somewhat difficult task of saying which forms were men and which were apes. Neanderthal man was big brained, but was usually classed as a different species. Piltdown man, was somewhat nearer the Homo sapiens type, though both skull and jaw showed simian traits. Pekin man had a very small brain, but the skeletons were associated with implements, which unfortunately had not so far been correlated with the European series. Pithecanthropus had not up to the present been found associated with implements, but it had attained the upright stature, and its brain was nearly as human as that of Pekin man, and very little smaller. If man were a special creation, it was necessary to draw the line somewhere, and those who attempted to draw a hard-and-fast line were confronted with a problem that was by no means easy.

The Rev. ERNEST ROSE said: May I add to that which the Lecturer has suggested concerning the "resemblance" of man to the Tri-unity of the Godhead that—As the Father is the source of *Love* displayed toward the Eternal Son ("Thou lovedst me before the foundation of the world," St. John xvii, 24) and as the Son is the Word or *Speech* of the Father ("No man hath seen God at any time, the only begotten Son, which is in the bosom of the Father, He hath *declared* Him," St. John i, 18, or "told Him out") and as the Holy Spirit is the *mind* of Deity ("He that searcheth the hearts knoweth what is the *mind* of the Spirit," Rom. viii, 27, *cp.* also 1 Cor. ii, 11). So *Love* and *Speech* (as powers of communication and communion) and *Mind* (as power to know) these three in man may be the reflection of the true "Image of God" in which man was originally made.

The Rev. W. B. MONAHAN said: I used the concluding words of the paper for my text. Dr. Davies said: "Believers in Scripture

have the strongest warrant for accepting its literal inspiration by God.”

I agreed with nearly every word of the paper; and especially did I feel moved by the happy application of various Scriptures to the thesis of “Man in God’s Image.” Also I was much struck with the reverence shown by the Society for the Holy Scriptures.

After much mental tribulation I was obliged to abandon various theories of inspiration in favour of the literal, which does by no means exclude the various senses outlined by St. Thomas. I pin my faith to the statement that: “All Scripture is given by inspiration of God.” Therefore God is the Author of the Scriptures.

Deprecating the application to Scripture to dogma and to the Church any theory of a biological Evolution, I pleaded that Evolution in the sense of an unfolding could be applied to the Bible as well as to matters of faith and to the Church. Such Evolution requires an Evolver; but it first of all requires an Originator. There can be no Evolution without an Originator—the Creator.

The first chapter of Genesis supplies instances of some sort of Evolution, but not of Man’s evolution, and it gives instances of distinct and undeniable acts of creation.

Three jumps are indicated which could only be done by the Creator. Three epochal acts are the Creation of Matter, the Creation of Life, and the Creation of the Intellectual Soul of Man. I underlined, in full and delighted agreement, Dr. Davies’ statement that by saying that Adam’s life entered via his nostrils Scripture very neatly denies his evolution—showing that Adam had nostrils before he had life, contrary to the natural order.

Indicating that there is some sort of evolution by way of development which can be applied to the Bible, I quoted in full Butler’s Analogy II, iii, 21. No doubt it refers to growth in the consciousness and expression of Christian doctrine. Butler’s words are: “As it is owned that the whole scheme of Scripture is not yet understood, so if it ever comes to be understood it must be in the same way as natural knowledge is come at; by the continuance and progress of learning and of liberty, and by particular persons attending to, comparing, and pursuing intimations scattered up and down it, which are overlooked and disregarded by the generality of the world. Nor is it at all incredible that a book, which has been so

long in the possession of mankind, should contain many truths as yet undiscovered, for all the same phenomena, and the same faculties of investigation, from which such great discoveries in natural knowledge have been made were equally in the possession of mankind several years before. And possibly it might be intended that events as they came to pass should open and ascertain the meaning of several parts of Scripture."

There you have an evolution by way of explication, elucidation and understanding : and a reverent looking to events to unfold some hidden Scripture meanings.

As instances of such an evolution explanatory of some revealed dogma or truth I instanced the dogma of the Blessed Trinity which, foreshadowed and implied in Scripture, yet was not defined until Nicea nearly 300 years after Pentecost. . . . Newman summed up the principle of evolution or development as applied to dogma in a very happy phrase to the effect that religious belief in " new relations and under new forms changes with them in order to remain the same." One of Newman's great merits was the substitution for the mechanical idea of a tradition deposited in written documents the organic notion of an ever-living tradition. . . . The same sort of evolution can be held of the growth of the Church. There are two notions of the Church which stand in some sort of antithesis to each other : one regards the Church as a sort of fixed and mechanical organisation, the other regards the Church as a living organism. A living organism has the power of growth and it is in accord with St. Paul's image of the Church as a human body in which there is a mingling of change and permanence. . . . It is with great diffidence that I submit these considerations to the Society : there is something less certain and satisfying about them than the substance of the admirable paper of Dr. Davies.

Nevertheless, I feel the wonder and the great mystery and the vast future of that Body of Christ for the building up of which He ascended on high that He might fill all things : for which He gave the Ministry of apostles, prophets, evangelists, pastors and teachers, " till we all come in the unity of the faith and of the knowledge of the Son of God unto a perfect man unto the measure of the stature of the fulness of Christ."

Mr. GEORGE BREWER said: The truth as revealed in Gen. i, 26, 27, that man was created in the image of God, and after His likeness, and in Psalm viii, 5, as "a little lower than the angels" completely disproves the theory that man has ascended by evolution to a position a little higher than the ape.

In 1 Cor. xv, 39, we are told that "All flesh is not the same flesh: but there is one kind of flesh of men, another flesh of beasts, another of fishes, and another of birds."

The similarity of structure of man and some of the lower animals shows, not that his physical form is derivable from the beasts, but the design and power of the same beneficent Creator.

As Col. Davies has pointed out, Scripture teaches that man alone is created in the Image of the Triune God—Creator, Word and Spirit—possessing reason, speech and spiritual attributes, and that Science recognises him more by these characteristics, which are lacking in the lower animals, than by his bones.

The Trinity of Father, Son and Holy Spirit, revealed in God's Word, is reflected in Man, by his nature, person and personality, as shown by Mr. Nathan Wood in his *Secret of the Universe*.

Man, with a body of space, matter and time, has also a mind reflecting in its finite capacity some of the infinite characteristics of the Triune Deity, as revealed in the Scriptures.

Thus the Omnipresence and Omniscience of God are reflected in the power of the human mind of transporting itself, either by memory or anticipation, to the ends of the earth, time and space affording no obstacle, the mind instinctively seeing, thinking and feeling, regardless of bodily presence, in the place of its imagination.

Then God's Omnipotence is reflected in the limited power of the human to overcome obstacles, sometimes achieving what would appear to be impossible, and turning hindrances into means of accomplishing desired ends.

The Holiness of God is also reflected in the conscience of man, who though sinful by nature is instinctively conscious of what is right and what is wrong, and realises the importance of regulating conduct accordingly.

Thus the Holy Scriptures and Science agree, leaving no room for the speculative theories of evolutionists.

Mr. E. J. G. TITTERINGTON said : I am sure none of us can have listened this afternoon to Col. Davies without a deep sensibility of the importance of the theme he has brought before us, and of the cogency of the arguments by which it has been supported. It is not a mere question of scientific hypothesis or speculation, but, as the lecturer has pointed out on page 171, is intimately and vitally connected with the fundamentals of the Christian faith—sin and judgment, the Fall and the Atonement. Is it too much to express a hope that at some future date this aspect of the subject may be followed further—either by the present lecturer or some other ?

One cannot fail, in reading the narrative of the earlier chapters of Genesis, to remark with what insistent emphasis attention is drawn to man's supremacy in the natural creation. May I mention three points in this connection :—

1. The use of the term **בָּרָא** (*bara*) in Gen. i, 27. This word only occurs, as has been pointed out at gatherings of this Institute on various past occasions, to mark a fresh advance or initial step of a new order, including the creation of matter (v. 1), of animal life (v. 21) and of man (v. 27) ; though curiously it is not used, where we might have expected it, in connection with vegetable life. The precise significance of this I must leave to Hebrew scholars to determine, for I am none ; but it is at least suggestive as seeming to imply that as distinct a new stage is reached in the creation of man as in that of the lower animals, or even of matter itself.

2. Secondly, there appears to me a deep significance in Gen. ii, 18-20 : "And the Lord God said, it is not good that the man should be alone : I will make him an help meet for him. And out of the ground the Lord God formed every beast of the field, and every fowl of the air ; and brought them unto Adam to see what he would call them ; and whatsoever Adam called any living creature, that was the name thereof. And Adam gave names to all cattle, and to the fowl of the air, and to every beast of the field ; but for Adam there was not found an help meet for him." There are several points in this short passage inviting attention ; but we may note (*a*) the emphasis on the origin of the brute creation "out of the ground," (*b*) the observation and critical deduction implied in Adam's naming of the animals, and, most important, (*c*) the Creator's purpose in thus bringing the animals to Adam, in that he might realise that

here was to be found "not an help meet for him"—not one with whom he could have affinity.

3. In contradistinction to this, we have the passage in ch. iii, and ff. ("they heard the voice of the Lord God walking in the garden in the cool of the day," etc.) which suggests that there was habitual fellowship between man and his Creator; or even if this is not conceded, at least the possibility of such fellowship existing. In other words, whilst Adam's affinity was not with the lower creation, he had an affinity with the One Who created him. In a still fuller sense the Apostle writes of those who have believed in Christ, "truly our fellowship is with the Father, and with His Son Jesus Christ" (I John i, 3).

AUTHOR'S REPLY.

I am glad that the Chairman liked my manner of reading the paper, but wish that he had paid more attention to its contents. He says that I never discussed the possibility of man having been made in the "shape" of God. If by "shape" Dr. Clark means physical form, this was the very first possibility which I did discuss. I showed (page 174) that, as to his visible parts, Scripture calls man a "beast"; so physical resemblance is out of the question. I am glad that Dr. Clark finally realised that man's creative faculties are in the image of God; perhaps he will presently realise that man's powers of *speech* and *spiritual* powers are also in that image.

Dr. Clark suggests that I never considered whether the Son has "creative faculty"; yet I gave specific references (page 176) showing that both Son and Spirit shared in creation. The Triune God cannot be absolutely divided. Both the Son and the Father are Spirit; both the Father and the Spirit communicate. (Remember how the Father gave the Words to the Son, and the Spirit recalled those Words to the disciples—John xvii, 8; xiv, 26; etc.) Nevertheless, the Trinity is revealed as Father, Word and Spirit.

As to evolution, the Chairman contradicts himself. In one breath he calls me "unfair" to orthodox evolutionists for ignoring their idea that men and apes had common origin in an "unspecialised species" (though I emphasised that idea, in its fullest form, by quoting Professor Boule!), and in the next breath he accuses myself

of supposing "that in evolution species start off unspecialised." He calls this depending upon "Dollo's law"; if so, orthodox evolutionists do it. For myself, I never even mentioned Dollo. I appealed to the elementary fact that—Dollo or no Dollo—specialised forms cannot be placed in genetic series *between* unspecialised ones. The Chairman himself admits that specialised forms do not become unspecialised but extinct.

Dr. Clark is not a palæontologist, and apparently does not realise that fossil primates fall into the same categories as living ones, or he could never so light-heartedly assert that: "No one to-day supposes that the apes and monkeys are missing (*sic*) links between man and beast" (I wonder what he calls "beast"?). If this were true, then everyone would agree with Professor Boule; but people like Mr. Shelton do not.

Dr. Clark shows a flash of good sense in criticising Wells; but the point hardly affects the general case for evolution. His reference to Needham simply repeats what Bateson and others said before (just as Breuil and others long ago proved the same facts about eoliths as Barnes proves to-day, and just as Herbert Spencer and others said the same thing as Dollo—who seems to have so impressed Dr. Clark). When the Chairman has studied the subject further, he will probably see more of the wood and less of individual trees.

Mr. H. S. Shelton (who couches his remarks in the third person) says that he will not criticise my "theology," but wishes to protest against my questioning evolution because this mixes "science" with theology. He obviously expects me, when considering "Man in the Image of God," to accept without question the theory which asserts that the first men appeared in the image of missing links. Had I done so, there would doubtless have been little difference between Mr. Shelton's theology and my own. Evolution automatically substitutes "New" theology for "Old."

Since, however, I demand actual proofs of evolution, Mr. Shelton calls me "unreasonable," explains that the evidence has been lost, and demands to be shown, in return, "truly genetic series" between various breeds of dogs. But why should I produce such series? Scripture does not require them. On the contrary, certain dogs may have been separately created, just as certain "lice" were (Ex. viii, 16-19). But if Mr. Shelton himself cannot produce truly

genetic series, even where creatures all belong to the same physiological species, what business has he to treat a connection between men and apes as proved? On his own showing, "it is not to be expected that it would be possible" to prove that connection.

Mr. Shelton still, however, falls back upon theory—and so long as he treats it as theory I have no objection. After admitting that all the known degraded types of fossil men appear too late to serve as ancestors of normal men, he refers to the difficulty of "drawing a hard-and-fast line" between possible fragments which might be referred either to men or to apes. This difficulty is fully recognised in my paper, which shows (page 179) that *circumstantial* evidence—indicating man's resemblance to the Trinity—is always more decisive than details of bodily form.

I am glad that the other speakers seem to appreciate this fact; but I note that the Rev. E. Rose suggests that man's capacity for love may indicate his resemblance to the Father, and his mind represent his resemblance to the Spirit. I believe, however, that this suggestion was an impromptu one, and I think Dr. Rose will realise on reflection that it would hardly agree with Scripture as a whole. Mind is not the same thing as spirit, even though the Spirit Himself has mind. The words of Balaam's ass show that she had *mental* processes, though she had no conception of *spirit*. And the love of the Son, Who gave His life for us, is stressed throughout the New Testament. What is more, we know that love is not a peculiar prerogative of man. A bird will sacrifice herself for her brood, and a dog will die for his master.

Indeed, I do not find, in Scripture, that moral qualities (all derived from love—Matt. xxii, 37–40) distinguish man from beast in the absolute way supposed by many Christian writers and some philosophic ones. Thus, the ox that gored a man had to be stoned (Ex. xxi, 28)—which clearly implies a moral judgment—and the Noachian Covenant (Gen. ix, 9–16), of which the rainbow and the Cherubim remind us (cf. Ez. i, 4–28; x, 1–22; Rev. iv, 2–8; etc.) was with bird, cattle and wild beast (Gen. ix, 10; symbolised by the eagle, ox and lion heads of the Cherubim) as well as with man.

I would therefore point out that, according to Gen. i, 26–28, man was specially created to *rule over nature*; so his peculiar resem-

blances to God would have more to do with his powers than his affections. And this *certainly accords with science*.

It seems that God gave special powers to certain of His creatures, who thereby peculiarly resemble Himself ; but His love is (I believe) intended to be broadcast throughout creation. The effects of such broadcasting are described in the prophecies of the Millennium (cf. Is. xi, 6-9). Hence Scripture nowhere indicates that morality affects status, *although it directly affects destiny*. The greatest of all angelic beings, the Devil, was still treated as superior even by the unfallen Archangel Michael (Jude 9). And there is no hint that the relative innocence of Balaam's ass reduced the gulf between her and her master ; though we read that it would have saved her from the death which all but overtook him then, and actually overtook him soon afterwards. The greater the resemblance to the powers of the Godhead, the greater the responsibilities, and the more drastic the consequences for good or evil.

The "second birth," which concerns our moral relationship to God, is quite distinct from the natural birth, which relates us to this world. Even though natural man has spiritual powers, he cannot know the things of the Spirit of God (1 Cor. ii, 14). So Balaam could recognise the Angel, and yet proceed to commit his final crime.