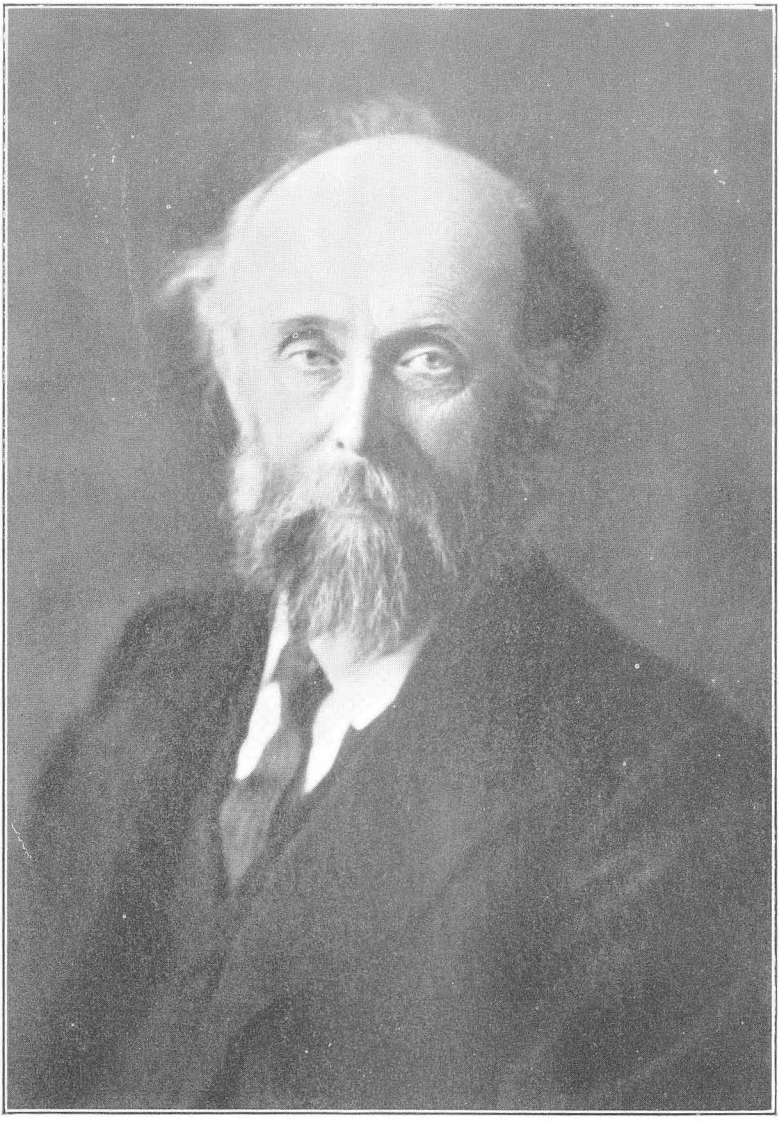
JOURNAL OF THE TRANSACTIONS

OF

THE VICTORIA INSTITUTE

VOL. LXV.



Professor Theophilus G. Pinches, LL.D., M.R.A.S.,
Vice-President of the Victoria Institute

For upwards of forty years a Corresponding Member, the Professor has read before the Institute many learned papers on the languages and customs of Assyria and Babylon, thereby expounding texts of profound archaeological interest and showing the bearing of the same upon the Old Testament Scriptures and their interpretation.

JOURNAL OF

THE TRANSACTIONS

OF

The Victoria Institute,

OR,

Philosophical Society of Great Britain.

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PREFACE.

LIKE many other organizations included in the class of Learned Societies, the Victoria Institute continues to struggle with perplexing difficulties. By reason of financial stringency and the exceptional pressure of the more commonplace interests of life—combined with the death of enthusiastic founders—there is a tendency toward decline in the membership of such agencies as make direct appeal to heart and mind.

Though unable to report a large accession of new supporters of the Institute, it is a pleasure to be able, by means of the present volume of *Transactions*—No. LXV in series—to supply objective proof of the fact that a faithful and buoyant community of men and women stand firmly by the purpose and platform of the Institute, otherwise known as the Philosophical Society of Great Britain.

The Session now surveyed opened with a remarkable lecture by the President, Sir Ambrose Fleming, on "Beauty in Nature as a Supplement to the Argument from Design"; and at the close of the Session the President read an arresting paper on "Free Will *versus* Determinism." On both occasions goodly audiences listened to utterances that were rightly regarded as of outstanding significance.

Among other addresses of distinction special mention must be made of "Joseph in Egypt in the Light of the Monuments," by Dr. A. S. Yahuda, the celebrated Oriental Scholar and Archæologist; and of "The Doctrine of Organic Evolution in the Light of Modern Research," by Dr. Albert Fleischmann, of Erlangen—an expert investigator who reasserted with energy a declaration made by

himself many years ago, to the manifest discredit of the theory of organic evolution. To specify these deliverances implies no disparagement of other addresses, at once strong in statement and timely in appeal.

"The Age of the Earth as Deduced from the Salinity of the Ocean," by Dudley J. Whitney; and "The Supposed Evolutionary Origin of the Moral Imperative," by Rev. Dr. H. C. Morton, were papers that served a well-defined purpose, and were regarded as advancing arguments that are incapable of answer at the hands of modern theorists. "Recent Developments in the Textual Criticism of the Bible," by Sir Frederic Kenyon, affirmed anew great principles of literary criticism, fortified by the fruits of latest research.

Dr. Burnett Rae's "Psychology and the Problem of Inadequacy," was the Alfred T. Schofield Memorial Paper, and commanded special attention. Other addresses were "The Synoptic Gospels and their Relation to one Another," by Dr. D. M. McIntyre; "Some Aspects of Jewish Mysticism," by Rev. Dr. P. P. Levertoff; "Sunlight and Life," by Dr. C. W. Salceby; and "Jerusalem according to Nehemiah," by Mrs. C. Agnes Boyd.

As here reproduced, all the papers will well repay studious perusal, even by those who were able to hear them read by their learned authors at the successive meetings of the Institute. In some instances it is gratifying to say, the attendance of supporters and the public gave promise of widened usefulness; and signs were not wanting that the Institute is maintaining its hold upon a thoughtful body of men and women, as it endeavours to assist, by all means consistent with its character, in establishing the essential unity of ALL TRUTH, whether received by revelation, or ascertained through the investigations of science.

JAMES W. THIRTLE,
Chairman of Council.

CONTENTS.

VICTORIA INSTITUTE.

REPORT OF THE COUNCIL FOR THE YEAR 1932.

TO BE READ AT THE

ANNUAL GENERAL MEETING, JUNE 12TH, 1933.

1. *Progress of the Institute.*

In submitting the 65th Annual Report of the Society, the Council wish to record their sense of indebtedness to all authors who have contributed to the syllabus, no less than their warm thanks to Members and Associates for the trust and unfailing support accorded them throughout the year that is past. At no time is it an easy matter to devise and put through a programme of twelve papers, fulfilling with precision the objects of the Society, yet characterized by originality of thought and variety of subject; and in the appreciation so freely shown from time to time the Council have found assurance of achieved success and ample encouragement to persevere.

2. *Meetings.*

Twelve ordinary meetings were held during the Session 1931–32. The papers published were :–

"The Chronology of the Kings of Israel and Judah," by Lieut.-Col. A. G. SHORTT.

Lieut.-Col. Arthur Kenney-Herbert in the Chair.

"Geographical Environment and the Migration of Races," by G. R. GAIR, Esq., F.S.A.Scot., F.R.A.I., F.G.S.E.

Captain T. W. E. Higgons in the Chair.

"The Nestorian Mission to China," by Brig.-General H. BIDDULPH, C.B., C.M.G., D.S.O.

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

"Karl Barth's Theology and the new Theological Outlook in Germany," by the Rev. CHARLES GARDNER, M.A.

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

"The Shadow Returning on the Dial of Ahaz," by Mrs. WALTER MAUNDER.

Lieut.-Col. Hope Biddulph, D.S.O., in the Chair.

"The So-called Babylonian Epic of Creation," by GEORGE B. MICHELL, Esq., O.B.E.

William Hoste, Esq., B.A., in the Chair.

"The Limitations of Organic Evolution," by DOUGLAS DEWAR, Esq., F.Z.S., Barrister-at-Law.

G. A. Lovett-Yeats, Esq., C.I.E., I.S.O., F.Z.S., in the Chair.

"The Changing Attitude of the Modern Jew to Jesus Christ," by the Rev. Dr. PAUL P. LEVERTOFF.

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

"The Tablet of the Epic of the Golden Age," by Professor THEOPHILUS G. PINCHES, LL.D., M.R.A.S.

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

"The Magi: Their Nationality and Object," by Lieut.-Col. F. A. MOLONY, O.B.E.

William C. Edwards, Esq., in the Chair.

"The Bible and Evolution: The Evidence of History and Science," by HENRY R. KINDERSLEY, Esq., Barrister at Law.

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

Annual Address, "Some Recent Scientific Discoveries and Theories," by Sir AMBROSE FLEMING, D.Sc., F.R.S. (President).

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

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3. *Council and Officers.*

The following is a list of the Council and Officers for the year 1932:—

President.

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

Vice Presidents.

Professor T. G. Pinches, LL.D., M.R.A.S.
Right Rev. Bishop J. E. C. Welldon, M.A., D.D.
J. W. Thirtle, Esq., M.A., LL.D., M.R.A.S., *Chairman of Council.*

Trustees.

Alfred William Oke, Esq., B.A., LL.M., F.G.S.
Lieut.-Colonel Hope Biddulph, D.S.O., late R.F.A.
William C. Edwards, Esq.

Council.

(In Order of Original Election.)

Alfred William Oke, Esq., B.A., LL.M., F.G.S.
Sir Robert W. Dibdin, F.R.G.S.
Lieut.-Col. F. A. Molony, O.B.E., late R.E.
Lieut.-Col. Hope Biddulph, D.S.O., late R.F.A.
Avary H. Forbes, Esq., M.A.
Arthur Rendle Short, Esq., M.D., B.S., B.Sc., F.R.C.S.
The Rev. Harold C. Morton, B.A., Ph.D.
William C. Edwards, Esq.
Robert Duncan, Esq., M.B.E., I.S.O.
Louis E. Wood, Esq., M.B., D.P.H.
Lieut.-Col. T. C. Skinner, late R.E., F.R.Met.Soc.
Sir Charles Marston, J.P.
Lieut.-Col. Arthur Kenney-Herbert.
W. N. Delevingne, Esq.
Rev. Principal H. S. Curr, B.D., B.Litt.

Honorary Treasurer.
R. Duncan, Esq., M.B.E., I.S.O.

Honorary Editor of the Journal.
Dr. James W. Thirtle, M.R.A.S.

Honorary Secretary, Papers Committee.
Lieut.-Col. Hope Biddulph, D.S.O., late R.F.A.

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

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

Secretary.
Mr. A. E. Montague.

4. *Election of Officers.*

In accordance with the Rules the following Members of Council retire by rotation: The Rev. Harold C. Morton, B.A., Ph.D., William C. Edwards, Esq., R. Duncan, Esq., M.B.E., I.S.O., and Dr. Louis E. Wood.

5. *Obituary.*

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

The Rt. Rev. Bishop W. Andrews, D.D., Arthur Bird, Esq., J. C. Dick, Esq. (*Member of Council*), the Rev. D. S. Dodge, M.A., C. Dillworth Fox, Esq., H. Lance Gray, Esq. (*Member of Council*), G. L. Houstoun, Esq., Miss M. D. MacEwan, A. E. Martineau, Esq., Frank H. Ruttor, Esq., Rev. Prof. F. L. Patton, D.D., LL.D., George Parker, Esq., J. A. O. Payne, Esq., Lieut.-Col. A. H. D. Riach, the Rev. James Thomas, Admiral T. P. Walker, D.S.O., W. Williams, Esq.

6. *New Members and Associates.*

The following are the names of new Members and Associates elected up to the end of 1932 :—

Members :—Rev. Prebendary H. W. Hinde, M.A., Thomas Priestman, Esq., Miss Caroline Tindall.

Life Associates :—Miss H. J. Elverson, Rev. William M. Fouts, Th.D.

Associates :—Sidney J. Arkwright, Esq., Mrs. A. de B. Bridgford, Mrs. M. H. Butson, Prof. W. C. Clinton, B.Sc., M.I.E.E., Robert J. Cobb, Esq., Brig.-General F. D. Frost, C.B.E., M.C., Rev. J. A. Harper, R. Hogben, Esq., Lieut. J. P. Hunt, R.N., Miss E. M. Herriott, M.A., Miss Grace M. Kerr, Lady King-Harman, Joseph Smith, Esq., M.Eng., H. D. Sharpe, Esq., B.Eng., Mrs. K. G. Tapp, Rev. George E. White, D.D., Alfred Young, Esq.

Student Associate :—T. M. Cuthbert, Esq.

7. *Number of Members and Associates.*

The following statement shows the number of supporters of the Institute at the end of 1932 :—

Life Members	11
Annual Members	106
Life Associates	12
Associates	263
Missionary Associates	6
Library Associates	32
Student Associates	1
	467

8. *Donations.*

Sir Charles Marston, J.P., £10 ; a Member of Council, £50 ; W. R. Rowlatt-Jones, Esq., £2 2*s.* ; Dr. F. H. Schofield, £1 ; Gunning Trust, £100 ; Reader of the *Christian* (per Messrs. Marshall, Morgan & Scott), £2 2*s.*

9. *Finance.*

Reduction of income to the extent of £96 is one outstanding feature of the finance of the Institute in 1932. In subscriptions there was a drop of £66 ; sales of publications fell by £23, and dividend receipts were less by £7. As against this all-round decline in the customary sources of income there was a saving of £37 (due principally to diminished printing costs) in the year's expenditure. In these circumstances the net result must have been a further deterioration in the previously very difficult financial position, were it not that the year was marked also by some substantial extra receipts. £281 was realized by the sale, a measure deemed to be necessary, of the Consols (£500 nominal) held on general account. An unneeded surplus of £100, which had accumulated in the course of the years on the Gunning Prize Fund, was, with the full cognizance of the Gunning Trustees, transferred to the general account of the Institute. Donations, including an exceptional one of £50 from a Member of the Council, amounted to £65. The £446 in all thus made additionally available enabled the Council to resume the desirable practice of prompt payment of accounts due, and to close the year with £311 in bank and no more in the way of then pending liabilities than £156, as compared with only £87 in bank at the end of 1931, with as much as £320 due to creditors. But it has to be borne in mind that the extra receipts above-mentioned are non-recurring, and that the relief they afforded is gradually melting

away through the continued disparity between expenditure and regular income. Unless, between these, reasonable equilibrium can be established, the Institute is bound, before long, to be once more in serious difficulties. The situation is, therefore, one calling for earnest forethought in the present breathing space.

10. *Conclusion.*

In conclusion, the Council would remind all Members and Associates that the battle, once joined, cannot be broken off, but that rather we must press every advantage and consolidate every gain. Further, that, following on prayer for divine guidance and help, perhaps the most effective service that can be rendered by any individual, is, by spreading the Society's literature, to interest and enlist more and more friends, and thus increase the support, moral and material, on which the success of our campaign so largely depends.

JAMES W. THIRTLE,
Chairman of Council.

BALANCE SHEET, 31ST DECEMBER, 1932.

LIABILITIES.

	£ s. d.	£ s. d.
SUBSCRIPTIONS PAID IN ADVANCE		16 16 0
SUNDRY CREDITORS for:—		
Printing and Stationery	153 15 1	
Audit Fee	3 3 0	
		156 18 1
LIFE SUBSCRIPTIONS:—		
Balance at 1st January, 1932	228 6 0	
Additions	31 10 0	
	259 16 0	
Less Amount carried to Income and Expenditure Account	10 10 0	
		249 6 0
"GUNNING" FUND (*per contra*)		508 0 0
Balance at 1st January, 1932	134 9 4	
Add Dividends and Interest	24 2 5	
	158 11 9	
Deduct:—		
Donation to Victoria Institute	100 0 0	
		58 11 9

ASSETS.

	£ s. d.	£ s. d.
CASH AT BANK:—		
Deposit Account		100 0 0
Current Account		211 2 5
"Gunning Prize" Account		58 11 9
"Langhorne Orchard Prize" Account		36 4 3
STAMPS IN HAND		3 9 4
INCOME TAX RECOVERABLE		1 15 6
SUBSCRIPTIONS IN ARREARS:—		
Estimated to produce		17 17 0
INVESTMENTS:—		
"Gunning" Fund:—		
£673 3½ per cent. Conversion Stock at cost		508 0 0
"Langhorne Orchard" Fund:—		
£258 18*s.* 3½ per cent. Conversion Stock at cost		200 0 0
"Schofield" Memorial Fund:—		
£378 14*s.* 6*d.* 2½ per cent. Consolidated Stock at cost		220 0 0

"LANGHORNE ORCHARD" FUND (*per contra*)				200	0	0
Balance at 1st January, 1932	27	3	1			
Add Dividends received	9	1	2			
				36	4	3
"SCHOFIELD" MEMORIAL FUND (*per contra*)				220	0	0
Balance at 1st January, 1932....	7	2	0			
Add Dividends received, *less* Tax	7	2	0			
Income Tax recoverable	2	7	4			
	16	11	4			
Deduct :—						
Prize awarded	10	0	0			
				6	11	4
				£1,452	7	5

INCOME AND EXPENDITURE ACCOUNT :—							
Balance at 1st January, 1932				458	9	10	
Add Excess of Expenditure over Income for the year 1932				82	17	10	
				541	7	8	
Deduct :—							
Donations received	165	4	0				
Proceeds of Sale of £500 2½ per cent. Consolidated Stock	280	16	6				
				446	0	6	
						95	7 2
						£1,452	7 5

I report to the Members of the Victoria Institute that I have audited the foregoing Balance Sheet, dated 31st December, 1932, and have obtained all the information and explanations I have required. I have verified the Cash Balances and Investments. No valuation of the Library, Furniture or Tracts in hand has been taken. In my opinion the Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the affairs of the Institute according to the best of my information and the explanations given to me, and as shown by the books of the Institute.

E. LUFF-SMITH,
Incorporated Accountant.

21, Old Queen Street, Westminster,
London, S.W.1.
24th May, 1933.

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST DECEMBER, 1932.

EXPENDITURE.

	£ s. d.	£ s. d.
To Rent, Light, Cleaning, and Hire of Lecture Room	76 13 10	
,, Salary	200 0 0	
,, National Insurance	4 2 4	
,, Printing and Stationery....	245 19 3	
,, Expenses of Meetings	1 11 0	
,, Library Purchases	0 10 0	
,, Postages	32 7 7	
,, Audit Fee	3 3 0	
,, Fire Insurance	0 12 0	
,, Bank Charges and Sundries	1 14 2	
		566 13 2
		£566 13 2

INCOME.

	£ s. d.	£ s. d.
By SUBSCRIPTIONS :—		
96 Members at £2 2*s.*	201 12 0	
1 Member at £1 1*s.*	1 1 0	
220 Associates at £1 1*s.*	231 0 0	
Proportion of Life Subscriptions	10 10 0	
		444 3 0
,, DIVIDENDS received, *less* Tax		2 6 11
,, INTEREST ON DEPOSIT		0 10 8
,, SALE OF PUBLICATIONS		36 14 9
		483 15 4
,, BALANCE, being excess of Expenditure over Income for the year 1932		82 17 10
		£566 13 2

THE ANNUAL BUSINESS MEETING

OF THE

VICTORIA INSTITUTE

WAS HELD IN COMMITTEE ROOM B, THE CENTRAL HALL, WESTMINSTER, S.W.1, ON MONDAY, JUNE 12TH, 1933, AT 3.30 O'CLOCK.

THE PRESIDENT, SIR AMBROSE FLEMING, D.Sc., F.R.S., IN THE CHAIR.

The Minutes of the Annual Meeting, May 22nd, 1932, were read, confirmed and signed.

The Annual Report for 1932 (which had been circulated to Members and Associates) as presented by Council, was taken as read.

The following resolutions were then submitted, viz. :—

First Resolution—Moved by Mr. A. W. OKE, seconded by the REV. PRINCIPAL H. S. CURR :

"That in accordance with clause 3 of the Constitution, the President, Sir Ambrose Fleming, M.A., D.Sc., F.R.S., the Vice-Presidents, Professor T. G. Pinches, LL.D., M.R.A.S., the Rt. Rev. Bishop Welldon, M.A., D.D., J. W. Thirtle, Esq., M.A., LL.D., M.R.A.S., Chairman of Council, R. Duncan, Esq., M.B.E., I.S.O., Hon. Treasurer, Lt.-Col. Hope Biddulph, D.S.O., Hon. Secretary Papers Committee, and Lt.-Col. T. C. Skinner, late R.E., F.R.Met.Soc., Hon. Secretary, be, and hereby are, re-elected to their office."

Second Resolution—Moved by LT.-COL. A. KENNEY-HERBERT, seconded by Mr. AVARY H. FORBES.

"That William C. Edwards, Esq., the Rev. H. C. Morton, B.A., Ph.D., Louis E. Wood, Esq., M.B., D.P.H., and

R. Duncan, Esq., M.B.E., I.S.O., retiring members of Council be, and hereby are re-elected to their office, and further, that E. Luff-Smith, Esq. (Incorporated Accountant) be re-elected Auditor, at a fee of Three Guineas."

Third Resolution—Moved by LT.-COL. HOPE BIDDULPH, seconded by DR. LOUIS E. WOOD:

"That the Report and Statement of Accounts for the year 1932, 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."

Before putting the Motion, the CHAIRMAN opened the meeting for discussion, asking the Hon. Secretary to make a statement as to future ways and means of balancing the budget. The HON. SECRETARY, emphasizing the fact that though there was still a margin of about £250 on which to come and go, the Society had, for the past six years, been steadily going into debt, by excess expenditure over income, averaging about £90 a year. He outlined a proposal for increasing revenue, but added that as this was as yet an uncertainty, and would in any case take time to mature, the Council had felt that the least they could do was to effect such economies as were immediately possible by shortening the syllabus in order to reduce printing and incidental expenses. Accordingly, they had that day decided to limit the 1933-34 syllabus to ten papers to secure a saving of close on £40, unless meanwhile sufficient augmentation of income should arise from some unexpected source. In the discussion which followed, comments and suggestions were made by Messrs. Oke, Fitzgerald, Duncan and the Rev. Charles W. Cooper, after which the Resolution was put and adopted.

On the conclusion of the business, a very hearty vote of thanks to Sir Ambrose Fleming for presiding, was moved by Lt.-Col. Biddulph, and was carried by acclamation.

761ST ORDINARY GENERAL MEETING.

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL, WESTMINSTER, S.W.1, ON MONDAY, DECEMBER 5TH, 1932, AT 4.30 P.M.

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

The Minutes of the previous Meeting were read, confirmed, and signed, and the HON. SECRETARY announced the following elections since the last Meeting:—As a Member: Thomas Priestman, Esq.; and as Associates: Lieut. J. P. Hunt, R.N.; Professor W. C. Clinton, B.Sc., M.I.E.E.; Rowland Hogben, Esq.; Mrs. Mary Holland Butson; Sidney J. Arkwright, Esq.; Alfred Young, Esq.; Miss Grace M. Kerr; and as a Student Associate: T. M. Cuthbert.

The CHAIRMAN then called on the President, Sir Ambrose Fleming, D.Sc., F.R.S., to read his paper "On Beauty in Nature as a Supplement to the Argument from Design." This was illustrated by lantern slides of great interest.

ON BEAUTY IN NATURE AS A SUPPLEMENT TO THE ARGUMENT FROM DESIGN.

By Sir AMBROSE FLEMING, F.R.S. (*President*).

(*With Lantern Illustrations.*)

1. THE ARGUMENT FROM DESIGN.

TWO years ago I had the privilege of drawing your attention in this room to some Adaptations in Nature giving Evidence of Purposive Thought in the Universe and therefore of a Supreme Intelligence as their final source.

It has often been stated that the force of this Argument from Design was destroyed by the introduction of the ideas of Evolution and Darwinian natural selection. But there are many thinkers who do not admit that there is valid evidence of any true evolution in the inorganic world in the sense of an automatic

and unguided progress from a simple to a complex state or from a crude to a more perfect condition.

The fact that there are 92 kinds of chemical atoms, each progressing in structure by one unit or step in what is called the atomic number, and each one identical with others of equal atomic number in whatever part of the Universe it is found, is an evidence that these atoms are "manufactured articles," as Herschell and Maxwell long ago declared. Moreover, we have no evidence that the complex atoms of large atomic number, such as Thorium and Uranium, have been produced spontaneously from those of small atomic number, such as Hydrogen and Helium, whereas we have everyday experience that the complex atoms such as Radium and Thorium break down spontaneously into the simpler forms of matter.

So far from there being any evolution of atoms, there is a steady and ceaseless decay or devolution, as shown by this breaking down of radio-active elements into simpler structures like the Helium nucleus and electrons.

It is the same with the agency called Energy. Like Matter, it exists in many forms, Light, Heat, Electric charge and currents, Mechanical motion, and potential Energy of strain, configuration, or gravitation.

These forms are convertible one into the other at a certain rate of exchange. But at every transformation some portion passes into the form of heat, which becomes diffused and cannot be collected again in a useful form. This dissipation of useful energy is always going on, and if the physical Universe had been existing for an infinite past time and no fresh energy created or brought into it, all Energy would by now have passed into the form of uniformly diffused and non-useful heat. But it has not yet arrived at that condition, and the inference is that at some past time, not infinitely remote, some external Power must have interfered to originate and distribute the energy and leave it to dissipate. These facts are perfectly inconsistent with the conception of a self-developing Universe, but imply a controlling and creating Intelligence.

2. The Recognition of Order.

There is, however, another quality in the sum total of external things we call Nature, and that is that in some parts it excites in us a sense or appreciation of Order. We possess in our minds

a faculty or power of recognizing certain integral qualities in an aggregate of things which is independent for the most part of the nature of the things themselves. Thus, for instance, a number of trees may be arranged irregularly as in a forest or a number of pebbles disorderly as on a sea beach. If, however, those articles were arranged at equal distances in a straight line as in an avenue of trees, or in a pattern as in a tessellated pavement, we should at once appreciate a resulting quality we call " Order " in this aggregate.

Whether the articles are trees or pebbles or men or anything else does not matter. It is the spatial arrangement of them which excites our attention and recognition.

We know from experience that we ourselves can manipulate objects so as to arrange them in such spatial orderly fashion, and we furthermore know that such order requires intelligence or thought on our part or mental effort to produce it. Hence, whenever we see such Order we always conclude it to be the result of thought and not of accident. Disorder may arise from accident or the spontaneous operation of the forces of Nature, but nothing would make us agree that any very exact order was the result of chance. This is one way of stating a fundamental principle called the Second Law of Thermodynamics. Order requires intelligence to recognize it, and it also demands intelligence to produce it.

3. The Recognition of Purpose, Utility, or Adaptation.

There is another quality of individual things or of things in the aggregate, and that is purpose or adaptation. We see it, for instance, in the commonest man-made tools or household utensils. A spade, a rake, a knife, or a brush have this quality. A thing may not possess such utility taken alone, but a number of them may possess a suitability for a purpose, such as a brick or a tile.

It is a characteristic sign of intelligence or reasoning power to be able to fashion some raw material in such a way that it serves a certain purpose. The anthropologist who finds some flint fragments chipped in such a manner as to act as knives or arrowheads pronounces them human work, and no animal has been known to manufacture anything of the kind.

The higher we rise in the scale of intelligence the more complex or elaborate such structures become. Man is essentially a

tool-making or weapon-making being. The evidence and outcome of his intelligence is the degree to which he can impart utility and purpose to material objects for his own convenience and enjoyment. We can not only make such adaptations ourselves, but we can recognize them when made by others, and we always declare that such power is evidence of intelligence great or small.

4. Adaptations and Order in Nature.

There is clear evidence of certain adaptations in Nature which cannot have arisen spontaneously, and a few of these may be noticed here. In order that our earth may be suitable as the abode of life, at least in the form in which we know it, certain conditions must hold good. Life manifests itself not amorphously, but in certain definite living organisms called vegetable or animal. These are built up of small units or elements called cells. The cell has a very intricate structure, and the material in which the vital powers seem to reside is called "protoplasm," although that term may cover several different kinds of material. This material is a colloidal or jelly-like substance of very unstable complex chemical constitution.

The simplest form of living organism consists of a little drop or blob of protoplasm. It contains a small special structure called the nucleus. It possesses three remarkable powers:—

(i) It can spontaneously move or change its form.
(ii) It can absorb from the surrounding medium (generally water) particles of non-living matter and convert them into protoplasm.
(iii) When it reaches a certain size it can divide in two and produce two cells out of one. The nucleus at the same time divides.

These powers of spontaneous motion, assimilation, and subdivision or growth are not possessed by non-living matter. They are the essential characteristics of life. In the higher living organisms the multiplication of cells does not take place in a haphazard way, but they are guided and built up into a special animal or vegetable form. During their lifetime non-living matter is being converted into living matter, and living matter is breaking down into non-living matter.

In the higher organisms periods of activity and repose alternate. In the first the destruction of living matter pre-

dominates and in the latter the reconstruction. Moreover, for these life processes it is necessary that the organisms, at least the higher, should be immersed in an atmosphere containing oxygen gas for the animals and carbon dioxide gas for the vegetables at a certain pressure and exposed also to radiation, luminous or non-luminous at intervals, and also maintained in a region the temperature of which does not vary beyond certain rather narrow limits.

Now these conditions for life are all met in the simplest possible manner by the size and rotation of the earth in its axis and its rotation round the sun at a fixed distance.

The earth is a spheroid with a single axis of symmetry round which it rotates. That rotation maintains the axis by a gyroscopic action in a constant direction in space apart from certain slow motions called precession and nutation. The size of the earth is such as to maintain on its surface an atmosphere at present containing 20 per cent. of oxygen and some carbon dioxide. If the earth were as small as the moon it would have no atmosphere at all, and if it were as large as Jupiter it would have a very dense atmosphere, probably so cloudy that no sunlight could penetrate. The earth's distance from the sun is such as to maintain an average temperature on its surface well within the required limits for life of protoplasm, and its orbital rotation at a nearly constant distance keeps the temperature nearly constant. The rotation of the earth on its axis produces the phenomena of day and night. The axis of rotation of the earth is, however, inclined to the plane of its orbital rotation at an angle of about 77 deg., and this, combined with the constant direction of the axis during the orbital rotation, produces the larger day or cycle of the seasons—spring, summer, autumn, winter—which gives to vegetation the necessary periods of activity and repose.

All the physical conditions necessary for the manifestation of life in our material space-time world are achieved by rotation. Can we not say that this is an example of adaptation of means to an end? The evolutionist would say in reply that the kind of life which has appeared on this earth is one that is suited to the astronomical conditions, and if those conditions had been different the life would have been a different kind. He would advise us to beware of falling into the logical mistake of the schoolgirl who said, "What a fortunate thing it is that a large river flows through every great city!" On the other hand,

it is not certain that any other kind of physical life than that we have here on this earth can exist in our space-time material Universe.

It is clear that this could not exist on any of the other solar planets, even on Mars, where the climate is similar to that on the top of Mount Everest. There is strong reason for believing that a planetary system like our own is very rare, if not unique, in the Universe, and the nature and conditions of our earth are unique amidst that uniqueness.

5. The Recognition of Stability as a Product of Thought.

In all our human constructions we recognize that there should be stability and it is only attained by careful thought. A house, a tower or a bridge must not be blown down by any ordinary storm. Also a ship must not capsize in a rough sea. If these disasters do happen we attribute it to want of sufficient forethought in the design, and we recognize the great thought required to secure this stability.

There are many cases in Nature in which we can recognize the same necessity for stability. One of the most important is that of the dimensions and form of the earth's orbit. When Newton had propounded his law of gravitation and shown that the planets were retained in their orbits by the mutual attraction of the sun and each planet, the question arose whether these orbits would be disturbed by the mutual attraction between the various planets themselves.

The problem was attacked by the eminent French mathematician Lagrange. He proved that the attraction of the various planets on the earth, chiefly that of Jupiter and Venus, varies periodically, and owing to the fact that the planets all circulate round the sun in the same direction these perturbations can never exceed a certain amount or alter permanently the earth's distance from the sun. If some of the planets revolved round the sun in one direction and some in another, and if the directions in which Jupiter and Venus in particular revolve were opposite to that of the earth, these perturbations might increase to a degree at which the earth might be drawn in course of time nearer or flung out farther from the sun and become unfit for the present type of life. As it is, the solar system is stable, and although the orbits are subject to small periodic variations they

do not permanently change. Considered simply as a problem in probability, the chance of a planet revolving one way or the other is denoted by the fraction $\frac{1}{2}$, but the probability that all the nine or ten planets circulating round the sun should revolve in the same direction as a mere matter of chance is about 1,000 to 1 against the occurrence of this uniformity. Accordingly, since they do rotate in the same direction, there must be some fundamental reason for it. Laplace's Nebular hypothesis of the origin of the solar system would account for it, but that hypothesis is inadmissible for other reasons. Jean's supposition that the passage of a large star near the sun at an early stage in the sun's life drew out by tidal action two long streamers of matter which broke up into discrete masses which formed the planets, would also account for it. In any case, the origin of the solar system is exceptional and cannot have come about by a commonplace accident, and whatever its cause we have produced as a result a stability which ensures permanence in the form and dimensions of the orbit of the earth and other planets.

Nevertheless, it will be seen that the above argument, commonly called the Argument from Design for a Purposive Intelligence as the origin of certain adaptations in Nature, has points in it open to attack owing to its incompleteness, as indeed Immanuel Kant well saw.

There is, however, a line of thought which affords a supplement to that argument from the presence in Nature of a quality difficult to define, but which is clearly not self-produced and not necessarily a consequence of mere existence, but requiring special adjustment to produce it, and also a faculty of recognition of it in ourselves, viz., Beauty. We ourselves can also in some degree create it, and hence from its presence in things not made by us we infer that this quality must have had its origin in a Mind not our own, also sensitive to Beauty.

6. Beauty as a Special Quality of Natural Objects.

We all recognize the quality we call Beauty in Natural objects whether in a human face or form, a landscape, a flower or an animal. It is, however, very difficult to give any complete or exact definition of beauty. It depends partly on form and partly on colour, outline and surface, and depends not only on the mere actual physical state, but in what it suggests as well,

Thus in the human being beauty suggests and is associated with youth, health, strength, grace and even psychical qualities, such as joy, purity and goodness.

In a landscape it is generally associated with well-marked atmospheric effects of light and shade, sunshine and shadow, colour and form in trees, mountains, lakes, rivers and waterfalls. Here also what we call beauty depends partly for its attractiveness on what it suggests, and the manifold emotions it arouses in us as well as on form and colour. Mountains by their massive grandeur, inaccessibility, steepness, snow-capped summits, and cloud-wreathed outlines arouse a feeling of the insignificance of all human physical powers in comparison with the mighty energies of Nature, which is impressive.

In fact, one of the conditions which must be present in order that a sense of beauty may be produced by natural scenery is that there must be a certain remoteness and absence of all human constructions in it. A lake surrounded by middle-class houses may be convenient and useful, but it does not excite in us the same feeling of beauty as some lonely tarn hidden away in the recesses of a mountain range, solitary and reflecting on its mirror-like surface only the dark rocky walls or grass-covered slopes of the summits which shut it in.

Man has, however, unhappily the power of destroying this natural beauty. Much of the lovely scenery round Snowdon and in North Wales had been ruined by the damming up of lakes, insertion of iron penstocks to lead the water down to electric stations, and more than all by the motor traffic which has converted lovely roads like the Llanberis Pass into dangerous streets and death-traps for the unwary.

7. The Recognition and Production of Beauty Requires Intelligence and Thought.

If we confine our attention to those cases in which human beings create beauty in articles made in metal, porcelain, clay, glass, stone, wood or textiles, which are not simply copies of natural objects, but original articles, like jewellery, ceramic ware, metal or wood work, furniture, or buildings, we notice that the ability to produce such articles which have the quality we call beauty is very rare. Such objects of art are therefore greatly valued, and our indignation is excited if they are wantonly disfigured or destroyed. It requires a certain training of eye

and mind to perceive their beauty and also a special ability called artistic genius to produce it. It never comes spontaneously or by chance, but is conceived first as an idea in the mind of someone, who then translates that idea into material substance of required form.

Now, may not the same thing be true of the beauty we see in Nature? This must be the product of special thought and feeling and the manifestation of it. We may notice that Beauty may be added to, but is not essential to utility. We ourselves can make useful pottery, chinaware, textiles, or woven material, as well as houses that are useful and convenient, but still ugly. It requires a rare ability to give beauty whilst at the same time retaining utility. Clothes, houses, furniture, may all be useful, but depressing in their ugliness, and only great skill can add the charm of beauty in form and colour without the sacrifice of usefulness. But in Nature we see everywhere this combination effected and even in the very smallest things which require microscopic examination to see them at all.

Sir James Jeans, reviewing the numerical phenomena everywhere present in natural objects, says that God must be a great mathematician. If, however, we fasten attention on the beauty present as well, we are forced to the conclusion that He is also the Supreme Artist. He has planted in our minds the power to appreciate this beauty in its various aspects or forms, and has given also the material on which to exercise that faculty.

8. Beauty Manifested in Various Forms.

Note in the first place what pleasure we derive from harmonious or contrasted colours in Nature, yet outside of our minds there is no such thing as colour. Various material objects reflect and scatter certain selected rays of light of particular wave-length in the incident white light which includes all wave-lengths within a range of one octave.

These selected rays entering our eyes stimulate the rods and cones of the retina. Then some influence passes along the optic nerve to the optic centre of our brain and there in some quite inscrutable manner it is translated into a sensation of colour in the mind.

It would be an immense loss if we were deprived of this sense of colour. There have been, in fact, colour-blind persons to whom all Nature presented itself merely as a sort of photograph

in various shades of grey. The celebrated John Dalton, the chemist, was said to have been completely colour-blind, and admitted that he could imitate any colour by mixing together various proportions of powdered charcoal and salt.

Who, however, would not grieve to be unable to distinguish the thousand exquisite tints of flowers, the charm of the verdure in the spring, or the russets of autumn, or the ever-changing cloud colours of sunrise and sunset. This colour sense is certainly one great source of pleasure to us. All Nature is in such exquisite good taste there is nothing glaring or inharmonious.

Then next we have a source of pleasure in musical sounds. Our ears are sensitive to difference in pitch or frequency, to loudness, and to quality or purity in sounds. It is not merely the individual notes which matter, but the integral effect or order and duration as well as pitch and loudness which convey the beauty. If the notes of Handel's Largo in G or Bach's Air on the G string, or other familiar melody were arranged in any other way its beauty as music would disappear.

An important characteristic of any sound is its quality or degree to which it is pure or a mixture of harmonics. The quality of a human voice in speaking greatly determines the emotional appeal it makes to us. A voice that is "rich," as we say, is more arresting than one which is thin, grating or harsh, even when the same words are uttered.

Our sense of the beauty of music is also dependent on association with other events and it has marvellous powers to revive memories, create emotions, and stir sometimes the deepest feelings of our minds.

9. Beauty in the Infinitely Small.

The quality of beauty is not merely seen in the large things of Nature, but it is also present in natural objects only to be detected when vision is assisted by a powerful microscope.

Amongst microscopic objects which exhibit in a remarkable way are those called Foramenifera, Radiolarians and Diatoms.

The first two are examples of low forms of life in the animal kingdom. The foramenifera construct for themselves wonderfully complex and beautiful shells of lime and form great tracts of Calcarious ooze on the ocean floor. Our chalk cliffs are for the most part the work of ancient foramenifera.

The radiolarians form a shell or skeleton of silica or flint in exquisitely beautiful spirals, lattices and stars.

The diatoms are minute plants with a box-like case or shell of flint or silica. They form the food of most small marine animals, which in turn are eaten by larger ones. The flinty cases after the death of their constructors, collected in large masses, form the so-called diatomaceous earth. It is this earth which, when impregnated with nitro-glycerine, forms the explosive called dynamite. These shells are of wonderful beauty, and yet so small that they form test objects for the microscope. It has been estimated that the diatomaceous earth of Bohemia contains 40 million such shells per cubic inch.

Not until the invention of the compound microscope was it possible to see and appreciate the beauty of many things in the range of the infinitely small.

10. Evolution Alone not Able to Produce Beauty or Sense of it.

It is clear that natural selection or Evolution alone could not possibly produce in the human mind a sense or appreciation of beauty, because such sense serves no useful purpose in giving an advantage to the individual in the mere struggle for existence.

Neither, then, could it have produced that integral quality nor relation of parts in any object which can excite that appreciation of beauty in us. There is no reason to believe it exists in the animal races. An ape never stands entranced at the beauty of a sunset, not does a cow rejoice in the carpet of flowers in the meadows of which she tramps.

No animal ever makes any attempt at artificial self-adornment.

Darwin and others have attempted to explain the brilliant plumage of birds or the colours of butterflies as due to sexual selection, and the colours of flowers as due to the attraction they exert on insects who then cross-fertilize them by conveying the pollen.

But it is clear that an attractiveness may exist without any corresponding sense of beauty. A staring advertisement compels us to draw near and look at it, but it very seldom excites a sense of beauty as well.

11. Conclusion.

Our conclusion, then, is that Beauty is a special and widespread quality of things in Nature, recognized by a special quality or faculty in our own minds, not the outcome of mere chance, evolution, or the product of our own imagination, but one which bears witness to a great and particular attribute of the Creator, thus assisting and strengthening the argument for His Personality as against the hypothesis of an impersonal Evolution.

It draws from us His intelligent creation—feelings of wonder and worship of Him who has "so done His marvellous works that they ought to be had in remembrance."

The paper was illustrated by the exhibition of about 50 *lantern slides, showing various beautiful objects and places in Nature.*

Discussion.

The Chairman (Dr. Thirtle) said: Once again the President has placed the Institute under an obligation, which should evoke ready response; and after what we have heard the expression of thanks may well be spontaneous and emphatic. During a succession of years as President of the Institute, Sir Ambrose Fleming has come before us with papers of great value and profound significance, and his utterances have ever commanded the close attention of Members and Associates. To-day is no exception to the rule, but with sustained delight it has been our privilege to follow him while demonstrating the thesis that Beauty in Nature serves as a Supplement to the Argument from Design.

Those of us whose memory sweeps a course of stirring decades now past, are able to recall days in which the Argument from Design occupied an important place in what was known as Natural Theology; and so far as we were careful to observe the progress of thought, we must have witnessed the virtual supersession of that vital argument, under the influence of ideas growing out of (and gathering round) the theory of Evolution. Those ideas, however, have failed of ready acceptance at the hands of men and women who have retained a regard for what is called Positive and Revealed

Theology; in other words, who have valued what is known as Scripture Truth.

To satisfy the mind that has come under the influence of a full-orbed Christian instruction, Natural Theology must be supported by the body of doctrine derived from Holy Scripture—in other words, by Revealed Theology; and, to be "furnished completely unto every good work," we must know (and accept) the truth of Divine Revelation, as well as appreciate, in some measure, the round of things that grow out of the study of Nature.

A superficial view of Nature is not enough for the instructed Christian; and, as we have found this afternoon, it is a superficial view that stands as an obstacle in the path of a full and satisfied Christian life. There is a demand for more; and Sir Ambrose has covered ground which, among other things, goes to show that the Universe is greater than the materialist imagines, and that the properties of the Universe are richer than the scientific sciolist has seemed to discern. The result, as we shall doubtless agree, is one that tells for the things of faith, as we find them spread on the pages of Holy Scripture, and embodied in the Gospel of Christ. As we followed the massive periods comprised in the lecture, we could not but thank God for the strength of purpose that dominated the President's mind, and the clearness of expression that characterized his paper from beginning to end.

We must all have been impressed with the conclusion of the lecture, wherein it was maintained that, as a special and widespread quality of things in Nature, Beauty bears witness to a great and particular attribute of the Creator, all-wise and all-powerful, and thus assists and strengthens the Argument for His Personality, as against the hypothesis of an impersonal Evolution.

It is with pleasure that I move that the thanks of the Meeting be formally accorded to the President, and declare the subject open for discussion.

Rev. Dr. H. C. MORTON said: I am glad that Sir Ambrose, in the brilliant paper he has given us, retains the Argument from Design as valid, and refuses to set it aside on account of Natural Selection: moreover, that he fortifies it so well by consideration of the meaning of Beauty.

Even if Natural Selection were accepted—and if Evolution is to be accepted Natural Selection must be accepted, since there is no competing theory of the method of Evolution—Natural Selection clearly does *not* explain Design. Natural Selection acts solely by *eliminating* the unfit, not by bringing the fit into existence. It is no explanation whatever of the coming into existence of the fit, *i.e.* the existence of forms of life which are adapted to certain aims or to certain ways of life which Earth necessitates. Therefore there must be some other explanation of the existence of the fit and adapted forms. This is the Argument from Design, and Natural Selection does not make the slightest difference to it.

If Natural Selection is accepted as *a* method for eliminating the unfit, what we have to say is that when the Great Designer has found some of His designs spoiled by faulty material or by rebellious forces He eliminates some of them by Natural Selection. But we ought to be clear that Natural Selection does not affect in any way whatever the Argument from Design. It does not even enter the field.

Beauty—that elusive quality of which most, but not all, of us are aware—is always, I think, allied with a sense of fitness. Perhaps it would be truer to say that it consists of a sense of fitness. There is an indisputable beauty about any organism which is well adapted to its aim. A piece of machinery is beautiful *when well adapted*, that is, when well fitted to achieve its objects. It leaves the most pleasant impression upon the mind—only marred sometimes by hideous colour, badly chosen or ill-applied. Colour is always present in Nature, and colour is an undoubted element in all Beauty: but the colour must have the quality of fitness or harmony. In other words, I think it would appear to be true that Beauty is an element in Design itself, namely, adaptation to a purpose without any jarring features out of harmony with environment. Indeed Beauty is itself in its essence Design.

Plato in his *Philebus* discusses the nature of Beauty. He argues that "measure" is the *cause* of all right combinations, and that the *effect* of such right combinations is Beauty. Beauty is true proportion based on true measure. "The foundation of Beauty is a reasonable order, addressed to the imagination through the senses." This is in full agreement with Sir Ambrose's argument as presented before us this afternoon.

Words of warm appreciation of the paper followed by Mr. W. C. Edwards, Mr. Avary H. Forbes and Mr. R. Duncan; and the vote of thanks to the President was passed with acclamation.

The President's Reply.

Sir Ambrose Fleming expressed his warm thanks for the appreciation of the Members of the audience—especially to Dr. Thirtle and Dr. Morton—also to others for their undeservedly kind words concerning the paper he had had the pleasure of reading to them.

762ND ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL, WESTMINSTER, S.W.1, ON MONDAY, JANUARY 9TH, 1933, AT 4.30 P.M.

ALFRED W. OKE, ESQ., LL.M., F.G.S., 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: the Rev. Professor F. C. Haysmore. As Associates: Edwin Sibley, Esq.; Dr. Ellis S. Allen; Miss E. B. Coad; Dr. R. E. D. Clark as Life Associate; and H. G. Lambert, Esq., B.A., as Student Associate.

The CHAIRMAN then called on Mr. Douglas Dewar, F.Z.S., who had kindly offered to read Mr. D. J. Whitney's paper "On the Age of the Earth as deduced from the Salinity of the Ocean."

THE AGE OF THE EARTH AS DEDUCED FROM THE SALINITY OF THE OCEAN.

By DUDLEY JOSEPH WHITNEY, B.S., Exeter, California.

I.

THE problem of the age of the earth is not only a most important one, to every careful student of the natural sciences, but it is in many ways a much neglected problem. Statements are common that this or that fossil or formation is ten million or a hundred million years old, and the normal reader naturally believes that the scientists have good grounds for their statements about these things.

This is not true. There have been some careful studies made of this problem of the age of this globe upon which we live, but

the results obtained from different lines of study have been very conflicting, and common estimates of its age are based upon poorly founded speculation. The subject needs some careful analysis.

The first question which will arise in the study of this problem is: What is meant by the age of the earth?

The age of a thing is normally calculated from the time it came into existence. On this basis the starting-point of the age of the earth would be figured from the time the earth became a definite body revolving around the sun. This would be the astronomical age of the earth.

The geologists, however, mean something entirely distinct from this when they speak of the age of the earth, though of course the geological and the astronomical ages of the earth are closely related. They count the age as starting from the time when the earth came into approximately its present size and temperature, and when geological processes began to be much as they are now. They count the age as extending from the time when land separated from water, and when sedimentary rock began to be formed in the way that it is now formed. The geological age of the earth is the age of the oldest sedimentary rock.

A brief explanation will make more clear the difference between the two ways of computing the age of the globe. Suppose that the material composing it was shot out from the sun a thousand million years ago, but that for five hundred million years the temperature was too high for the formation of true oceans or solid land. Then suppose that, by cooling, land formed and rivers washed rock powder into the ocean, where it formed sedimentary rock. The astronomical age of the earth would then be a thousand million years and the geological age of the earth five hundred million years. The age now commonly attributed to the earth is given without due study.

II.

Take what can well be considered a fundamental difficulty in calculating how old this earth is. If the age of an object is to be ascertained, the method by which it came into being ought certainly to be known; also its condition at the beginning, otherwise the very foundations for calculating the age are absent. So also if the age of the earth is to be known its early condition and the

method by which it originated ought to be known. Not only are these things not assured, but the farther investigations are carried the more helpless astronomers and geologists become in deciding upon reasonable answers to these problems. The old Nebular Hypothesis, which was held to be sound science for more than a century, is now discarded, and the Planetesimal Hypothesis and the Tidal Theory and other speculations designed to replace the Nebular Hypothesis, are seen to be faulty the more carefully they are examined. If the geologists therefore are unable to decide how the earth could come into being by any naturalistic process, obviously they have no good starting-point for calculating its age.

The older geologists were convinced that they understood the earth's early history. They therefore, apparently, had a starting-point (in theory) that modern geologists do not have. They were sure that the earth started molten hot and was gradually cooling. All the older textbooks on geology describe the supposed movements of a solid crust of this earth resting upon a molten interior, and being shoved up, or sinking down as occasion required; but now physicists are certain that the earth is not cooling nor shrinking, at least to any material extent, and that through the radioactivity of certain minerals it may even be gaining in heat. In truth, they do not know whether it started hot and at approximately its present size, or whether it started cooler and attained its present size and heat by the accumulation of material from other parts of the solar system. Certain facts indicate one kind of a beginning and other facts indicate the other kind of beginning. The geologist is helpless in deciding upon the nature of the early earth.

Study for example the theories of the origin of the atmosphere, or the ocean, of the source of the chlorine in the ocean, of the causes of volcanoes, of the uplift of mountain masses, or of almost every other important feature of geological history, and confusion and uncertainty are met at every turn. Until questions like these are settled in somewhat reasonable manner, not one valid step can be taken by way of calculating the true age of the earth. As a matter of fact, if naturalism is helpless in accounting for the earth, and if facts are in conflict with every naturalistic hypothesis for the earth's origin, a legitimate and just theory is that a Creator called it into being. Before deciding definitely upon this kind of an origin, however, a more careful study of the problem is in order.

III.

Modern dogmas about the age of the earth were given their start when present theories of earth history were established. As early as 1787 James Hutton, a noted British geologist, pronounced as a basis for interpreting geological phenomena the proposition that geological processes of the past, through all time, were in their nature the same as those operating now. This principle was enunciated in even more detail by Sir Charles Lyell several decades later. Wind and water wear away the land, and sediment is deposited in lake, valley and ocean. Geologists insisted that all sedimentary rock everywhere, whether on mountain top or wave-beaten cliff, had that kind of origin.

When, therefore, great mountain masses almost the world over were seen to be composed largely of sedimentary rock, and when this rock was found to be very different in various places, different periods of time for its origin were determined upon, and by the necessity of the case the earth was then believed to be very old. How old it was, early geologists did not decide, or if they speculated upon the matter, they at least reached no definite conclusions.

Later on, systematic efforts were made to determine the matter. Lord Kelvin, calculating the probable life of the sun by the heat sent forth, figured that the earth could not be more than 20 to 40 millions of years old, for the sun could not be much older. Other methods of calculating the earth's age were also devised, and now we have valuable data from which we may draw some definite conclusions on the subject.

Provided Lyell's principle was correct, that earth processes in the past were the same as earth processes at present, an obvious way to measure the age of the earth is to determine the rate of erosion and of the deposit of sediment, and to compare that with the amount of sedimentary rock that was formed in the past. Find the amount of rock being formed now, and the amount that has been formed, and the number of years required to deposit this rock material will be known—allowing for a suitable margin of error. Fifteen years ago this measure was a standard measure of time. By it the earth was assumed to be from 60 to 100 millions of years old. Allowing for difficulties in determining the amount of rock formed in the past and the amount of erosion occurring now, the important question about this method of determining geological time is whether sedimentary rock of the

past was always formed as it is now. That matter will be taken up later.

Another measure of geological time was to determine the amount of material being carried in solution from the land to the ocean, and to compare this with the amount of such material in the ocean. This principle of measuring time is the same as the sediment measure: Material is removed from land to the ocean; determine the amount removed each year and the amount that has been moved, and the age of the earth can be determined—always provided that earth processes in the past were the same as earth processes now—and this was assumed by geologists to be a fact.

Among the materials in the ocean to be examined in applying this measure of time are sodium, potassium, magnesium, calcium and the sulphate radicle SO_4. The foundation weakness of this measure of time is that the amount of these materials in the ocean at the beginning is not known and cannot be known. Some of the materials are also being removed from solution after reaching the ocean. Others are not, or the amounts removed are so small that corrections required on this account are of no material importance.

IV.

The material mostly used in this method of calculating the age of the earth is sodium. In fact, the other materials have been given little or no serious consideration.

The amount of sodium in the ocean is known to be approximately 14,130,000,000,000,000 metric tons. The amount carried into the ocean each average year is 158,357,000 tons. A little arithmetic will therefore show that, given an earth in the past like the earth now, only about 89,000,000 years would be required to make the ocean as salty as it is now, if the ocean contained no sodium to begin with—which is unthinkable. These figures and others to follow are obtained from the United States Geological Survey Bulletin, *The Data of Geochemistry*, which obviously is good authority. Provided rain has fallen upon land in the past, and rivers have run into the sea carrying materials from the land with it, sodium must have been increasing in the ocean. The 89,000,000 years therefore provides an extreme outside limit for the age of the ocean—and of the land— and this age must be reduced to allow for the amount of sodium in the ocean at the beginning.

Whether one assumes that the earth was very hot to begin with and gradually cooled down, or whether one assumes that the earth began small and that the water and the atmosphere were squeezed out from the earth, as planetesimals accumulated and caused heat and pressure, the primordial ocean and atmosphere would certainly be abundantly supplied with chlorine, carbon dioxide and the oxides of sulphur. All of these combine with water to form strong acids that would decompose the rocks and unite with the basic elements therein. The early ocean would therefore be rich in sodium, potassium, magnesium and calcium, also in sulphates. This is undeniable. Our time measures would therefore not be based upon the idea of an ocean free from these materials, but of one well supplied with them ; and the time required to bring the ocean into its present condition might be very brief. For all that can be seen, analysing the matter from pure chemistry, the ocean would probably be almost as salty from the beginning as it is now, let it have what kind of naturalistic origin it might have had. Under those conditions the ocean would not be old. If it were old, it would be far more salty than it is now.

An interesting feature of the sodium content of the ocean is that it equals the sodium that would be contained in a coating of typical igneous (original) rock a third of a mile thick over the surface of the globe. There is therefore more sodium in the ocean than there is in the land standing above sea level, and than there would be if such land was pure volcanic rock from which no sodium had been leached. Such a condition indicates conclusively that when the elements settled down from their original heated condition (if they were at first in such condition) the chlorine, sulphur and carbon dioxide and other acidic substances in the ocean were combined with immense amounts of sodium, and of course with the other bases. The sodium measure of time therefore shows conclusively that the earth, as a body in something like its present condition, is definitely not old—not more than a small fraction of the 89,000,000 years.

V.

The other materials in the ocean as a rule give more striking results than the sodium. The potassium content of the ocean is 510,800,000,000,000 metric tons, and the annual addition from the land is 57,982,000 tons. As these figures stand, without

correction, this would give an ocean only 8,800,000 years old, though corrections for both the amount present at the beginning and for removal from solution should be made. Unlike sodium, potassium is removed somewhat from solution, partly by combination with other elements and partly through use by marine plants and animals. Upon the whole, however, it is very soluble, and most of that used by plants and animals goes back into solution. Allowing full correction for material removed, the great amounts that certainly would be in the ocean from the beginning indicate that the 8,800,000 years is far longer than would be needed to accumulate the potassium in the ocean. Even this, then, would be too high a figure to give as the age of the earth.

Magnesium is the next most prominent basic element in the ocean after sodium, and large amounts are removed annually from the land. The ocean contains 1,721,000,000,000,000 metric tons, and the annual increase from the land is 93,264,000 tons. Although magnesium is very soluble, considerable amounts are removed from solution by vegetation and by shell fish, though most of this is doubtless brought back into solution again. Large quantities must have existed from the beginning in the ocean, so the 18,500,000 years given by the magnesium measure, as the outside limit for the age of the ocean, must be far too high.

The sister element, calcium, though unsatisfactory as a measure in certain important respects, gives such astonishing time-results that it cannot be ignored. This is removed from land to ocean much more rapidly than any other material, 557,670,000 tons, or nearly four times as much as sodium, is carried annually into the ocean, but the amount in the ocean is only a small fraction as great as the sodium, or 552,800,000,000,000 tons. Using these figures as they stand, only 860,000 years would be required to give the ocean its present calcium content.

Large quantities of calcium are, of course, used by shell fish and other marine organisms, but much of this material will go back into solution on the decay of those organisms. The ocean is also far from being saturated with calcium salts, and particularly in the depths any calcium is likely to be rapidly redissolved. Considering the large supplies of calcium that must have been in the ocean from the beginning, let it have what origin it would, and the comparatively small amount now in solution, the age of the ocean by the calcium measure must be extremely limited.

VI.

The sulphur measure of time is also very significant. Like sodium, the sulphur which enters the ocean stays there. Some is removed, doubtless, by precipitation, mostly by change into sulphides through the agency of marine plants, but unquestionably nearly all of this is reoxidized into sulphates again. Sulphur fumes are abundant in volcanic action, and sulphur must have been produced in enormous amounts in the early earth, assuming that the earth had a naturalistic origin, and the ocean must have had large quantities of sulphates in solution from the beginning. They are also carried in enormous amounts into the ocean each year. The figures given in *The Data of Geochemistry* are: 3,553,000,000,000,000 tons of SO_4 in the ocean and 332,030,000 tons carried to the ocean each average year, which is more than double the amount of the sodium removed from the land. At this rate, the ocean if old should contain enormous amounts of sulphates, yet the full amount, counting as from a sulphur-free ocean, would be accumulated in only a little more than a million years. To ignore evidence like this, and to assert that the earth is very old, is most decidedly unscientific.

These figures, all of which indicate a young earth, seem to demand a re-examination of the sedimentary measure of time. That was based upon the idea that sediment in the past was deposited as it is now. Obviously if sediment were deposited more rapidly in the past than it is now the age by the sediment measure would have to be reduced accordingly, and we find upon analysis that it should be so reduced.

There are, for example, great deposits of fish fossils; and water and mud must have moved with extraordinary violence in order to catch, kill, and bury before decay great schools of fishes—often salt-water fishes. That kind of action is more like a Noachian Deluge than like present-day geological action. The organisms which gave rise to our petroleum deposits must all have been covered quickly and violently, or they would have decayed and petroleum would not have been formed. Coal also was formerly believed to have been formed by the burial of great masses of vegetation which grew in the places where the coal is found, but now the best geologists are coming to believe that the coal vegetation was washed into place and covered rapidly by sediment. This demands very rapid deposit of sediment, not slow processes such as occur now. The testimony of the sediment

measure of time is the same as that of the salt measure of time : the earth is still young.

VII.

The question now arises, What is to be done about these calculations ? Geologists began by assuming a kind of earth history which compelled belief in an earth hundreds of millions of years old. Lord Kelvin's investigations compelled them to believe in an earth much younger; then the salt and sediment measures of time, even though unscientifically used, caused them to believe that the earth was only about 60,000,000 years old. Now, even these figures have been cast to the winds, and an age of a thousand million years and more is commonly and calmly asserted. The grounds for such assertions deserve some attention.

When radium was discovered, a new theory of the nature of matter was open. Then other elements were found to be radio-active. Uranium, throwing off energy, changes into different forms of radium, then into the inert metal, lead, and into the gas, helium. The metal thorium also changes into lead, and these leads differ from ordinary lead. By determining carefully the amount of uranium, or thorium, or radium, in an ore, and the amount of lead that has apparently formed by decomposition, the time required for the formation can be estimated. By this method of calculation various rocks in different parts of the earth are estimated to be a thousand million years old or older. As given to the public, this method of measuring the age of the earth seems plausible, but there are flaws in it which need not be discussed at length here. If this did not offer a means of deciding that the earth was very old, the method would certainly never be favoured. Findings have been inconsistent with one another, and the data used have been hand-picked. The Geological Survey Bulletin mentioned earlier, *The Data of Geochemistry*, cites examinations of certain Texas ores which would make these ores, all from the same general deposit, vary from 1,671,000,000 to 11,470,000,000 years old, which is a complete absurdity.

Long ages like these, or like a thousand million years, or an appreciable part of the same, are impossible if, as is assumed, water was wearing away continents and depositing the sediment in the ocean. The ocean under such conditions would be almost as salty as the Dead Sea, or the land would be leached of its soluble contents. Such conditions do not exist. Therefore the

earth is not old. It is most unscientific to take certain facts which can be used to help out a theory and to ignore other very plain facts which are in conflict with that theory, but this is what is being done by those scholars who inform the public that the earth is hundreds of millions of years old, and who unhesitatingly, and with supposed authority, assert ages of millions of years for certain formations or certain fossils. The thing is all wrong.

IX.

Some one may ask, What does it matter whether the earth is old or not? This can be answered, Yankee-like, by asking another question, What good is science, and why know anything about Nature? Some interesting conclusions are forced if the earth is really not old.

In the first place, if the earth is not old, standard theories of earth history will have to be utterly revolutionized, and the textbooks dealing with historical geology will have to be rewritten from start to finish. In the second place, if the earth is not old, worm never changed to fish and fish to man save by miracles greater than the most orthodox creationist ever demanded, and the biological sciences will have to be reorganized. In the third place, astronomers and physicists in assuming a very old earth and a very old sun may have to revise their views about the origin of the earth and of the formation of energy in the sun and in the warmer stars. If they assume that the sun has been supplying energy to the earth for hundreds of millions of years, when the earth is not hundreds of millions of years old, their theories will need revision.

In this connection a few facts can be pointed out. Energy from the sun seems to come in part from radioactivity and the destruction of matter, and frequently we hear about the immense length of time during which we may expect the sun to turn its mass into heat. Actually the amount of heat available from the breaking down of matter in the sun is very limited unless some ways of breaking up atoms exist, of which science knows nothing.

Radioactivity as we know it comes from the breaking down of very few elements, and these are mostly rare elements, and even then the loss of weight is small. Unless those elements are exceedingly abundant in the sun, the amount of material in the sun that can be altered into energy is therefore very small, comparatively speaking. In the radium series, for example, the

starting-point is uranium, which has the atomic weight of 238·2 and the final materials are lead, which has the weight of about 207, and several atoms of helium, which has the weight of 4. By this it can be seen that only a small part of the weight of uranium can be turned into energy, while the energy from the radioactivity of the more plentiful elements like iron, aluminium, silicon, calcium, and magnesium and the gases is either little or non-existent, for all that can be determined. Yet popular writers on science often speak as if almost the whole mass of the sun could be turned into energy. Actually the material in the sun that could be used for developing energy through the disintegration of the atom seems to be very small. The life of the sun, therefore, seems to be much more as Lord Kelvin calculated it, than as many modern physicists, carelessly assuming that the earth is very old, assert it to be.

Astronomers also assume that some passing star dragged material from the sun a thousand million years ago or more, thus forming the solar system. If the earth is not even a small fraction of this age, such a theory should be abandoned.

Summing up the whole case, we know nothing of the naturalistic origin of the earth, nor of the rest of the solar system; we know nothing of the early condition of the earth, and obviously we have no starting-point from which to calculate its age. Examining the data which geology provides, we find many conflicting features about the earth which contradict any theory of its naturalistic origin that can be suggested, and although we find nothing in nature to show its actual age, we find definite evidence to show that it cannot be old. And if it is not old, then scientific opinion in many lines will have to be revolutionized before it can rightly be called scientific.

Note.—Following is a brief autobiography.

Born in San Francisco 1883. Educated in the public schools of Berkeley, California. Graduated from the College of Agriculture of the University of California, December, 1907, with the degree of B.S. This was followed by one semester of post-graduate work. Taught one year in public schools of Hawaii, remaining in Hawaii for almost a year more, but returning to Berkeley on account of family duties. Engaged in newspaper work, then in farm paper work (editorial department). Was associate editor of the "Pacific Rural Press," for several years, resigning to become editor of "Orchard and Farm." Resigned and moved to Exeter district, where I have

been farming since, although I have continued writing for the agricultural press.

Several years ago, starting with the foundation of agricultural biology and agricultural observations in general, obtained at the university and in farm paper work, I began a systematic study of the relation of such transformation of species as evidently occurred to the doctrine of direct creation. From the beginning, though believing that Natural Selection was doubtless responsible for much change, I was convinced that it did not touch the great problems of the origin of life, or organs, and of the major forms of plant and animal life. My studies upon this led me into writing upon the subject, and later into public speaking.—D. J. W.

Discussion.

Mr. Sidney Collett wrote: I am sure we all thank both the author and the reader of to-night's interesting paper, especially as the subject, as dealt with, quite rightly shows the unreliability of so-called "science." Hence, as knowledge increases, *i.e.*, as God's laws in nature are better understood by us, "science" so-called must of necessity change its views. The late Professor Ramsay said, in my hearing, that the scientific text-books which he studied as a young man, owing to the increase of knowledge, were all "scrapped!" and, for the same reason, it is safe to say that, ten years hence, much of the "science" of to-day will have to be abandoned and new theories adopted!

I have collected the names of leading scientists, who have given us their calculations as to the supposed age of the earth; all of them men of the first rank in the scientific world. Playfair said the earth had existed from all Eternity!

Professor Ramsay	made it	10,000 million years;
Eugène Dubois	,,	1,000 million years;
Goodchild	,,	700 million years;
Sir Charles Lyell	,,	400 million years;
Charles Darwin	,,	300 million years;
Sir Oliver Lodge	,,	100 million years;
Sir George H. Darwin	,,	60 million years;
Professor Sollas	,,	55 million years;
Lord Kelvin	,,	24 million years;
Dr. Croll	,,	20 million years;
Professor Tait	,,	10 million years.

So that, excluding Playfair's views, there is between the highest and lowest of these estimates the somewhat staggering difference of 9,990 million years. Should we not thank God that in the Bible there is an absence of such speculations ? The Bible tells us in Ps. xxxiii, 6, " By the word of the Lord were the heavens made, and all the host of them by the breath of His mouth ; " and in vv. 8 and 9 : " Let all the inhabitants of the world stand in awe of Him, for He spake and it was done ; He commanded and it stood fast."

The vote of thanks to the lecturer (and reader) was passed with acclamation.

763RD ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL, WESTMINSTER, S.W.1, ON MONDAY, JANUARY 23RD, 1933, AT 4.30 P.M.

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

The Minutes of the previous Meeting were read, confirmed, and signed, and the HON. SECRETARY announced the election of Edwin J. Tharp, Esq., D.C., as an Associate.

The CHAIRMAN then called on Dr. A. S. Yahuda to read his paper on "Joseph in Egypt in the Light of the Monuments," which was illustrated by many lantern slides.

JOSEPH IN EGYPT IN THE LIGHT OF THE MONUMENTS.

By Dr. A. S. YAHUDA.

IT was gratifying to me that my lectures at University College and my articles in the periodical press during the summer of 1932 aroused such a widespread interest. It has been my aim to show that the treatment applied to the Bible, regarded as a complex of suspicious documents which can only be trusted when outside evidence is forthcoming, and even then only to such an extent as is in harmony with the tendencies of Higher Criticism, must be abandoned since every discovery of ancient monuments, and every new find of old records has gone to confirm the Biblical statements. If proper and fair treatment is given to the Bible; if Critics place the Biblical records at least on the same level as they place other records of ancient times and peoples, then the Bible will be treated as a truthful source, capable of holding its ground, and only coming under suspicion in the event of outside evidence of an absolutely reliable nature furnishing definite proof to the contrary.

There were times, and not very far distant, when Biblical scholars doubted the correctness of statements found even in the Books of the Kings, challenging them because there was lack of evidence from the neighbouring peoples of Israel; but Assyria and Babylonia have brought to light abundant evidence in support of such historical statements. The names of the kings, Jehu and Hezekiah, have been found in cuneiform inscriptions on the monuments of Shalmaneser and Sennacherib, and the Biblical version of Sennacherib's campaign has been proved as correct as the Assyrian version, even supplying details which go to complete the records of Assyrian and Babylonian history. Again, Egypt has yielded historical and archæological evidence, and now Palestine is beginning to give up its secrets, hidden for thousands of years in its soil; and all along we have new evidence of the truth of the Bible. The time may, therefore, not be far distant when the whole range of Biblical history from the time of the Exodus down to the Babylonian Exile, will be found to be confirmed by the archæological and documentary discoveries of Palestine, Syria, Egypt, and Mesopotamia.

For the earliest formation of the Hebrews as a people, as well as for the beginning of their language and culture we must, however, find in Egypt the most important source—a source which will remain the most fruitful ground of investigation. Beyond question, Egypt was the cradle of Hebrew thought, and it was in Egypt that the Hebrew language had its development from the stage of a primitive Canaanite dialect to a perfect literary language as we have it before us to-day in the books known as the Pentateuch.

* * * * *

In my lectures and articles I gave a short outline of the main points regarding the formation of the Hebrew language, and in the first volume of my large work, "The Language of the Pentateuch in its Relation to Egyptian," recently published, I have adduced a large amount of evidence, going to show the influence, deep and intense, exerted by Egyptian on the Hebrew language. In my book there is supplied abundant material, showing that Egyptian influence has penetrated the language and thought of the Pentateuch, not only in that portion which deals with the story of Joseph and the sojourn of Israel in Egypt, but likewise in other portions, including the Genesis

stories of Creation, Paradise and the Flood. It is obvious that such portions as the Joseph and Exodus narratives must reflect most vividly the conditions of life, the customs and manners of the environment in which Hebrews and Egyptians lived together, in intimate contact during many centuries.

It is about that earliest period of the Hebrew-Egyptian contact that I propose now to speak. I shall show features of the Joseph story that have a clear bearing on the time and environment—when and where events in such circumstances as are depicted in the Joseph narrative could appropriately occur, and where such a narrative as we have could have been written in such a style and such a language as we have received it. It is, of course, impossible to go beyond a few examples; no one could expect me in a short lecture to give all the evidence derived from Egyptian even for a part of Joseph's story alone. I shall, however, make an attempt to throw a few rays on this portion of the Bible records from the beacon light radiating from Egyptian sources.

Biblical critics have maintained, and they still maintain, that the Joseph and Exodus stories, in spite of being enacted in Egypt and referring to Egyptian life, show very little genuine knowledge of Egyptian conditions—that Egyptian loan words are so scanty as not to justify the belief that the author had any idea of the Egyptian tongue. Yet we shall show that the narratives now before us may be illustrated with a wealth of detail such as could only be derived from first-hand knowledge and exact observation at close quarters.

* * * * *

Coming to the records, we find that no sooner does the writer begin the story of Joseph than he plunges deeply into Egyptian life. He approaches his audience, or readers, not as one conveying something foreign, something strange, almost unknown, coming from a remote country; rather he assumes, straightway and as a matter of course, a complete acquaintance with the land and people of Egypt. Manners and customs are mentioned that indicate, nay, presuppose, a thorough familiarity with the structure of Egyptian life. Many individual features of social, family, and court life are touched upon by the narrator, merely to be passed over by the reader as devoid of special significance, yet features which, on closer study of actual Egyptian conditions, are found to be intentional allusions to common and popular

occurrences, in connection with social or state institutions, more or less important. By the brevity and casual nature of these allusions, we rightly infer that they could be understood in their full significance only by those who knew them from first-hand observation, or had at some time participated in them.

The whole incident of Potiphar's wife and Joseph reveals the Egyptian background with its local colouring. There is an Egyptian story of two brethren, Ynepu and Bata, which provides so many similarities that it may serve as an illustration of the whole episode. Although such love affairs could occur in any other country, the charm of the story lies in the fact that it reveals the Egyptian background with local colouring. The great Berlin historian, Eduard Meyer, found the resemblance to be so striking that he could not conceive the Joseph narrative as anything but fiction, and suggested that it was a mere adaptation of the Egyptian story. Unfortunately he forgot that he belonged to the chorus of those scholars who have decried the author of the Joseph narrative as completely ignorant in Egyptian matters! Yet he could suddenly credit the same author with a good knowledge of Egyptian literature! Thus these scholars have it both ways when the Bible is in question.

Further, the reference to the dungeon into which Joseph was thrown, makes it clear that the place was not an ordinary gaol, but rather a special prison designed for dangerous criminals or political offenders. In my book I have shown that the dungeon was in the well-known fortress *Zaru* (mentioned for the first time under Thutmoses III, about 1478 B.C.) on the borders of the Palestine frontier. As a matter of fact, it is mentioned several times in the Edicts of Harembeh (1350-1315 B.C.) as a prison for grievous offenders, just as it appears from Gen. xxxix, 22, that it was an establishment for forced labour, under the supervision of the chief executioner. This fortress must be identical with that mentioned by Sinuhe, under Amenemhet, about 2000 B.C., on the paths of Horus. At any rate, *Zaru* was well known long before the Joseph narrative was written down.

As for the butler and the baker mentioned in the story, we can refer to reliefs which depict such high officials "in action." From the one we see the butler pouring drink in the cup of a great lady, who is undergoing the strain of a hair-dressing toilet. In another tomb we see the "chief of butlers" sitting in his vineyard receiving accounts of the product of his domains.

Other reliefs show a bakery and men carrying baskets heaped with loaves and cakes, carrying them on their heads, as did the chief butler in the presence of Pharaoh.

There are other details which do not attract the special attention of the reader because of their general character. Thus, *e.g.* no English reader will find anything unusual in the statement that Joseph was shaved as soon as he was freed from the dungeon (Gen. xl, 15). This, however, points to a very characteristic feature in Egyptian conceptions of hirsute propriety, a feature which radically differed from that which prevailed in Joseph's home-land of Canaan. For only Semitic "barbarians" allowed their beard and hair to grow; and hence in Egyptian pictures they were represented with beard and long hair as characteristic of foreigners. In the eyes of all Semitic people the beard was a mark of dignity, and long hair was the ornament of warriors and heroes, only prisoners and slaves being shaved, in token of humiliation and dishonour, as appears to be clear from such a passage as 2 Sam. x, 4. The Egyptian practice was the exact opposite, and the first thing that every Egyptian of better standing was anxious to do as he came of age was to submit his head and face to the attentions of the barber. He only grew beard and hair when mourning for near relatives. Thus we see Joseph was made to appear before Pharaoh, not as a barbarian and in foreign garb, but as a well-dressed Egyptian gentleman, duly shaven.

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As to the famous dream of the seven fat and lean kine (Gen. xli, 1 ff.), it was pointed out some years ago, by Edouard Naville and others, that such a story was only conceivable in Egypt, where the goddess Hathor was worshipped in the form of a cow. As there were seven districts, each of which had its Hathor-cow, the kine were seven in number. In the tomb of Nefertaru, the beautiful wife of Rameses II, seven cows are to be seen, accompanied by the bull-god, as if marching in a solemn procession. In another picture the Hathor-cow is seen looking out of a grove of papyrus reeds, and on the wonderful mural reliefs of the temple of Hat-shep-sut, in Deir al-Bahari, are to be seen seven cows feeding in a meadow under trees. This is the picture that appeared to Pharaoh in his dream. What, however, so much disturbed him, and what so much confused his magicians, was not the appearance of the seven

cows merely, but the accompanying details—that there were fat and lean kine, and that they were followed by seven full and seven empty ears of wheat. The magicians, of course, could not but think of all kinds of eschatological connections in the nether world. That was where Joseph's wisdom came in; he eliminated any connection of the kine with the beyond, and regarded the whole dream as a prognostication of happenings in the land itself, seeing in connection with the ears of wheat a relation to food conditions of the country. Accordingly he interpreted the seven kine and the seven ears as "years of plenty" and "years of famine."

Here the language also testifies to the relations subsisting between Hebrew and Egyptian. The "years of famine" (Gen. xli, 54) is a genuine Egyptian expression, and the Hebrew of the passage presents a literal translation of the Egyptian phrase. Not only this, however; the entire conversation between Joseph and Pharaoh bears a thoroughly Egyptian stamp. Thus, quite at the beginning, Pharaoh says: "I have dreamed a dream, and there is none than can interpret it, but I have heard of thee that thou understandest a dream to interpret it." (Gen. xli, 15.) For "understand" the Hebrew has, "thou *hearest* a dream"; this corresponds entirely with the Egyptian use of *sedem*, "to hear" "to understand," a meaning which is clearly shown by its use in the phrase: "He *hears* the speech of Egypt," *i.e.*, "he *understands* the language"; exactly as "hearing" is used in the Hebrew text of Gen. xlii, 23, for *understanding* the language.

Even ordinary phrases of deference such as are or might be in vogue at any court, are here highly typical of Egyptian etiquette, and only become clear in their right meaning in the light of Egyptian Court ceremonial, and Egyptian conceptions of good breeding.

A characteristic formula is the phrase recurring in several passages "to the face of Pharaoh," or "from the face of Pharaoh," (Gen. xlvii, 2, 7; xli, 46), meaning *in the presence of Pharaoh*. This corresponds completely with hierarchical court custom, whereby one might not speak *to* His Majesty (*er hemef*), but only *to the face* of His Majesty (*em her hemef*, or *kheft her hemef*).

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The particulars given of Joseph's honours (Gen. xli, 42), which accompanied his installation as vizier, with solemn

ceremonies, are in perfect harmony with ancient Egyptian usage. In fact, they could not be better illustrated than by the Egyptian inscriptions and pictorial representations found in tomb-reliefs. The ceremonies at the Court of Pharaoh were very complicated, and full of pomp and splendour, specially during audiences. The king sat on his throne, invested with all his regalia, as bestowed on him by the gods themselves on the day of his coronation. Over him was extended a richly ornamented canopy, and beneath his feet, and in front of him, were carpets in gay colours. Visitors were introduced to his presence by ushers, who held in their hands plumes which served as a sign of their high official position.

This was the manner in which we may conceive Joseph to have been received in official audience, on the day of his elevation to the highest office in the State. Dressed in garments of fine linen, which was the distinctive garb of kings and high personages, the royal signet was conferred on Joseph, and he was invested with the gold neck-chain. The latter was not, as it may appear, a mere present, but a ceremonial act, showing in a spectacular manner the investiture of a high State dignitary among the plaudits of the people. The ceremony was known as the conferment of "gold of praise," or simply "the gold." It would appear that from the earliest times of the Middle Kingdom (2300 B.C.) great army commanders and royal functionaries of high rank coveted this decoration with much the same punctiliousness as a Prussian dignitary boasted of the Order of the Black Eagle, or an English nobleman is jealous of the Order of the Garter. The decoration consisted of gold jewels presented by the king, among the chief gifts being necklaces comprising many strings of gold. In ordinary cases, at the king's behest, these jewels were placed round the neck and on the arms and ankles of the recipient by the keeper of the treasury.

In the splendid pictures in the tomb-hall of the vizier Eye, we see a detailed representation of the ceremony of conferment. When this same vizier Eye, received "the gold" for the second time, on the occasion of his marriage with Teye, it was his special privilege to receive "the gold" from the hands of the king himself. With great pomp, Eye and his wife were conducted in royal chariots to the Palace, with a royal escort, accompanied by fan-bearers, servants, and troops of runners in front of the chariot, while whole regiments of Syrian and Nubian soldiers followed as body-guard. No fewer than ten scribes accompanied

the procession, in order that the gracious words which the king would utter might be carefully recorded. The king, leaning on the gay cushions of the balcony parapet, threw "the gold" upon his faithful servant, the queen holding her youngest child in her arms also threw gold chains, and the two elder princesses joined in the throwing of bracelets, there being a real shower of treasures falling upon Eye and Teye.

Here we have a documentary description of the ceremony of conferring the gold necklace on Joseph, as given in Gen. xli, 42. Joseph was the recipient of the greatest distinction, for, as we read, it was the king himself who placed his signet ring upon Joseph's finger, and put the gold chain round his neck; and further, Joseph was driven in a royal chariot through the streets, with runners in front of him.

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There are many other features in the Joseph story, of which the Egyptian monuments furnish illustrations. I could give a running commentary from Egyptian life and customs on all the chapters that deal with Joseph. Let me mention a few: In Gen. xliii, 11, we read—"And their father Israel said unto them, do this, take of the best fruits of the land in your vessels, and carry down to the man a present. A little balm, and a little honey, spices and myrrh, nuts and almonds." Further, verse 25: "And they made ready the present, against the coming of Joseph at noon; and when Joseph came home, they brought him the present which was in their hand into the house, and bowed themselves to him to the earth." From these passages it appears that they prepared to offer him the present in a solemn manner, and as a matter of fact we know from the Egyptian monuments that etiquette would not allow any foreigner to make a present to the vizier or the king without the observance of the prescribed ceremony. There are many pictures that show the scene of Canaanite notables offering presents or tribute to the king; they are in characteristic garb, and illustrate very clearly the manner in which Joseph's brethren brought before him the present sent by their father.

In connection with the ceremonies of Joseph's investiture with the gold chain, whereby he was installed in the highest State office by Pharaoh, mention was made of the runners in front of his chariot. I desire to supplement that description by a few details. One picture shows the State chariot of the

king, attired in sumptuous apparel, the horses caparisoned as on occasions of State ceremony, or as when driven out at the head of the army in battle array. This shows us how we must imagine Joseph's chariot to have been driven through the land, by way of proclaiming his appointment to high office. The chariot was of elaborate craftsmanship, inset with gold, and engraved with beautiful scenes and figures. In another picture we see an Egyptian grand-seigneur and land-owner proceeding to his estate, accompanied by servants, one of whom, running in front, makes way for his master in the crowded streets. It is interesting to note how well some old Egyptian customs have been preserved to this very day in the Valley of the Nile. In the same manner as runners were employed in front of Joseph's chariot, so throughout the ages, right down to the Khedives and Viceroys of modern times, runners have been employed to clear the way for kings, princes, viziers, and high State personages. Probably Lord Kitchener was the last counterpart of Joseph, to have the *sayis* (Arabic word for runner) with swords in their hands, proceeding in front of his carriage.

But the most amazing thing is that even the expression that was shouted by the runners in Joseph's time is still alive in modern Egypt. The expression was, as we learn from Gen. xli, 43, *Abrek*! which means, literally, in Egyptian, "Mind thee!" in the sense of "Look out!" How many people who have visited Egypt will have heard in the streets of Cairo the drivers of animals and vehicles shouting along the road to pedestrians, the word *Balak*! which, in Arabic, is exactly the same as "Mind thee!" thus coinciding literally with the old Egyptian *Abrek*! As a matter of fact, I have been able to identify many expressions and phrases which have come down from ancient Egyptian into the Arabic language since the Moslem conquest of Egypt.

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But not only are the ceremonies to which I refer of astounding accuracy as describing the function and position of Joseph as vizier, but they are in full accord with all that we know concerning the duties and privileges of State officials, standing next after the king. In this connection we are particularly enlightened by detailed regulations for the office of vizier, preserved in the tomb-inscriptions of *Rekh-My-Re*, the vizier of Thutmoses III (1500-1447, B.C.). The whole description of his installation into

high office is so vividly reminiscent of the Joseph narrative that it may be regarded as an authentic confirmation of the Biblical narrative, and even more, as an illustrative commentary of the details furnished by the narrator in Genesis. After the king, the vizier is the highest dignitary in the State, invested with all the rights and powers belonging to the king. In a word, he replaces the king; in the king's absence, the vizier is the actual ruler, even as, in the king's presence, no person and no matter can reach the king except through the mediation of the vizier, just as Pharaoh said to Joseph—"I am Pharaoh, and without thee shall no man lift up his hand or foot in the whole country of Egypt" (verse 44.) It is the vizier who issues all orders, and he it is who carries out the royal commands. Every officer, from the highest to the lowest, must report to him: even in legal proceedings, in complaints by officers one against the other, as well as in criminal cases, the decision rests with the vizier as the supreme judge. The signet ring signified the confidence of the crown, but it was also a token of high privilege the bestowal of which rested with the king alone. The vizier is, furthermore, the supreme administrator of the Crown lands, the country as a whole being under his supervision, corresponding with the statement of Gen. xli, 40 f.—"thou shalt be over my house, and according to thy word shall all my people be fed;" and again, "See I have set thee over the whole country" (*cf.* also xlv, 8; xliii, 15 f.). In the hands of the vizier lay the real direction of all affairs in Court and State, he being real ruler next to the king, as it is further said "Only on the throne shall I be greater than thou" (Gen. xli, 40).

One picture shows the High Court in which the vizier sat to dispense justice. Before him are the forty law rolls on two mats; on both sides stand the scribes of the Court, and outside are the litigants waiting to be called, or dragged, into the Court. A second picture shows a vizier wearing the signet-ring on his finger.

As already mentioned, it was the narrator's tendency, or purpose, to show that the installation of Joseph was in every respect in conformity with the hierarchical customs and laws of Egypt. Joseph was given an honorific Egyptian name by Pharaoh, *viz.*, *Zaphnath-paaneah;* which, as I have shown in my book, means "The Good of the Land is this Living One." And the daughter of Potiphera, the high priest of On (Heliopolis) was married to him. This was a great distinction, by which

Joseph was elevated to priestly rank. This is meant when it is said, as in Gen. xlv, 8, that he was made as "Father to Pharaoh." This is the exact equivalent of Egyptian *itef-neter*, *i.e.* Father of the God. The Hebrew expression *Ab*, father, is a reproduction of the Egyptian title *itef*, "father," a common priestly title, which was borne by humble officers as well as those of high rank, including viziers. In a hierarchic state where Pharaoh was a god (*neter*) his vizier had naturally to occupy priestly rank, and it was precisely this which was conferred on Joseph by the title "father." This qualification, as we have seen, was enhanced by Pharaoh giving to Joseph for wife the daughter of the priest of On (Gen. xli, 45). The narrator was quite clear as to the hierarchic significance of such a union, and of the high position occupied by the priests of On, for, to the Egyptians On was the Holy City *par excellence*, regarded as the seat of the most powerful of the cosmic deities, namely, *Atum*, which was occupied by a numerous and important body of priestly functionaries.

The central sanctuary of On was established as early as the middle of the fourth millennium B.C., when the first god *Re* was already ruling there. It is significant to note that the marriage of Joseph to the daughter of the priest of On implied the reception of a foreigner into the highest priestly caste, and by such elevation to the rank of "Father of the God" Joseph was assigned an eminent sacerdotal dignity. Of course, the monotheistic narrator evades such an expression as lies behind the Egyptian title "Father of the God," and simply renders it "Father to Pharaoh," as we at the present time speak of a priest as "father."

As to the title "lord of his whole house" (Gen. xlv, 8), this answers to *mer-per*, "lord, chief of the house" *i.e.* of the palace, meaning the court chamberlain.

The narrator gives us the Egyptian name, or official title, *Zaphnath-paaneah*, conferred by Pharaoh on Joseph, in the Egyptian language, deeming himself under no necessity to add any explanation, because the meaning would be at once intelligible to listeners and readers of the narrative. Had the narrator lived many years later than the Exodus, and in a country far removed from Egypt, as Egyptologists and Biblical critics have maintained, then most certainly he would have said something about the name, as used in a language which could not be understood in his actual surroundings.

* * * * *

In Gen. xlv, 19 we read that Pharaoh commanded Joseph to send wagons to Canaan for his old father and the women and children of the patriarchal family. This is not to be regarded merely as an act of courtesy on the part of the king; rather it reveals to us a fine trait of the ruler, who was desirous of sparing his minister the embarrassment of allowing the families of his brethren to enter Egypt as nomads, in Semitic fashion, as depicted in Egyptian reliefs, which represent the men as driving asses, and the women and children following on foot. Joseph's people were to enter the country in wagons, as was the custom in better circles in Egypt. It is expressly stated that Pharaoh took the initiative in this matter, commanding Joseph to send the wagons for his folk in Canaan. It is only subsequent to this command that the narrator tells us of Joseph presenting his brothers with new raiment, which of course was cut in the Egyptian style, and not after the Semitic fashion, checked in colours that were too vivid (Gen. xlvii, 2; xlv, 22). The picture of a nomadic caravan, such as archæologists and commentators of the Bible have so often employed in order to illustrate the entry of Israel into Egypt, is a sad misrepresentation of the journey as described in the record: at the behest of Pharaoh it was arranged that Joseph's family should not enter the land as wandering Asiatic barbarians, but rather as distinguished members of the vizier's family, in order to settle in the land and be looked upon as civilized people.

* * * * *

As to the time in which Joseph's installation as vizier took place, scholars who do not reject the whole story as a fiction, think that it took place under the Hyksos, or Shepherd Kings, who entered Egypt from Arabia about the eighteenth century B.C., and ruled over the country till about 1580 B.C., when they were driven out of Egypt. I do not propose to discuss this question now, but I must mention that, according to Exod. xii, 40, it would appear that Joseph's advent to power was somewhat earlier than the usurpation of Egypt by the Shepherd Kings. There are many details which point in that direction. For instance, in Gen. xliii, 32 it is said that, when the meal was set for Joseph and his brethren, before he revealed himself to them, they "set on for him by himself, and for them by themselves, and for the Egyptians who did eat with them by themselves, because the Egyptians might not eat bread with the Hebrews,

for that was an abomination to the Egyptians," and this because they were shepherds, and it is expressly said, in Gen. xlvi, 34 that shepherds were "an abomination unto the Egyptians." This is a clear indication that Joseph's activities fell under an Egyptian king, and not under Shepherd Kings: it would not be conceivable that, under the rule of the Shepherd Kings, it could be tolerated that a shepherd should be "abominated by the Egyptians." In connection with this I also draw attention to the expression "bread" for "meal" in this context (Gen. xliii, 32), where it is said "because the Egyptians might not eat bread with the Hebrews." The usage of "bread" for "meal" or food, exactly corresponds with the usage of the Egyptian "*ka*" which means bread in the sense of meal, whereas the Semitic expression in such a case would not be simply "bread," but "bread and water," or "bread and salt."

* * * * *

In a scene quite wonderfully described in Gen. xlvii, 7-10, we see the aged patriarch greeting the king and offering him his blessing. When asked by Pharaoh about his age, he replies: "The days of the years of my sojournings are a hundred and thirty years; few and evil have been the days of the years of my life, and they have not attained unto the days of the years of the life of my fathers in the days of their sojournings," In the first place, it must appear strange that Jacob describes his hundred and thirty years as *few*. When, however, we consider that Pharaoh was regarded as an eternally living god, endowed by the gods with millions and myriads of years (*ḥḥ n rnp·wt*), being as such praised and worshipped, it becomes clear why the venerable man Jacob had to assure Pharaoh, who was certainly much younger, that his hundred and thirty years were but *few* in comparison with the endless years of the eternally living "son of *Ra*." Furthermore, the remark that his age was not so high as that of his fathers must be understood in the light of Egyptian Court etiquette as both tactful and thoughtful, especially on the lips of a foreigner; for it belonged to the good manners of obsequious Court visitors to assure the king that they had been given a long life, and that many happy years had been theirs because they had the good fortune to enjoy the protection and favour of the king. The wise Ptah-hotep, the vizier of King Issi (about 2675 B.C., or earlier) at the end of his book of wisdom, said "It is not little that I have

done upon earth; I have lived a hundred and ten years, which the king granted me with rewards *exceeding those of my fathers* because I did what was right for him." Also the statement that he lived a hundred and ten years, granted him by the king, has its significance. As a matter of fact, a hundred and ten years were considered in Egypt as the limit of full age. Now it will be understood why it is said of Joseph that he lived a hundred and ten years (Gen. l, 26).

* * * * *

In Gen. l, 2 ff., the narrator describes the preparations made for the burial of Jacob. From all the details, in spite of their brevity, we see how perfect was the acquaintance with the embalming procedure of Egypt, also with its mourning customs and funeral arrangements. Note the statement (verse 3) that forty days were needed for the embalming of the body, and that the Egyptians mourned seventy days for Jacob. This statement is in exact accord with the periods that were customary for embalming and mourning in the case of highly-placed deceased persons. A shorter period of mourning was observed only in cases where the position or means of the family did not permit of great expense. On this account we find that the narrator emphasizes the fact that, for the father of the viceroy, the longer period of seventy days was decreed. It is of great significance that the expressions used are modelled with precision on Egyptian phraseology. Thus, it is said (Gen. l, 2) that Joseph commanded his *physicians* (*roph'im*) to embalm his father. This expression agrees exactly with the term *syn* (physician), employed by the Egyptians to denote an embalmer. Similarly the "days of *weeping*," as the Hebrew expression should be rendered, for the period of "*mourning*" (Gen. l, 4), reproduces the Egyptian expression for the time observed for mourning. Its Egyptian origin is indicated by the fact that, as a phrase, it only occurs here in the entire Bible. During the "days of weeping," there was an extraordinarily elaborate programme of processions, with wailing women, rending their garments and tearing their hair. The programme comprised complicated ceremonies in which various priests took part.

Further, it is said (Gen. l, 4 and 5) that Joseph asked "the house of Pharaoh" to speak to Pharaoh on his behalf, in order to obtain leave for burying his father in Canaan. This agrees exactly with the Egyptian custom, according to which, however

high their position might be, mourners could not themselves come near the king before the burial of their dead.

That Joseph did not hesitate, after having devoted seventy days to mourning, to remain absent from his office for a further long period, and to undertake a journey to Canaan, was by no means likely to annoy Pharaoh. In Egypt it was quite customary to convey the dead to distant burial places, and to devote long periods to funerals. The statement that the cortège was joined by a whole galaxy of high dignitaries, by horsemen and chariots, corresponds to the Egyptian custom of processions to the burial place being accompanied by large bands. As a matter of fact, in no other country beside Egypt were funerals converted into such elaborate processions, and the ceremonies of interment carried out with so much pomp in the case of highly situated personages.

The fidelity with which the narrator transmits every detail, is apparent also from the enumeration of the classes of the officials which escorted the procession to Canaan. The "servants of Pharaoh," (Gen. l, 7) were the Court officials, who formed a sort of bodyguard of the king, and stood nearest to him; "the elders of his house" are identical with the *shemesu-hayit*, which means the "elders of the hall," who also held high Court rank. In the "elders of the land of Egypt" we have to understand the high counsellors, representing all districts of the land, and holding seats in the supreme council of the king. The chariots and horsemen were known in the Egyptian army in the earliest period, and were very prominent in the time of Joseph. Such details as these could only be known by a writer who lived among the Egyptians, and knew the rules of Court etiquette, and was acquainted with the rank and file of State officialdom.

* * * * *

What I have said will, I hope, suffice to show how vivid are the colours of Egyptian conditions as they are brought before us in the Joseph narrative, which must be regarded as containing, not dim reminiscences or remote memories, as some Egyptologists have led the scientific world to believe, nor can it be a case of the narrator having gathered details from soldiers or tourists who might have visited Egypt in the ninth or eight century before Christ, that is to say, five hundred years after the Exodus. Since my researches became known some investigators of a past day have come down from their Olympic heights and shown a

disposition to admit that the Joseph story embodies details more or less in accordance with what has come to be known as old-time Egyptian life. Professor Erman, one of the most prominent German Egyptologists, after reading my book wrote to me that he thought that the author of the Joseph story was a writer who himself lived in Egypt towards the ninth century B.C. Thus we have a suggestion of an author who was deprived of the comfort of receiving tourists and soldiers in his study, but found himself compelled to take up the wanderer's staff and go to the land of Pharaoh and collect the material himself! Poor man! Could he have foreseen all the vicissitudes which the Egyptologists would in turn have enforced upon him, he would assuredly have added their unhappy theories to the ten plagues of Egypt. But we have seen, and those who read my book will see, how much better the narrator knew Eygpt and its people than do his Egyptological detractors of our times.

In conclusion, let me say this—Every discovery made in Palestine, Syria, Mesopotamia, and Egypt, has confirmed the Bible, and now at length the linguistic evidence is coming forth to support and complement archæological evidence. And I hope, nay, I am sure, that future archæological discoveries, excavations, and researches will assist us still further in establishing the accuracy of the Book of books.

Discussion.

The Chairman (Dr. Thirtle) said: I am sure I carry you all with me when I move that the cordial thanks of this meeting be given to Dr. Yahuda for the lecture to which we have listened, for the demonstration with lantern illustrations that has been conducted in our presence.

Dr. Yahuda comes before us with a fame that needs nothing of advertisement. Some of us have followed him for many years, since the time when, shortly before the Great War, he was called to fill the Chair of Mediæval Hebrew Literature in the University of Madrid, thus opening with signal honour an historic chapter in the records of a revived Oriental culture in Spain. Little did we think, however, at that time, that Dr. Yahuda had already put his hand to researches that promised to yield great and lasting results in the interpretation of the Old Testament. When, at length,

he retired from the professorial chair, he betook himself to studies which have now yielded a great surprise, and which, most certainly will tell upon Old Testament work for years to come. In a volume in German, issued three years ago, the position was outlined, and as a result notable scholars have declared in plain terms that the problem of Old Testament study as a whole comes under re-examination to-day: nothing can hinder such re-examination.

Some of us are assuredly aware that, in a noble volume just published, Dr. Yahuda has embodied the researches of years, not only with reference to Joseph and his story, but also with reference to the question of the Pentateuchal records as a whole, in their relation to the language of ancient Egypt. It has been my pleasure to read the volume, given forth a few days ago by the Oxford University Press, with the title, *The Language of the Pentateuch in its Relation to Egyptian*, which is modestly described as the opening section of a comprehensive work—a work which, in my judgment, will stand to the credit of its learned author for long years to come. To manifest purpose did Dr. Yahuda surrender responsibilities at Madrid in order to bring to fruition so important an enterprise.

The thesis of the great work of which I speak has been, so to say, sampled before us this afternoon, and for one thing, it must have convinced us all that the early books of the Bible demand reconsideration in the light of new and undeniable facts. During recent decades, as we know, scholars have been labouring under an impression that could not but mislead; and inquiring students have been led, at the same time, to associate words and phrases found in the Pentateuch with conceptions brought from the literature of Assyria and ancient Babylon—with illustrations from Akkadian, Aramaic, and Arabic, and now and then á thought of the language and customs of Egypt. Now at length, however, whether we are ready for it or not, we face an entirely new balance in things: even as in the *history* of Israel, Egyptian bondage came before Babylonian exile, so also in *the language* of Israel we must find among things that are fundamental, in the earliest section of the Old Testament, a reflection of the thoughts and customs of Egypt—the influence of the Egyptian language.

Neither Old Babylon nor New, nor both of them together, can rule out the influence of Egypt, the land in which the people of

Israel passed weary centuries; and while others have, with hesitation, suggested such an influence as vital in the history of the chosen people, Dr. Yahuda has come forward with full and convincing proof along lines not hitherto expected. We are thus compelled to recognize in his labours the opening of a new chapter in Old Testament criticism, with an enlarging interpretation of outstanding episodes in regard to the Pentateuch in particular.

To our knowledge, many who would have been present this afternoon are on the sick list; otherwise the attendance would have been larger than is actually the case. We congratulate Dr. Yahuda on the fact that, though for weeks past he has been unwell, he has now made recovery, and has been able to give so good an account of himself this afternoon. One thing is certain, we shall hear more of him and his great achievements in coming days.

Calling for the thanks of the meeting to be given to Dr. Yahuda I invite those who hear me to count upon the *Journal of Transactions*, in which the lecture will appear, in due course, and to be assured that along the lines of our present study, there is "more to follow." Moreover, to those who are prepared to read a work which is at once rich in new facts, and strong in the presentation of an argument which cannot but tell for the confirmation of Holy Scripture, I say—Do not pass by the great work just given to the world by the Oxford University Press.

The resolution of thanks was carried with acclamation; and thereupon remarks were offered and questions asked by Messrs. P. O. Ruoff, W. Hoste, S. Collett, Rev. C. W. Cooper, and Dr. Norman Denham.

764TH ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL, WESTMINSTER, S.W.1, ON MONDAY, FEBRUARY 6TH, 1933, AT 4.30 P.M.

LIEUT.-COLONEL F. A. MOLONY IN THE CHAIR.

The Minutes of the previous meeting were read, confirmed, and signed, and the HON. SECRETARY announced the following elections:—As Associates: Captain Percy N. Corry, I.A., and J. B. W. Grubb, B.A.; and as a Student Associate, R. P. P. Johnston, Esq.

The CHAIRMAN then made the following announcement, which was received by the audience standing in silence as a mark of respect and sympathy:—It is with deep regret that we notify Members of the death, which took place in November last, of Dr. Francis Landey Patton, Emeritus President of the Princeton Theological University, United States. A profound scholar, an eminent preacher, and an educator of international fame, Dr. Patton had been a Member of the Victoria Institute for over fifty years. He was, in fact, one of the oldest supporters of our work, and brought to the discharge of great responsibilities, theological and philosophical, just such unfoldings of truth as constitute the message of the Institute in the intellectual life of our time. Though for many years his service was in the United States of America, Dr. Patton was a native of Bermuda, and throughout his life sustained with honour the obligations of a British subject. May the Institute never be without worthy successors of the great man who has so recently been taken from our midst.

The CHAIRMAN then called on Mrs. C. Agnes Boyd to read her paper on "Jerusalem according to Nehemiah."

JERUSALEM, ACCORDING TO NEHEMIAH.

(Revised Version used.)

By MRS. C. AGNES BOYD.

Walk about Zion,
Tell the towers thereof,
Mark ye well her bulwarks,
Consider her palaces;
The City of our God, in His holy mountain,
Beautiful in elevation . . .
Is Mount Zion, on the sides of the north.

Ps. xlviii.

THE object of this paper is twofold:—(1) To prove Nehemiah's book accurate. Both Jews and Gentiles have testified to its authenticity, and to the character of the writer. Yet people who would not question the reliability of *Pepys' Diary*, concerning the topography of London 300 years ago, unhesitatingly correct (?) Nehemiah concerning Jerusalem 2,300 years ago!

(2) To combat certain modern theories which have gained support from archæologists, involving removal of Zion and several other sites from their traditional positions (on the western hill) to the south-eastern quarter of Jerusalem, incidentally contradicting Nehemiah, though admitting his book to be "of enormous importance" (Macalister).

They started excavations in 1923–24 with a preconceived and expressed belief that David's Sepulchres were in Ophel. Much valuable information has been unearthed, but this, without Nehemiah's unique Guide-book, would be valueless. Identification of ancient sites must be difficult after 2,360 years. Enemies have destroyed; patriots have restored; the indifferent have removed materials to build elsewhere.

Jerusalem.

"The City lieth four-square." On the west side, the Valley of Hinnom runs north to south, curving eastward, the Brook Kedron, parallel on the east side. Down the centre runs the Tyropoeon. The three valleys suggest a trident, with the handle curving in the opposite direction to J. The Valley (of Hinnom) must never be confused with the Brook (Kedron); these words are not interchangeable.

In modern Jerusalem seven Gates exist; these have scriptural-sounding names—Herod, Damascus, Zion, etc.—but only one —Dung Gate—is named in the Bible, and that in a different position. Sixteen Gates are mentioned in the Old Testament; many of these, and other sites, have several names, just as St. Petersburg has borne three or four recently.

Approximately 53 sites encircling Jerusalem are mentioned in the Old Testament, including Gates, Towers, Corners (Heb. *pinnah*), Turnings (Heb. *miqtsoa*), Ascents, Stairs, etc. Of these fifty-three, 41 are recorded by Nehemiah (a remarkable proportion), and of these forty-one all but 3 in chapter iii.

In chapter ii Nehemiah's midnight ride is described, *via* Valley Gate, Dragon's Well, Dung Gate, Fountain Gate, and King's Pool. He " turned back " because of the debris. These sites occur *in exactly the same order* as in chapter iii.

Chapter viii records a service held by Ezra in Broad Place before Water Gate ; and booths erected in two Broad Places, N.W., where the Governor's Throne stood (iii, 7), and S.E., occupied by Ezra's Pulpit. Two extremes of the city.

Chapter xii describes a procession to celebrate the completion of the wall ; divided into two companies. One company went southwards and eastwards, by Dung Gate, Fountain Gate, Stairs, Going up of Wall, above David's House to Water Gate. Five of these six sites occur *in exactly the same order* as in chapter iii. The second company, going northward and eastward, passed above Furnace Tower, Broad Wall, Ephraim Gate, Old Gate, Fish Gate, Hananel's Tower and Hammeah Tower to Sheep Gate. These, travelling in contrary direction to chapter iii, names occur *in exactly the reverse order*. Nehemiah's itineraries *absolutely coincide*. There is nothing haphazard about them.

Chapter iii contains a list of 38 consecutive sites, like the beads of a necklace, having Sheep Gate for its clasp, in first and last verses. The order runs from right to left, as Hebrew is written. Most of the sites are strikingly connected by the expressions, " next to him " (or " them "), 14 times ; and " after him " (or " them "), 16 times ; 30 times in 32 verses.

When deciding approximate positions of these 38 sites, we could be fairly certain about 5 :—

v. 26. Water Gate, toward the east.
v. 27. Wall of Ophel, position not questioned.
v. 28. Horse Gate, " toward the east," Jer. xxxi, 40.
v. 29. East Gate, position not questioned.
v. 31. Corner, between East Gate and Sheep Gate.

Therefore, working *backward* from these, through chapter iii to Sheep Gate (v. 1) and *forward* from these, through chapter iii to Sheep Gate (v. 32), we have a method on which to base our study. Other clues are obtained from " Corner " (thrice), " Turning " (thrice), " Ascent " and " Going up," each indicating definite characteristics. Between these various points, Gates and Towers have to find space and place.

In Kings, Chronicles, Jeremiah, Ezekiel and Zechariah, groups or pairs of sites occur *in the same order* as in Nehemiah. The first four sites cannot be located exactly.*

1.—A. Sheep Gate, Neh. iii, 1, 32; xii, 39. John v, 2. B. First Gate, (?) Zech. xiv, 10. Nehemiah mentions a corner following East Gate and immediately preceding Sheep Gate, so it must be in the north wall. Hanauer confirms this. Between that and the Temple lay the Sheep-market; so I confidently start at the point from which a street leads down to Birket Israel, and towards St. Anne's Church, either of which may have contained Bethesda Pool.

2.—Tower of Hammeah, or "the Hundred," iii, 1; xii, 39. From this spot two parallel streets lead towards Antonia Castle. There was a castle here (ii, 8; vii, 2); a hundred soldiers may have been garrisoned in Hammeah.

3.—Hananel's Tower, iii, 1; xii, 39. Jer. xxx, 38. Zech. xiv, 10, mentioned in proximity to First Gate.

4.—Fish Gate, iii, 3; xii, 39. 2 Chron. xxxiii, 14. Zeph. i, 10, now Damascus Gate (Paton). In Chronicles this gate and Ophel describe the diameter of Jerusalem.

The following five sites, near N.W. Corner, must be studied together:—

(*5*) *A. Old Gate, iii, 6; xii, 39.* B. City Gate, 2 Kings xxiii, 8. 2 Chron. xxxii, 6.

(*6*) *A. Ephraim Gate, viii, 16; xii, 39.* 2 Kings xiv, 13. 2 Chron. xxv, 23. B. Joshua Gate, 2 Kings xxiii, 8. (Num. xiii, 8, 16.)

(*7*) *A. Broad Place of Ephraim Gate, viii, 16.* B. Broad Place of City Gate, 2 Chron. xxxii, 6.

(*8*) *Governor's Throne, iii, 7.*

(*9*) *Broad Wall, iii, 8.*

5.—A. Old Gate (Heb.), "Gate of the Old" (Mitchell), or Elders (?). B. City Gate, so important in oriental life, as Law Court and Club; where letters are written and money changed. Lot at Sodom; Abraham at Hebron; Boaz at Bethlehem; these transacted their business *before the Elders at City Gates.*

* The italic lines indicate sites specifically named by Nehemiah, and the same throughout.

6.—A. Ephraim Gate. B. Joshua Gate. By this gate Ephraim County was approached. In Kings it is associated with City Gate. Two Joshuas may have been commemorated there—Joshua, son of Nun, was an Ephraimite ; another Joshua was Governor of Jerusalem. Inside these two gates was Broad Place of Ephraim Gate, or of City Gate ; and here, on a pavement marked on the map, must the Governor's Throne have been set. Here, doubtless, Nehemiah, " The Governor," also sat.

9.—Broad Wall (plainly indicated on map) ; 30 or 40 feet wide ; commencing west of Ephraim Gate ; broad enough for the " company " to walk on it above Ephraim, Old and Fish Gates. " Broad Wall " is also rendered " Wall of the Square," possibly referring to the square pavement.

10.—A. Furnace Tower, iii, 11 ; xii, 38. B. Corner Tower, 2 Chron. xxvi, 9.

11.—Corner Gate, 2 Kings xiv, 13. 2 Chron. xxvi, 9. Jer. xxxi, 38. Zech. xiv, 10, or " Gate that looketh," 2 Chron. xxv, 23 *marg.*

" From Ephraim Gate unto Corner Gate 400 cubits," so these two sites must have been here, at the only corner not indicated by Nehemiah. Furnace Tower probably took its name from the perpetual fires below it in Hinnom. It possibly stood where " Goliath Castle " is. Uzziah built it. A gate here would command a wide view. Josephus mentions " the Tower of the Corner at the Monument of the Fuller " (*Wars*, V, iv, 2).

12.—Tower of Valley Gate, 2 Chron. xxvi, 9.

13.—Valley Gate, ii, 13, 15 ; iii, 13. 2 Chron. xxvi, 9.

These two sites follow 11. Corner Gate, which is thus placed between two Towers (10 and 12). Referring to the Corner Gate, Schick " finally chose a site for it between the two towers at N.W. Corner." Nehemiah states the distance between 13, Valley Gate, and 16, Dung Gate, as 1,000 cubits, which precludes our identifying the former with Jaffa Gate, as many do. I feel obliged to place it further north.

14.—Dragon's Well, ii, 13. Unidentified.

15.—A. Stronghold of Zion, 2 Sam. v, 7, 9. 1 Chron. xi, 5, 7. B. Millo (Judges ix, 6), 1 Kings ix, 15, 24 ; xi, 27. 2 Kings xii, 20. 1 Chron. xi, 8. 2 Chron. xxxii, 5. C. Assupim, 1 Chron. xxvi, 15, 17 (Neh. xii, 25).

15.—A. This has been till lately so generally accepted as having stood on the site now occupied by the Citadel, that Hanauer writes:—"Archæologists are agreed" that it and the Temple Area "really occupy the historic ground they represent." It is not named by Nehemiah, but is vitally necessary to my argument. It was the Jebusite Fortress, seized by Joab, occupied by David, and renamed "City of David." The passage about the assault on Jebus, with its reference to "the lame and the blind," is, admittedly, "difficult and obscure." But this site is of especial importance now, because archæologists and the P.E.F. Committee have promulgated the theory that the traditional situation of Mount Zion, the City of David, is incorrect, and that it, together with David's Sepulchre, Millo, the two Gihons, etc., should be transferred to Ophel, south-east of Jerusalem.

Macalister writes that "the eastern hill, south of the present walls . . . (is) accepted by all modern scholarship as the site of the Jebusite fortress . . . afterwards the City of David." Rev. J. E. Hanauer, long resident in Jerusalem, ably combats this theory. Professor H. G. Mitchell, of Boston, U.S.A., made exhaustive studies of Jerusalem topography, and accepts the western site. Schick, formerly in favour of the western, changed his mind and made the extraordinary suggestion: "Zion . . . occupied various positions." Warren expressed the same opinion. I have heard of a site bearing many names, but never of one occupying several situations. It is gratifying to learn from Warren that Condor disagreed with him.

Macalister says, "Ancient tradition, starting with Josephus, has favoured the western hill," but I claim that, long prior to Josephus, the Old Testament, including the Apocrypha, confirms the western position of Zion. He admits the greater suitability of the western hill, but explains his objection thus: "Accessibility of water was the one thing needful." But "Zion" means "waterless," which would be inapplicable to the Ophel district, containing Siloam and the Virgin's Spring. Josephus describes Siloam thus: "A fountain which hath sweet water in it, and this in great plenty." (*Wars*, V, iv, 1.) Zion is "honeycombed" with cisterns.

Most modern archæologists at Jerusalem emphasize the "gutter" (Heb. *tsinnor*), mentioned in 2 Sam. v, the admittedly "difficult and obscure passage." They locate this within the Virgin's Spring, identified with Upper Gihon; "the Old

Jebusite *tsinnor* with its tunnel to the cave of what we may henceforth call Gihon" (Macalister), *i.e.* Siloam, identified with Lower Gihon. This tunnel was discovered by Warren. The word *tsinnor* occurs only here and in Ps. xlii, translated "water-spouts." No mention of the "gutter" occurs in the corresponding passage (1 Chron. xi). The R.V. says, "Let him get up to (not 'by,' nor 'through') the watercourse." Josephus merely records that the besiegers had "to go over ditches beneath the citadel, and should ascend to the citadel itself and take it . . . Joab . . . prevented the rest . . . and got up to the citadel." (Ant. VII, iii, 1.) The theory of the south-eastern site for Zion seems to rest chiefly on this insignificant Hebrew word, *tsinnor*.

15.—B. Millo—"the mysterious Millo" (Macalister). He believes he has unearthed it in Ophel. In 2 Kings xii Joash's murder is recorded, "at Millo on the way that goeth down to Silla"; (Heb. *Sillah*, meaning *highway*, occurs only here). *Mesillah*, meaning "causeway," occurs frequently, also sometimes translated "highway." When Levites were being allotted Temple duties (1 Chron. xxvi, 16, 18) we read, "To Shuppim and Hosah westward by the gate Shallecheth at the causeway that goeth up." "For Parbar (precincts), westward four at the causeway." These two causeways crossed the Tyropœon Valley westward, connecting Moriah with Zion. What need for huge causeways unless the City of David was on the western hill? The northern causeway runs from "Wilson's Arch" towards the Citadel; it "exists entire, but is hidden by houses" (Hanauer). The southern causeway crosses the same valley westward from "Robinson's Arch." The northern causeway concerns us now.

From the Citadel on Mount Zion—David's Tower—runs David Street, eastward; then, continuing eastward, over this hidden causeway (Mesillah), is Tarik Bab as Silsile (Ordnance Map), spelt by Hanauer, Bab es Silsileh. The resemblance between these words is obvious:—

AS SILSIL E (Ordnance Map); ES SILSIL EH (Hanauer); ME SILLAH (Heb. for "Causeway"); SILLAH (2 Kings xii, 20).

Hanauer explains that "Silsileh" means "chain," and is based on a "worthless fable." But, prior to the fable, it may have been derived from the original Mesillah (causeway), with the idea of a link or chain connecting Zion to Moriah.

These causeways furnish undeniable evidence for the western site of Zion, and incidentally for the accuracy of Nehemiah. Near this northern causeway Millo was situated. "Melo" is seven times translated "fulness." The House of Millo may have been a storehouse in connection with the Citadel. C. Assuppim, for which the R.V. substitutes "storehouse," is named in connection with this identical causeway. Hanauer so far confirms this situation for Millo, that he identifies it with the causeway itself. But Millo must have been higher, as Sillah was lower. Macalister discovered a "causeway" in Ophel 2 feet wide and 2 feet high. But compare this with the impressive causeways joining the Temple Area with the traditional Zion.

16.—A. Dung Gate, ii, 13; iii, 13, 14; xii, 31, peculiar to Nehemiah.

B. Harsith Gate, or Gate of Potsherds, Jer. xix, 2 *marg.*, peculiar to Jeremiah, who entered Hinnom thereby. From 13, Valley Gate, to 16, Dung Gate, was 1,000 cubits, so I locate the latter between the Citadel and the Barracks. Writers almost unanimously place it S.E. of Jerusalem, near Siloam, but, according to Nehemiah, it follows Valley Gate, which must be on the Hinnom side.

17.—Fountain Gate, ii, 14; iii, 15; xii, 37, peculiar to Nehemiah. Many experts, including Bliss and Dickie, confuse it with 41, Water Gate; Mitchell and Paton locate it near Siloam. But in Nehemiah's narrative it follows and precedes many western sites. His use of the expression, "Water Gate towards the east" (iii, 26; xii, 37), and as in both these chapters, and *even in the same verse,* Fountain Gate is mentioned, with several sites in between, we must distinguish between them. I place it half-way down the wall, west of Armenian Gardens, where a walk runs westward to the wall. These gardens I identify later with 23, King's Garden (iii, 15). Fountain Gate probably took its name from the next site.

18.—En-rogel, Jos. xv, 7; xviii, 16; 2 Sam. xvii, 17. 1 Kings i, 9, means "Fountain of the Fuller." The thrice-mentioned Fuller's Field and the Fuller's Monument, named by Josephus, were both on the western side of Jerusalem also. Josephus, describing Adonijah's coronation, omits En-rogel, but mentions "the Fountain of the King's Paradise" (Ant. VII, xiv, 4). It was certainly near Hinnom.

19.—Pool of Shelah, iii, 15. Unidentified, but must not be confused with Siloam, as Bible references and some writers imply; nor with Virgin's Spring, as Robinson suggests. Heb. *bĕrekah* is used for a made pool, never for a spring; "this objection seems insurmountable" (Mitchell).

20.—A. King's Pool, ii, 14; 2 Kings xx, 20. *B. Pool that was Made, iii,* 16; 2 Kings xx, 20. C. Gihon (Lower), 1 Kings i, 33, 38, 45; 2 Chron. xxxiii, 14. D. Lower Pool (of Gihon), Isa. xxii, 9.

Probably where Birket es-Sultan now lies; ii, 14, would refer to northern end, and iii, 16, to southern end. In Isaiah, proximity to the City of David is implied. 2 Chron. speaks of "Gihon in the Brook"—the one and only time that Hinnom is called "Brook" (Nachal). This passage suggests that Upper Gihon was near N.W. corner, and Manasseh's wall went eastward toward Fish Gate.

21.—Gate between Two Walls, 2 Kings xxv, 4. Jer. xxxix, 4; lii, 7.

22.—Ditch or Reservoir, between two Walls, Isa. xxii, 11.

23.—A. King's Forest, or Paradise, ii, 8. Eccles, ii, 5, 6. Cant. iv, 13, 16. *B. King's Garden, iii, 15.* 2 Kings xxv, 4. Jer. xxxix, 4. lii, 7.

The Gate between two walls is always mentioned along with the King's Garden. Zedekiah fled by this Garden and Gate; I was surprised at his choice of route, as he was afterwards captured near Jericho; but Josephus records, "the enemy's generals entered into the Temple, and when Zedekiah was sensible of it, he fled . . . through the fortified ditch," naturally by west side to avoid enemies on east side (Ant. X, viii, 2). This "Fortified Ditch" may have been where there is a conduit between the wall of the city and an "old wall" marked on the map.

The connection between these two Walls, the Ditch, King's Garden, City of David and Sepulchres of David, and the fact that all these and many other sites have to be located before 29, the S.W. Turning (iii, 19, 20), prove that the western is the correct position for all these places.

23.—A. King's Forest. B. Garden, described as near the City and Sepulchres of David, was originally Solomon's Garden, six times mentioned in Canticles. His phenomenal knowledge

of forestry and botany is four times recorded in Kings and Chronicles. Later Uzziah "loved husbandry," Heb. "the soil" (2 Chron. xxvi, 10). Josephus says, "he took care to cultivate the ground and planted all sorts of plants and sowed all sorts of seeds." Uzziah and Manasseh were each "buried in his own garden." (Ant. IX, x, 3, 4; X, iii, 2.) The Armenian Gardens meet the requirements. Hanauer states these formerly extended down to the Protestant School.

24.—A. Stairs that go Down from the City of David, iii, 15. B. Stairs of the City of David, xii, 37, these are clearly shown on the map, parallel with the wall. In a map in an old Josephus these are named "Strong Stairs."

25.—Sepulchres of David, iii, 16. 1 Kings ii, 10. Ac. ii, 29. The traditional site is thus indicated on the map:—

COENACULUM.

(David's Tomb.)

Schick and Mitchell accepted it, and, until properly explored, its authenticity cannot be disproved. The Coenaculum is the traditional site of the institution of the Lord's Supper; it is significant that Peter, in this same "Upper Chamber," stated "David is dead and buried, and his tomb is with us (amongst us) unto this day." "The Coenaculum is held sacred by Moslems to this day as the Tomb of David" (Bliss). While adopting the eastern site for Zion, Bliss "always bore in mind that the orthodox view . . . might be correct."

26.—House of Mighty Men, iii, 16. Cant. iv, 4.

27.—A. Going up of Armoury, iii, 19. B. Going up of Wall, xii, 37.

28.—A. Armoury, iii, 19. Cant. iv, 4. *B. House of David, xii, 37.* 2 Sam. v, 11. 1 Chron. siv, 1; xvii, 1. C. Tower of David, Cant. iv, 4. D. House of Forest, 1 Kings vii, 2; x, 16, 17. Isa. xxxii, 8. E. House of Armour, 2 Kings xx, 13. Isa. xxxix, 2.

29.—Turning, iii, 29, 20. 2 Chron. xxvi, 9.

30.—Door of Eliashib, iii, 20, 21.

31.—Tower of Turning, 2 Chron. xxvi, 9.

When the Protestant School was demolished, before being rebuilt, an important tower was discovered on "Maudsley's

Scarp." The base was 45 feet by 45 feet and it was 20 feet high (Bliss and Dickie). I suggest that this was 26 and the "Mighty Men," those commemorated in 1 Chron. xi, 10–24.

28.—A. and B. Further along the wall are more stairs, and another tower is on the Ordnance Map, which may have been 28. A, The Armoury. Warren's description is: "It stands to a sheer height of 40 feet." David and Solomon built much in Zion. Hiram furnished "cedar trees, carpenters and masons." In 2 Sam. v, 11, the Hebrew word translated "masons" means "hewers of stone wall." Macalister describes how, in Gezer, houses were built with huge cedar pillars dropped into sockets in the solid stone; hence possibly the name "House of Forest of Lebanon." In Hastings's Dictionary I read, "Solomon's Armoury was 'the House of the Forest of Lebanon'" (Kennedy).

Next to the Armoury came the Turning, clearly distinguished on the map. Then comes an important "paved street"; Eliashib's House may have been here, with its door in the wall, facilitating his nefarious negotiations with Tobias. In the old Josephus map it is placed here. At the east end of the Turning is a tower, 31, Tower of the Turning, built by Uzziah.

32 and 33.—iii, 23, 24. Private houses unidentified.

34.—Turning, iii, 24, 25, not shown, but there is a remarkable hiatus in the wall.

35.—Corner, iii, 24.

36.—Tower that Standeth Out, iii, 25.

These two sites are most clearly indicated, and encourage us to believe we are right.

37.—A. King's Upper House, iii, 25. B. King's House, repeatedly named in Kings, Chronicles and Jeremiah.

38.—Court of the Guard, iii, 25, repeatedly named in Jeremiah.

39.—A. Guard Gate, 2 Kings xi, 6, 19. B. King's Gate eastward, 1 Chron. ix, 18. C. King's Upper Gate, 2 Chron. xxiii, 20. These three sites are not indicated. Nehemiah certainly places the first two here. The word "upper" (Heb. *elyon*) is sometimes translated "highest" or "chief," so that its low situation here creates no difficulty. In Robinson Lee's book on Schick's models, he locates the King's House near Siloam, thereby agreeing with Nehemiah. Mitchell says, "the King's House is usually located south of the Temple Area."

40.—A. Broad Place before the Water Gate, iii, 26; viii, 1, 3, 16. B. Broad Place on the East, 2 Chron. xxix, 4.

41.—Water Gate toward the East, iii, 26; viii, 1, 3, 16; xii, 37.

It is pleasant to reach a region of general agreement. As to the Water Gate, near the Virgin's Spring, Wilson, Mitchell, Macalister and many others concur. Several confuse it with 17, Fountain Gate (see above). Macalister has uncovered a Pavement here, on which, or on an older pavement, Ezra's Pulpit (viii, 4) was probably placed. He has also found a gate exactly here, facing east.

42.—Tower that Standeth Out, iii, 27.

43.—Great Tower that Standeth Out, iii, 27.

These two towers were erected by Jotham, who " built much in Ophel," 2 Chron. xxvii, 3. Macalister excavated a huge tower here in 1923, identified by him as " the Armoury " ; and another great tower, which he called " Millo " ; but those sites must have been on the west ; and these two great towers are almost certainly 42 and 43, described by Nehemiah.

44.—Wall of Ophel, iii, 26, 27; xi, 21. 2 Chron. xxvii, 3 ; xxxiii, 14.

Its position is unquestioned. Macalister asserts Zion was there ; partly arguing from the discovery of Jebusite pottery. I claim that the whole of Jerusalem was Jebusite. Hanauer mentions a " Jebusite cistern, near Christ Church " (*i.e.*, near Citadel). Schick writes, " Below Neby Daud . . . old Jebusite houses have been brought to light." Josephus says, David "took the Lower City by force, but the Citadel held out still. . . Now when he had chosen Jerusalem to be his royal City, he made buildings round about the Lower City ; he also joined the Citadel to it, and made it one body." (Ant. VII, iii, 1, 2.) Thirty years later, *Moriah was still agricultural,* and belonged to Araunah, the Jebusite, who, with four sons, was threshing there.

45.—Foundation Gate, 2 Chron. xxiii, 5.

46.—A. Sur Gate, 2 Kings xi, 6. B. Horses' Entry, 2. Kings xi, 16.

47.—Horse Gate, iii, 28, toward the East. 2 Chron. xxiii, 15. Jer. xxxi, 40.

48.—Solomon's Stalls for Horses, 2 Chron. ix, 25.

49.—Corner of Horse Gate, Jer. xxxi, 40.

Unfortunately, lack of space prevents my dealing with these interesting sites, indicating their positions on map, and connection with historical incidents. The Corner is clearly observable.

50.—A. East Gate, iii, 29, repeatedly mentioned by Ezekiel. B. Middle Gate, Jer. xxxix, 1, 3. This site is unquestioned.

51.—A. Hammiphkad Gate, iii, 31. B. Outer Gate, Ezek. xlvii, 2, now named St. Stephen's Gate.

52.—Ascent of the Corner, iii, 31, 32. Undeniable; there is a steady rise from Ophel to the N.E. corner; much steeper before the Maccabees cut down the hill overlooking the Temple.

53.—Corner, iii, 31, 32. Undeniable; this completes and confirms Nehemiah's methodical catalogue of sites, bringing us back to 1, Sheep Gate.

We must be impressed by numerous items of circumstantial evidence. Many are trifling, but the sum of them is great. At several points excavation has upheld Nehemiah's accuracy, which, if accepted, definitely contradicts modern theories.

"They that trust in the Lord are as Mount Zion, *which cannot be moved.*" (Ps. cxxv, 1.)

Lecturer's Reply to Questions and Criticisms.

Q.—Major-General Dobbie inquired the depth of the Tyropœon Valley.

A.—Rev. Canon Hanauer states it "was 74 feet below the spring of Robinson's Arch, and 107 feet below the level of the old roadway." This proves how important was the southern causeway, which crossed the valley from Parbar (Robinson's Arch).

Q.—As to the Stronghold of Zion requiring water.

A.—Hanauer refers to the strongholds of Banias and Rabbath-Ammon as being in waterless positions; and I have been told of some such in Italy.

Q.—With reference to the position of the Dung Gate.

A.—Beside the fact that Nehemiah plainly indicates the site, anyone visiting Jerusalem to this day can see that the Valley of Hinnom is still in use as a rubbish-heap. It is interesting to note, however,

that things connected with false-worship were cast forth into the Brook Kedron.

Q.—Nehemiah never mentions the Stronghold of Zion, nor does archæology tell us that such a place ever existed on the site of the Citadel.

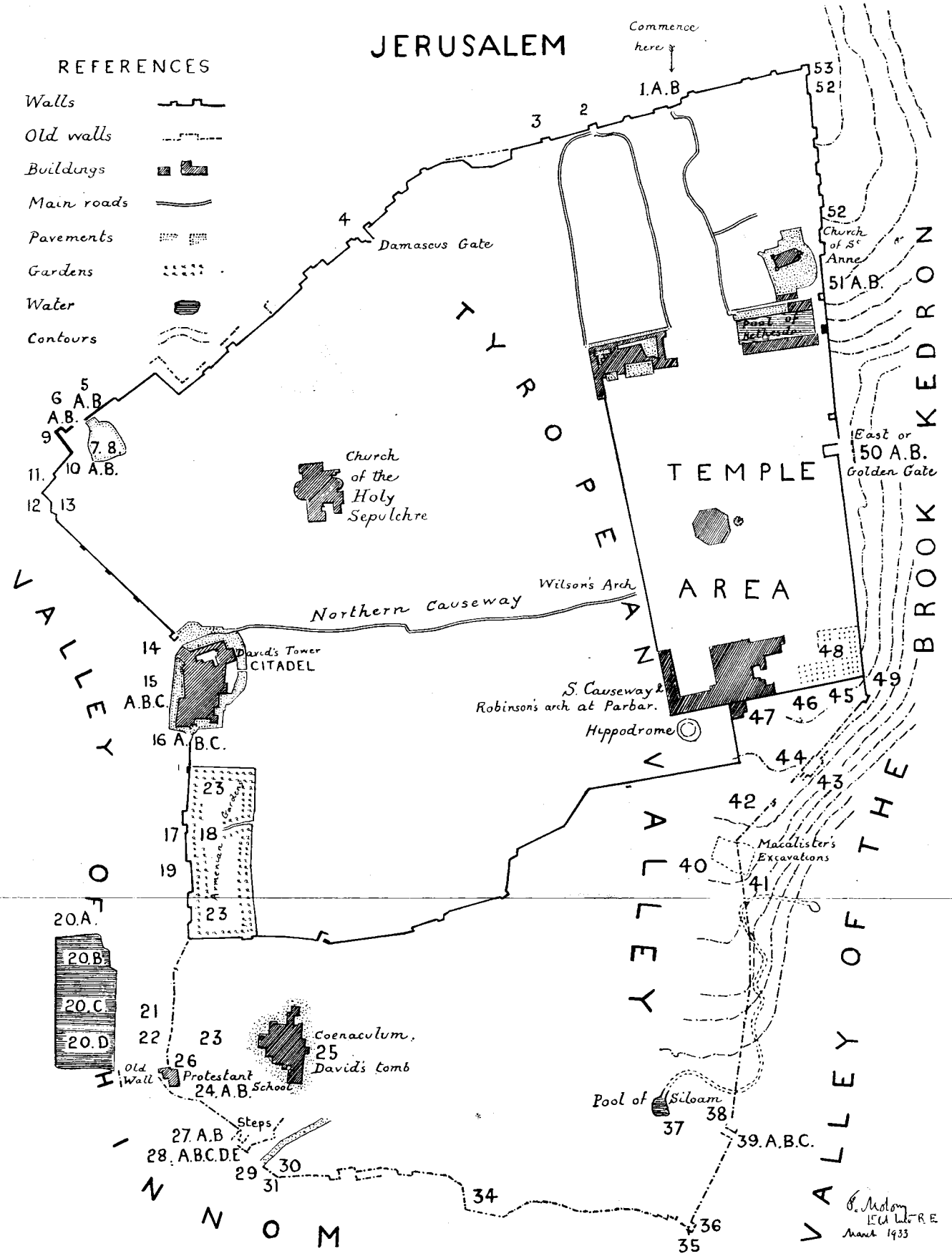
A.—Something of great importance must have existed on the site of the Citadel, to have made those two huge causeways necessary. The simplest theory suggests the Stronghold of Zion, or City of David. Nehemiah's book deals exclusively with the rebuilding of the walls. If the Citadel was as impregnable then as in David's day (according to Josephus) it would have needed no repairs.

Q.—If the Pool of Shelah (or Shiloah) is not the Pool of Siloam, where does that important pool occur in Nehemiah's route ?

A.—Siloam Pool is some distance from the Wall. Nehemiah uses Shiloah Pool to indicate a certain part of the Wall. Near Siloam he had other sites, actually in or on the Wall, by which to describe it.

Q.—Where does Nehemiah mention the causeways ?

A.—I have stated, he does not mention them, but they confirm the fact that the Upper City was the City of David, and on the Western Hill. No causeways of any importance could ever be discovered in Ophel, as they would lead nowhere.


JERUSALEM
Commence here
REFERENCES
Walls
Old walls
Buildings
Main roads
Pavements
Gardens
Water
Contours
1.A.B
2
3
4
Damascus Gate
5
6 A.B
A.B.
7. 8
9
10 A.B.
11.
12
13
14
15 A.B.C.
16 A.B.C.
17
18
19
20.A.
20.B
20.C
20.D
21
22
23
23
23
24.A.B.
25
26
27.A.B
28.A.B.C.D.E
29
30
31
34
35
36
37
38
39.A.B.C.
40
41
42
43
44
45
46
47
48
49
50 A.B.
51 A.B.
52
52
53
Church of the Holy Sepulchre
TEMPLE AREA
Church of St Anne
Pool of Bethesda
East or Golden Gate
Wilson's Arch
Northern Causeway
David's Tower
CITADEL
S. Causeway & Robinson's arch at Parbar.
Hippodrome
Macalister's Excavations
Coenaculum.
David's tomb
Old Wall
Protestant School
Steps
Pool of Siloam
TYROPEAN VALLEY
KEDRON BROOK
VALLEY OF HINNOM
VALLEY OF
B. Molony
Lieut R.E.
March 1933

765TH ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL, WESTMINSTER, S.W.1, ON MONDAY, FEBRUARY 20TH, 1933. AT 4.30 P.M.

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

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

The CHAIRMAN then called upon the HON. SECRETARY to read the following announcement, which was received by the audience standing as a mark of sympathy and respect:—By the death, on February 4th, of Professor Archibald Henry Sayce, D.D., LL.D., Litt.D., F.B.A., there passed to his rest a scholar of world-wide fame, whose name has long been held in honour in the Victoria Institute. He had reached the advanced age of eighty-seven, and, with the equipment of acknowledged genius, for upwards of sixty years, he occupied a place in the front rank of Oriental Scholarship. Dr. Sayce was a Member of the Old Testament Revision Company from 1878 to 1884, and his contributions to the knowledge of Assyriology (of which he was Professor at Oxford University from 1891 to 1919) were held in universal esteem. In the process of the years he became increasingly distrustful of higher critical theories, especially as they tended to call in question the results of archæological investigation.

By many published works he popularized the fruits of linguistic research, throwing the zest of a pioneer into every detail of antiquarian investigation and the pursuit of philological science. Academic distinctions were conferred upon him from numberless seats of learning.

A full generation ago he read a paper of great value on Cuneiform Inscriptions of Tel el-Amarna before the Victoria Institute, of which Society he was for upwards of 40 years a corresponding Member.

The CHAIRMAN then called upon the Rev. Paul P. Levertoff, D.D., to read his paper on "Some Aspects of Jewish Mysticism."

SOME ASPECTS OF JEWISH MYSTICISM.

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

FOR the sake of brevity I confine myself to a few illustrations from the Zohar and other Jewish works of a mystical character.

As to the Zohar, its origin is shrouded in obscurity; and it

is not my intention at present to deal with this problem, nor with the genesis and history of Jewish mysticism in general.

In its present form, the Zohar first appeared in Spain in the thirteenth century, and while purporting to be but a commentary on the Pentateuch, it is in reality a thesaurus of mystic contemplations on the Divine Transcendence and Immanence, on Creation and Redemption, on God and Israel, on Israel and the world, on this world and the world to come, on holiness and the " other side "—*i.e.* sin—on life and death, on Paradise and Hell. It is written in Aramaic, and is ascribed to the second century Galilean Rabbi, Simeon ben Yoḥai.

. . . . . .

In spite of its peculiar (and often bizarre) idiom and method the Zohar is as a jewel set very deep. It is bright, and gleams, but such radiance has to be sought. The masters of its mysteries did not desire knowledge of such mysteries to be widespread; rather, they veiled the glories of which they were cognizant, and guarded the hidden beauty with jealous secrecy. Its language is curt, pre-supposing intimate knowledge of all the sources mentioned in its obscure references: its phraseology is soaked in allusions, not only Biblical but—apparently—contemporaneous; allusions which fascinate by their very elusiveness: such as " The Book of Rabbi Hamnuna the Ancient," which surely suggests all that is venerable in scholars and obscure in learning! But when the beauty is revealed, and the incomprehensible made plain, what splendour remains! how the jewel glows and lightens in its dusty setting! what glories flash and beam within its strange radiant depths!

. . . . . .

Rabbi Simeon, for instance, meditating on the " night watches " and what hallows them: " When the dawn is about to break, the sky darkens; at that moment the spouse enters her husband's chamber; then the sun comes, and it is day. The hours run to their close; night comes, and the light is removed, and all the gates are closed; asses begin to bray, and dogs bark; and all else is still. But with the midnight the King arises, and the Matrona (the Shekinah) sings in the celestial courts; and the King draws nigh to the gate of the Palace, and knocks thereon, crying ' Open unto Me, My sister, My love! ' and the gates of light are opened, and He enters in, and has joyous communion

with the souls of the righteous. Then is he indeed blessed who at that moment of time, when all the world is still and dark, being drowned in sleep, shall arise and be joined with the lightful glories of eternity, giving himself up to the study of the Torah! Such an one shall not be solitary, though he be alone in wakefulness; neither shall darkness encompass him, though he have but one candle; for the majesty of the heavenly spheres shall shine through the open gates of the Palace, and enshroud him as with a mantle and canopy of light, and all the attendants and companions of the Shekinah shall join with him in praise and worship of the King. Then shall the firmaments re-echo the praiseful pæans of His subjects. But not all the nearer songs of His supernal hosts shall be so pleasing unto His ears as that song which ascends from this world, so far away. . . The night passes, the dawn breaks, and at that moment when the sky is darkened the King and the Shekinah unite in joy, and He reveals celestial and hidden beauties to Her and all Her train, and presents them with gifts of unimaginable splendour; and he that is below is joined unto them that are above. Blessed indeed is he who is numbered among them!"

. . . . . .

Blessed indeed. How mournful a beauty is envisioned here! The pious worshipper, rising "when all the world is still and dark, being drowned in sleep," to be "joined with the lightful glories of eternity"; who shall yet never be encompassed by darkness or solitude, though he be "alone in wakefulness" and "have but one candle." . . . Would not the small light flicker and toss in the deep midnight, casting strange shadow-shapes on wall and floor; and with the gathering dawn grow dim, guttering at last to nothingness, as the first shafts of light pierce the dark room, falling, perhaps, on a sleeper grown weary of night-watches? . . . But his vigil will have brought its own reward, "for the majesty of the heavenly spheres shall shine through the open gates of the Palace and enshroud him as with a mantle and canopy of light, and all the attendants and companions of the Shekinah shall join with him in praise and worship of the King."

. . . . . .

This is indeed the wistful vision of eyes grown weary with long watching, of hearts made but more fervent by hope's defer-

ment, of certainty untouchable and profound because set on a distant and a perfect goal. The serene exactitude of vision, the calm passion, were only attainable at the greatest possible price—complete self-surrender to the will of the Holy One—blessed be He!—entire absorbtion in the study of His Torah. The arrogance of righteousness is also present in full measure, but it is of a character naïve and utterly sincere. Evildoers are to be shunned: for instance, a man whose lips are thick is . . . "a man of strife and mischief . . . he has, moreover, an evil tongue and no sense of awe. He is a man who appears to be pious but is not, and one must not have any dealings with him, because all his words come from his mouth alone, but not out of himself." What precision, what exactitude, what inescapable wisdom—in a word, what common sense! And what excellently paired bad qualities—an evil tongue and no sense of awe! One begins to realize the importance of this last fault's opposite: the virtue of a sense of awe, which must surely have been more highly valued, and have attained a higher pitch of intensity and perfection among the members of that esoteric fellowship, than in any other circle afterwards. The wild glories of their vision were made subject to the sanity of a Divine order, and informed with the reverence which alone made daring possible. Their faith cast out fear, that perception might be complete.

. . . . . .

"Rabbi Jose, the son of Rabbi Jehuda, said that the Israelites at Mount Sinai saw more of the Divine than the prophet Ezekiel, they being perfectly united with the supernal Wisdom. They beheld five different grades which symbolized five voices, through which the Torah was given—the fifth being "the voice of the trumpet"; but Ezekiel saw only five lower degrees: whirlwind, great cloud, fire, the brightness, and the colour of amber." What strange and lovely symbols! "The brightness." One thinks of some hue of fire unimaginably bright. And thus the people is exalted above even the prophet; and more: even the Lord Himself depends, as it were, on Israel's prayers which, ascending, make more joyous the praises of His supernal courts, and are joined with those in a completer harmony of worship, so strengthening the Lord by their prayer, and increasing His glory by their praise.

. . . . . .

Rabbi Eleazar meditated on the words of the Psalm: "God be merciful to us." Said he: "King David rose, and praised and thanked the Holy King, and when the north wind awoke and touched the strings of his harp, so that it made music, David began to study the Torah. Now, what was the song of the harp? Come and see! When the Holy One moves towards the chariots and the hosts, to give nourishment to all those supernal beings—as it is written: 'She riseth while it is yet night, and giveth food to her household and a portion to her maidens'—all are filled with joy and song. They begin their hymning with the words: 'God be merciful unto us, and cause His face to shine upon us'; and the north wind, when it awakens and breathes upon the world, sings: 'That Thy way may be known upon earth, Thy salvation among all nations'; and the harp, when it is played upon by that wind, sings: 'Let all peoples praise Thee, O God, let all the people praise Thee'; as for David, when he was awakened, the Holy Spirit roused and moved him, and he sang: 'Then shall the earth yield her increase, and God, even our God, shall bless us; God shall bless us, and all the ends of the earth shall fear him.' This he sang in order to draw down the goodness of the Holy One from above to the earth below. Later, David harmonized all these songs into one psalm, a unity of praise formed in the power of the Holy Spirit."

Thus the Zohar, that "Bible of the mystics"—which, in common with most bibles, is more talked about than known—sums up in a characteristically pictorial and luminous imagined scene the essence of ideal worship, which in its pages becomes real and constant. That a psalm of David originated in the manner so logically and intimately described here seems natural and inevitable when one has for a little steeped oneself in the atmosphere of legend and poetry with which this, perhaps the most unorthodox "commentary" ever penned, is crammed! In itself, the quoted extract exemplifies all that can be said of the perfect act of worship, its intention, necessity, and inner compulsion. David's praise, and the praise of the north wind and of the harp were a unity of devotion and ecstasy, "formed in the power of the Holy Spirit." And the supernal beings, they who began it, were filled with joy and with song, because of the presence of their King in their midst. And what was the end to which their hymning tended? There were two: one, that which is actually mentioned as David's reason for singing,

namely, the desire to draw down the very essence of the Holy into the places of common mortal life; and secondly, the other purpose, which is unhinted at here, because there is no necessity for reminder, since it is the final aim and all-pervading theme of the whole Zohar and the reason at the back of the whole order of its philosophy—namely, the desire to effect and complete the unity of all things in one volume of glory and perfection—union of the different aspects of the Divine Personality; union of the two ultimate aspects of the universe, Justice and Mercy; union of the celestial and terrestial spheres; union of God and Man. But whereas in too many modern minds too great a stress is laid upon this last unifying intent in its subjective aspect, in the minds of the unknown spiritual artists whose testament and apologia the Zohar is, even the mystical idea of fusion with the Divine is subject to (and but a part of) the yet higher aim of glorifying ever more perfectly the Divine Itself.

. . . . . .

Thus man becomes at once more humble and more noble—an instrument only, but actually an instrument with power to exalt and aid the splendour of the majesty of the Most High! No theory of worship can approach this in its dignity, its objectivity, its stupendous simplicity. There is no room here for mere emotional satisfaction, self-glorification or cold righteousness: everything glows and burns with the bright steady flame of self-forgetful ecstasy, of will concentrated fiercely on one point and to one end, of heart subdued by the discipline of the spirit, until the point is reached where the suppliant becomes the giver, the co-operator, the partaker of delight, one with the celestial life of praise, his heaven begun while yet on earth, this world being but a prefiguring of what is above, man but a lesser copy of angels, his world a lesser heaven, or, if he will it so, a lesser Gehenna, if he choose to be ruled by those principalities of evil, the rulers of "the other side," who are yet themselves within the Creator's scheme, being the "Lords of Judgment" by whose accusations the self-destroyed soul may be duly punished, though even for such there is some final hope.

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In this all-embracing scheme of life, whose universe, being at once limitless and God-created, must of necessity include all things in the gigantic sweep of Divine intention, the incompre-

hensible is not caged nor is poetry tied down into bundles of formalism, but, perhaps because of the long silent watches of mystical contemplation which at last receive their reward in this wise—for "at present there is indeed an appearance as of separation between the Creator and His Creation . . . because of the scum of wickedness which as yet still clings to the hem of the garment of righteousness, and therefore, although even in this time we proclaim the Unity we do so silently . . . But in the time that is to be, when the Messiah will reign and sin be banished, then shall that Unity be proclaimed openly . . . "—the Divine somehow comes down at some unremarked moment into the simple ways of men, and is found in their midst, become familiar and comprehensible at last; and what wealth of Christward implication could one find in an interpretation of the Zohar in the light of Messianic fulfilment!

. . . . . .

Said Rabbi Simeon: "It is written: 'And she (the Shunamite) said unto her husband: "Behold now, I know that this is an holy man of God which passeth by us continually. Let us make him a little chamber on the wall, and let us set before him a bed, a table, and a stool, and a candlestick."' Here," he said, "we have an allusion to the Order of Prayer. '*Behold now, I know,*' refers to the concentration of will during prayer; '*that he is a holy man of God,*' refers to the supernal world where He sits on the throne of His glory, and from whence emanate and proceed all sanctifications and blessings, which issue forth from the source of all bounty and grace, to enlighten, purify and sanctify all worlds, both above and below, in the splendour of His might and the tenderness of His merciful kindness; '*passeth by us continually*': of all the sanctifications with which the worlds above are nourished He also sanctifies us here below, and of all blessings that are above we also partake, for there can be no completion of the sanctification above without sanctification below; as it is written: 'I shall be sanctified in the midst of the children of Israel.' Therefore, '*Let us make a little chamber*': let us have corporate worship and an ordered service, that we may supply by our hymns of praise and our prayers a pleroma of energies to the Shekinah (the Immanental Aspect of the Divine Personality)—'*a bed, a table, a stool, and a candlestick.*' By our evening prayers we provide Her with a bed; by our

hymns of praise and by reciting the sacrifice in the morning we provide Her with a table. By the morning prayers, which are said sitting and with the proclamation of the Divine Unity (the *Shema'*) we provide Her with a stool; and by means of those prayers which must be said standing (*Amidah* is the name of these) and of the *Kaddish* and *Kedusha* prayers and benedictions, we provide Her with a candlestick. Blessed is the man who thus concentrates daily on giving hospitality to the Holy One! Blessed is he in this world and blessed in the world to come. For these four potencies equip the Shekinah with beauty, joy, and colourfulness, that she may greet Her Spouse with delight and ecstasy day by day, through the worship of the Holy People . . . Therefore, the Holy People must direct its mind towards the supernal world, and prepare for the Lord of the House a bed, a table, a stool, and a candlestick, in order that perfection and harmony may reign undisturbed every day, both above and below.

. . . . . .

"At the time when Israel is proclaiming the Divine Unity with a perfect intention, a light comes forth from the hidden supernal world, and divides into seventy lights, and those seventy lights into seventy lightful branches of the Tree of Life. Then the Tree and all the other bright-leaved trees of the Garden of Eden emit sweet-smelling savours and praise their Lord . . . and all the supernal potencies unite in one longing and one will, to be united in perfection, without any separation soever. Blessed is the people which perceives these things, ordering its prayers in accordance with this mystery of the Faith!" The present, however, is a time of pregnancy. The child (the people of God) is in the mother's womb; its breathing organs (organs for the reception of God's Spirit) are still without function. This embryonic life is the period of Israel's exile. The Messianic Age will be a time of spiritual birth and growth. The Messianic days are days in which all creation, even the animal world, will know God as in the days before the Fall. The Messianic Revelation will be more perfect than that on Sinai. Then it was but momentary—a glimpse; in the New Age it will be permanent and continuous. All we see now is the mirrored reflection; then it will be the reality that we see. The least in that Age shall be greater than the greatest of these days.

. . . . . .

The knowledge which these writers seek to inculcate is therefore the knowledge of God's inner essence. It is not attained by processes of rational thinking, but by the cultivation of immediate fellowship with God under discipline to His Spirit. But though at present we see only the mirrored reflection, we already appreciate the salient fact that God loves us; and it is upon this basis that knowledge of the inner being of God is built. The history of the Divine dealings with Israel signifies this one thing—God knows and loves His people. Great must be the love of the king who stoops to a poor man, freeing him from his misery, and bringing him to the palace and there manifesting to him love and friendship. Thus does God deal with Israel. Israel is God's poor man. Out of this little world He has chosen the people of Israel and united Himself with them. It is Divine love which runs like a golden thread through history from the very creation of the world itself. God in His relations with man on earth has shown Himself as a King who desires to make His abode with us here below. The higher His Being the lower is He able to condescend. God willed to be among the small and despised, not as a Sultan ruling in his palace, hidden in person and ruling by power only, but as a good and wise king whose one desire is to draw his subjects to himself —a king who, also out of love for his own, forsakes his palace and dwells among his people in order to unite himself with them, that they may see more of his glory and learn more of his character.

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Creation is indeed significant of God's perfection. In creation God has, by an act of self-limitation, created conscious beings, in order that they may have, first, the joy of realizing their self-hood, and then of realizing their Creator, and of receiving Him into their innermost life as their Father and King. The proof of God's love lies less in the fact that He raises creatures to Himself than in that He stoops to have His tabernacle among men, and thus reveals Himself to them.

A beautiful simile illustrates this point—It is as though a man, accompanied by his young son, were climbing a mountain. As the father reaches the summit, he turns to find that the son is far below; but they can still see one another. The son longs to reach the father; but the higher he gets the more strenuous becomes the task. What does the father do when

he sees the intense desire on the part of the son to come to him? He can restrain himself no longer, but comes down to meet him. Even so God in answer to the strivings of the mystic soul. In this connexion Isa. liii, 7, is interpreted as a figure of God's condescending love.

The two types of knowledge are further illustrated by a reference to the fact that the prophets always compare the ideal wonders of the Messianic Age with the wonders of Divine Providence in the deliverance of Israel from Egypt, rather than with the wonders of the Divine Power in creation. The great significance of the redemption from Egypt is not the revelation of God's power, but of His condescending love to Israel. Of this we have an illustration as follows: A king invited the representative men of his country to a royal banquet. The rarest dishes were provided, and the guests might help themselves at will. One there was among the guests, however, for whom the king cherished feelings of especial love; for him the king selected a portion from one of the simplest dishes, and placing it upon a golden platter, he himself carried it to his friend. God's dealings with Israel have been ever thus.

* * * * * *

The "fathers," Abraham, Isaac, and Jacob, are called the chariots of God. Hence every Israelite is supposed to possess two souls: a divine soul, which comes directly from God Himself; and a "natural" or "animal" soul, which comes from the "other side" of God. Israel is called the "son of God"; for even as the very toes of the child have their origin in the parents, so has the "divine" soul, of even a sinner, its origin in God; it emanates from God, and unites itself with his "natural" soul, in order to spiritualize it. It descends from the heights of Heaven, in order to ascend, after having changed the natural into the divine, the material into the spiritual. The metaphor of the grain of wheat is often used to illustrate the energizing of this divine soul. As the grain must enter into the earth, in order to bring forth fruit, so must the divine soul enter into man's innermost nature, and be quite absorbed by it, if it is to bring forth spiritual fruit.

A king lost a costly pearl. He sent his three sons out to find it. The first set out, glad to be free from the restraint of his father's presence. He cared neither for the pearl, nor for his father. He never returned, but spent his life following his own

pleasure. The second set forth, made a hasty search, and quickly returned to his father's house. Not because he loved his father so greatly, but because he was loath to be away so long from the comforts of his home. Now the third set out, full of sorrow at leaving his home and his beloved father, but determined, notwithstanding all his own suffering and separation, to stay away and make diligent search until he should find the pearl, because he knew what great joy the finding of it would give to his father.

Discussion.

The Chairman (Dr. Thirtle) said: I am sure I carry the desire of all present when I ask for a cordial vote of thanks to Dr. Levertoff for the paper read in our hearing. It was a pleasure last session to hear Dr. Levertoff on a subject demanding a profound acquaintance with Jewish thought; but to-day, if a comparison may be allowed, the lecturer has placed the Institute under a still greater obligation, as he has led us into the deeps of Oriental conceptions, call it mysticism, philosophy, or theosophy—"waters to swim in."

Let it be recognized at the outset that a man may be learned in the Hebrew language, Biblical and post-Biblical, and at the same time be ignorant of the Kaballah, and such aspects of Jewish learning as have been sampled before us to-day. The lecture to which we have listened could only come from a specialist—one who has appreciated (and made his very own) thoughts belonging to a past time—one who, so to say, has lived and moved and had his being in areas of contemplation that have small meaning for the Western mind in modern times. Yet, what a wealth of mental and spiritual truth, truth in its splendour, is at the command of the man who studies the Zohar, whether he be an acknowledged scholar like Dr. Levertoff, or some man of dreams and little beside living the life of a recluse in some little-known alley or court in Whitechapel.

Just here is a region of thought where, a generation ago, it was my pleasure to meet the eminent Dr. Ginsburg, and it has been a peculiar satisfaction in more recent times to make the acquaintance of Dr. Levertoff, who is widely recognized as a fully-equipped exponent of Jewish mysticism, having gained in this regard a reputation which is acknowledged by leaders of Jewish culture, who permit

the word) forgive him his devotion to the Gospel in presence of the patent fact that he sustains the honourable position of an authority on Jewish mystic lore.

It has been our privilege to listen to a remarkable utterance. Questions in dispute, in particular as to the authorship of the Zohar, have been left on one side, and they may be left; but the spirit of the Zohar has been invoked for our instruction. The very name—"Brightness"—has its attraction; and from first to last one feels that the contemplative writer, whatever his tribe or century, moves in a sphere at once ample, fruitful, and gorgeous. Think of it, to have the heart guided along thoughts, to quote an opening paragraph of the paper, "that embrace the Divine Transcendence and Immanence, Creation and Redemption, thoughts on God and Israel, Israel and the world, this world and the world to come, holiness and sin, life and death, paradise and hell." What thinkers were those who wrote (and read) such documents, and should we feel disposed to fear that in some cases such men lost themselves in the mazes of an endeavour to relate and unify things natural and spiritual, temporal and eternal, yet one thing is certain, there must have grown out of such contemplations a sense of worship, spiritual and profound—"Jehovah our God, Jehovah is One."

The lecture has been, from one point of view, a series of pictures—similes have abounded, while metaphors have served as the warp and woof of things affirmed of the Divine Being; and if the Uncreate, the Infinite God, seemed to elude contact with the human soul, yet in the order of Providence, means were supplied whereby the banished of the sons of men could be restored to the Divine favour. All the while, throughout the lecture, we have been encouraged in the thought of the Divine Unity, majestic and sublime, in things of time and eternity, of earth and heaven, and of the universe, however expansive and mighty the idea might really be. There have been no signs of loose ends in the forms of thought; the creative order was complex, but likewise as perfect as it has been ornate, and the Jewish mystics assuredly had visions that substantiate to the full the expectation of the great Apostle of the Gentiles— a time when "God shall be all and in all."

If in form and frame the mysticism of the Jews is Oriental, and of necessity so, yet was it characterized by a marvellous universality in application: in its overflow no conception of the Creator was

obscured, no need or desire of the creature was passed by or ignored. Did the Reality of Heaven demand the outreaching of human desire, with an assurance of answered prayer and satisfied need? Indeed so; hence we see that the visions of the mystics embrace the very practical consideration of creatures hungering for the Creator; or should we not rather say (as the mystics put it) that the Creator hungered for the creature, calling such into being, and in due time ensuring their communion in his own perfect nature? Did not the ancient writer (in Proverbs) speak of God as "having His delight among the sons of men?"

Were we not touched deeply with the passage in which it was declared that "the final aim and all-pervading theme of the whole Zohar—and the reason at the back of the whole order of its philosophy," is found in a desire "to effect and complete the unity of all things in one volume of glory and perfection—union of the different aspects of the Divine Personality; union of the two ultimate aspects of the universe, Justice and Mercy; union of the celestial and terrestrial spheres: union of God and man." Here, assuredly is a place for Messianic doctrine (whether recognized or not); and in some cases at least we find the mystics allowing for this doctrine as a divine fact. Do we not find a trace of this—plainly indicated by Dr. Levertoff—in allusion to "the time that is to be," when the Messiah will reign, and sin be banished? Here we are in the presence of the sublime outlook of which we commonly speak as "the consummation of all things," demanding for its expression apocalyptic terms, more or less familiar? Now, indeed, we contemplate the supreme harmony, the subject of prophetic reference and unfolding, in the Old Testament and the New, and demanded alike by the Theology of the Synagogue and the Church; and the mystics were not without the support, moral and spiritual, that came from such doctrine of last things—unity out of complexity, "God all and in all."

We must have gathered with satisfaction the point that the mystics held with energy the idea that in His very nature the Infinite had a desire to become manifest and known; hence, the purpose of creation, a purpose co-eternal with Deity, who, as shown by emanations and intelligences, realized, so to say, the essential means between the Infinite and the finite, the spiritual and the natural. Men used to say that God "made all things out of nothing." But if the mystics give us guidance, we find it more

reasonable to affirm that, the base of things created, was found in essential properties of the Infinite God: all time being His and all space His: with other possible elements as the "outskirts of His ways." Here we reach a doctrine of unity which dominated the minds of the mystics—*God first, God midst, God last.*

With these few words it gives me profound pleasure to call for a vote of thanks to our lecturer; and the vote was accorded with acclamation.

Rev. Dr. H. C. MORTON said: I desire to join in the thanks to Dr. Levertoff for his paper, and not so much to make a speech as to ask a few questions. Dr. Levertoff has in the main given us just illustrations of the Zohar, and the first question in my mind is whether this is rightly called "mysticism." Mysticism should have its philosophic side, its theory of the Absolute and the relation of Man thereto: then this is worked out in experience, actual union with the Divine being established by certain practices, and commonly without any historical revelation, being guided instead by an inner illumination. Is not the Zohar rather a book of devotion?

Rabbi Simeon is quoted, on 2 Kings iv, 9 and 10, expounding a beautiful little incident as intended to bring before us in figures the immanental aspect of Divine personality. Can that be seriously advanced? or is any such treatment of Scripture justifiable?

Our attention is necessarily arrested by the references to the Shekinah. The feminine pronoun is used concerning it, with capital —"Her": and the feminine patronymic, the "Matrona," is applied to it. Is there any doctrine of the Divine Personality intended here? and why the feminine gender?

Toward the close of the paper an element of psychology enters in. "The fathers, Abraham, Isaac, and Jacob, are called the chariots of God. *Hence* every Israelite is supposed to possess two souls: a divine soul, which comes directly from God Himself; and a natural or animal soul, which comes from the other side of God." What is the sequence of thought marked by "hence," the ground on which the startling suggestion is made that an Israelite has two souls? Does "the other side here mean, as in the first paragraph, "sin"? By "soul," in common speech, we intend the whole of the spiritual as opposed to the physical side of human nature: and I

am wondering if this is a considered doctrine of Israelite nature as distinct from the rest of the Human Race ?

Just one other question upon which I should be grateful to Dr. Levertoff for light. What aspirations or thoughts and longings, passing beyond the scope of the Old Testament, does the Zohar express ? Does it register progress and lead onward toward the mystery of Christ ?

Mr. PERCY O. RUOFF said : This paper is marked by literary charm, and gives a clear and fascinating insight into the Zohar. It is remarkable how striking the contrast is, that the masters of the mysteries of the Zohar do not desire the knowledge of these mysteries to be widespread, but the Bible proclaims its infinitely higher truths to all " who have ears to hear."

The exalted descriptions of spiritual communion cited from the Zohar might prove a vigorous incentive to the Christian to seek after a deeper communion with God in prayer and worship, as by faith he enters " into the Holiest."

Dr. Levertoff is perhaps too dogmatic about the origination of Psalm lxvii, when he describes it as " natural and inevitable."

It would appear that there is much in the Zohar that might be applied to the records of Christ's life in the Gospels. This fact invests it with supreme interest.

The learned lecturer refers to the great significance of the redemption from Egypt as " not the revelation of God's power, but of His condescending love." But in a very large number of instances, *e.g.* Psalm lxxviii, it is the mighty power and acts of God that are appealed to, although, of course, it would be impossible to dissociate His dealings with Israel from His love.

Rev. H. S. CURR, B.D., B.Litt., said : I wish to associate myself with the preceding speakers in thanking Dr. Levertoff for his admirable paper. It has been full of instruction, as well as abounding in fine imaginative touches. I cannot lay claim to any specialized knowledge of Jewish mysticism, and I must accordingly confine my remarks to one or two points at which the paper touches the New Testament and Christianity.

The use of words and imagery, with which all students of the New Testament are familiar, in the document under discussion,

struck me as interesting. There was the allusion to " seeing in a mirror " (1 Cor. xiii, 12 ; 2 Cor. iii, 18) ; the reference to the grain falling into the ground (John xii, 24), a statement parallel to our Lord's estimate of John the Baptist (Luke vii, 28), even the common phrase, " Come and see " (John i, 39). These passages seem to suggest that the Jewish mystics clothed their thoughts in words, derived from a circle of expressions, common to Jewry. The differences, however, are as arresting as the resemblances. The use made by the Jewish mystics of the figure of the corn of wheat falling into the ground, typical of the union of the Divine with the human, is good, but the symbolism of John xii, 24, is better. There it becomes a parable of the Atonement.

Again, it may be remarked that Christianity affords room and opportunity for all the experiences described by the Jewish mystics. There is the same sweetness, and the same subtlety, but in Christ there is a corrective provided for the subjectivity and vagueness, which are the perils of mystical emotion and experience.

I was particularly struck with the little apologue of the king and his favourite guest. It seemed to symbolize, after a fashion, the Incarnation, God's unspeakable gift to man in the earthen vessel of a human body, and a human life.

Lecturer's Reply.

I greatly appreciate the kind remarks of the Chairman and other speakers. The restrictions of time and space make it impossible for me to give an adequate exposition of the metaphysical basis of the Zohar, and to answer all the questions asked by Dr. Morton, Mr. Ruoff, and Principal Curr. The few illustrations from my own English translation of the Zohar on Exodus (Soncino Press, 1933) were meant to show that traditional Judaism has no lack of spiritual fervour. That the Zohar is a " book of devotion " is true enough, but it is something more . . . For a more systematic treatment of the subject I may be pardoned for referring to my book " Die religiöse Denkweiss der Chasidim " (Leipzig University Publications. 1918).

As to the allegorical method of Scriptural interpretation, the Zohar is not more fantastic than the Alexandrian School, or even than some devotional Christian commentaries, on the Song of Songs,

for instance. From the purely exegetical point of view, the Zoharic exposition of the passage referred to by Dr. Morton is of course wholly unjustifiable, but we are concerned with the trend of thought read *into* the Scriptural text. *Shekinah* (feminine gender) denotes even in Rabbinic literature the Divine Presence, God manifesting Himself, especially in light and glory. It is in this technical sense, denoting the localized presence of the Deity, that *Shekinah* is most significant in Zoharic literature.

It is impossible to deal with the psychology of the Zohar in a few minutes, but I may point out that also the Christian Aphraates (Hom. VI, 13) speaks of the double entity of the soul. An Israelite, by virtue of being " a son of Abraham " (" God's chariot ") receives at birth a " divine soul," emanating directly from God, as well as a " natural " soul which comes from the " other side " of God. The term " other side " is based on the words (Exod. xxxiii, 23): " and thou shalt see my back," and in this connection it does not denote—as often elsewhere—the material world, the world of " shells," but a lower emanation of the Divine. I need only refer to St. John i, 12–13, to show the contrast between this Gnostic conception and Christian truth, but nevertheless, the very thought-forms and the sometimes almost Johannine colouring of some portions of the Zohar, which deal with the " unio mystica " of the soul with God, have not infrequently led a " Zoharic " Jew onward toward the mystery of Christ.

766TH ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL, WESTMINSTER, S.W.1, ON MONDAY, MARCH 6TH, 1933, AT 4.30 P.M.

SIR ROBERT ARMSTRONG-JONES, C.B.E., M.D., D.SC., IN THE CHAIR.

The Minutes of the previous Meeting were read, confirmed, and signed, and the HON. SECRETARY announced the election of the Rev. Robert D. Kilgour, of Boston, Massachusetts, as an Associate.

The CHAIRMAN, after paying tribute to the character and work of the late Dr. Alfred T. Schofield, called upon Dr. J. Burnett Rae to read his paper on "Psychology and the Problem of Inadequacy," which had been chosen as the Dr. A. T. Schofield Memorial paper for 1933. Dr. J. Burnett Rae was then presented with a cheque for Ten Pounds by the HON. SECRETARY, the gift of anonymous donors, relatives and friends of the late Dr. A. T. Schofield.

PSYCHOLOGY AND THE PROBLEM OF INADEQUACY.

By J. BURNETT RAE, M.B., CH.B., Hon. Physician-in-charge of the Department of Psychological Medicine, Croydon General Hospital.

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

WE are hearing to-day a great deal about what is called an Inferiority Complex, and a good deal of loose and confused thinking has centred round it. Judging by the references made in conversation and current literature to this mysterious complex, it seems to spread its net wider and become more menacing every day. I almost began my lecture by admitting that I had an Inferiority Complex, and I might have been

excused; the subject being so vast and my ability for dealing with it so inadequate, but I saved myself. For be it noted well, a sense of inadequacy in itself is not an Inferiority Complex, and if I do nothing more than convince you of this I shall have justified my existence here to-day.

Strictly speaking, the word "complex" does not denote anything abnormal. Any interest or hobby, "any system of connected ideas with an emotional tone," is a complex, but the term "Inferiority Complex" has been so frequently associated with what is pathological and objectionable, that it should not be employed when describing anything as normal and natural as a feeling of inadequacy. The misunderstanding has come about through the general public having taken over a term which was coined for the use of the psycho-pathologist.

Let me try at the outset to make this matter clear. The sense of inadequacy usually arises out of the fact of inadequacy. Under certain circumstances nothing is more natural than a feeling of insufficiency. The human child is the most helpless and dependent of all living creatures, and comes into a world that is overwhelming and dangerous. His safety lies in his dependence upon others to protect him and supply his needs. And as he grows older he does not become less, but more conscious of his insufficiency. It is the ignorant, not the wise who are self-satisfied. The man of knowledge knows how little he knows. "Into the Kingdom of Science," writes Bacon, in his *Novum Organum*, "as into the Kingdom of Heaven, one cannot enter save as a little child."

In the sphere of social life also, many feel a sense of inferiority, especially in these days when classes are more mixed and the force of tradition still remains. When an uneducated man, through some achievement or good luck—winning perhaps a vast sum of money in a sweepstake—finds himself in a social circle, or in the possession of wealth, for which he is quite unprepared, he necessarily feels himself inadequate. This is no less true of the aristocrat who through altered conditions is compelled to earn his living and adapt himself to conditions which are entirely strange. In either case the adjustment can be made, but it is not easy. No one likes to be humiliated nor made to look foolish. We are all sensitive to the opinion of our fellows: scorn, ridicule, censure, are devastating to some and painful to all.

Again, in the moral and spiritual realm everyone must feel his imperfection. On a certain level we can maintain our position, but faced with the issues of life and death we feel ourselves to be

weighed in the balance and found wanting. If our standard is high enough, whatever we achieve, we must be conscious that at the best we are unprofitable servants. And the saint even more than the sinner feels his weakness and failure in holy things, that his " righteousness is as filthy rags."

For our comfort then let us notice that this recognition of our deficiencies, this sense of incompleteness, is the very condition of progress and happiness. To have all that we want would not make for happiness. The difficulty in helping an insane person is that he has no insight, he cannot recognize his limitations, and consequently is unable to surmount them. An employer contributing an article recently to a paper said he much preferred the employee with an inferiority complex to one without it, for he invariably found that the former was the more obliging, and anxious to learn his job. The writer was using a wrong term when he spoke of an " inferiority complex," but apart from that he was certainly right. Those who are sensitive and self-critical are likely to be more conscientious and painstaking than those who have thicker skins.

It is objected that in these days of popular psychology there is a danger of our taking ourselves too seriously, and perhaps there is some truth in it. We all have our grumbles ; the elderly man thinks he is too old, and the young man is sensitive about his youth. In other days these limitations were accepted as being in the nature of things, but to-day we are apt to look upon them as diseases. We attach labels to them, and wonder if we should consult a doctor !

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There is no question that the sense of inadequacy is often so overwhelming as to ruin happiness and undermine health and general efficiency ; then it is morbid and may be tragic. One of the more serious consequences is the way it may prevent one from making friends and enjoying social life. The girl, for instance, who is shy and diffident is often thought conceited, rude, or stuck-up, and treated accordingly. This reacts upon her feelings of inferiority and she retires still further into her shell. This vicious circle is doubly unfortunate as the encouragement of others is just what she needs. Again, self-doubt may lead to indecision. A man cannot bring himself to take a vital step in his career because he fears responsibility or that he will not come up to what is expected of him. A girl may not be

able to decide to marry when the opportunity comes because she doubts her capacity for the rôle of wife and mother. Through such vacillation a situation may develop which is overwhelming, and this accentuates the inferiority feeling; again a vicious circle has been established.

Before leaving this aspect of my subject I should make reference, however brief, to the distress of those who suffer from morbid fears. One of the most common is the fear of insanity, or perhaps just the vague suspicion that the mind is not quite sound. This apprehension weakens confidence and will-power. It is much easier to accept a physical disability than any mental disorder.

In the past the problem was regarded as a moral, rather than a mental one, and the patient was left to minister to himself and find what solace he could in his religion, not always with the happiest results. Physical peculiarities and organ-inferiorities are often responsible for distress of this kind, and here the doctor may help. But it is our fuller understanding of the workings of the mind, more especially of the unconscious factor, which has brought in the mental expert. A man may feel quite up to scratch physically and intellectually, and know that he is competent at his job, yet have a profound sense of personal inadequacy which he cannot understand. This may have its origin in experiences or incidents of early life which he has long forgotten. An injudicious parent, an elder brother or sister, a foolish nurse, may have sapped self-confidence by constant disparagement. The child who is the butt of the class or family stands little chance of avoiding the conviction of inferiority: he feels alone, different from others and not appreciated by them. Or, if as a child he was not encouraged nor helped to develop his powers and verbalize his needs, the result will be much the same. But it can be made too hard. A child, for instance, should not be in a form far above his intellectual or emotional development. Unless for some good reason, no one should be put in a position for which he is unfitted by temperament, experience, ability or state of health, and in which he is bound to feel hopelessly incompetent.

A little reflection on the foregoing shows us that the feeling of inferiority depends largely upon comparison. It may be comparison with others of our own age or class, or with ourselves as we feel we ought to be. A mother may feel inadequate when she is unable to give the help her child is entitled to expect from

a parent. Unconsciously, she compares herself, to her disadvantage, with other mothers, or with her own ideal of what a mother should be. Comparison is valuable as a stimulant, but it may have a very depressing and harmful effect, and this raises the question of the value of competition in work and play. The real value of competition is to bring out the best in ourselves, not to place us either in a superior or an inferior position in relation to others; which it must be admitted is often the effect if not the intention of our educational methods. It is through comparison that the conviction of inferiority leads to jealousy, envy and resentment; an understanding of this helps greatly in their eradication.

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Conditions such as I have described lead to the formation of a certain attitude of mind or "life-style," and this explains the way in which the individual reacts when faced with any problem or situation involving difficulty. Circumstances which in another person would evoke determination and effective power, in this individual tend to cause confusion and collapse.

We must remind ourselves, however, that a sense of inadequacy in whatever way it may arise, is not in itself an Inferiority Complex which is a particular reaction to it. When I asked a young lady the other day to describe her father, she told me he was of the "low, unintelligent, almost criminal type," and that she had suffered from an Inferiority Complex ever since a friend had casually remarked that she took after him. One gets a little sceptical, of course, about the opinion that some children have of their parents these days, but even if she was unfortunate in her heredity there was no need for her to have a complex about it; that was her affair.

If we are to grasp the psychology of the matter we must understand that any sense of incompleteness implies a standard which we are concerned to maintain or attain. Without the standard there can be no lapse from it. This urge for completeness and attainment is one of the fundamental forces of life, and the problem of inadequacy cannot be considered at all apart from it. Superiority and inferiority, like light and shade, are complementary terms and meaningless apart from each other. It is necessary to remember this when we consider the psychological interactions which occur in connection with either one or the other. The ambition to succeed, what Nietzsche called the

" will to power," is characteristic of a healthy life. It is not necessarily a demand for ruthless superiority in Nietzsche's sense of the word, nor is it what we mean by a Superiority Complex. It may be the desire for equality; for a fair recognition of our place in life, and for an opportunity of making our contribution to the community. In short, it is the natural urge for self-expression and freedom.

What happens then when this urge is opposed and thwarted by a feeling of incompetence? As both the elements concerned have an emotional content a state of tension is set up and relief sought by action of some kind, either physical or mental. I shall mention the happiest solution first, but only in a word, as I wish to say something about it later on. Briefly, it is the way of courage and effort. " What matters," says Dr. Adler, " is not the injury or inferiority, but the courage with which it is met." By study and determination, often involving suffering, the person concerned overcomes his difficulty and solves his problem. He is then a stronger and, if his aim be good, a better man. The very difficulty, the resistance with which he meets, within or without himself, contributes to this. " Difficulties exist," said Mr. Chamberlain, " that statesmen may overcome them." The case of Demosthenes provides a classic illustration of this solution, for by overcoming his defect of speech he became the first orator of his age. History abounds with instances of men and women who have achieved the greatest things by overcoming obstacles and rising above their defects. But often this is impossible. There are inevitable things which reason tells us we must accept; there are aims we might like to achieve but which we come to see are not essential to us. A man discovers, sometimes after painful experiences, that he is not a superman, a Caruso, a Mussolini, nor a Jack Dempsey, and foregoes the ambition to become something for which he is not cut out; or he realizes that the game is not worth the candle. As we grow older there are things which we can no longer do and should not attempt nor grieve over.

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This capacity to accept our limitations makes for happiness and adaptability; it also makes for efficiency, because the energy saved in this way is run into more fruitful channels. We cannot be good at everything and we ought not to try. And let us not forget that the happiness of others depends upon our willingness

to recognize our natural limitations. The lady who will sing in church in competition with the choir and organ is a misfortune to the congregation. We must fit in our gifts with the needs of others, for it is not just a question of what we want to give, but also of what others require from us. It is sometimes said of British manufacturers that they do not sufficiently study the demands of their customers but try to force their wares upon them. There are people who let themselves go because they think it is good for them to express themselves. This gospel of self-expression which we hear so much about to-day can be carried much too far. Self-expression can be a positive menace to domestic and social life unless it serves the common good. We all know the person who talks to the boredom of his friends because he wants to cultivate his conversational powers. In the art of living, as in all arts, selection and the power of elimination is vital. It is often difficult to know whether we should accept our limitations or struggle to overcome them. A sense of proportion, and often the gift of humour, is required, but sometimes the knowledge which the expert can give is necessary before we can decide. When I asked a lady of mature years what time she went to bed, I was informed that her mother, a lady of ninety, insisted upon her and the other members of the family, one of whom was nearly sixty, being in bed by half-past eight. My authority was perhaps of greater value than any special knowledge in such a case.

While emphasizing the truth that acceptance of our inadequacy is often courageous and right, I would remind you that there is an unworthy and cowardly acceptance of our limitations. A General may sacrifice a position under great pressure without abandoning the aim of ultimate victory; on the other hand, he may surrender and give up the struggle. The same is true of the individual. You will notice that in either case the issues are seen and decided upon: there is the element of choice. And even when the grounds of our choice are not fully understood there may be an intuition that they are sound; we are satisfied, the acceptance is voluntary and the will undivided.

We must bear this in mind when we reflect on the psychology of the Inferiority Complex proper. For it is essentially a state of indecision; the patient neither accepts his inadequacy nor can he overcome it. Let me remind you that in the situation which I am describing there is a strong desire to succeed, but the feeling of self-disparagement is also strong and is resented

because it blocks the path of the power instinct. We recall the old medical aphorism:

> "The patient says he cannot;
> The relatives say he will not;
> The doctor says he cannot will."

It will be understood that the really serious conflicts occur where the primary instincts and spiritual aspirations of life are involved. The causes of the indecision, of the failure to resolve the conflict are many. The patient may have no clear understanding of the facts, of what he ought to do nor even of what he wants to do: there is a confusion of the issues and consequently the will is divided. The conflict itself—in its beginnings at any rate—is not necessarily pathological, for conflict is one of the conditions of growth. It does not lead to ill-health so long as it does not disrupt the personality. Conflict may unify personality; we remember how in the war all sections of the community came together in a common effort. But in the situation which we are considering, the conflict is not between the personality as a whole and the resistance which it meets in the effort to realize its ideal, but is within the personality; and a house divided against itself cannot stand.

What happens then when opposing forces are strong and the will ineffective? Relief from the tension may be secured in one of three ways. First, one of the elements in the conflict may be thrust out of consciousness by the process we call *repression*. If it is the sense of inadequacy which is repressed, the individual will appear egotistical and arrogant. If, on the other hand, the self-assertive instinct is the element repressed, the inferiority becomes dominant and accentuated by the energy of the repressed urge. He beats a retreat from reality for he feels, or may come to feel, that he is a complete failure, ineffective and unworthy. He knows how to be abased, but never how to abound, and he may think he has committed the unpardonable sin. There is, of course, in this solution peace of a kind, the peace that comes through defeat. For the conditions of our life we are not always to blame and cannot hold ourselves responsible. But when we do feel responsible and know that we ought to alter the conditions, yet abandon the effort to do so; when we believe that we shall never be able to take advantage of our opportunities and solve our problem as we ought—and as we know we could if only we were what we might be—the result is a weakened

personality; and here we strike a level of self-mistrust which we can appropriately call an Inferiority Complex.

It is rare for either of the elements in the conflict to be completely repressed; a partial repression is more usual, both self-assertion and the feeling of inadequacy forcing their way up from time to time in disguised and disturbing forms. Before I leave this aspect of my subject I should stress the fact that there is a repression which is healthy, and which I have already indicated in another connection. Perhaps suppression is a better word for that process which is employed when a person determines voluntarily to exclude from his life or attention what in his opinion is unworthy or irrelevant. Such repression makes for concentration and power; whereas the repression forced upon the individual by circumstances which have proved too much for him, results in conflict of an endopsychic character, and this in time may produce nervous and mental exhaustion: in any case it spoils concentration through worry and anxiety.

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I can only refer to the second solution in a word. The opposing forces may be kept apart, not allowed to meet, as if in water-tight compartments. This is what we call *dissociation*. It may be slight or serious; some of the gravest cases of mental disorder, of alternating or dual personality, are explained in this way. And in cases such as we are considering there is a fluctuation from states of inferiority to those of superiority. Take the case of a young man who was brought to me because he had on several occasions suddenly disappeared from his work, turning up a long way from home without being able to account for his conduct. Apart from this he was a conscientious and trustworthy man, but not really fitted for the exacting work in which he was engaged, consequently he was worried and wanted to get away from his job. On the other hand he felt the necessity of remaining at his work, and thought it was his duty to do so. But there was no real decision. The conflicting desires were both active but kept apart, till the unconscious, obtaining the mastery, expressed itself in automatic action, the more conscious element being temporarily repressed.

But the third solution is the one to which I would draw special attention. It is the way of evasion. When we cannot face and deal with the facts we may distort or camouflage them. If we cannot reach our goal by fair means we may use means

that are less reputable. It should be understood that this is not done deliberately, nor is it consciously realized. The self, which is thankful to have peace at any price, rationalizes to find justification for the compromise. For it is a *compromise*, between the inhibiting, obstructive forces on the one hand, and the desire for expression on the other. Both agree to give up something, and both admit to some extent the other's claim. This might seem to be the sensible solution ; and no doubt it has a protective value for the moment, but in the end this defence-mechanism leads the person concerned into further difficulties, into attitudes which he cannot justify and positions he is unable to support.

Let me give you one or two illustrations to make the matter clear. A small boy, the only son of a working man, was brought to the Hospital by his father, who was greatly perturbed because the young man of twelve was constantly knocking his mother about, kicking and abusing her in spite of remonstrances, threats, and thrashings. I ascertained that his mother had always been very kind to him, in fact she had spoiled him. I then asked how he behaved at school, and if he was a bully there. " Oh, no," said the father, " the boot is on the other leg at school ; he is a muff and the boys knock him about." This was a pretty obvious case. Like most spoiled children he was a bad mixer, always wanting his own way, to dominate at school as he did at home. But boys, like all children are great believers in the levelling process ; they do not like their school-fellow to be either above them or below them, so they let him have it.

Now, if he had taken his licking and learned his lesson, all would have been well. But no, he did not accept the painful fact that he had a great deal to learn, that he was not really the little god which he had been brought up to think he was ; he resented it, and his self-assertive instinct, his demand for superiority, which had become a habit, was not equal to the situation at school. He could not adapt himself to it and so felt inferior. He hadn't the pluck or the power to make good there, but at home he could feel superior again. And what more natural than that Nemesis should pursue the mother, the person who had spoiled him and was really responsible for his trouble. By his " frightfulness " to her he compensated his feelings of inferiority and felt adequate. There is a right kind of compensation but this was the wrong kind, characteristic of the compromise I mentioned. Treatment consisted in helping this

young hooligan, this potential wife-beater, to understand the situation, and to alter his attitude towards his school friends so that he became socially adapted and acceptable. Then his powers had a normal outlet and feeling more adequate at school he behaved reasonably at home. His mother, of course, had also to be instructed.

Another case is interesting. A boy at a preparatory school was constantly stealing sweets from the top shelf in the matron's room. When discovered he was very penitent, but the trouble persisted in spite of the fact that he was threatened with expulsion, and that his parents loaded him with sweets, to remove any desire for them. But it was always the forbidden fruit that he wanted. I discovered that when a child of three or four his nurse, a somewhat repressive person of the old school, used to punish him for any naughtiness by taking away the daily sweet to which he was entitled and placing it upon a high shelf which he could see, but could not reach. This was a humiliation and evidently made a deep impression. The boy was now compensating; he was getting his own back. It was not really the chocolates that he wanted, but the assertion of his powers. He had not of course connected the incidents, but I explained them to him. I said that it was obvious he could always get the sweets if he wished. He was big enough and clever enough every time, but I asked him to remember the next time he did it that he was behaving like a baby of four, not like a boy of twelve. This was enough.

Again, a boy of fourteen in an institution for fatherless children was brought to me by the master of the Home, who reported that he was a very good boy in his work and conduct, but repeatedly walked in his sleep. He always came into the master's room, and stood over him in a threatening attitude, his face livid with passion and his fists clenched, but when gently received would allow himself to be taken back to bed. In the morning he remembered nothing of what had happened. I ascertained that his father used to beat his mother before he finally deserted her, and the boy told me that when he was seven or eight years of age—just before he was taken from home —he had felt the desire to protect his mother and strike his father. This he could not do in real life, but in his sleep the long repressed instinct for justice and revenge was freed, and his feelings of inferiority for the time being compensated. The master who was *in loco parentis* and whom he genuinely respected

and loved became in his dream life a father-substitute. Again, an explanation was required so that the situation could be faced in consciousness and the right compensation found. To some extent this might be gained in working so as to provide for his mother and take his father's place, but a new attitude towards his father was certainly required, difficult though this might be.

A great number of cases are explained by this mechanism, but they are rarely as simple as might appear from this description of them. They are often exceedingly complicated, other instincts beside that of self-assertion being usually involved, more especially the sex-instinct.

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I would also point out that the *compensation* which is characteristic of this kind of reaction has no social or individual value, because it is unrelated to facts. An example of this is the invalid who rules through her weakness and compels the sympathy which she has failed to obtain in ordinary healthy life. A sick headache or a nervous fear may provide the pretext for avoiding some unpleasant or difficult task. We call it the flight into illness : at school it had a less dignified title. It may be said here that alcoholism and other drug habits are often the way of escape from the stress of an inner conflict. The youth who has been too much repressed may find outlet for his emotions in an orgy of drink, which by drugging self-consciousness and self-criticism liberates his instinctive nature for the moment.

It is evident that in this complex there is a strong element of self-deception. The person is pretending, unconsciously perhaps, to be something which he is not. Never having accepted his inadequacy, the painful fact is always there ready to come up, and on this account he will not place himself in any position in which his inferiority may be exposed ; at all costs he must avoid that. He can stand up to big difficulties but is afraid of smaller ones, afraid to lose something that he wants. The result of this insecurity is that he is touchy and easily hurt. He imagines that people are hostile when they are not, that he has to overcome obstacles which really do not exist, or which only come to exist because of his attitude to those around him. If you imagine hostility you tend to create it ; the person who is looking for a snub sometimes gets it. Another feature of the complex is that the person concerned makes demands upon himself and others which are unnatural and excessive. This is

understood when we remember how one extreme leads to another, excessive repression for example to excessive indulgence. So it is here, the excess of inferiority swings to excessive superiority. The key is pitched too high, and the result not unnaturally is that the sense of personal inadequacy is increased. The clever young man who has had a rather poor education and feels at a disadvantage on that account, may attach an excessive and even absurd importance to the advantage of a public school or university training, and this accentuates his feeling of inferiority and gives him a very false estimate of himself. He may be, and often is, much better educated than his fellows.

We see this reaction not only in individuals but in families. One example will suffice. I was asked to see a young patient who had a nervous breakdown following his failure to pass the Matriculation examination. Now anyone may fail in that, but he belonged to a family with a sense of social inferiority where failure was regarded as almost synonymous with disgrace. When an unnatural standard such as this is set up and failure not tolerated, there is no place for the good loser. A strain like this on human nature causes the pendulum sooner or later to swing back; vaulting ambition o'erleaps itself and falls on the other. The child not certain of winning the race will not run in it at all; the man with only one talent, afraid to risk it, wraps it in a napkin and buries it in the ground.

In addition to fear, there is an element of pride in this failure to take risks. Both inferiority and pride lie behind any excessive demand for security, whether in nations or individuals. The country conscious of inferiority is usually the most jealous of its prestige and afraid of losing it. It is often exceedingly difficult to distinguish between the superiority which is a defence-reaction from the sense of inadequacy and pride itself, so much so that we are puzzled sometimes to know whether the Inferiority Complex is the back-fire of a superiority complex or vice versa. The fact appears to be that, however they originate, whether from a feeling of superiority or of inferiority, the reactions become intermingled. The pride that apes humility, and the inferiority which masquerades as pride are in the same vicious circle—and most of us have some experience of it.

But I would enter a caveat. There is a tendency to-day always to look for hidden causes and never to assess a thing at its face value. We suppose that pride must always be a reaction from a sense of inferiority, and that inferiority is necessarily

indicative of pride; this is unjustifiable. The one may be a true inferiority, and the other really pride. Inaccurate conclusions may be arrived at and wrong treatment follow if our knowledge of the matter is superficial. Those who are afflicted with self-doubt are often thought to be proud and to need squashing. This of course only makes them worse; they really need understanding and encouragement.

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I have outlined some of the psychological processes involved in our subject, in order to clear the ground for my conclusions. The mechanism of an Inferiority Complex may be interesting and important, but what we all want to know is how the complex can be prevented or cured. Fortunately we live first and reflect afterwards. So long as our attitude to life generally is sound, many of these difficulties, some of which are of a temporary nature, disappear. At the outset I drew attention to the acknowledgment of inadequacy under certain circumstances as being healthy and necessary because it corresponds with the facts, and because without it the individual may be living in a fool's paradise. For a time we may get away with it, but "facts are chiels that winna ding," and sooner or later we must face up to them. In his autobiography Mr. Churchill mentions that when he was about the age of thirty, realizing that he was not properly educated, he set about remedying the defect. That was the right response to a feeling of deficiency. trouble follows when we resent and refuse to acknowledge the defect, or weakly give in to it, for the true compensation comes only when the facts are understood and accepted. The place of psychology is to help us to see the facts aright; often we see them awry, as in the case of the young man who had never been to college and who thought he was on that account uneducated. To assess the position truly is most important, for things are real to us in proportion as we attach significance to them. Any conviction of inadequacy, whether justified by the facts or not, has to be reckoned with and is magnified by dwelling upon it, so much so that it may overspread and obsess the entire personality. This is much more likely to happen when the feeling is divorced from the facts; then an entirely fictitious situation may be built up in ways that I have described. But although understanding may be necessary, it is not enough. We shall be much mistaken if we think that by knowing the causes of inferiority we necessarily get rid of it.

Looking at the problem as a whole, we are driven to the conclusion that most of the trouble arises from an excessive self-centredness. There are two general attitudes to life, both of which are needed, but either of which can become overpowering. *First*, there is the introspective attitude. It has its value; the great thinkers and philosophers of the world belong to the introverted type, but the danger of it is that it may become too ego-centric. Then everything is judged by its effect upon oneself. What shall I get out of this? How will this thing affect me? The trend of mind is centripetal, from without in, towards a centre which is the ego. It is not difficult to realize that in consequence the individual is over-sensitive, for everything impinges upon himself. He craves sympathy and appreciation, but going the wrong way about getting them is thrown back upon himself. Any strong natural instinct that turns in upon the self can disturb its balance. The emotion must be directed into an objective channel. I should give a wrong impression if I suggest that this is a person of no worth; on the contrary, he is usually a man of real value. He has probed the depths of his own personality and has therefore the power to understand and help others. Nor is he necessarily selfish; quite possibly he has become ego-centric through exhaustion in the service of others. His failure is not moral but mental; his intentions may be excellent, but his attitude is wrong. Whatever the reason he has become involved in himself and detached from his fellows, afraid of what others think of him and therefore afraid to venture.

The other attitude is very different, not centripetal, but centrifugal, not towards the centre, but away from it to the world outside. This is the extravert and such a man is not easily hurt or shocked, for he does not refer things to himself. But we must not think he is perfect; he may have the defects of his virtues. Although he thinks little about himself, he may think still less about others and be superficial in his judgments. He is immersed in the affairs of life, interested, happy and confident, and surmounts many a difficulty without knowing it. As a plant thrusts out its roots to the soil and its leaves to the sun and receives what it needs, so we live by what we take in from the outside. But everything grows from a centre and it must be a centre that is living and sound.

There is a school of psychology, that of Dr. Alfred Adler, to which we are largely indebted for bringing the whole question

of inadequacy into the forefront of our thinking. This school holds that the cure for these inferiority states is only to be found in the re-orientation of the individual to his fellows. It is maintained that if he makes his *contribution* to the common good and *co-operates* with others he will not be troubled by any morbid sense of inadequacy. It is a gospel of Humanism. Now I agree that there is much here that is admirable, but it is obvious that if we are to co-operate we must have something to co-operate about, and something that will satisfy the highest instincts of our nature. A herd can wander about aimlessly or combine to injure and destroy. "It is useless," says Mr. Clutton Brock, "to tell us to take an interest in that which is not ourselves, unless there is also affirmed a something not ourselves that demands and deserves our supreme interest." My power to contribute, and to co-operate with others will depend upon the way in which I deal with certain interests and problems which are essentially personal and individual. The result will have its repercussion on others, but need not be in any way dependent upon them. "To make a moral ideal out of social service," says Professor Macmurray, "is wrong. I will go further, and say that it is, at the present moment, the greatest danger that faces our country."

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The supreme interest of the individual is his relation to God. The Fatherhood of God implies and inspires the Brotherhood of man. Each at its best is impossible without the other. But there are those who hold that belief in a righteous and loving God increases to an intolerable extent our sense of inadequacy because of the standard of perfection it imposes upon us. The strain of this, it is said, is too great for human nature. I have pointed out that any sense of inadequacy implies the demand for a fuller, completer life, and that this is a healthy human instinct, the very condition of progress and achievement. I have also spoken disparagingly of those who pretend to be something they are not. But in a real sense we all aspire to be something other than we are. He is a poor creature who is content to remain as he is: "A spark disturbs our clod." We have the ambition to be better parents or children, better friends and citizens:

"What I aspired to be,
And was not, comforts me:
A brute I might have been, but would not sink i' the scale."

The spirit of man cannot be content with a second best. His destiny is not to be at one with nature, but at one with God.

It has been often remarked that Christianity which emphasizes the greatness of this destiny at the same time declares our complete inability to attain it by our unaided effort. Hence the virtue of humility, which has always been the hall-mark of those who have maintained the highest standard. What we want is not a lower standard but a truer one. It is the standard imposed on us by others and sometimes even by ourselves that crushes us. The man of one talent buried it because he had a false standard. He compared himself to his own disadvantage with those more talented than himself, and forgot that the Master required his gift just as much as those of others. But above all he lacked faith ; he was conscious of his own poverty and had forgotten the true character and resources of the Master. My consciousness of need is only of value when it passes over into the consciousness of that which can meet my need, as a feeling of cold draws one to the warmth of the fire. The trouble with some people is that they never escape from the subjective, their consciousness of inadequacy dominates and possesses the mind because it never passes over to the consciousness of that which can remove it. The result is that they are always thinking negatively, of what they haven't got and cannot do.

This negative attitude to life is often confused with *humility*, which accounts for the fact that in some minds humility is regarded as a vice rather than a virtue. They forget that the one is a self-conscious attitude, whereas the other is conscious of something greater than itself. The cure for an Inferiority Complex is not to get a Superiority one, for they are both self-conscious. Two men went up into the temple to pray. The one, comparing himself with other men to his own satisfaction, thanked God he was not like them. He had a Superiority Complex. But it was the other, the Publican who felt his unworthiness, who went down to his house justified ; not because of his consciousness of sin and weakness, but because he brought them into the presence of God's holiness and love. That is a tremendous thing to do. It requires courage and it lets loose the power of God to change and recreate.

But it is objected that dependence upon God may sap a man's confidence in himself, that he should grow out of an attitude in which he looks for support and guidance. This is to ignore the facts of our position in the universe. In certain respects we

should be confident and resourceful, in relation to our fellow-men, for instance. Our attitude here should be one of personal equality in spite of social and intellectual differences. But beyond all this there is a relation in which we must be, not childish, but child-like. The child is of the nature and being of the parent, growing more and more to understand and co-operate with him, but recognizing his own immaturity. Dependence on a parent involves no humiliation to the child and gives him the confidence which he needs.

So it is here, faith in God and faith in ourselves are not mutually exclusive; they are complementary and essential to each other. In so far as a man has faith in himself, can trust his own judgment, he is in a better position to repose faith in others and in God. We remember that Christ always sought to evoke this faith. "Thy faith hath made thee whole." It is faith in God, but the man's faith. It has an objective reference, but is itself subjective. The person who has no confidence in himself is at one moment too credulous and suggestible, believing everything he is told, and at the next too incredulous or suspicious, he cannot believe anything, for not trusting himself he is unable to trust others either. But while confidence in oneself is good, it is not enough. I should be able to depend on myself, but I am in a sorry plight if that is all I can depend on. If I am in a railway train I must have confidence, not only in myself, but in the train, the driver and the whole railway system. If I cannot, I am not likely to enjoy the journey. Faith in God enables a man to be more self-reliant, for he knows that he is in touch with the source of power. He can be too dependent on others, but he cannot be too dependent on God.

* * * * *

In one of his essays Archdeacon Charles reminds us that the Old Testament described Moses as the meekest man on all the earth, and he points out the significance of the meekest man of ancient Israel being also its strongest; the humble servant of God's will the greatest law-giver of the ancient world. "To be truly meek," Dr. Charles goes on to say, "one must be strong; for the meek man has forsworn his own private gains and personal ambitions and resolved to follow God's will at all costs and at all hazards. This meekness requires courage, singleness of aim, self-control, self-sacrifice. And to such the promise, naturally, is that they shall inherit the earth."

That, however imperfectly I have expressed it, is, I think, the Christian solution of the problem of inadequacy, and looking at it from the viewpoint of psychology and alongside the facts which I have put before you, I can see no better solution and no other. It depends upon the introduction of a new fact, the fact of God, and this transforms the other facts by changing us in relation to them. Both elements in the conflict are transmuted. They are no longer antagonistic, because they are both drawn into the service of a higher purpose than self-gratification, or even self-realization. Jesus did not depreciate the instinct for power and mastery, but he deflected it from its narrow orbit and gave it a new direction. "He that is greatest among you shall be your servant." In a word, the cure for inferiority is to convert it into humility.

In this service there is perfect freedom from conflict which disintegrates and exhausts. And in it also we receive power, not only to accept our limitations when necessary, but to overcome many an obstacle which otherwise would daunt us. "I know both how to be abased and I know how to abound: I can do all things through Christ, who giveth me the strength." The only real inferiority is to be unable to serve. It may well be that we have not been so gifted as to make us pre-eminent among our fellows, but there is no one who may not have the power to serve his day and generation well. With it we shall make our contribution with confidence, not thinking of ourselves more highly than we ought, nor less highly.

And let us not forget that one of the greatest contributions we can make, one of the most important services we can render, is the appreciation of others. Far more than we realize this would help to solve the whole problem for ourselves and others. "Be kind to the man next to you," Ian Maclaren once said, "for he is fighting a hard battle." To encourage his gifts and rejoice in his success may be to render a greater service than to bestow upon him something of your own.

With the consciousness of power there comes relief from strain. Effort is always necessary to achieve anything worth while, but strain is fatal. The danger of any feeling of inadequacy is that it makes us anxious about results, too concerned to please or impress or attain, and in consequence we try too much. A certain ease is essential for the finest work; power expresses itself not only in contraction but in relaxation. "Strenuousness," says Tagore in one of his essays, "is the foe of achieve-

ment; the strength that wins is calm." But whether we win or not, the thing that matters most is the kind of effort which we have made. "The artist," writes Mr. Clutton Brock, "knows that he cannot achieve the beauty he sees; but it is the effort to accomplish the impossible which makes him produce beauty." In his delightful book on fly-fishing, Lord Grey describes three kinds of anglers. There is the angler who fishes to kill fish—he is really a fishmonger. Then there is the man who wants to catch more fish than his friend—he is the competitive angler. But the true angler is he who is content to cast a perfect line. This ease and contentment is impossible so long as we are straining after results. The aim and the effort is our affair but not the outcome; that we must leave. "'Tis not what man does that exalts him but what he would do." This spirit of desire and daring, because he needs must love the highest when he sees it, is man's nature and makes him but a little lower than the angels. But it is when he knows that in spite of all his failure God believes in him and loves him; when he is conscious of the eternal Spirit of God within him, that any feeling of inadequacy becomes impossible. It is lost because it is transformed.

Discussion.

The Chairman (Sir Robert Armstrong-Jones, M.D.), in some introductory remarks, spoke of Dr. A. T. Schofield as "an esteemed citizen and a firm believer in a personal Creator and Sustainer of the world," and proceeded: He was a devoted brother, and I knew him best as the biographer of his brother (and my friend), Dr. R. Harold A. Schofield, an Oxford graduate in Arts and Medicine, and a Radcliffe Travelling Scholar. His brother was a fellow-student of mine at St. Bartholomew's Hospital, and one of the most brilliant men who ever entered as a student. His whole life was devoted to the glory of his Master, and his motto was "God resisteth the proud but giveth grace to the humble." He was the founder of the Hospital Christian Association, and I met him at those meetings. He was greatly inspired by that great missionary, Dr. Moffatt, whom we were both privileged to meet, and after serving as House Physician to Dr. Southey, to whom I was a clinical clerk, Dr. Schofield joined the China Inland Mission, but after three years faithful and devoted service, he died in China. His religious belief became

a conviction with him, and this elicited an enthusiasm which kindled the two brothers into a most earnest Christian activity.

Considering the great influence that Psychology exercised over the Mind of him whom we commemorate, it would be difficult to find a more able and worthy authority to deliver this memorial lecture than Dr. Burnett Rae. Both of us served together in the Great War and his special skill and experience in the treatment of the " shell-shock " soldiers at Aldershot were most helpful and valuable. I cannot think of any one more entitled to remind us of the life-work of our respected member, Dr. Alfred T. Schofield.

Following upon the lecture, the Chairman gave a lead in the discussion of the subject. He said: There was a time, not far distant, when theological creeds tended to limit and even to repress scientific inquiries and thus to be intolerant of the search for Truth, but we know to-day that there is nothing inconsistent with Religion in the teachings of Science. Man possesses in his nature what has been described as an innate capacity for religious consciousness, and we know that the deepest impulses in human nature crave to become both rational and religious, and the life which is *not* in a real sense, both, is, in a *complete* sense, neither. It is acknowledged that Man has the capacity to form ideas or concepts, and that these, by constructive association, tend to become formulated into *ideals*. It is the distinctive privilege of Man to construct in his mind *ideals* which transcend himself—which are something beyond and above himself, which may not inaptly be described as Divine ideals, and which we apprehend as attributes of the Deity. These ideals (depending upon the earnestness of Man's aspirations and the exaltation of his moral sense) tend to become stronger and more dominant, so that his life in the search for Truth, endeavours more and more to follow in the steps of his Divine Master.

There are two terms in Dr. Rae's paper upon which I may be allowed to comment, viz., (1) Inadequacy and (2) Psychology:

1.—The term *inadequacy*, in the sense used by the lecturer denotes a definite mental condition and under ordinary circumstances is perfectly normal. The criterion is whether the person possesses an " insight " into his own condition, as there are limitations beyond which " inadequacy " is injurious; that is, when the repression of the instinct of self-assertion becomes abnormal, then inadequacy is a barrier to efficiency, for it engenders mental conflicts, uncertainty,

and doubt, the will is inhibited and action fails. Inadequacy then merges into the inferiority complex—a complex is any idea that I may entertain with the feeling kindled by it, *e.g.*, I have a complex about the man who steals my watch! The inferiority complex is abnormal, it is often the cause of ego-centric boasting, and is characterized most often by its opposite, the feeling of superiority. It is the ruin of much happiness, but it can be removed by what Dr. Chalmers (the Scotch divine) described as "the expulsive power of a new affection," in other words, by the Grace of God, or as psychologists say, by an effort at self-expression and self-reliance, and this effort should be pursued vigorously and with courage.

2.—*Psychology*, as we know, is the study of the mind. It is an investigation into mental phenomena. It deals with the thinking principle, rather than the thing thought of, with the process of thinking, and not with the object matter. It has to do with sensation and emotions, perception, concepts, thoughts, thoughts or ideas, and volition. Psychology deals with the mind as we feel, know, and will. It has nothing to do with such conceptions as the freedom of the Will, the existence of the Soul, or the origin of intellectual ideas. These concern philosophy and metaphysics. Psychology has experienced many revolutions within the last century. The teachings of George Henry Lewes, and of John Stuart Mill, for instance, were both different. Mill regarded the mind as the outcome of individual experience, whilst Lewes viewed the mind as an inherited racial development, based upon the theory of Evolution. Then came the study of Physiology and Biology upon which Bain and Spencer based their materialism. Idealism gave way to neurological, physical and material explanations. Experimental psychology followed with the investigations of Ziehen, Wundt, Galton, Myers, Spearman and others, their psychology being described as the "New Psychology," but now we have the "newest" Psychology, based upon the teaching of Breuer (1881), Freud (1913), and later of Jung, Adler, and others, who claim to have explored the "unconscious mind" by psycho-analysis, by means of three special methods which cannot be explained now, viz.: (*a*) free association; (*b*) time reaction; and (*c*) the interpretation of dreams. Ideas or complexes come into the mind, but they may become repressed, giving rise to conflicts which, though hidden, may be brought into consciousness

and then removed. In the course of investigations into abnormal mental states, new terms have been invented and a complicated vocabulary has resulted. It is the modern psychologist who has described the term "inadequacy," which Dr. Rae has so fully discussed, and explained to us this afternoon.

The moral of Dr. Rae's paper is not to tolerate passively the feeling of our inadequacy, not to despond under adversity, and not to repine that Providence has not placed us in a sphere of more extended influence; but to try, with every effort and courage, to cultivate our one talent and that in all humility. We are urged to labour so as to acquire the dominance over self. We should always aim at a high standard of excellence, and set before ourselves the life of the One Perfect Person, who dwelt among men, who was made manifest in the flesh and whose example remains available for the up-lift of Man.

Mr. W. McAdam Eccles asked three questions:

1. Is a true "inferiority complex" more common in males or in females?
2. Can there be true humility without an "inferiority complex"?

Mr. Eccles referred to the fact that many paintings depicting our Lord Jesus Christ showed what would at the present day indicate the facies of one with an "inferiority complex," whilst nothing of this kind should ever be attributed to our Lord, and His "humility" could not be caused by such.

3. Has the possessor of a genuine gift of humour ever been known to have an "inferiority complex"?

Rev. Dr. H. C. Morton declared the paper to be one which would bear reading and re-reading again and again. The New Psychology is not always good, but here we have it at its best. Proceeding, he said: Dr. Rae suggests that the really serious conflicts occur where "the primary instincts *and the spiritual aspirations* are implicated;" thus emphasizing the spiritual factor. He was very thankful that such an authority on Psychological Medicine gives such testimony to the essential value of the Christian Faith; for the paper draws the conclusion that the sense of inadequacy which we all share, which is not a delusion but a fact—and which sometimes intensifies

into a veritable inferiority complex—is not to be dealt with by repression, which would give from the unconscious level additional force to the sense of inadequacy; and that neither is it to be dealt with by fleeing to self-assertion; but only by seeking an actual increase of adequacy and power, and that that is the message of the Christian Faith.

Toward the end of the paper we read: "The Fatherhood of God implies and inspires the brotherhood of man." Personally, he had never been able to accept the idea of the universal natural Fatherhood of God. The New Testament does not teach it. There is one passage (in Heb. xii, 9) where God is called "the Father of spirits," but the Revised Version margin gives "Father of *our* spirits"—a reference to Christians. Apart from that one doubtful passage, God in the New Testament is only the Father of believers. Since the argument of the paper is that the solution of the problem of inadequacy is, to become adequate, to claim something the sufferer has not yet got, viz., in this case to claim position and power as a child of God, would it not be better to avoid phraseology that assumes what is required to be already possessed? He suggested, therefore, that the sentence might read, "Each human being has a potential position as a child in the family of God, and should claim his adoption thereinto."

Lieut.-Colonel MOLONY said: I had a friend who suffered from an "inferiority complex"; he had never been at any university. He used to bemoan the fact, saying, "It gives a man such a polish, you know." So he set himself to be very careful about his behaviour, and was so successful that a brother-officer of mine remarked, "I like that fellow Goldsmith; he has such nice manners." This I was very glad to hear, because Goldsmith was a good Christian, and my brother-officer made no pretence of religion. When Goldsmith was chosen Mayor of Devonport, the men in the street said, "Thank goodness, they've got a gentleman at last"; and that was what he was, in the best sense of the word.

Mr. PERCY O. RUOFF said: Dr. Rae has argued that the recognition of deficiencies is the condition of progress. This point receives striking illustration in the words of the great preacher,

Spurgeon. Referring to the almost overwhelming responsibility of preaching, he once said: "I remember the answer I received when I once said to my venerable grandfather, 'I never have to preach but that I feel terribly sick, literally sick I mean, so that I might as well be crossing the channel,' and I asked the dear old man whether he thought I should ever get over that feeling. His answer was, 'Your power will be gone if you do.'"

It is said that many public speakers feel acutely their inadequacy (occasioned through nervousness), and cricketers before batting in great matches; and it is supposed that this feeling distinctly tends to success in their undertakings. Perhaps Dr. Rae can explain this.

May not very much be done in family life, which will yield permanent advantage to the children, by understanding and sympathetic direction of the young lives? In my family of eight children, all are encouraged to express their opinions, but no one is ever allowed to take an unfair advantage of another, and due attention is given to the defence and development of each personality. Does not the lecturer think that, in cases where individuals are oppressed with a morbid sense of inadequacy, they might be greatly helped by the broadening influences of watching the conduct of public affairs in Council Chambers, Parliament, or the High Courts of Justice?

With regard to the concluding part of the paper, dealing with an individual's relation to God, the teaching of the Bible seems uniformly clear that the compensations and enrichments in the realm of the grace of God immeasurably outweigh the natural deficiencies of a man. God seems to single out for His special regard the man of humble mind, as it stands written: "To this man will I look, even to him that is poor, and of a contrite spirit, and trembleth at My Word" (Is. lxvi, 2).

Dr. LOCKHART ANDERSON said: I have listened to the paper with the greatest pleasure, and I am glad to have the opportunity of adding my tribute to the quite admirable way in which Dr. Rae has dealt with a most difficult subject.

As a medical psychologist myself, I am familiar with this difficulty, and I do not feel that I have much, if anything, new to add from the strictly psychological point of view. But as the Institute is pledged to the search for truth from the angle between science and

philosophy, with a view to discovering a higher idealism than can be reached by either of them alone, perhaps I may be allowed to add a comment on this subject of inadequacy not strictly psychological, yet one which seems to me of great importance.

The lecturer has made it clear that both the inferiority and superiority complexes are complementary aspects of a struggle for self-adaptation which is fundamentally the same effort expressing itself in opposite ways. Further, he has shown us that each of these modes of the effort has an emotional content; and I think it is fair to add that the oppositeness of these complementary modes implies that what is "yes" for the one is "no" for the other. At least, that is a conclusion to which the speaker's argument seemed to me to lead; and it certainly is a conclusion which my own experience confirms.

Now the terms "yes" and "no" with regard to important values imply more than psychological categories—they are philosophic as well. And I cannot but think that they might possibly in the future be correlated with positive and negative electrical reactions in the grey matter concerned. If my surmise be correct, it would bring a purely physical hypothesis to the aid of abstract idealism. For myself, I have adopted this hypothesis for a number of years, and, to put the matter briefly, I find that it works. The technique is simple, being nothing more than voluntary muscular quietude, a sort of physiological meditation which, as a leveller of disordered emphases, has a surprising value.

I have long had a feeling, amounting now to conviction, that strong emotion is accompanied by an alteration of voltage in grey matter, though it may be many years before it can be proved. All I can say is that the patient practice of simple muscular relaxation tends undoubtedly to bring about a levelling of emotional pressures, and I recommend this simple technique as an important aid to that readjustment of emphases, and consequently of values which it is perhaps the psychologist's highest object to induce, and to which our attention has been so ably directed to-day.

Written Communication.

Mr. George Brewer wrote: The feeling of inadequacy is often, I think, occasioned by a lack of faith either in ourselves or others;

but even the exercise of faith depends for success in the ability and willingness of its object to effect the desired result. Thus while faith in humans must be confined within strict limits, faith in God may be exercised without limitation in accordance with His revealed will, for with Him all things are possible.

Moses when in Egypt had a strong desire to rescue his fellow Israelites from their cruel bondage, and would appear at that time to have contemplated action in his own strength ; and when forty years later God called him to that very work, he fully realized his inadequacy, confessing that he was not eloquent, but slow of speech and of a slow tongue (Exod. iv, 10) ; yet by the obedience of faith he was able to accomplish what otherwise would have been impossible.

Gideon when God called him to save Israel from the army of the Midianites said : " Oh my Lord, wherewith shall I save Israel ? My family is poor, and I am the least in my father's house " ; yet by faith in the Lord's assurance to be with him, he was able with 300 men to defeat the host of Midian.

The Apostle Paul, with the thorn in his flesh and the reputation of being weak in bodily presence and in speech contemptible, was able by faith to declare : " I can do all things through Christ, who strengtheneth me " (Phil. iv, 13).

With constant dependence upon God, and seeking that mind which was in Christ Jesus, we shall escape being victims of an inferiority complex, and while ever ready to esteem others better than ourselves, will be able to rejoice in the fact that our sufficiency is in God, and that His strength is made perfect in weakness.

767TH ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL, WESTMINSTER, S.W.1, ON MONDAY, MARCH 20TH, 1933, AT 4.30 P.M.

ALFRED W. OKE, ESQ., LL.M., F.G.S., F.Z.S., IN THE CHAIR.

The Minutes of the previous Meeting were read, confirmed, and signed, and the HON. SECRETARY announced the election of Francis Donald Bacon, Esq., as Associate.

In the absence of the Lecturer through the illness of Mrs. McIntyre, the paper by the Rev. D. M. McIntyre, D.D., entitled "The Synoptic Gospels: their Relation to one another," was read by Mr. Frederick G. Hill, I.S.O.

THE SYNOPTIC GOSPELS AND THEIR RELATION TO ONE ANOTHER.

By THE REV. D. M. MCINTYRE, D.D.

THE first three Gospels are entitled "the Synoptics":* they present us with a conspectus of the earthly life of the Lord. They are held in the same framework, they concur in their selection of incidents, they are couched in similar, often in identical, terms. Yet their agreement is continually interrupted by numerous divergencies. And the "Synoptic Problem" consists in the difficulty of harmonizing this general agreement with so many discordances in detail.

From the third century the mutual relations of the Synoptics have engaged the attention of New Testament scholars. But from the eighteenth century until now the examination and comparison of these Gospels have been prosecuted with much eagerness. The results have been meagre. So much careful study cannot have been without fruit, but it is confessed by all that the Synoptic Problem has not been solved.

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* The word "Synoptics" used in this connection is found as early as the sixteenth century. It was popularized later by Griesbach and Neander.

One may roughly mark out three stages in the discussion of questions involved in this enquiry.

(1) Herder (d. 1803) maintained that Matthew, Mark, and Luke all originated in an oral tradition which had become quite definitely fixed between A.D. 35 and 40. Gieseler (d. 1854) argued strongly in favour of the view that an oral testimony underlay the first three Gospels. Dr. Westcott (d. 1901) supported this opinion with his accustomed force and fairness. "Naturally speaking," he writes, "the experience of oral teaching was required to bring within the reach of writing the vast subject of the Life of Christ . . . Out of the countless multitude of Christ's acts those were selected and arranged during the ministry of twenty years which were seen to have the fullest representative significance for the exhibition of His divine life. The oral collection thus formed became in every sense coincident with the Gospel; and our Gospels are the permanent compendium of its contents."*

(2) Until recently the "Two-Document Theory" was maintained as the orthodox critical belief. Dr. Sanday in his introduction to *Oxford Studies in the Synoptic Problem* simply takes it for granted;† others hold it as "axiomatic." This hypothesis recognizes two primary sources, the canonical Gospel of Mark and an unknown collection of memoranda of Jesus. This second document is known by various names—"The Logian Document" (Stanton), "The Oldest Source" (B. Weiss), "The Discourses" (Headlam), "The Lost Common Source" (Ramsay). We owe the generally accepted title "Q" (Quelle) to Wellhausen.

(3) "The Two-Document Theory" has proved to be only the starting-point for further investigation. It reminds one of Descartes' process of simplification: Let us throw away everything we can; two forms of reality remain—knowing and being: "I think . . . I am." Having established these two facts, he hoped

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* *Introduction to the Study of the Gospels*, p. 169.

† "We assume what is commonly known as the 'Two-Document Hypothesis,'" p. 3.

by their means to regain the whole world of truth. "Mark and Q" are the irreducible minimum of synoptic research: one cannot stop there, however; one must advance to fresh discoveries. Some German scholars now postulate three sources. Professor Kent, following them, speaks of three ground elements: (*a*) An early collection of the Sayings of Jesus; (*b*) The Original Gospel of Mark; (*c*) Other early fragmentary Gospels. Sir John Hawkins carefully feels his way in the same direction. Canon Streeter, who for a time gave his adhesion to the Two-Document Hypothesis has now disengaged himself from it, and requires a fourfold source—Mark, "Q," Matthew's Special Source, Luke's Special Source.* Synoptic criticism, for the moment, halts at this stage.

I.

The beginning of the Gospel of Jesus Christ (Mark i, 1) is the personal testimony of those disciples whom the Lord had chosen to bear witness to Him, "beginning from the baptism of John unto that same day that He was taken up" (Acts i, 22). Their testimony covered the wide scope of His ministry, but it centred on His death and resurrection. The primary duty of the Twelve was *to bear witness*; it was for this that they were chosen. The disciples were, for the most part, open-air men, honest, observant, able to relate with exactitude the things which they had seen and heard. The consciousness of their high calling would dispose them to a scrupulously reverent handling of those facts which they had been set apart to place on record. For some time after the great Pentecost they "gave themselves" to this work: "Daily in the temple and in every house they ceased not to teach and preach Jesus Christ" (Acts v, 42). Already a difference is observed between teaching and preaching, although the distinction was not deeply marked: the one was historical instruction turned to evangelistic uses, the other evangelistic appeal framed in historical moulds. In both, it was the story of Jesus. Every believer would be eager to hear, and hear again, the apostles'

* *The Four Gospels*, chapter ix.

rehearsal of the successive incidents of that marvellous ministry; the newly received converts would in particular insistently require of their spiritual guides the fullest possible description of the earthly life of the Son of God. As time passed, certain episodes would naturally be repeated more frequently than others: many occurrences would fall out of the current teaching, while those that were retained would be apt, by constant repetition, to crystallize into a definite form. The selection of miracles, parables, and incidents of the way, may have been made almost instinctively, but it was divinely guided according to the principle laid down by St. John: "These things are written, that ye may believe that Jesus is the Christ, the Son of God, and that believing ye may have life in His name." The events which most conspicuously nourished faith were those that came to form the burden of the apostles' teaching. It was in this "teaching" that the believers who were gathered into the Church on and after the Day of Pentecost "continued" (Acts ii, 42).

It is probable that the preaching of the Twelve retained this simple form for a considerable time.* But the inrush of new converts would call for a more deliberate and systematic mode of instruction. Chosen men would be set apart to receive the word from the lips of the apostles and communicate it to inquirers and converts. In this way classes of catechumens would be created.

The method of instruction would, no doubt, vary. At first, in Jerusalem, the teaching would be, according to rabbinic usage, by word of mouth. The teacher would recite the lesson, until it was securely lodged in the memory of each student. For this frequent repetition might be required. The most admired student in the Jewish schools was "one who was quick to hear and slow to forget," or was even compared to "a plastered cistern which loses not a drop." The free use of printing and the possession of books have in these modern days discharged most of us from the task of straining our memories to their last capacity; but this was the pith and

* When Paul and Barnabas were in Paphos (*c.* A.D. 47) the form of their ministry seems to have been after this mode: "Then the deputy . . . believed, being astonished at the teaching of the Lord" (Acts xiii, 12). Barnabas, perhaps, or Mark, would rehearse the story of Jesus.

substance of education in the Ancient East. Chinese scholars still commit to a safe recollection great breadths of their classical texts. An Arab will repeat saga after saga and always in identical terms with those which his father had employed. The Book of Leviticus contains no reference to its having been committed to writing; probably it was during many years locked up in the recollection of the priests, just as the decisions of the rabbis now contained in the Mishna were preserved. In the Middle Ages the evangelical sects taught their adherents to memorize the Gospels, the Epistles, the Psalms, and other extended portions of the Old Testament. One may find to this day in the synagogues of Eastern Europe Jews who are able to repeat by heart the entire body of the Hebrew Scriptures. And only a year or two ago Dugald Campbell, in the Sahara, met a lad (and heard of other persons) who could recite the Koran, from the first page to the last, with perfect accuracy.*

After a time, especially in Greek-speaking countries, "the teaching of the apostles" would be committed to writing. The instructor would read over the lesson, perhaps many times, until it was quite familiar to the pupils. In many cases the lesson slips would be carefully preserved, and arranged in some sort of order. But as the teaching was with a view to full faith, it was homiletic rather than chronological, and the scholars, perhaps also the teachers, would have difficulty in apportioning each separate piece of instruction to its true point in time. It is, we may conceive, for this reason that the sequence of the history in the Synoptics is so difficult to determine. As the years passed, and as fresh information regarding the earthly life of the Master was communicated by travelling preachers, the catechumens would insert these additional memoranda, as far as possible, in their due place. In some such way there would come into existence those digests to which St. Luke refers in his preface to the Gospel which bears his name: "Many have taken in hand to draw up a narrative concerning those matters which have been fulfilled among us."

However differently we may conceive the stratification of "the teaching of the apostles," every Bible student will assent to the saying of the late Primate of Ireland: "It seems to be as certain as anything of the kind can be, that an unwritten

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* *Wanderings in Widest Africa*, p. 65.

traditional life of Jesus, graven upon the living heart of the Church, preceded the written life."*

The question which confronts us at this point is: Can we think of our canonical Gospels as having taken form immediately from the teaching of the apostles, or must we postulate sources intermediate between the oral testimony and the Synoptics? It is not impossible that the Second Gospel comes to us directly out of the oral tradition; but documentary sources seem to be called for when we turn to Matthew and Luke.

II.

Some writers assert that the fact that none of the Synoptic Gospels, as we now know them, was received by the Church until at least thirty years after our Lord's resurrection was symptomatic of a general indifference to the details of the life of the Saviour.† One cannot assent to this. No fragment of Christian literature has come to us out of the years which elapsed between the Day of Pentecost and the earliest of the canonical writings; but it was in that very period that the numerous narratives of which Luke takes notice were compiled. The hope of the imminent return of the King did not obscure the lineaments of His earthly life. Christ is everything to those who know Him: He is all, and in all.

But we may in part understand how delay in building up the Fourfold Record arose. The matters to be related were so momentous, the necessity for utter truthfulness was so insistent, that believers in Jesus would naturally prefer to hear of the sacred events of the Saviour's life and ministry from accredited witnesses rather than read of them in an unauthorized production. In addition, not many men of the inner circle, so far as we know, had literary aptitudes. Even the beloved disciple seems to have found letter-writing, although in the briefest fashion, an unwelcome task (2 John, 12; 3 John 13). Above all, we may conclude that the Spirit of inspiration willed that the verbal testimony should be assimilated and

* cf. Stanton: "The ultimate Source of the Gospels is oral traditions" *The Gospels as Historical Documents*, II, p. 131.

† "As it was thought the world was near its end, men were little anxious about composing books for the future: all they aimed at was to keep in their hearts the living image of Him whom they hoped soon to see again in the clouds." Renan, *Life of Jesus*, p. 12.

the final selection determined on before the apostolic witness was stereotyped in our Gospels. But the dispersion of the Apostles, and the death of some of them, would press the necessity of committing to writing the greater events of the ministry of Jesus upon those men who had been chosen by the Spirit.

It is probable that the Synoptic Gospels were all given to the Church between the years A.D. 60 and 70. Archdeacon Allen puts Mark before 50, Harnack dates it before 60, but we shall probably come nearer to the truth if we fix some point between 65 and 67. Both the historical and the internal evidence point in this direction.

The patristic tradition is in the main trustworthy, though one cannot vouch for every particular.* The primitive belief was that Mark was the disciple and interpreter of Peter, that at various periods he waited on the ministry of one who was the friend of his youth, and probably his father in Christ; and that, towards the close of the life of Peter, many of the apostle's hearers approached Mark, and asked him to put on record the substance of the discourses to which they had listened. Yielding to their desire, and extracting a perhaps reluctant admission from the apostle, he "wrote as Peter guided him." But the writing may not have passed into circulation until Simon's apostolate was sealed by martyrdom.

This Gospel was written by one who thought and spoke in Aramaic, though he had a working knowledge of Greek. He writes with the Palestine of our Saviour's ministry clear in recollection; but he writes for others besides his own compatriots. He employs a number of Latin words, and frequently pauses to elucidate a Jewish custom. Other features in the Gospel confirm the tradition that it was written for the information of Christians in Rome. Those who had received the Epistle to the Romans, and were familiar with other writings of St. Paul, would crave an ampler knowledge of the life on earth of Jesus the Lord. There is an ancient church in the *Via Lata* which holds the tradition that one of the canonical Gospels was written there—St. Luke's, it is reported, but it may have been rather, or also, St. Mark's.†

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* Euseb. *Hist. Eccl.* ii, 15; iii, 39; v, 8; vi, 14, 25.

† cf. Streeter, *op. cit.*, p. 488.

This Gospel divides itself into two parts, which differ in character. The first part—up to chapter viii, 26—consists mainly of a succession of short paragraphs, recording miracles, parables, and incidents of the way, as these might have been communicated by word of mouth to a cluster of catechumens. These sections are drawn together by a thin line of explanation or enforcement. Wellhausen points out accurately this feature of the Gospel: "The single scenes are often told in a life-like style without unessential additions and reflections, but they stand for the most part as a mere collection of disconnected anecdotes.*

As soon as we come to the second part we become aware of a difference. We have now what seems to be notes of addresses delivered by an eye-witness to audiences of believers who desired to acquaint themselves more fully with the mind and ministry of the Master. As we should expect, the emphasis of these discourses rests on the death and resurrection of the Lord, according to the initial charge given to the Twelve and according to the practice of the apostolic Church. This is all the more significant when we find in the Epistles of Peter a series of recollections which covers the entire ministry of Jesus.†

Would it be wrong to infer that the first part embodied the catechetical instructions, derived originally from Simon Peter's recollections, gathered into form not long after Pentecost, set in harmony with the witness of the other disciples, and familiar to John Mark during half a life-time? And for the second part, may we not suppose that this consists of reminiscences of the preaching of Peter in the last days of his service, before another girded him and carried him whither he would not? However this may be, we have in the Gospel according to Mark a primary source enshrining the testimony of an eye-and-ear-witness.

The question has often been raised: Had Mark any other source than these Petrine recollections? We may confidently believe that he had access to many primitive traditions, and it is likely that he was not unfamiliar with written records reporting many of our Lord's sayings and doings. But he does not seem to have made much use of these. He appears to have looked upon his work as a tribute of affection to his beloved

* *Einleitung in die drei ersten Evangelien*, p. 52.

† If one may digress for a moment it is interesting to note that several of these reminiscences confirm the historicity of the Fourth Gospel: *e.g.* 1 Peter i, 19; ii, 21; v, 2, 5.

teacher, so distinctively that he refrained from gathering fresh material, even though much was lying to his hand. We may pause here, being content to affirm with Professor Peake: "We have evidence that the Gospel of Mark actually rests on oral tradition."*

III.

Ecclesiastical tradition relates that Matthew wrote his Gospel "among the Hebrews," for the use of Jewish converts, and in their national language, "while Peter and Paul were proclaiming the Gospel and founding the Church at Rome." Papias informs us, apparently on the authority of John the Elder, that "Matthew composed his oracles (Logia) in the Hebrew language (Aramaic), and each reader interpreted them as he could."† There does not seem to have been any authorized translation into Greek at the date when Papias wrote (*c.* A.D. 125), but by the close of the second century our canonical Gospel was generally recognized as the work of Matthew the apostle. This, says Dr. Godet, was "the unanimous tradition of the primitive Church."‡ Such a tradition may come short of positive proof, but it is not to be lightly set aside.

Jerome tells us that the translator of Matthew's Aramaic Logia was at that time (*c.* A.D. 400) unknown. But is our canonical Gospel a translation? Dr. Zahn argues strongly that it is, others as strenuously deny. In the first place, we cannot be sure what the character and content of the Logia were. Was this document merely a collection of sayings, or a catena of utterances of the Lord framed in their historical setting, or a first sketch of the Gospel as we have it, or that very Gospel in its primitive form.§ Even if the Aramaic Logia

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* *A Critical Introduction to the New Testament*, p. 105.

† Euseb. *Hist. Eccl.* iii, 14; v, 8, 10; vi, 25.

‡ *Introduction to the New Testament*, p. 115.

§ Dr. Gregory and Professor Burkitt had already suggested that the "Legia" of Matthew was a catena of Old Testament passages bearing a Messianic reference. Dr. Rendel Harris has independently advocated this view (see *Testimonies*). He has brought together evidences of the existence of such a manual, from the days of Cyprian of Carthage to the apostolic period. It would be in harmony with all we know of this apostle that he should fortify his own faith and the faith of his disciples by an accumulation of evidence from the Old Testament that Jesus of Nazareth was Israel's Messiah. More than forty of such passages are referred to in the First Gospel. But it is by no means certain that such a group of testimonies represents the "Logia" spoken of by Papias.

and our canonical Matthew are one in substance, the latter need not be regarded as a mere translation. Josephus tells us that his *History of the Jewish War* was originally composed in Aramaic, in the interest of his fellow-countrymen beyond the Euphrates; but that he afterwards re-wrote it in Greek.* Matthew, as a customs' officer in Capernaum, in the neighbourhood of so many Greek cities, and within a belt of international commerce, must certainly have been able to speak and write in Greek.† Other writers in all ages have acted similarly; many continental scholars in our own time pursue the same method. An illustration of this was given to us only the other day. In 1929 Dr. Yahuda wrote *Die Sprache des Pentateuch in ihren Beziehungen zum Ægyptischen.* Only a few weeks ago another volume came from his pen, bearing the same title, this time in English, and containing almost exactly the same matter—"The Language of the Pentateuch in its relation to Egyptian." The author writes: "Instead of giving a mere translation, I preferred to re-write the whole book, in order to adjust it in spirit and language to the taste and requirements of English readers."

It is, however, emphatically asserted by most students of the Synoptic Problem that Matthew is not only a Greek original, but that it draws on Greek sources, the most important of these being our Gospel by Mark. Canon Rawlinson writes: "It is the one absolutely assured result of a century of learned discussion with regard to the origin and mutual relations of the Four Gospels that St. Mark's is the oldest written Gospel which we possess."‡ One may say in passing that if this is the only assured result of Synoptic criticism we dare not, on the strength of this single affirmation, depreciate, as some do, the authority of our canonical Gospels.§ But even this "assured result" is contested by some eminent scholars.

The chief reason for affirming the priority of Mark is the presumed fact that both Matthew and Luke borrow without restraint from this Gospel. Canon Rawlinson says: "Of the 661 verses contained in the authentic text of Mark, the substance of over 600 is reproduced in Matthew. It has further been

* The *Jewish War*, Preface.

† Bengel suggested in 1742 that the First Gospel was a fresh composition by Matthew himself, *Gnomon*, p. 3.

‡ *Commentary on Mark*, p. xv.

§ cf. Dodd, *The Authority of the Bible*, p. 230.

estimated that about 350 verses . . . have been reproduced by Luke . . . Only 31 verses in Mark . . . are wholly unrepresented in either Mark or Luke."* What is the inference? Shall we say that Matthew—we pass by Luke for the present—has taken into his manuscript almost the whole of the Gospel according to Mark, or that both have drawn from the same fountains?

The answer is far from simple.

For one thing, it is by no means certain that our Gospel by Matthew was later than that by Mark. The references in the Epistles to the Synoptics are mainly to Matthew, and a similar emphasis on the First Gospel may be observed in the sub-apostolic Fathers. It may be said that the reason of this is that Matthew gives the sayings of our Lord more fully than either of the other Synoptists; and that it was in the words of Jesus that the interest of the Church centered. This is true, but I do not think it fully explains the emphasis laid on Matthew. And it raises another point.

It is almost certain that a collection of the sayings of Jesus was in circulation in the Church almost, or quite, from the beginning. Sir William Ramsay is of opinion that such a list of our Lord's significant utterances was the prized possession of the Church from the day of Pentecost, if not before. Professor Souter thinks that such a catena was in the hands of St. Paul.† We should expect, in the nature of the case, that the wonderful words of the Master would be treasured and retained. They were couched in memorable forms—sententious phrase, searching question or pungent retort, parable and similitude—so that recollection was easy. Many significant utterances, too, would be repeated on different occasions. And Matthew, at least, would be able to take them down as they were spoken, possibly in an abbreviated script.‡ That there was such a collection is almost proved by the fact that the Synoptists come much more nearly to exact agreement in recording the sayings of Jesus than in their recital of His deeds. So that it is by no means certain that, with regard to the words of Jesus, Matthew borrowed from Mark.

Again, while the resemblances between Matthew and Mark

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* *Op. cit.*, p. xxxv.

† *The Text and Canon of the New Testament*, p. 151.

‡ See Dr. Milligan, "*The New Testament Documents*," pp. 26, 242 ff., and Sir Flinders Petrie, *The Growth of the Gospels*, p. 5 f.

are patent the divergencies are numerous and call for explanation. Explanations are forthcoming, but they leave one with a feeling of hesitation.

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Again, the dependence of one Gospel on another is not so convincing as the bare statement of Canon Rawlinson might lead us to believe. Dr. Knapp has computed that, although there are *parts* of over 600 verses belonging the Mark reproduced in Matthew and Luke, "barely fifty or sixty have been reproduced in their entirety." This does not point to a free use of the Second Gospel.

An argument for the priority of Mark has been drawn from the fact that it presents features which are strongly suggestive of an earlier date—a freshness and directness of style, vivid narration as by an eye-witness, absorption in the past, a strict limitation in the testimony given, the impression of a prior stage in the development of Christian ideas. But the Epistles of St. Peter are marked by the same characteristics; they harmonize perfectly with the earlier chapters of Acts, which are undoubtedly primitive; yet those Epistles were later than parts of the New Testament which seem to be older. Simon was possibly in the mid-time of life when Jesus called him, and during his apostolate would naturally dwell much in the past, retraversing those golden years when Jesus walked with men. In this connection Bishop Westcott remarks with his usual sagacity, "The order thus given . . . represents the probable order of precedence of the forms of the narrative which they give. It may, or it may not, coincide with the order of writing; for it is of course possible that an earlier form of apostolic tradition may have been committed to writing at a later period."*

One finds it hard to believe that the author of the First Gospel, a treatise so well ordered, so rich in material, so haunting in expression, "the most important book in the world," according to Renan, should have stooped to borrow without restraint and without acknowledgment from one whose skill in arrangement was so much inferior to his own. And if we assume that the author of our Gospel of Matthew was the apostle of that name, the difficulty becomes almost insuperable. We

* *Introduction to the Study of the Gospels*, p. 210.

can scarcely credit the opinion that he, a close companion of Jesus almost from the first, should have appropriated in this cavalier way the entire study and labour of one who belonged to a younger generation and who had not companied with Jesus in the flesh. Perhaps we may find an opening into the true explanation of the similarity between Mark and the other Synoptists in the sentence of Abbot and Rushbrooke: "It is believed that the Gospel of Mark *contains* a closer approximation to the Original Tradition than is *contained* in the other Synoptists."* The Original Tradition may have existed in many forms—in Aramaic, or in Greek; the Aramaic translated or targumed into Greek, possibly by many hands; written perhaps in part, in part oral. The "irreducible minimum" of Mark and Q must be enlarged indefinitely.

IV.

Very much in the First and Third Gospels is not in Mark, yet with regard to that also a close agreement persists between Matthew and Luke. Those parts which so nearly resemble each other are supposed to have been drawn from another source, called by Sir William Ramsay, "The Lost Common Source." It is indeed "lost," lost so completely as to have passed out of recognition; that such an original ever existed is merely a working hypothesis. This source is usually called "Q" (after Wellhausen) and the title is not inapt, for Q is as indeterminate as an algebraic *x*. Dr. Burkitt, for instance, says: "The unity of the fragments which modern scholars have called Q is still an unproven hypothesis." He refers again to "the source (or sources) which it is convenient to call Q."† A whole forest of questions springs up in this place. Did Q come to the later Synoptists as a document, or as an oral tradition? If a document, was it one, or were there two, or even more of them? If oral, was it singular, or did it belong to a cycle? Was it quite brief, or large and full? Was it merely an assemblage of sayings, or are those sayings set in their historical connection? Did it contain the recital of certain events, such as the Call of the Baptist, the Baptism of Jesus, the Temptation, the Healing of the Centurion's Son, etc., or not? Did it relate the Passion

* *The Common Tradition of the Synoptic Gospels*, p. vi.
† *The Earliest Sources for the Life of Jesus*, p. 107 f.

history, or did it pass over the last week of the Lord's life on earth? *On all these points high authorities differ.*

Several scholars have attempted the reconstruction of Q—Wendt, Wellhausen, Harnack, Stanton and others, but Streeter is of opinion that they all have failed because they built on false premises. Burkitt, too, confesses that "we can do very little towards constructing the unknown sources used by Matthew and Luke," and he adds, "Q remains an unknown quantity."* It is evident that the conception of Q is so vague as to be unhelpful. Indeed Canon Streeter plainly affirms that "the 'Two-Document Hypothesis,' so far as it concerns the non-Marcan elements in Matthew and Luke, has broken down."† Thus we are prepared for the confession of Zahn that "up to the present time no one of the investigations of the Synoptic Problem can be said to have produced results which have been generally accepted." ‡ Dr. Latimer Jackson, half-humorously, speaks of the "chaotic" condition of the Problem.§ Perhaps it would be correct to say that it has been led into a cul-de-sac from which it is now beginning to emerge.

V.

[I had prepared a section on the relation of the Third Gospel to the other two, but I have already overstepped the line measured out for me.]

VI.

To sum up. (*a*) We have first the Records of the Nativity and Childhood of Jesus. The Birth Narrative in Matthew must have come in the first instance from Joseph. It is *his* perplexity that is described, together with his decision on receipt of the divine revelation. To the Evangelist this account would come, directly or indirectly, from members of the Holy Family. In Luke's Gospel we have two chapters which have a Palestinian source. The original is in Hebrew, or Aramaic. It comes inevitably from the Mother of Jesus; its form and wording suggest an immediate derivation from Mary of Nazareth in the days of our Lord's youth. Of this Dr. Plummer says:

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* *The Earliest Sources for the Life of Jesus*, p. 103.
† *The Four Gospels*, p. 235.
‡ *Introduction to the New Testament*, ii, 418.
§ *Cambridge Biblical Essays*, pp. 436, 454.

"We have here the earliest documentary evidence respecting the origins of Christianity, evidence which may justly be called contemporary." And Dr. Sanday in fullest agreement with this averment, describes the Lucan Gospel of the Infancy as probably "the oldest evangelical fragment or document, of the New Testament and in any case the most archaic thing in the New Testament."

(*b*) We have the sayings of the Lord faithfully remembered and duly recorded while they were fresh in the recollection of the hearer. Those words which "wander through eternity" were not flung upon the heedless winds. The Master sowed them on the hearts of His disciples, and foretold their deathless power. Heaven and earth shall pass away, but His words shall stand for ever (Matt. xxiv, 35). They have been remembered, were written down, and are the life-power of the saints. Many of these, we may believe, were recorded almost as soon as uttered. They are contemporaneous with the ministry.

(*c*) After the ministry was sealed by the cross and burial, the testimony of the apostles began to be received in the Church. From the Day of Pentecost, until the latest of the apostolic company was received into the presence of God, this witness was disseminated, "both in Jerusalem, and in all Judea, and in Samaria, and unto the uttermost part of the earth."

(*d*) Next we have the more formal communication of this witness in the early Church, through the agency of men who were set apart as ministers of the Word. At first, in Palestine, in the native Aramaic (*cf.* Acts i, 19); afterwards (in Aramaic or in Greek) among the Dispersion; and finally through all the bounds of Empire, the story of Jesus was told and repeated. In church assemblies, especially when the Lord's Supper was dispensed, those who had first-hand knowledge of that Life which was the light of men, were eagerly listened to, and the words, falling on good soil, bore fruit to eternal life. This continued during the first generation after the resurrection.

(*e*) Following upon this, we have the initial attempts to commemorate the Saviour's ministry as a whole. This process was in operation before St. Luke addressed his history to the "Excellent Theophilus." On a grander scale he essayed to accomplish a happier enterprise. From "ancient disciples" (Acts xxi, 16) not a few, from the family of Philip, from members of the household of Herod, from the believers in Antioch and

Rome, from the lips of obscure believers, from members of the apostolic fellowship, he gathered priceless store. And now we have his Gospel, and the Gospels of Matthew and of Mark—all, I believe, given to us within forty years from the time when the Lord had sent forth His Spirit of truth and counsel. There is no life so abundantly authenticated as the Life that was cradled in Bethlehem, offered once for all on Calvary, and now enthroned in power.

DISCUSSION.

The CHAIRMAN (Mr. A. W. Oke, LL.M.) called for the thanks of the meeting to the writer (and reader) of the paper, and the same were given with acclamation.

Rev. J. J. B. COLES, M.A., said: While thanking Dr. McIntyre for his interesting and suggestive paper, I may remark that I have always felt that the spiritual interpretation of the Gospels was of the utmost importance when we face questions as to literary composition and mutual relations. As to the Synoptic Problem—how the first three Gospels were composed, and to what extent they were dependent on one another—this has not yet been decided, though the discussion had been going on from the third century downwards.

The Holy Spirit had given us in St. Matthew's Gospel a portrait of the Lord as the Jewish Messiah, "Behold your King." In St. Mark, He is the Servant and Prophet of Jehovah—"Behold My Servant." In St. Luke, He is the One who loved to call Himself "The Son of Man"—"Behold the Man." While in St. John we see Him as the Son of God—"Behold your God."

In all four Gospels we see Christ in His rejection, despised and rejected by His people—"A Man of sorrows and acquainted with grief."

In St. Matthew and St. Mark He is the Trespass-Offering and the Sin-Offering; in St. Luke the Peace-Offering and the Burnt-Offering. So it is in the two first Gospels only that we find the words, "Eloi, Eloi, lama sabacthani," quoted from Psalm xxii—the Atonement psalm. In St. Luke and St. John we see Christ specially as the Peace- and Burnt-Offering of Sweet-Savour; and we remember that it is written of Him "When thou shalt make His soul an

offering for sin," and " He shall see of the travail of His soul and shall be satisfied."

Mr. SIDNEY COLLETT said: I am sure we all feel indebted to Dr. McIntyre for his paper. In dealing with the way in which the accounts of the Gospel came to be written, it seems to me that there is far too much stress laid upon " oral testimony," " original tradition," " the recollections of Peter," and the copying by one Evangelist from another's writings. I maintain that the Divinely-inspired Truths of the Bible do *not* rest upon any such flimsy and uncertain foundation as that. Indeed, the bare facts of the Bible make such a theory impossible. How could " oral testimony," or the " recollections " of anyone give us the account of Christ's temptation in the wilderness, when none but our Lord and the Devil were there ? (Matt. iv, 3-11): or, again, the account of Christ's agony in Gethsemane, when the only three disciples who were anywhere near were sound asleep ? (Matt. xxvi, 40); or yet again, our Lord's interview with the woman of Samaria, when all the disciples were absent ? (John iv).

Mr. R. J. COBB said: To me, as one who is reading at present for the Theological Tripos at Cambridge, the paper has been of extreme interest. This is particularly so as I represent a small group of men who are unable to accede to the theories of documentary interdependence in the Gospels. One remark has come to mind which is worthy of our consideration: in the course of a conversation on this topic, the Rev. Sir Edwyn Hoskyns admitted that the impetus to this form of study of the Synoptics (to use his own phrase, " the key to the problem ") had been provided by the critical views of the Pentateuch. Whether he would say so in print one cannot say, but from my point of view the statement is of not a little importance as rather " giving the game away."

Rev. A. BODY, M.A., said: The Synoptic Problem is a difficult one. The similarity that one finds between the Gospels is so close that the documents must be closely connected, while the minute differences make it clear that there could not be direct copying.

When St. Peter preached on the day of Pentecost, we are told

that hundreds of people believed and came for instruction. They were taught about the Resurrection, and then were baptized. But constantly there were others being added to the Church, needing instruction, and those who had been baptized were not satisfied with what they had been taught, but wanted to hear more and more about Jesus Christ. The matter became too great for a dozen men to cope with, even if they were free to give up all their time to it, which was very far from the case. They had to get help. So we find John Mark in charge of that part of Church work. He gathered round him a band of these who were "eye-witnesses from the beginning and became ministers of the Word."

These met together daily, and settled upon the day's lesson, went over it so as to tell the story as simply and effectively as possible, learnt it off by heart, and then went out and taught it to the hearers. They did not write it down, but in true Oriental style they taught it by word of mouth and the hearers *learnt it off by heart.* There was no order in which they were taught; the lessons were, so to say, haphazard. By degrees, the disciples found that one story brought others into their minds and the Gospels took shape.

Mr. PERCY O. RUOFF said: Do not the following words of Christ constitute a guarantee and safeguard of the New Testament sayings of Christ, as being communicated by the supernatural agency of the Holy Spirit? "But the Comforter, Who is the Holy Spirit 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. . . . Howbeit, when He, the Spirit of Truth is come, He will guide you into all truth . . . He will show you things to come" (John xiv, 26; xvi, 13).

WRITTEN COMMUNICATIONS.

Mr. W. E. LESLIE wrote: The phenomena to be considered fall under four heads. (1) A considerable body of verbal parallelisms. (2) Slight verbal variations. (3) Larger divergencies, such as variations of order, etc. (4) Differences of purpose and standpoint apparent throughout the respective Gospels.

Selective inspiration appears to be an adequate explanation of the two last. The difficulty lies rather with the first and second groups, because they are concerned with those stylistic idiosyncrasies which, as we know, the Holy Spirit has not seen fit to suppress.

The explanation favoured by Dr. McIntyre is that of slowly crystallizing oral tradition. In support of this view, we are told of various feats of memory on the part of Jews, Chinese, and Arabs. But we are not given any exact data as to the phenomena alleged to be thus produced.

For example, we are told an Arab will "repeat saga after saga and always in terms identical with those which his father had employed." But unless the father's recital was taken down in writing and subsequently compared with that of his son, our only guarantee of the verbal identity of the two lies in the memory of the hearer. This assumes in the hearer the very thing that has to be proved in the reciter—it involves a *petitio principii*.

Again, have any of the extraordinary recitations referred to ever been taken down in shorthand and then compared word for word with the original? Unless some evidence of this kind can be produced, the extent to which crystallization of verbal tradition could have produced the linguistic phenomena of the Synoptics, is speculative.

The author and the Council are to be congratulated upon calling our attention to an exceedingly interesting problem, though perhaps the most certain conclusion of the paper is that it remains a problem.

Rev. A. H. FINN wrote: The modern theory as to these is based primarily on a considerable amount of verbal similarity in parallel passages of all three. This, it is argued, is so nearly identical that it must be due to actual copying; that two must have had the third before them and borrowed from it. Then it is assumed, without proof, that St. Mark was the earliest written and the others took much from it, as well as from other sources, such as that called "Q."

In an article contributed to the *Bible League Quarterly* of April last year I showed that along with these similarities there is a larger amount of differences of language and of incident, so great and so impartially distributed as to make it highly improbable that any one of the three could have been acquainted with either of the other two,

pointing to what might be expected *a priori* that all were composed independently. So the modern theory is really based on only part of the evidence, and that not the most significant. The evidence of these differences must be taken into account.

My own belief is that the "Gospel *according to* St. Matthew" was composed by the Apostle, perhaps at Pella, shortly before (or slightly after) the destruction of Jerusalem, from his own recollections: that "according to St. Mark" from the teachings of St. Peter at Rome, and therefore at a later date; while St. Luke compiled his account mainly from what he learned from St. Paul, combined with what he ascertained from "eye-witnesses and ministers of the Word" (ch. i, 2), notably the first two chapters gathered from the Virgin Mother herself.

How far Dr. McIntyre would agree with me, I am not sure, but I am inclined to think he seems to lay too much stress on the imperfect narratives alluded to by St. Luke (ch. i, 1), and I doubt that he is right in asserting (p. 118) that "At first in Jerusalem, the teaching would be according to rabbinic usage." The Apostles were not Rabbis or disciples of the "Scribes and Pharisees."

Mr. GEORGE B. MICHELL wrote: I welcome Dr. McIntyre's paper as the first sound and independent treatment of the "Synoptic Problem" that I have met with. I rejoice to see that he rejects the "documentary hypothesis," with its "sources" and its "redactions."

I am glad also to remark that he notes the fact that the witness in the early church through the agency of men was in the native Aramaic. I would go further. I believe that practically the whole of the New Testament was originally in this Judaeo-Aramaic, and that our present Greek texts are translations. For all purposes of witness and edification these texts, and even our English versions of them, are fully sufficient. But for *critical* purposes they are altogether insufficient. And, unless by some unexpected Providence we should become possessed of the original Aramaic texts, I can see no possibility of a scientific "higher criticism." For which, no doubt, we have to be thankful. I endorse Dr. McIntyre's conclusions, and I hope he will yet have an opportunity to give us the omitted section. May I recommend to him, if he does not know it already, Primo Vannutelli's series of papers in the *Revue Biblique*

for 1925 and 1926 on "Les Evangiles Synoptiques." In these the important subject of citations from the Old Testament, and the causes of variations, are discussed.

Lecturer's Reply.

I regret that I was unable to read my paper in person, and give a verbal answer to some of the remarks made. I owe cordial thanks to my valued friend Mr. Hill, who took my place. I thank the Chairman also for his kindly reference.

The Secretary asks that my reply shall be brief. I could say a great deal, but there is really no need. Any difference indicated was a difference of emphasis rather than of view.

We are all as solicitous as Mr. Sidney Collett to maintain the divine inspiration of the Gospels; but the Spirit of God acted on human minds: "men spake from God." I concur with Mr. Ruoff in his assurance that our Lord's promise in John xiv, 26, guarantees the accuracy of the evangelists' reports of His utterances.

Mr. Leslie is doubtful if the crystallization of verbal tradition will produce the linguistic phenomena of the Synoptics. Of itself, I do not think it could. It is admitted by all that oral testimony underlies the canonical Gospels; but it is also generally believed that documents were employed—*e.g.*, the Birth Narrative in Luke, and the report of the Sermon on the Mount in Matthew, etc. The exact relation of the oral and the documental *is* the Synoptic Problem.

768TH ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL, WESTMINSTER, S.W.1, ON MONDAY, APRIL 3RD, 1933, AT 4.30 P.M.

W. McADAM ECCLES, ESQ., M.S., F.R.C.S., IN THE CHAIR.

The Minutes of the previous Meeting were read, confirmed, and signed, and the HON. SECRETARY announced the election of the Rev. Arthur E. Hughes, M.A., as a Member, from Associate.

The CHAIRMAN then called upon Dr. C. W. Saleeby, F.R.S.E., to read his paper on "Sunlight and Life," which was illustrated by lantern slides.

SUNLIGHT AND LIFE.

By DR. C. W. SALEEBY, F.R.S.E., Chairman of the Sunlight League.

> "In the beginning . . . God said, Let there be Light, and there was Light."

THE astronomers tell us that our earth began as a ball of hot gas, including the vapour of water. This mass lost heat by radiation to outer space and thus cooled, with the result that, at a certain point, the water vapour fell as liquid water upon the solid matter beneath, and formed the first oceans and seas of our globe. This clearance of the atmosphere, depending upon the formation of liquid water, admitted the light of the sun. It was the first Enlightenment. Upon it depended the development of life—an aquatic phenomenon, as a French biologist has called it—in the liquid water which is a necessary vehicle for all vital processes.

Chaos and Old Night, in this event, yielded to Cosmos and the beginning of that process of creative evolution, as Bergson has taught us to call it, which prepared the way, through the

ages, to the emergence of mankind. We are inevitably reminded of the words of Genesis, "In the beginning God said, Let there be Light, and there was Light." When the light of the sun reached liquid water, physical life became possible, all living things being light "made flesh." To this statement there is no exception. Living things at the bottom of deep oceans, which no light can reach, yet live upon the products of living things nearer the lighted surface. Bacteria, which are rapidly killed by light—the oldest, cheapest, safest and best of all antiseptics—live, when they do live, upon the living bodies, or the *excreta* or remains, of creatures which live (or have lived) in the sun directly or indirectly. All physical life is incarnate light.

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The living world is evidently divided into two kingdoms, vegetable and animal. The characteristic and essential feature of the vegetable kingdom is the green leaf, the chlorophyll of which transforms part of the sun's light in such manner as to dissociate the carbon dioxide of the atmosphere and initiate the chemical cycle of life. All animal and human life, in its physical aspect, is thus supported: This is one sense in which all flesh is grass. We are learning how to utilize sunlight directly for chemical purposes, but meanwhile our dependence upon the vegetable remains. Much may be learnt for the health and happiness of our own bodies from the response of green leaves to sunlight. But one outstanding fact is to be observed, which I have long discussed, though it does not appear to have attracted enough attention from other students.

More than a quarter of a century ago I defined progress as "the emergence and increasing dominance of mind." If we look at the history of the animal kingdom, we see, "sagging but pertinacious," the emergence and increasing dominance of mind. But the vegetable kingdom offers us here a remarkable contrast. It has a long and superb history. It has achieved great things. There is a noble ascent from the alga to the oak. But there is no progress whatever in the sense in which I use the word: no "emergence and increasing dominance of mind."

We dare not assert that there is no truth in Wordsworth's belief that "every flower enjoys the air it breathes." There may well be psychic elements in the constitution of the vegetable world; but my point is that there is no more, nor richer, psychical

life to be seen in the greatest or latest of the flowering trees than in a fungus or a fern. The oak shows more mechanical and biochemical complexity and achievement, but the evolution of the vegetable world, whether we look at the individual or the race, exhibits no progress. There is no more mind in the oak than in the acorn or the alga.

Far otherwise is it in the animal kingdom, where the central nervous system evolves in the vertebrates, becoming, in favoured races, ever more and more important and serving as the organ of sensation, emotion, memory, foresight and reason. All is founded upon the green leaf and sunlight. It is the solar energy, transformed, that makes and maintains the finest brain, that furnishes the physical conditions for the highest manifestations of the psychical which, under these conditions, reveals its presence in the Universe, "comes through," emerges and increasingly dominates all else: Progress indeed.

We are men and it is the human that concerns us. The mighty fact, following upon all we have outlined hitherto, is the emergence of *Homo Sapiens* upon our globe—*his* globe, as it now becomes. There has been, is, and will be abundance of folly and stupidity, but it is the sapience that here concerns us. This creature is intelligent, capable of learning, but needing to learn, unlike the instinctive insects. This necessity requires parental care during early months and years, and it is here that self-sacrifice, the very substance of morals, emerges, and takes its place as an indispensable condition of the existence of large-brained mammals upon the earth—and especially the existence of man, of whom the young are the most helpless at birth, and the longest helpless, of any living thing, though the adult is to be the "paragon of animals," "a little lower than the angels."

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Morality and intelligence, we see, are essentials for the existence of our species. Given these, there is scarcely any limit to the numbers of mankind, nor to the range of physical conditions in which he can live, and even flourish. But sunlight is always essential, and its pre-eminent value is such that prophets and moralists have always used it as a symbol for moral and intellectual qualities. Note the utterance of Jesus Christ: "I am the Light of the World"; and that of Shakespeare, "There is no darkness but ignorance."

Three names must here be honoured of Pioneers of Light

before the Christian Era. In the thirteenth century before Christ, the Pharaoh Akhnaton sought to supersede the idolatry and priestcraft of the established religion by founding a new "City of the Horizon," where the solar disc was to be worshipped as the symbol and vehicle of divine and life-giving power. The attempt failed, but the noble record of it remains. In the eight century before Christ, the Persian seer Zoroaster—to use the Greek form of his name—established a religion which should worship the Sun as the immediate Lord and Giver of Life, and taught the value of peace, thrift and tillage of the soil, instead of war and rapine. It was during the same immeasurably fruitful period that certain Hebrew prophets, especially Amos, Hosea, and Isaiah, were establishing new concepts of the true nature of religion, which may be summed up in the prophetic utterance, "I will have mercy and not sacrifice." In the realm of ethics, this Jewish contribution to the History of Mankind was no less valuable than its concept of monotheism in the sphere of intellect.

Some four centuries later, we find the contribution of Greece in the person of Hippocrates, the Father of Medicine, priest and physician in the Temple at Cos of Æsculapius, the God of Healing, and Son of Phœbus Apollo, the Sun-God. This immortal genius, the greatest doctor who ever lived, taught that man suffers disease when he ceases to live according to Nature, and may hope for health only when and if he returns and obeys the laws of life. Hippocrates paid little heed to the accepted service of the temple—prayers to the statue of Æsculapius, sacrifices and offerings. He had at his disposal pure air, enriched by the sea; abundant light, unpolluted by smoke, undepleted of its riches by dust; pure streams of water from the hills; fresh food, conforming to the ideal now proclaimed by the most recent school of dietetics—that food shall above all consist of the substances called "light-accumulators." Air and light, food and water—these are the things by which the body lives, and Hippocrates used them. Drugs and superstitious rites, expectation of benefits earned by payment of flattery or money to an idol or the idol's keepers—these were not for him. He took off his patient's clothes and set them to do exercises in the spacious forecourt of the Temple. This *gumnastikê* (from *gumnos*—"naked") made them well. This was literal enlightenment, following upon the intellectual enlightenment of the great pioneer's mind. Twenty-four centuries later, after long eclipse,

we may now see the Hippocratic gymnastics, revived and reviving, at the School in the Sun, established by Rollier at Leysin in 1910; but that is to anticipate the course of events.

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Already, however, we may clearly perceive that the master-word, the master-process of history, is Enlightenment. Creative evolution is this, depends upon this, brings this. If we continue to use the language of Genesis, we must say that not only "In the beginning God said, 'Let there be Light,'" but that throughout the ages He has been saying so; nor may His last word yet been said. But the process of creative evolution, continuous revelation, ever new enlightenment, is not constant nor unbroken. It proceeds through men and women of genius—that genius which Thomas Carlyle defined as "the clearer presence of God Most High in a man." We may recall older words—"As He spake by the mouth of His holy prophets, which have been since the world began."

For reasons which it is beyond my present scope or power even to suggest, mankind traversed a long and tragic period, during which the shadow of superstition—that is to say, Ignorance in Motion, which Goethe declared to be the most dangerous thing in the world—fell upon mankind. The Jews were scattered, homeless, oppressed, and the voice of Hebrew prophecy was silent or unheard. The glorious beginnings of science, which the Greeks had achieved, were arrested and forgotten. The Dark Ages had set in. To consider only my own special field of study and illustration, we see that Hippocrates might never have lived. A true science of healing and health had been founded in Cos, and was forgotten. The most ignominious, imbecile and cruel superstition took its place. The age was dark because it was ignorant and did not seek the light of science. Shakespeare, in the early new dawn which came at last, was right as ever:—"There is no darkness but ignorance."

The race through which had been given the Hebrew prophets to the world—poets and prophets who praised the light, for itself and as a manifestation of the divine—was confined to dark and dirty Ghettos, where flourished all those hideous and horrible maladies to which, twelve years ago, I gave the name "diseases of darkness"—diseases which abound still in the slums of the modern civilized world, and not in slums only, but wherever the sunlight is despised, excluded or polluted.

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The Greek study of the body and mind of man was arrested by order of the Church. Such study was condemned as impious. Not yet had come a Kepler, to study the moving lights in the sky and to reply to his wife, who wanted to know what business had kept him on his roof when supper was ready, that he had been "thinking the thoughts of God after Him": nor a Goethe to call Nature "the living garment of God." The abominable results of a blasphemy, calling itself religion, which forbade the study of Nature, are recorded far and wide, long and deep. For myself, their most awful and damnatory record is in the history of the treatment of the insane throughout these long centuries, and even until the French doctor, Pinel, with his enlightened mind, and the English Quaker-philanthropist, William Tuke, with his enlightened heart, brought light into the darkest of all dark places at the end of the eighteenth century. Never had darkness been more accursed, never was Enlightenment, the word of Life, more needed and blessed. Many a game of cricket and lawn tennis have I played, many a song have I sung, these thirty years or more a-gone, in the Retreat, at York, the first humane asylum for the insane in the world, which William Tuke founded, and where my Quaker grandfather, Dr. Caleb Williams, visited for forty-seven years. To-day, our new-old teaching about the value of sunlight is nowhere more appreciated and applied than in these mental hospitals—to use their recent official name—and with admirable results.

This point may be insisted upon here, since every good clinician of to-day who uses real sunlight in the open air, insists on the importance of the psychological factor in helping the physical cure—yes, even of an open fracture incurred in war, or of a tuberculous infection incurred in the flagrant urban follies of so-called peace. Our recent proofs of the biochemical action of sunlight—as in the making of vitamin D in the sunlit skin—must not lead us to forget the high and enduring importance of the psychical factors at work in true heliotherapy and helio-hygiene. To remember these is to put "artificial sunlight" in an inferior place, despite the recent exploitation of that invention by the mercenary, and will persuade us that, in general, to shut people up, when they are ill in mind or body, is bad practice, cruel and stupid, contrary to Nature. Not imprisonment, but Enlightenment, is the word of Life.

We can never remember the story of Eden to better purpose than when we learn from it that man was not meant to live in a

house, but in a garden, a sunlit garden, and that this is a truth even more important for man when he is ill in body or mind than when he is well and has reserves, as yet undepleted, which may avail to mask the results of his imprisonment and deprivation—whether voluntary or enforced matters not for the consequences.

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But we must proceed to name a few pioneers of light, heralds of the returning dawn, to whom our enlightened eyes and minds and bodies should render thanks. Here, of course, my concern is primarily with those who saw and taught the value of sunlight. Time avails for little more than their names; for more the student of this lovely subject may be referred elsewhere.*

Foremost is Florence Nightingale, who protested in 1856 against the already-begun building of Netley Hospital, with its orientation such that no direct sunlight could enter its wards, and who wrote that "The sun is not only a painter, it is also a sculptor": an anticipation by the sheer insight of genius of the discovery to be made much later, that sunlight creates vitamin D in the skin, which vitamin is the chisel wherewith the sculptor sun forms aright the bones and teeth of the growing body, thus infallibly, quickly, beautifully and delightfully preventing or curing rickets.

In 1877, Sir Arthur Downes, M.D., as he now is—an illustrious veteran in his eighty-second year—having considered the growth of mould upon old boots in a cupboard, guessed that this must be due to the absence of light, and proceeded to prove that light is an antiseptic. This epoch-making discovery has been fully discussed, after no fewer than fifty-five years, by the discoverer himself, in a recent number of *Sunlight*, the Journal of the Sunlight League,† of which he is an honoured Vice-President.

In 1890, the late Dr. T. A. Palm, having returned to a village practice in Cumberland from nine years' service in Japan, under the Edinburgh Medical Missionary Society, published in the

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* See *Heliotherapy*, by Professor A. Rollier, with Foreword by Dr. C. W. Saleeby. Second edition, 1926. (Oxford Medical Publications; 25*s.* net.).—*Sunlight and Health*, by Dr. C. W. Saleeby, with Foreword by the late Sir William Bayliss, F.R.S. Fifth edition, 1929. (Nisbet & Co., 5*s.* net.)

† Copies of the issues of *Sunlight*, to which reference is made here and later, may be obtained from the office of the Sunlight League, 29, Gordon Square, W.C. (1*s.*, post free).

Practitioner a masterly paper in which he showed that rickets is due to lack of sunlight, and laid down a series of recommendations which I adopted in 1924 as the policy of the Sunlight League, formed in that year. Dr. Palm became one of our Presidents, and the essential parts of his great monograph—which had been completely forgotten and ignored from 1890 until my attention was directed to it, when visiting New York in 1920, in order to study the problem of urban smoke prevention—are re-published in an early number of *Sunlight.*

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Forty years ago, in 1893, the Danish pioneer, Niels Finsen, acting upon the discovery of Downes that light is an antiseptic, began to use it for the cure of lupus, a tuberculous invasion of the skin. His work attracted the attention of the great-hearted lady, then Princess of Wales, who had come to us from Denmark. At her request, Lord Knutsford (as he afterwards became) sent a committee of doctors to Copenhagen; their favourable report was acted upon, and light treatment was formally inaugurated at the London Hospital on May 1st, 1900, when the Princess, accompanied by her husband, opened the department which now, vastly enlarged, bears her name. Having seen with horror, in Edinburgh, as a student, cases of lupus scraped by the surgeons, I visited the London Hospital in 1902, and there saw enough to persuade me that no young man could set himself a more inspiring and useful life work than to try to spread the light. In 1924 Queen Alexandra became Patron of the Sunlight League and Lord Knutsford one of our Vice-Presidents. In an early number of our Journal was reprinted the article which I published in the *Pall Mall Gazette* when Finsen died, so lamentably young, in 1904; its closing words were, "He, being dead, yet healeth."

Thirty years ago, in 1903, a decade after the pioneer work of Finsen was published in 1893, Dr. A. Rollier opened his first clinic at Leysin, for the treatment of five indigent tuberculous children. In 1910 he founded the school in the sun, where there has never been an epidemic of any kind yet. In 1914 he published his book, *La Cure de Soleil.* In 1921 I visited Leysin, and have been writing, lecturing and broadcasting about it ever since, with ever-increasing certainty and ever-renewed evidence. Enlightenment is the word of life. Elsewhere the student may learn of the advance of medical and hygienic

science. Such places are an education, but Leysin is a revelation. We see there the coming end of the knife-and-bottle cult which has hitherto been our best means of replacing mediæval superstition. We see the cure of unnatural disease by natural means. We see the achievement of preventive medicine at the school in the sun. We watch, year by year, summer and winter, as I have done, the growth and development of fine young bodies and minds—" full-breathed, bright-eyed, happy-hearted human creatures," in Ruskin's phrase—to be equalled nowhere except in the few but ever less few places where the same laws of life are observed. We come to perceive that beyond, better and greater even than preventive medicine is what I have called creative hygiene, wherein we see fufilled the true and lasting task of Medicine, more than medicine, which merely means healing. That task is *to make and maintain fine men and women.*

Ever since the late summer of 1921, when it was my privilege, beginning with letters to *The Times*, to " tell the world " about Leysin, men and women, students and amateurs, old-fashioned surgeons, new-fashioned educationists and all, have been and continuously are, travelling to Leysin, day and night, from all the Continents, there to see radiant proofs of the manner in which the light has shined upon people that have dwelt in the land of the shadow of death—to adapt the words of Isaiah.

Thirty years after that small beginning, Professor Rollier remains the same simple, quiet, devoted deeply-religious man ; a true son of that Professor of Theology whom no threats nor even the loss of his academic chair could dissuade from helping the Salvation Army in Switzerland when he thought it was doing good work. In 1928 the semi-jubilee of the foundation was duly celebrated at Leysin, and the University of Lausanne made the founder an Honorary Professor. He has been, since the formation of the Sunlight League, our first foreign Vice-President. His latest work is the establishment of the International Factory Clinic, where, in sunlight and pure air, stricken men are aided to recovery by the provision of suitable, useful and remunerative occupation—" la cure de travail." It is not the whole philosophy of the sunlight movement that we should all lie and laze and drowse in the sun, though such degeneration is only too easy. The school in the sun for children, and the factory clinic for men, are living lessons to the whole truth.

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Aberrations, exaggerations, absurdities are inevitable in the early stages, nor only in them, of any epoch of enlightenment. Idleness and licentiousness will be advocated by the idle and licentious: just as when the excellent use of baths of water in Rome was abused. Extravagant and irrelevant claims are made by the unwise or mercenary. Artificial sunlight, valuable in its place and within its limits, is praised above the light of day and the open air. We have to recognize these things, oppose them, correct them, and go on our way towards the growing light of a cleaner, purer, simpler, healthier, more natural way of life, at once more primitive in one aspect and yet in another immeasurably more exalted and refined than our present civilization. Practical current illustrations are to be found in the new type of open-air and sunlight hospital now being built, in open-air schools and in the steady replacement of the burning of raw coal by the use of gas, coke and electricity, which do not pollute the breath and eclipse the light of life.

We shall make an end of the diseases of darkness, from tuberculosis to rickets, as we have made an end, in our cities, of the water-borne diseases. We shall have gardens of children and gardens for children. We shall have abundance of sunlit food, in winter as well as summer, for all. Our new cities will be garden cities, the buildings will have flat roofs, for varied use in various seasons, not only by day, but even also in the pure, cool, smokeless and dustless air of the night. To these ends the Sunlight League is working and more helpers in this work of Enlightenment are earnestly desired.

The Dawn may be dim as yet, but it is surely here. No stupidity could be more stupid, nor blasphemy more blasphemous, than to assume that the process of Enlightenment, which literally began when the first rain descended upon our globe, and which has been repeated ever since, in Jewish prophets and Greek philosophers, in Bethlehem and Stratford-on-Avon, in London and Leysin, is now, in this particular year, finished, exhausted, extinct.

Far indeed is the truth from that. "In the beginning," says Genesis, "God said, Let there be Light." But not only in the beginning: "As it was in the beginning, is now, and ever shall be." All material things, we learn, are radiation in their substance; all life is light. The world is a world of light, and if we would question deeper still, I know no better answer than that expressed in the words, *Lux Umbra Dei*—Light is the Shadow

of God: of "Him that maketh the seven stars and Orion, and turneth the shadow of death into the morning."

Discussion.

Mr. George Brewer said: Apart from the occasional references to the unproved and discredited theory of Evolution, I think we are greatly indebted to Dr. Saleeby for the interesting and instructive details he has given us of the beneficial and healing effects of the solar rays upon the human system. It is indeed good to behold the sun, and its relation to our earth is a continual evidence of God's merciful provision for our needs, and of His long-suffering goodness to man even when in rebellion against Him.

Dr. Saleeby mentions Persian and Egyptian cults of men who worshipped the sun. This form of idolatry was doubtless practised by other ancient nations who had ceased the worship of the one true God, and was indeed one of the sins of Israel, against which many warnings are given in the Old Testament. It is mentioned by Ezekiel, who in vision, saw twenty-five men with their backs toward the temple of the Lord, and their faces toward the East, worshipping the sun toward the East (Ezek. viii, 16).

God is light, and in Him is no darkness at all; and in the reconstruction of this earth which had become without form and void, by His word "Let there be light," He made the first necessary provision for the advent of His creature man. Since natural light is absolutely needful for the welfare of our bodies, how much more is Divine light needed for our souls' welfare!

Written Communications.

Lieut.-Colonel Davies, F.G.S., wrote: Dr. Saleeby's paper affords excellent propaganda on the subject of sunshine benefits. As a supporter and maintainer of vital processes, sunlight is indispensable; if the sun's influence were removed, all terrestrial life would inevitably come to an end. Nor is that the only thing that would happen, for all geological processes would cease, the atmosphere itself would probably congeal, and even acids would no longer react on metals.

But it is only as a servant, or minister, to terrestrial life that the sun is referred to in Scripture. Dr. Saleeby's enthusiasm leads him

to exaggerate its functions, both in the Scriptural and in the scientific aspects of things, when he suggests that sunlight is the beginning of creation, and itself the creator of life and intelligence. The Bible, which calls the sun *Shemesh*, or servant—never *Baal* or Lord—does not state (as Dr. Saleeby represents) that "In the beginning God said 'Let there be Light.'" What Scripture actually says is, that "In the beginning God created the heavens and the earth." Light is not mentioned in the Bible until the beginning of the Hexaëmeron, *after* the condition of affairs described in the second verse, which refers to the earth as already existing. Nor is this light, which is introduced at the beginning of the six days, the light of the sun; for the sun itself does not begin to function until the fourth day, *after* the creation of vegetable life on the third day. However we may choose to interpret these facts, it is clear that Genesis i was not written with a view to encouraging sun-worship.

Science is equally emphatic. Life, as Pasteur showed, comes only from pre-existing life. Sunlight is indeed essential to support terrestrial life, but it is powerless to create it; much less can it create—though it is essential to support—terrestrial thought processes. An eternity of sunlight would not make a lizard think the thoughts of a Newton.

Rev. Dr. H. C. MORTON wrote: Dr. Saleeby's great work commands my ardent admiration. Had not the True God revealed Himself, I have often said I should have joined Akhnaton as a worshipper of the Sun. The language which was, to all seeming, used by Akhnaton evidently justifies the lecturer in hailing Akhnaton as the pioneer, I presume far the earliest pioneer, of the cause which is before us to-night. The object of Akhnaton's worship is given as "the effulgence which is in Aton," and then again he says: "The Living Aton, beside whom there is no other. Thou art alone, but infinite vitalities are in Thee, by means of which Thou dost give life to thy creatures."

To one thing in the paper I venture to take exception, viz., the evolutionary leanings displayed. I am one of the multitude who entirely refuse the concept of Evolution. It seems clear, from frequent references to "emergence," that Dr. Saleeby aligns himself with the Emergent Evolutionists—who realize the failure of the

earlier forms of Evolution to "show cause" for the transformations which are supposed to have taken place, and therefore replace the idea of "cause" by that of "emergence." But when Dr. Saleeby says that "there may be psychic elements in the constitution of the vegetable world," and thus admits what is called "psycho-physical parallelism," that is not, I submit, in harmony with Emergence in the technical sense of Emergent Evolution. Dr. W. M. Wheeler, defining Emergence, says: "it does not signify the manifestation or unveiling of something hidden and already existing." Thus, if the psychic, *i.e.*, the mental, is already existing, though hidden, in the vegetable world, mind later on may be increasingly dominant, but is certainly not to be called "emergent."

Just one other point I want to submit to the learned lecturer—a kind of pragmatic point. In the first half of the lecture references to Evolution abound. Then they cease altogether, and the paper proceeds most cogently. The concept of Evolution does not add anything to the effective power of the paper; and therefore very humbly I submit that Evolution might be omitted altogether, without detracting from the weight and cogency of a valuable lecture.

769TH ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL, WESTMINSTER, S.W.1, ON MONDAY, APRIL 24TH, 1933. 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. The CHAIRMAN then called on the Rev. H. C. Morton, B.A., Ph.D., to read his paper on "The Supposed Evolutionary Origin of the Moral Imperative."

THE SUPPOSED EVOLUTIONARY ORIGIN OF THE MORAL IMPERATIVE.

By THE REV. HAROLD C. MORTON, B.A., Ph.D.

THERE is no boundary to the evolutionary claim. Voices have been raised in protest, but they have not prevailed. A. R. Wallace, for one, declared the universal claim was neither sane nor honest. The Evolution he maintained, he said,

> is the sane and honest Evolution which does not concern itself at all with beginnings, and merely follows a few links in a fairly obvious chain. As to the chain itself Evolution has nothing to say (*New Thoughts on Evolution*, pp. 13, 14).

But the general view was stated by Tyndall a good many years ago:

> Strip it naked and you stand face to face with the notion that not alone the more ignoble forms of animalcular and animal life, not alone the nobler forms of the horse and the lion, not alone the wonderful and exquisite mechanism of the human body, but the human mind itself—emotion, intellect, and all their phenomena—were once latent in a fiery cloud (*Fragments of Science*, ii, p. 132):

and now Professor Lloyd Morgan (*Spencer's Philosophy of Science*, p. 5) says that Evolution accounts for everything

> right away from the primitive fire-mist to one of Bach's fugues or the critical doctrines of Mr. Ruskin.

The most daring of to-day's exponents, Professor S. Alexander, goes even further. Morgan stops short with humanity at its highest, but Professor Alexander extends the scope of Evolution to "finite deities," and still on to "infinite deity," although even in his dazzled dreams there is a little difficulty about "infinite deity." Even omnipotent Evolution halts for a moment, and in his *Space, Time, and Deity* (p. 365) he has to leave it thus—that "the infinite deity" is "the infinite world striving after deity."

It is worth noting the actual scope of the claim, dwelling upon it, and grasping its significance. One indisputable "urge" in human thinking has been the "urge" to get rid of God, the Almighty Creator; and if the Evolution which starts from fire-mist and produces from it Bach and Ruskin, with all their mental and moral powers, is in Wallace's words neither "sane nor honest," but merely a fantastic dream put into the form of a dogma, Professor Alexander's proposal that starting with Space-Time Evolution produces not only Bach and Ruskin, but the only conceivable "infinite deity" as well, is a dream not only not sane but impious.

Our subject is the Moral Imperative, and the claim that it has come into being through Evolution. Here Evolution meets one of its "acid tests." To fail here is to be discredited altogether. This tests Evolution in the realm of Life, and that is strictly its only sphere. To speak of Evolution at work in the fire-mist, or in any other phase of the lifeless world, is to misuse the term.* The word in modern sense is quite recent, its vogue given to it since Darwin's *Origin* and mainly by Huxley and Spencer, and its strictly correct meaning is "the transmutation of species." The evolutionist affirms that hundreds of thousands of years ago there existed animals, of humanoid or semi-humanoid type—Dr. Barnes calls them "a tangle of apes somewhere in the Tertiary"—which had reached their plane of life through long evolutionary processes, but were still merely animal and not to be called "moral beings." From this non-moral race Man is supposed to have come: and Man's moral nature is his distinctive human attribute.

Man is Man, not because he walks the world of the body, the

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* As to alleged Evolution in the lifeless world, "the principle is quite inapplicable, and the claim remains a bare verbal formula, without meaning": Professor W. Macdougall, *Modern Materialism and Emergent Evolution*.

world where mechanistic cause and effect and physico-chemical forces abound, but because he knows himself to be a citizen of a higher realm, the realm of the Spirit, the realm of moral values —where Right has authority; where Obligation, not mechanical or chemical, but Moral, reigns; where he hears a Sovereign Voice, "Thou shalt," and knows that the victory and glory of life lie in obedience to that voice. His mind is aware that Moral Law must be obeyed because it *is* Moral Law and for that reason alone. "When any other motive is brought to bear on the battle, when any other banner is brought forward than that of the Eternal Right, then the whole meaning and issue of the contest is altered."* That Moral Imperative, that sense of obligation, that allegiance to Eternal Right, is the essential feature of human life.

It is universal in normal humanity. However much moral ideals and moral life vary (*e.g.*, some communities even praise theft, provided it is theft from enemies) the Moral Imperative is always there. I believe it can be maintained that the great moral laws—Truth, Justice, Honesty, Industry, Kindness, and so forth—are, and have been, universally known in normal human life; and that any ignorance is to be attributed to the debasement of human nature, false training, and the sway of evil ideals. Conscience, which perceives the Law, hears the voice, feels the obligation, *may* become "seared as with a hot iron." Even if, with what is called the "New Intuitionism," we had to admit that knowledge of detailed laws is not universal, we still should affirm the universal sense of Moral Obligation to follow after whatever is allowed to be "the Good." In some form or other the moral fact is always there, and generally as we know it to-day. How has this come to pass? How has the non-moral "tangle of apes" been transmuted into moral Man? Evolution has to tell us; and, if she cannot, her cause can only be adjudged lost.

My task is to test the supposed naturalistic origin of the Moral Imperative at three distinct stages of evolutionary thinking. The first is not called by the evolutionary name, but is really evolutionary, viz., the Utilitarian Philosophy; the second is generally called Evolutionary Hedonism, the Utilitarian Ethics as modified by Evolution; the third stage is to-day's swelling dogma of Emergent Evolution.

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* Frances Power Cobbe, *Theory of Intuitive Morals*, p. 151.

The conclusions to which the facts drive us are that the evolutionary thinkers of the first two stages, though they faced the problem seriously, failed entirely, in the main because they never really grasped the meaning of the moral life which they were attempting to derive from non-moral sources. Their derivation of the Moral Imperative always resolved itself, after much elaborate argumentation, into the christening of natural impulses and laws with the name "moral." The latest evolutionists seem to realize more clearly what they have set out to derive; but the plain fact is that they content themselves with a statement, very elaborate and metaphysical in its language, that the moral appeared in human life in a way no man can understand, and this agnosticism they cloak with the title "Emergent Evolution."

The Utilitarian Moralists.

Space permits only the briefest statement of the attempt to explain the origin of our moral life advanced by the utilitarian moralists. Bentham, Hume, J. S. Mill are three famous names, and Alexander Bain, though less famous, probably did more than any of them to fill the world with utilitarian thinkers. Utilitarianism derived all morals from consideration of the utility of actions as conducing to pleasure and saving from pain. "Actions are right," said J. S. Mill, "in proportion as they tend to promote happiness, wrong as they tend to produce the reverse of happpiness" (*Utilitarianism*, p. 9). Mill introduces into his theory a distinction between pleasures, as "higher" and "lower." "A being of higher faculties requires more to make him happy than one of an inferior type" (p. 12). If, as appears to be the case, this means *moral* inferiority, it illustrates what I must needs often refer to, viz., the conjuror's trick of producing the required article out of nowhere, at which all evolutionists are such adepts. The utilitarians regarded moral laws as "empirical generalizations as to the best means of producing the greatest sum-total of happiness." Hence it appears that they did not stop short with the individual: they considered the tribe, the nation, the society; and the Moral Imperative had somehow to be derived from the endeavour to secure for oneself, one's family, one's tribe, the greatest measure of happiness.

They based their argument upon the Laws of Association. Experience associates together certain courses of conduct as conducing to pleasure and happiness and advantage, and other

courses as conducing to the reverse. These strong associations are what we call the dictates of morality.

> It is only in accordance with all the other facts of associated feelings that if a certain kind of conduct, say, theft or evil speaking, is constantly made the subject of punishment, censure, or disapprobation, an associative growth will be formed between the conduct and the infliction of pain, and the individual will recoil from it with all the repugnance acquired during this conjunction between it and painful feeling (Bain, *Mental and Moral Science*, p. 108).

Similarly, with the association established between such conduct as honesty and true speech, and the rewards and approbation meted out to such conduct. Thus "Conscience" arises, and the "Moral Laws," and the "Moral Sense"; and Bain especially urges that Conscience is "an imitation within ourselves of the government without," and that our sense of an inescapable obligation to right courses of conduct is to be traced to our sense of the Statute Book in the background.

Some of the utilitarians held that Man has "two natural sentiments," self-interest and regard for others. This latter made easier the illusion they fostered, viz., that prudential maxims for seeking the greatest happiness have been mistaken by Humanity for moral laws and Eternal Righteousness. Even a natural regard for others, if it really exists, is very different from a moral obligation to seek the happiness of others, and it is the moral obligation we are seeking.* "Moral Obligation" can hardly be the sense of the Statute Book in the background, when one of the commonest experiences of life is the individual's criticism, under the strong urge of moral obligation, of the Statute Book itself. The Moral Imperative can hardly be resolvable into rules for seeking pleasure, happiness, advantage, and avoiding their opposites, when the commonest form of life's moral battle is the choice between pleasure, happiness, and advantage, and the very different path of Duty. It is indeed

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* All naturalistic ethics are prone to treat the difference between *what is* and *what ought to be* as a negligible thing. For example, having stated that by nature we seek happiness, or that by nature we have a regard for others, the next step is quietly to assume that these natural facts are not only facts but duties—that a natural law is a moral law as well. The real question is not, Do we seek happiness, Do we regard others? but Ought we to seek happiness? Ought we to regard others?—and naturalistic moralists constantly treat these questions as one and the same. (See D. G. Ritchie, *Darwin and Hegel*, p. 68).

one of the commonplaces of the moral life that happiness comes to Man, the moral being, as a by-product, unsought, when he concerns himself with quite other thoughts and aims. If we have been led along the path the utilitarians marked out, into a so-called moral life which in reality is an organized search for happiness, we cannot avoid the conclusion that we have been deluded—and this is not to explain the origin of the Moral Imperative, but to explain the Moral Imperative away.

How Evolution Reinforced Utilitarianism.

The argument unquestionably went against Utilitarianism and in favour of Intuitionalism, *i.e.*, that the Moral Imperative is perceived by the mind, given in Conscience, is not derived from individual experience, but is the deliverance of that Supreme Authority from Whom there is no appeal. The Agreeable is quite distinct from the Obligatory: there is a rule higher than the Agreeable, and it is this we mean when we speak of Morality.

Then Evolution provided the naturalistic philosopher with a fresh view-point and argument. It derived the inner moral laws not from the individual's experience, nor from his knowledge of external authority and Statute Law, but from the experience of the race—the whole long line of ancestry during the whole supposed million years since something "humanoid" was evolved from the animal world. The association in the brain, between such and such lines of conduct and pleasurable or painful consequences, stretches back into the almost illimitable past and has been handed down by inheritance, steadily deepening from millennium to millennium. It is much easier thus to believe that the relation between conduct and consequences of pleasure or pain is what we call the Moral Sense. It was claimed that Evolution had reconciled Utilitarianism and Intuitionalism: inasmuch as in the long course of time an abstract idea of "obligation" had been deduced from many separate ideas of an "obligatory" justice, an "obligatory" honesty, an "obligatory" generosity, etc., and "an abstract idea thus formed often acquires an illusive independence" (Spencer, *Data of Ethics*, Sect. 46).

Evolutionists also from the beginning emphasized the sympathetic or other-regarding sentiments, which some utilitarians stressed, as playing a leading part in the creation of the Moral

Imperative. Man is a gregarious animal, and the tribe's life and happiness includes and ensures his own. Thus Mr. Leslie Stephen (*Science of Ethics*, pp. 148, 168, etc.), in the growingly abstract language which Evolutionists use, says that "the moral law defines a property of the *social* tissue." It is the vitality of the social organism a man belongs to which all "right" action subserves. Such a contention greatly aids the "illusive independence" of the evolutionary idea of obligation. In the long history of the tribe the sense of approval has become associated with such courses of action as increase the vitality and happiness of the tribe. There seems to be nothing directly personal about the advantages which are to be sought; some inner thing commands us, and we see reasons to obey. Lost amid the darkness of the long past the mind does not perceive that this "obligation" is really only an ancestral counsel of prudence, a disguised maxim of self-interest. It has an "illusive independence" only because its foundation is hidden from us in the dark past. No one could make that mistake in his own isolated experience, but ancestral inheritances and nerve connections created by tens of thousands of generations make it a possible conception.

It must be remembered that evolutionary ethics are absolutely what is called "hedonistic." They take up the utilitarian teaching as to the ground on which action is called "right." It is always pleasure or happiness or the like, and the avoidance of their opposites. So much of a misleading character is said about evolutionary ethics that I must stress this point. Stephen, an evolutionist, refers to the utilitarians Bentham, Hume, Mill, and equally to the evolutionist Spencer as "my own school" (*Science of Ethics*, vii, 365, etc.). Spencer (*Data of Ethics*, sect. 15) says:

> Whether perfection of nature is the assigned proper aim, or virtuousness of action, or rectitude of motive, we saw that definition of the perfection, the virtue, the rectitude, inevitably brings us down to happiness experienced in some form, at some time, by some person, as the fundamental idea. . . . So that no school can avoid taking for the ultimate moral aim a desirable state of feeling called by whatever name—gratification, enjoyment, happiness.

Or, again, Professor J. H. Muirhead (*Elements of Ethics*) says that it is not happiness, but the "vitality and efficiency," *i.e.* the "health," of the organism, the society to which we belong, which justifies moral laws. "This represents the real difference between the utilitarian and the evolutionary criterion" (p. 168).

Yet "the health of the society is only valuable as a condition of its happiness" (p. 150). The difference merely concerns the method of reaching happiness.

The Failure of Evolutionary Ethics to Show the Origin of Morals.

So the test of evolutionary ethics remains the same as that of utilitarian ethics. Does it display a cause which can have produced the Moral Imperative? The answer must be an emphatic No. Evolution does not alter the essentials of the problem. It adds the element of almost limitless time. It claims that associations have been fixed in the brain by inheritance through long generations. The illusion of the independence of the Moral Imperative is made easier, but it is an illusion still. No cause has been shown which could by any possibility transform a counsel of prudence concerning the way to find pleasure and avoid pain into the sublime Imperative of the Spirit which bids us do the right for its own sake, in scorn of consequence of any sort.

> Self-knowledge, self-reverence, self-control,
> These three alone lead life to sovereign power!
> Yet not *for* power: power of itself
> Would come uncalled for: but to live by law,
> Acting the law we live by without fear:
> And, because right is right, to do the right
> Is wisdom, in the scorn of consequence!

There speaks Man the Moral Being, and evolutionary ethics have no explanation to offer. Huxley had to admit that it is "convenient" "to distinguish those parts of nature in which Man plays the part of immediate cause, as something apart" (Article on "The Struggle for Existence," *Nineteenth Century*, Feb., 1888), and that evolutionary processes seem to turn back upon themselves!

The Ceaseless Begging of the Question by Evolutionary Ethics.

No explanation—but a policy, in view of their failure to explain, which most evolutionists follow, until it becomes almost laughable to observe the dexterousness of their moves! Their common course is to affirm the presence of some sentiment or law in human nature, which human nature they have derived to their own satisfaction from animal nature. Then they slip

in dexterously, by sleight of words, a statement of the *moral* quality of the law or sentiment. No explanation is offered as to how the *moral* quality came into existence: in truth the conjuror never explains his magic; and the moral element only got in by conjuror's sleight of hand. Then they sail on happily, through many sunny and self-satisfied pages, and conclude in a rotund and confident voice that the problem is solved.

With deep feeling of diffidence that a very humble person should criticize authorities so eminent, I feel obliged to take a few illustrations. There is Mr. Leslie Stephen, an evolutionary hedonist of the same school as Spencer. He has, therefore, to make it clear how the majestic Imperative, Thou Shalt, has emerged from experiences of pleasure and pain. His *Science of Ethics* has plentiful passages like these:

> My conduct must always be conditioned by my feelings—by my aversion to painful and attraction to pleasurable states (p. 247). When we introduce the sympathetic feelings, it still remains as true as before that the agent is governed by his own feelings (p. 256).

Since a man is virtuous whose type conduces to a healthy body politic, Mr. Stephen says we have therefore to consider what advantages are implied in that type! It is clear that he has not really entered into the moral realm of thought at all: yet the great words of moral life, such as Conscience and Moral Law, are none the less slipped in, while the hedonist is showing by elaborate analysis that sympathy and patriotism are resolvable into desire for pleasure and aversion from pain!

The same criticism lies against Professor Muirhead's popular work, *Elements of Ethics*. In the midst of considerations of the method of reaching happiness, suddenly Muirhead brings us face to face with sovereign Moral Obligation (p. 150); but where has it come from? And, again, in the midst of a world seeking to increase pleasures and decrease pains, we are suddenly told that there are "true" pleasures and "false" pleasures! (p. 155). Perfectly true, no doubt; but where has the distinction come from? Certainly not from that non-moral world whose evolutionary developments the professor is tracing. His moral distinctions and his moral imperatives have no more to do with his argument than the rabbit has to do with the conjuror's hat.

Or, again, some four or five years ago Professor J. B. S. Haldane gave an address to the Rationalist Society, which is published with the title *Science and Ethics*. The chairman spoke

of "the music of Evolution," and of Professor Haldane "rejecting theology," though he respected it as "an historic expression of human nature." The address was frankly atheistic, the existence of the soul is denied, the existence of God also; if there were a Deity, it would be nothing external to man or existing without man's co-operation. The professor declares:

> Ever since the utilitarian movement ethics have become more and more a matter of the calculation of consequences. . . . We are all agreed that actions must be judged by their probable consequences (*i.e.* of happiness or the reverse) and not by any code which does not envisage those consequences (p. 30).

Now on this basis you can get rules for seeking happiness, and counsels of prudence; you can get a multitude of relationships between living beings, and impulses or actions which continue or destroy those relationships; but you cannot get anything moral. Yet we find Professor Haldane calmly using the language of morals, *e.g.* "We lay claim to guidance by no holy spirit save our own consciences": "the rights of animals"; "Shall I buy glass or pottery for my flowers? Pottery workers have a higher mortality"; so I "ought to buy glass": one may "see men and animals as a great brotherhood of common ancestry, and thus feel an enlargement of obligations."

Obligations! Rights! Ought! Conscience! Where have all these come from? He might speak of preferences, desires, impulses, and perhaps even of reflection and choice; but where has the Moral Imperative come from? Even he admits in this little volume that

> Science from its nature can only say what is, was, or will be, and not what ought to be. It cannot of course give an answer to the question, Why should I be good? There is, in the long run, no answer to that question. . . . (p. 32).

We may be thankful for the frank admission. Like an honest man he agrees that Evolution cannot explain morals. But why then does he slip in all these moral terms and produce the illusion that he is dealing with Ethics?

Or just once more, here is a delightfully frank book by Professor G. Harris, entitled *Moral Evolution*. He is a thoroughgoing evolutionist. Vegetable and animal life, he says, have furnished the clue to the origin of Man, by evolution from them. by "organic derivation," not by "abrupt creation" (p. 2),

Then we come to the section on " The Origin of Obligation," and that is just what we want to hear about. But Professor Harris simply tells us that

> the reflecting animal perceived that the social is more important, or is better, than the selfish feeling. He saw that he should not have injured or neglected another to satisfy a transient desire (p. 99).

What the evolutionist needs to show us, however, is how these perceptions came to these animals. All he says is that the animal had these moral faculties, and " the theory stands or falls on comparison of feelings, and estimate of their relative worth " ; but he does not say where this moral thing called " worth " came from. What he does see clearly, however, is that when " a simian ancestor recognized the intrinsic superiority of sympathetic over self-regarding feelings " he thereby became essentially a Man : for " it is Man's estimate of their relative worth, value, rightfulness, or wrongfulness " that " differentiates him from animals." This was a " radical transformation " of " the simian ancestor " ; and then comes this truly delightful confession from a writer who sets out to trace Man up from the vegetable :—

> I suppose everyone would have to confess utter ignorance of the process of such a development, and *utter inability even to imagine it* (p. 101).

The italics are mine ; the words are the expression of the self-evident truth about all manner of evolutionary ethics. The failure of orthodox Evolution is abysmal and complete.

The New Phase : " Emergent Evolution " Attempts the Problem.

Professor Harris wrote in 1898, somewhere about the same time at which Professor C. Lloyd Morgan claims that he first adumbrated Emergent Evolution. It is significant that Professor Harris, after confessing his utter inability even to imagine how the non-moral simian became a moral Man, proceeds at once to state the thesis of what is now called Emergent Evolution. He says : " The materials of the human constitution existed in lower orders (of animal life). But in Man the materials are differently compounded. As the combination of the same chemical elements at different potencies gives essentially different products, so the combination of the same materials gave different creatures. At least, it may have been so. . . . The new combination, effected perhaps instantly, as an electric spark may

change the relation of chemical elements, produced Man" (p. 102). This is precisely, I think, what Professor Morgan means by new "qualities and properties" emerging from "new states of relatedness" between "events."

Much more ought to be said about Emergent Evolution than is possible in my brief space. That it arose, as Professor Harris seems to reveal, because of the entire failure of the orthodox Evolution to show *Cause* for the origin of life from the lifeless, mind from the non-mental, morals from the non-moral, it is hardly possible to doubt. We have asked for Causes sufficient to produce the results of life, mind, and moral obligation; and candid evolutionists, some of whom I have quoted, admit that no Cause has been found.

So it is proposed to get rid of the troublesome concepts which cannot be satisfied. Mind, for instance, is reflective and purposive and cannot be derived from the non-mental. Nor can purposive quality be derived from the only kind of "consciousness" which mechanistic evolution can recognize. Spinoza's idea, that the physical always has a psychic side, and that something mental is involved in the very constitution of matter, has generally been the resort of the baffled evolutionist. When living matter reaches a due stage of complexity sentience begins, he says, and later still consciousness. But this consciousness is not our reflective purposive mind: it is mere awareness: it is aware of, but does not influence, events. Bateson's acid jest at the biologists who pushed all their difficulties "back into some misty antiquity into which we shall not be asked to penetrate," might be repeated here so far as the origin of mentality is concerned. But it helps the evolutionist to get rid of such concepts as "purpose" and "cause." Professor H. C. Warren ("A Study of Purpose," in *The Journal of Philosophy*, 1916) interprets the sense of purpose as being the mind's awareness of the beginning of muscular action, which itself is a reaction to an internal or external stimulus. Awareness that muscular action is coming is what we call "purpose"! To the average man that will seem sheer nonsense; but that is only because he is led astray by endless empty declarations of the spiritual tendencies of modern philosophy. To-day's philosophy is ominously materialistic.

Cause for either mind or morals is not found: therefore Cause is explained away. Professor Morgan (Spencer's *Philosophy of Science*, pp. 17 and 18) recalls W. K. Clifford's attempt to show "in what sort of a way an exact knowledge of the facts would

supersede an enquiry after the causes of them," and how he urged that the dogma of Continuity involves such an interdependence of the facts of the universe as forbids us to speak of one fact or set of facts as the cause of another fact or set of facts. Professor Morgan agrees with Clifford. He will not have any " power that works changes," neither Bergson's Elan Vital, nor Spencer's " very vigorous agency, the Unknowable." He likes Mill's idea that " cause " is " the sum total of the conditions, positive and negative, taken together," and dropping the idea of Cause, he says, " For science, the constitution of nature is the ultimate *Ground* of all that happens " (p. 24).

What Emergent Evolution Means.

Having got rid of Cause, the way was clear for Emergent Evolution. Emergent Evolution regards it as unscientific to attempt to explain anything. It assumes a certain constitution of nature, such that when certain given elements enter into new " relatedness " new " constitutive properties " arise. Why they emerge is not the question: all that matters is that they do emerge. Professor Morgan sees no objection to having God in the Eternal Background. The other most eminent exponent, Professor S. Alexander, denies the " infinite deity," and is not quite sure that " finite deities " have yet emerged.

But there is no real difference between the two, and Professor Morgan gives great space to a most appreciative estimate of his ally, insisting for his own part that we must not drag in any activity of God, or anything supernatural whatsoever, to explain how new things emerge. Thus

> If Vitalism connote anything of the nature of Entelechy or Elan Vital (*i.e.* World-Soul, or Life-Force)—any insertion into physico-chemical evolution of an alien influence which must be invoked to explain the phenomena of life—then so far from this being implied, it is explicitly rejected under the concept of Emergent Evolution (*Emergent Evolution*, p. 12).

God, cause, purpose, and all such concepts, are ruled entirely out.

G. H. Lewes first suggested the word emergent, and J. S. Mill the idea when he spoke of " mental chemistry." In chemistry there is a difference between mechanical mixtures and chemical compounds. Two parts of Hydrogen and one part of Oxygen united by an electric spark, make water; and water is not like

either of its constituents. This is their classical illustration. The Emergent Evolutionists use terrible language, and only illustrations could make their meaning clear. Professor Alexander, in vol. ii, p. 46, of his *Space, Time, and Deity*, has a paragraph beginning, "Let me take a few examples." He gives only two :—

> First : Material things have certain motions of their own which carry the quality of materials. In the presence of light they are endowed with the secondary quality of colour.
> Second : Physical and chemical processes of a certain complexity have the quality of life. The new quality, Life, emerges with this constellation of such processes . . . and has been generated out of them.

That is all! The first is metaphysics; the second, pseudo-physics. A striking failure to produce illustrations!

Professor Morgan gives one of the famous illustrations of an emergent, viz., three notes combine to form a chord, and quotes Browning's "Abt Vogler" :

> And I know not if, save in this, such gift be allowed to man,
> That out of three sounds he frame, not a fourth sound, but a star.

So it is said a melody is quite a different thing from the succession of notes or chords from which it "emerges"; or a sentence is quite a different thing from the succession of words from whose new relationship the thought "emerges."

Do Any of the Illustrations Reveal Emergence?

Professor W. Macdougall has subjected Emergent Evolution to a drastic and deadly examination, in his *Modern Materialism and Emergent Evolution*. He denies all emergence in the inorganic realm. As to Hydrogen and Oxygen becoming water, we should be wise to let the chemist continue his work, before we draw conclusions. He is continually examining chemical compounds; and it is probable the result will be "to render it possible to account for all the properties of inorganic substances, to explain mechanistically all physical events, and in principle to predict them" (p. 125).

The real crux, however, is whether there are emergents in the mental realm; in particular, is the moral an emergent from the

mental ? Very strangely Professor Macdougall admits that there are emergents in the mental realm ; but the only illustrations forthcoming are musical notes and the " emergent melody," and words and the " emergent sentence "—and neither of these satisfies the idea of an emergent. Words are not mere sounds which in some quite unexplained way arrange themselves into sentences. The mind of the speaker has the thought in it beforehand, and the sentences are created to express his thought. An Emergent, says Professor Wheeler, in his *Emergent Evolution and the Development of Societies*, " does not signify the manifestation or unveiling of something hidden, but already existing "—but that is exactly what the sentence does do : thus it is not an instance of emergence. Neither is the musical illustration. Notes do not mysteriously arrange themselves into melodies. Schubert, for instance, selected the proper notes to bring out on to the air that melody which was already existing in his mind. The chord in " Abt Vogler " was just the combination of three sounds, producing a fourth sound—a mechanical resultant vibration. The fact that Browning was uplifted in heart by its beauty and called it " a star " does not make the chord an emergent novelty —it was still a sound.

The reality of emergents is most doubtful, but the procedure of emergent evolutionists is very clear. Let anyone forge his way through *Emergent Evolution* or *Space, Time, and Deity*. In most abstract and often metaphysical language an elaborate analysis is given, especially of mind ; and, without any vestige of proof, it is affirmed that all things emerged in the order given in the analysis. Professor Alexander starts with Space-Time ; from that emerges Matter, more and more complex ; from that Life, in higher and higher forms ; from that Mind, in ever higher forms ; and thence ideals of Truth, Beauty, and the Right ; then from these the latest product of Evolution, deity. After Mind " deity is the next higher empirical quality* to any that we know. . . . It was legitimate for us to imagine finite beings called angels . . . for the angelic quality is the next higher empirical quality of deity. . . . On each level (of existence) a

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* How even this godless philosophy is being taken up by ardent evolutionary religious writers may be illustrated by the statement : " Man has won his humanity, and the word ' animal ' no longer includes all that he is. Jesus won through to divinity " ; Rev. L. D. Weatherhead, M.A., *Jesus and Ourselves*, p. 285.

new quality looms ahead, awfully, which plays to it the part of deity." As to "infinite deity," that is the infinite world striving after deity (pp. 346 ff).

On what ground should we accept all this? Professor Alexander tells us :—

> The existence of emergent qualities thus described is something to be accepted with the "natural piety" of the investigator. It admits no explanation (vol. ii, pp. 46 and 47).

Professor Morgan quotes approvingly that it is all to be accepted with "natural piety": and a phrase of Professor Alexander's (vol. ii, p. 352) is worthy of great emphasis. It is: "*Speculation enables us to say.*" As Carlyle used to declare, "That is significant of much."

Thus Emergent Evolution offers no *explanation* of the Moral Imperative, nor of any other "emergent qualities." It simply asks us to accept, without explanation, without any "power that works changes," the assumption that these qualities did emerge, and in an order which fits in with evolutionary speculation. All this we are to accept with "natural piety"! Surely it is not for us to accept with natural piety, but to reject with supernatural energy, a philosophy which gets rid of both God and Cause in order to effect its purpose. Emergent Evolution is an admission of the failure to show cause for the origin of the Moral Imperative; and still the great Imperative of our Moral Life sounds forth, unexplained and unexplainable save on this one foundation: "And God said, Let Us make man in Our image, after Our likeness."

Discussion.

The Chairman (Mr. Douglas Dewar) said: You will all, I feel sure, agree with me that Dr. Morton has given us a masterly paper on a very difficult subject—a subject on which have been written a great many books, most of them couched in the most obscure phraseology, which makes them difficult to read. I must confess that I have not the patience to read much on the subject, because my experience is that obscure language usually denotes muddle-headedness on the part of the writer. I did, however, attempt, some years ago, to read Professor Lloyd Morgan's *Emergent Evolution* because I had previously liked his book on Animal Behaviour.

I did not get very far with the book. I found its phraseology so involved and ambiguous that I concluded that the labour involved in forging through it might be more profitably employed in other directions. I was therefore somewhat gratified when, a few months later, I came across the following criticism of Lloyd Morgan's book in Oman's *The Natural and the Supernatural*, p. 160: "His theory seems to leave mind only a specially complex arrangement, whose knowledge cannot be really knowing and which cannot affect its environment by any power of its own; it, nevertheless, does all that we know it does. His argument turns into an excess of technical terminology, which at least is not fitted to increase faith in the simplicity of his meaning. All that one can gather is a general impression, and it is of a man being drawn into the hopeless task of trying to show that a thing can be and not be at the same time."

Those who delight to give rein to their imagination, especially those who suffer from Theophobia, have from time immemorial toyed with the idea of Evolution. The theories of these persons never obtained general acceptance because they do not fit in with the fact that you cannot get out of anything more than has been put into it; as Dr. Morton well says, theories of Evolution resemble the conjurer's trick of producing the required article out of nothing. It was only when Darwin came along and suggested what at first sight appeared a plausible *modus operandi* that the theory became fashionable. To the credit of Darwin, let it be said that he did at least produce something tangible, as opposed to vague flights of the imagination. The theory of Natural Selection is one that can be tested scientifically. At first sight Natural Selection looked as though it might really be able to explain Evolution, granted that there is no limit to which variations can be piled up in any direction. Closer scrutiny of the position, however, showed that Natural Selection is really a stumbling-block in the way of accepting Evolution.

One of the many difficulties encountered by Evolutionists is that with which Dr. Morton has so ably dealt, viz., the origin of the Moral Imperative. Practical men, as opposed to mere theorists, attempt to discover in the lower animals the rudiments of this, and to show how this characteristic has developed to its present condition in Man. Such assert that any character tending to the preservation, vitality or happiness of a tribe or herd will tend to be preserved and passed on to subsequent generations, and gradually become amplified

until we arrive at the Moral Imperative. Dr. Morton has shown that this line of argument has met with little success. Sir Arthur Thomson tacitly admits this in his article entitled "Evolutionary Ethics" in the latest edition of the *Encyclopædia Britannica*. He seems to think that Man arose as a mutation. He writes "Regarding man as a new synthesis, making all things new, we willingly admit that he did not carry on and raise to a higher power the kin-sympathy, let us say, of the wolf; for Evolution does not proceed in this simple fashion. But our point is that there must have been definite pre-human strands which were transformed into a new synthesis of man." He does not say what these particular pre-human strands were or whether they arose by a mutation or by emergence, if there be any difference between the two concepts. Mere verbiage such as this leads nowhere and tells us nothing. Let us get down to facts. The members of a tribe of humans or pre-humans who made themselves objectionable may well have been knocked on the head by their fellows and so got rid of before they produced offspring inheriting the undesirable trait. On the other hand, altruistic individuals, although doubtless appreciated by the other members of the tribe, would be the first to die owing to their denying themselves food in times of scarcity or their defending females and young in case of an attack by foes; hence natural selection would soon wipe out this budding altruism.

It is because Darwinian Evolution is incapable of explaining what Evolution has to explain that the theory of Emergent Evolution has been developed. The fact that this theory has obtained a considerable amount of support is proof of the weakness of the Evolution hypothesis. Emergence is nothing but a big mutation. To say that any character rose by emergence explains nothing. To accept the principle is tantamount to throwing up the sponge, to saying: "We have no idea what natural causes can have produced many characters animals exhibit, so let us save our faces by asserting that they emerged." When Professor Lloyd Morgan will produce from inorganic matter a cell which grows, divides, and develops into a fish, crab, mollusc or any other kind of organism and produces offspring having the same characters as itself, I shall begin to think that there is something in this idea of emergence. All this talk of emergence is to put the cart before the horse. Let us first make sure that man did evolve from a one-celled organism; when this

has been proved, it will be time enough to seek for causes. Haeckel thought he had solved the riddle of the universe. To-day, every honest man of science has to admit that, apart from a belief in God, the riddle is unsolved.

Professor Caullery wrote, in 1931: "There is no doubt that to-day I feel farther from being able to represent how Evolution has been effected than I did 40 years ago when I was apprenticed to zoology." It does not seem to have occurred to Caullery that the reason of this failure may be that he is trying to cook his hare before he has caught it, to account for an event which has not happened.

At the conclusion, the Chairman proposed a vote of thanks to Dr. Morton, which was accorded with acclamation.

Mr. SIDNEY COLLETT said: I cannot understand how any intelligent person, who has any faith in the Bible, can entertain the foolish and unscriptural theory of Evolution, seeing that it is condemned by the Bible, and by leading Evolutionists themselves.

As to the Bible, we are distinctly told in Genesis ii, 7 that as regards his body "the Lord God formed man of the dust of the ground." Now, seeing that the Creator Himself has declared that Man was formed from the dust of the ground, Man cannot possibly have been evolved from some lower animal. Then, as to his spirit, we read in Genesis i, 27, that "God created man in His own image." Seeing that the word "created" means, according to the Dictionaries, "to produce from nothing" "to bring into being," "to cause to exist," that Divinely-inspired statement for ever excludes the possibility of Man evolving from a lower animal.

But, as I said; Evolutionists themselves confess the failure of their theory! Sir Oliver Lodge stated some years ago in the *Daily Chronicle*, that "all the many attempts in the direction of spontaneous generation hitherto have conspicuously failed," while the late Sir George Darwin stated, at a meeting of the British Association, that "the mystery of life remained as impenetrable as ever." And Professor Tyndall said: "Those who hold the Doctrine of Evolution are by no means ignorant of the uncertainty of their data." And this statement is abundantly confirmed, by the testimony of Professor J. A. Thomson and Professor Patrick Geddes in "*Ideals of Science and Faith*," where they maket his pitiable confession, in

answer to the question "*How Man came*": "We do not know whence he emerged—nor do we know how man arose . . . for it must be admitted that the factors of the evolution of man, partake largely of the nature of may-be's, which have no permanent position in science!" Moreover, in an article in *The Times Literary Supplement* the following statement appeared: "Never was seen such a mêlée. The humour of it is that they all claim to represent science. . . . Yet it would puzzle them to point to a theological battlefield exhibiting more uncertainty, obscurity, dissention, assumption and fallacy, than their own. For the plain truth is, that, though some agree in this and that, there is not a single point on which all agree. Battling for Evolution, they have torn it to pieces; nothing is left, nothing at all, save a few fragments strewn about the arena!"

Mr. GEORGE BREWER said: Dr. Morton has, I think, shown us that the doctrine of the Evolutionary origin of the Moral Imperative has not only no foundation in fact, but is contrary to history and experience. Like similar teaching in connection with the organic and inorganic realms of nature, it is based on assumption, buttressed by speculation, and built up from figments of human imagination.

According to Professor Alexander, man, evolved from protoplasm through a series of lower animals, will eventually emerge into Deity; so that, in place of the simple revelation given to us in His Word "that God made man in His own image," we are asked to accept with "*natural piety*" the impious proposition that man is making God. That principle of Moral Consciousness implanted in Man by God Himself, which even the corruption consequent upon the Fall has failed to obliterate, and which we call Conscience, is in evidence throughout the ages, and is certified by the Apostle Paul in his epistle to Romans (ch. ii, 14, 15): "For when the Gentiles, who have not the law, do by nature the things contained in the law, these, having not the law, are a law unto themselves: which show the work of the law written in their hearts, their conscience also bearing witness, and their thoughts the meanwhile accusing or else excusing one another."

We see the work of conscience in the case of our first parents after disobedience, hiding from God among the trees of the garden; of Cain in seeking to evade his guilt of murder; of Lot who vexed his righteous soul from day to day with the sins of Sodom; of Joseph's

brethren in Egypt in respect of the potential murder of their brother ; in Simon Peter after denial of his Lord ; in the fatal remorse of Judas, and in the case of Saul of Tarsus kicking against the pricks of conscience after the death of Stephen. The great crises of life arise when this Moral Imperative, called Conscience, issues one command, and self-interest, passion, or some outside authority issues another, and the individual has to decide which command is to be obeyed. What Conscience commands may be apparently against our material interests, contrary to our inclination, opposed by the advice of friends and popular judgment, and may even be contrary to the decrees of the ruling power ; yet it refuses to withdraw, or modify its claim.

The Utilitarian and Emergent theories, put forward to support the cause of Evolution, fail entirely to account for Conscience, for history records that men have, at the dictates of this moral force, chosen to act contrary to self-interest and inclination, and even to suffer torture and death rather than violate the judgment of Conscience. Further, when the human will is called upon to decide upon one of two courses in which a moral principle is involved, the individual becomes conscious, whether he professes to believe it or not, of his obligation to a Supreme Being, to whom he will be answerable, having power to approve a right decision and to inflict punishment for a wrong one.

Written Communications.

Lieut.-Colonel Davies, F.G.S., wrote : Dr. Morton's paper is most timely. The aspect of it to which I would draw attention—the doctrine of "emergent" deity—is, perhaps, a side issue of his main theme, the doctrine of "emergent" morals ; but the two are inseparable. Grant Evolution in the Darwinian sense, and not only must morals be supposed to "emerge" without the need of Divine causation, but man's present status must itself be regarded as a mere term in a still progressing series. If Darwinian Evolution be a fact, it must inevitable produce yet other things by "emergence" ; and since many of these new properties will presumably be higher than anything Man now possesses, just as many of Man's properties are higher than those of his Darwinian "ancestors"—ape, monkey, tarsius, marsupial, monotreme, reptile, amphibian, fish, etc., back to primordial fire-mist—what are we to call the

next higher stages, *above* Man, but God? So we must, if we are consistent Darwinians, look for God—perhaps with a little "g" to begin with—presently to "emerge" from modern Man.

This is significant, for Scripture definitely says that a superman, claiming to be God, will appear in the last days before our Lord returns to earth. Some people may think it strange that I, as a practical geologist, refer to such prophecies as claiming serious attention; but the fact is that work on fossil forms keeps the research student in contact with modern evolutionary doctrines regarding the same—and hence with anticipations of the future which are sometimes based upon those doctrines—and so (if he is also a Bible student) he is apt to notice the way in which modern thought tends to align itself with Bible prophecies 2,000 years old. When we are gravely told, by modern scientific writers, that a human being, as superior to ourselves as we are to Neanderthal man, may already have been born among us, it seems clear that the way is at least being prepared for the reception of such a being. And in days when the Bible is being ever more and more abandoned on all hands, and its laws set at naught, it seems equally clear that this superman need not be conceived of as a coming Puritan.

That no such superman has yet arrived is clear. Even a Mussolini does not fill the required "bill," either in Biblical expectations or in current secular ones. But the fact that secular science and philosophy are now tending to unite in teaching mankind at large to expect the arrival of a new and far more gifted type of human being, at a time when revolt against everything Biblical has become a commonplace, seems to endorse us in expecting a relatively near fulfilment of Biblical prophecies in this same respect. It does rather look as though mankind were being prepared to welcome the appearance of that long-foretold "Man of Sin," who is not only to "show himself forth, that he is God," but is also to substantiate his claims with "all power and signs and lying wonders, and all deceivableness of unrighteousness in them that perish."

The Scripture, I believe, cannot be broken; and it is generally the mocker at Scripture who does most to fulfil it. There is an element of humour about things when we find the most rabid opponents of belief in Bible Inspiration leading the way, to-day, in encouraging us to expect the most literal fulfilment of Bible predictions.

Mr. SYDNEY T. KLEIN wrote: We have to thank the writer for a clear exposure of the erroneous belief that the Moral Imperative of Man had its origin and subsequent development in the action of blind physical forces during the past ages of life's enfoldment on this earth. It is true that, in the middle of last century, the great advance in knowledge of the physical sciences tended towards a materialistic explanation of the Universe, but we have risen above this temporary phase, and a very large majority of earnest thinkers are now looking for a truer explanation of the origin of our surroundings.

The name "Evolution" is used in many ways by different investigators, and is applicable to Nature's process of development in plant and animal life, but Darwin has been saddled by his followers with statements foreign to the theory expounded by him. He confined himself to the physical aspect of life, and specially acknowledged the immeasurable gap between the unmoral consciousness of the lower animals and the Moral Consciousness of the human being. We are living in a world of "becoming"; all life is evolving, and its visible forms are built up from the same protoplasmic cell, which is the basis of life in all living bodies of both animals (including Man) and plants, and they all start their life journey from a minute cell, the lowest form of life on our earth and quite invisible to the human eye. . . . The problem of how sin could possibly appear in a world created by a Perfect Infinite Being, loses its paradoxical aspect when we realize that the Creator being infinite cannot be dominated, as we are, by the limitation of Time duration. The whole Creation must, therefore, be contained in *Now* of Reality. It is only our being forced to analyse it for our comprehension under finite powers of conception, that gives us the sensation of a long line of successive events, extending upwards from unconscious matter, through the awakening in plants, to physical consciousness in animals, the self-consciousness of Man, and ending in spiritual realization. These progressive stages, we, under Time limitation, call Evolution, and it is clear that in what we call the stage of purely animal nature there could be no evil or wrongdoing; it was the age of innocency, there being then no consciousness of right or wrong, good or evil.

It was through the gradual development of Spiritual Consciousness—helped so wonderfully by the advent of Christ, and in a

lesser degree by the coming into the world of every good man, which raised and is raising, the level of Moral Rectitude—that acts took on the aspect of sin, which was not there before. The evolution of the Good in us did not create sin, but gave it the appearance of reality to our narrow outlook when, as at present, the human race is still in its infancy and we are nearer to the imperfect animal nature than we are to the perfect spiritual.

We have still within us, by heredity, the lower propensities which we have to fight and control. These constitute the tricks and temptations of this life, which are given for our learning, by experience, to free ourselves from the imperfect and advance towards Perfection. . . .

Lieut.-Colonel F. MOLONY said: The lecture has done much to justify our claim to be the Philosophic Society of Great Britain. I should like to ask the lecturer a question regarding a Latin quotation, *Fiat justitia, ruat cœlum*, which I hear should be translated, "Let justice be done though the skies fall." I want to ask whether that is a quotation from a Christian or from a heathen author.* If from a Christian author, I suppose we ought hardly to use it in this connection, lest an atheistic evolutionist might reply "You claim that justice is one of the attributes of the God you believe in. So it is not surprising if you think yourselves bound to give justice in the scorn of consequences, for you trust in your God to overrule the result for good." If, on the other hand, the quotation is from a heathen writer, it admirably illustrates our lecturer's main argument, that the Moral Imperative is implanted

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* The saying, *Fiat justitia, ruat cœlum*, appears to be an abbreviated paraphrase of several passages in Cicero's *De Officiis*; such as "Justice which is always expedient," Book III, para. 96.

"The question raised in these cases is not whether moral rectitude is to be sacrificed to some considerable advantage (for that would of course be wrong). And so expediency gained the day because of its moral rightness; for without moral rectitude there could have been no possible expediency." Book III, para. 40.

Cœlum ruat is from "P. Terentius's *Heauton Timorumenos*," Act 3, line 719. Hence it seems that we may regard the saying as of heathen origin.

F. A. M.

by God, and not built up on utilitarian experiences: especially if the proverb admits of being translated "Do justice though it may cause the skies to fall." For the author evidently held that to obey the Moral Imperative is better than to safeguard mankind from the most awful consequences conceivable. This doctrine cannot be derived from any utilitarian source.

As to Emergent Evolution, I confess that I cannot comprehend how that idea can be twisted into an argument for disbelief in God.

Lecturer's Reply.

I find myself without need of any reply to our Chairman, to Colonel L. M. Davies, to Mr. Sidney Collett, or to Mr. George Brewer, except to thank them for their valuable contribution to a great subject. To Mr. Sidney T. Klein and to Colonel Molony a word of rejoinder must, however, be made.

Mr. Klein refers to the ambiguity of the word "evolution." We cannot be too precise in our use of words. We must define, and keep to our definition. Evolutionists greatly offend against this essential rule by their loose use of the word. Evolution is a word which belongs to the organic realm, and, as Professor Macdougall says, outside the realm of life the claim that evolution is at work is "a bare verbal formula, without meaning." Evolution is the Transmutation of "Species," just that and nothing else.

Mr. Klein speaks as an evolutionist, and Evolution holds that the various forms of life develop out of preceding forms, higher from lower. Yet he is prepared to surrender the reality of *Time* which he holds to be an illusion (I hope I do not mistake him) due to analysis of Creation by our finite powers giving to us the impression of successive events—whereas he says "the whole Creation must be contained in the *Now* of Reality." If this is true, then there is no such thing as Evolution: there is an illusive sense of *succession*, but there is *no derivation from preceding forms*. Hence I submit that Mr. Klein should not use the word "Evolution," or think along that line, or say "All life is evolving." Even in thought processes, order of the processes is a very different thing from the derivation of one thought out of another.

I accept, for human thinking, the ultimate reality of Space and

Time. If they are *not* ultimates to *God*, that is nothing to us. To us they are ultimates: and a philosophy based upon any other assumption is not a philosophy of our human life, but of some vastly different and quite imaginary world.

May I make a brief comment on Colonel Molony's final remark:—Emergent Evolution undertakes to show Nature sufficient, without God's intervention, to account for all that is. *How* she does it they do not pretend to show, but they do claim to show that she is sufficient. Emergent Evolution is more thorough-going than other Evolution. All Evolutions—the whole main line—bars out God. Emergent Evolution bars out also such concepts as Cause and Purpose. Let us not deprave our minds by any complicity with it.

770TH ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL, WESTMINSTER, S.W.1, ON MONDAY, MAY 8TH, 1933, AT 4.30 P.M.

The REV. ROBERT KILGOUR, D.D., IN THE CHAIR.

The Minutes of the previous Meeting were read, confirmed, and signed, and the HON. SECRETARY then announced the election of Walter Baxter Pender, Esq., as an Associate.

The CHAIRMAN then called on Sir Frederic G. Kenyon, K.C.B., D.Litt., LL.D., to read his paper on "Recent Developments in the Textual Criticism of the Bible" (including the recently discovered Papyri).

RECENT DEVELOPMENTS IN THE TEXTUAL CRITICISM OF THE BIBLE.

By SIR FREDERIC G. KENYON, K.C.B., D.Litt., LL.D.

THE object of this lecture is to give some account of the present position of research into the true text of the Greek Bible, with special reference to recent interesting discoveries in this field. In order to make these intelligible, it will be necessary to give a brief description of the problems with which the textual critic of the Bible has to deal. I should say at the outset that you are not to expect sensational revelations. I am glad that this is so. If I were to have to tell you that recent discoveries proved that the text of the Bible as we know it is fundamentally inaccurate, it might be sensational, but it would be profoundly disquieting.

Let me say at once that the questions with which we have to deal are questions of detail, not of fundamental beliefs. No doctrine of Christianity is endangered by them; on the contrary, in my judgment the new discoveries confirm the general integrity of our Bible text. It is only because it is a matter of such grave interest to know the exact words of the Scriptures which are

the foundation of our faith, that the textual criticism of the Bible is not merely the business of the specialist, like the textual criticism of Virgil or Sophocles.

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The nature of the problems that make up what is known as the textual criticism of the Bible is best explained to those who are unfamiliar with them by a reference to our own Authorized and Revised Versions. The Authorized Version, so far as the New Testament is concerned (and it is with this that I shall principally deal), was in the main a translation from an edition of the Greek text printed in 1550. This edition (commonly known as the *Textus Receptus*, or Received Text) was based on a comparison of a very small number of manuscripts (only fifteen in all), all but one of which (and that one was but slightly used) were written later than the year 1000. Before the invention of printing, every copy of the Bible was of course written by hand, which means that for nearly 1400 years no two copies of the Bible were exactly alike; for it passes human power to copy such an extent of text without making mistakes. Unless the greatest care is taken to eliminate the mistakes of scribes, the effect of such errors is cumulative. Old mistakes are repeated and new ones are introduced in each copy that is made. Moreover, we have to take into account deliberate alterations made, though they were with the best intentions. Especially in the early days, when the need was to propagate the sacred Scriptures in a readily intelligible form, when edification was the object rather than meticulous accuracy, many alterations were made with a view to removing obscurities, to harmonizing parallel narratives, and to producing a smooth and readable text.

The result of all this is that, speaking very broadly, the later in date a manuscript of an ancient work is, the less likely it is to have escaped corruption, and the Bible is no exception to this rule. It is true that we are now, thanks to the exertions of scholars during the last three centuries, far better situated in respect of the Bible than we are in respect of any other ancient book; for whereas in the case of most of the Greek classics we are dependent on manuscripts written fourteen hundred years or more after the date of their composition, for the New Testament we have manuscripts written within 250 years or even now (as I shall show shortly) less than 200 years later than the original texts. We have also enormously more manuscripts which can

be compared for the elimination of errors. But in 1550 this was not so, and consequently the Greek-printed texts which have been in general use until our own generation, and the Authorized Version which was translated from them, rested on the foundation of a few manuscripts written a thousand years or more after the books of the New Testament were written, and subject to all the chances and changes which beset such handwritten copies through the uncritical Middle Ages.

The Authorized Version had hardly been published (in 1611) when an event occurred which gave the first stimulus to a critical study of the text of the Greek Bible. This was the coming to England in 1627 of the celebrated Codex Alexandrinus, now in the British Museum, a magnificent copy of the entire Greek Bible, written probably in the first half of the fifth century. The study of this ancient MS. set on foot the search for and examination of all the extant copies of the Bible that could be found. For three centuries this search has now continued, until the number of those that have been listed, and at any rate partly examined, amounts to something like 5,000, in place of the fifteen used by Stephanus in 1550, and among these are some that go back to the fourth century (and, as we shall see presently, even to the third), instead of the eleventh century or later.

Now the examination of these hundreds and thousands of copies brought scholars before long to make an important observation, namely, that while the great mass of manuscripts showed substantially the same text, with only quite minor variants and scribal errors, a small minority, including most of the earlier ones, showed differences which could not be overlooked. This impression was intensified when, in the nineteenth century, two manuscripts older than the Codex Alexandrinus came to light. One was the Codex Vaticanus, which had long been in the Vatican Library, but had never been properly examined; the other was the Codex Sinaiticus, discovered by Tischendorf in the monastery of St. Catherine on Mount Sinai in 1844, and brought to St. Petersburg in 1859. Both of these could be assigned to the fourth century; both had texts with many differences from that generally received, and both often agreed with one another in such differences. Their publication greatly strengthened the conviction of scholars that the Received Text of 1550 needed revision if we were to arrive at the original text of the Greek Bible.

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The position, then, at which scholars had arrived in the third quarter of the nineteenth century was that over against the great mass of later manuscripts containing substantially what was known as the Received Text must be set a small number of earlier authorities (with a few later copies which retained, more or less, texts of the same type), which seemed to represent an earlier stage in the history of the Bible. This view was powerfully reinforced when it was shown that the quotations from the New Testament in the earliest Christian Fathers were all in conformity with this minority rather than with the majority. The protagonists in this argument were the English scholars, Westcott and Hort, and when the general perception of the necessity of a revision of the Received Text had led to the formation of a committee to revise the Authorized Version, these two were the leaders in its deliberations. The result was seen in the Revised Version which appeared in 1881 (N.T.) and 1885 (O.T.); and if anyone asks what is the subject-matter of Biblical textual criticism, the best answer is to ask him to compare the Authorized Version with the Revised, taking special note of the further crop of various readings which are given in the margin of the latter. Where the difference is only one of translation, it can for our present purpose be ignored, and I should be far from saying that I think the Revisers were always right; but where the difference is in the Greek text translated, it represents the result of the discovery of the earlier authorities, unknown to the editor of 1550 or the translators of 1611.

Westcott and Hort, in the Introduction to the edition of the Greek New Testament which they produced simultaneously with the Revised Version of 1881, classified the original authorities (consisting of manuscripts in Greek and ancient translations into other languages) into three principal groups, to which they gave the names of *Syrian*, *Western* and *Neutral*. The Syrian group comprised by far the largest number of our manuscript authorities. It is supposed by them to have originated in a revision made early in the fourth century in or about Antioch in Syria, which subsequently spread universally throughout the Byzantine Church, so that it became the accepted text of the Greek world. It is sometimes called the Byzantine text, which is, perhaps, the better term, since the place of origin is not really known. The characteristics of the Syrian text are an attempt to produce a smooth and readable text by the removal of obscurities, the insertion of pronouns and other expletives, and the substitution

of familiar phrases for those less familiar; also, in the case of the Synoptic Gospels, a certain amount of harmonization of parallel narratives, and the transference of phrases from one to another. This revision does not seem to have been accomplished at one time, but rather to have been a process continued over a long period. It is found in an early stage in the Codex Alexandrinus and the Peshitto Syriac version, both of which probably belong to the first half of the fifth century; but the form which finally dominated the Byzantine Church seems to have been reached about the tenth century.

Over against this mass of later authorities is to be set a much smaller number of earlier witnesses, and these fall into the two groups designated by Westcott and Hort as *Western* and *Neutral*. The Western group is so called because its principal representatives are the Codex Bezae, a manuscript of the fifth century with Greek and Latin texts in parallel columns, and therefore probably produced in the West, and the Old Latin version, the origin of which probably goes back to the second century. Its most primitive form appears to have circulated in the province of Roman Africa, and a modified form of it in Europe; and it was by a revision of this with the help of Greek manuscripts that Jerome produced the Vulgate, which from the fifth century onwards dominated the Western world and is still the Bible of the Roman Church. The outstanding characteristic of the Western text is a very free departure from all other authorities. These variations do not appear much in the Vulgate, since Jerome relied largely on Greek texts of another character; but in the Old Latin, the Codex Bezae and certain other manuscripts they are very marked. They include both omissions, such as an abbreviation of the account of our Lord's entry into Jerusalem, and the omission of the greater part of the narrative of the institution of the Lord's Supper and all express mention of the Ascension in St. Luke; and additions, such as a long passage after Matt. xx, 28, the rebuke to the sons of Zebedee in Luke ix, 55 (which otherwise appears only in quite late authorities), an additional incident of a man working on the Sabbath day in Luke vi, 5, an introductory passage before the Lord's Prayer in Luke xi, 2, and a remarkable phrase in Luke xxiii, 53, where Joseph is said to have laid on the sepulchre a stone which twenty men could hardly move. But still more this text is marked by free variations in phrases, which it is impossible to enumerate. They are most plentiful in Luke and Acts, so much so that some

have thought they must represent a revision by the author himself; but variations of the same kind occur, though less plentifully, in the other Gospels.

Finally, there is the Neutral text, represented principally by the great Codex Vaticanus of the fourth century, largely supported by the Codex Sinaiticus, of about the same date, and by a small group of other manuscripts, mostly imperfect, and by the Coptic versions. This text shows none of the vagaries of the Western type, while it is free from the smoothing and harmonizing process characteristic of the Syrian type. It is generally rather shorter than the others, and less polished. In the eyes of Westcott and Hort (and of other scholars also), it has the characteristics of a text which has suffered little or no editorial revision. Like every other manuscript, the Vaticanus contains many scribal errors, but, if these are removed, it stands out, in their judgment, as by far the best authority for the original text.

Now, if the choice lay only between the Neutral and the Syrian types of text, the problem would be a simple one. The cornerstone of Hort's argument is to be found in the fact that quotations showing the use of the Syrian type are not found in any of the early Christian writers before Chrysostom (about A.D. 350); and no subsequent investigation has invalidated this argument. The Syrian type is therefore shown to be relatively late in origin, and also to have, as compared with the Neutral, many of the marks of editorial revision. As between the Neutral and the Syrian, therefore, the choice must in the main go to the former; and this is, broadly speaking, the difference between the Authorized Version and the Revised. The Authorized Version was made from a wholly Syrian text; in the Revised, primary authority was given to the Neutral. When, therefore, a difference between the A.V. and R.V. is due to a difference in the text translated, it may generally be assumed that this represents a difference between the Syrian and the Neutral types of text.

When, therefore, on the publication of the Revised Version, it was attacked on the ground of the Greek text translated (as it was by Dean Burgon), the controversy was, in the eyes of scholars, quickly decided. It could be shown that the Revisers had only followed the established method of scholars dealing with an ancient text, in preferring a few early witnesses to a multitude of later ones, and that the evidence of the Fathers as to the secondary character of the Syrian type was decisive.

Unfortunately, the matter did not end here; for it was clear

that, so far as the evidence of the Fathers was concerned, the Western text had at least as strong a claim to acceptance as the Neutral. Nearly all the earliest Christian writers show, in their quotations from the Scriptures, readings characteristically Western; not only Cyprian, Justin, Irenæus, and Tertullian in the West, but also Tatian and Aphraates in Syria and Clement of Alexandria in Egypt.

The problem of textual criticism, therefore, during the last fifty years has been the investigation of the Western and Neutral types of text; the great mass of later witnesses being comparatively neglected, except for the search among them for manuscripts which have, to a greater or lesser extent, escaped the general Syrian or Byzantine revision. To this search results of considerable importance are due.

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Now during these fifty years several discoveries have been made of new manuscripts; and it is evidently of the first importance to consider how they fit in with the classifications and theories of Westcott and Hort; for they were unknown to those scholars, and therefore supply a crucial test of the soundness of their views. I will enumerate, quite briefly, the most important of these, and trace the development of textual theory during the last generation.

The first discovery was that of the Sinaitic palimpsest of the Old Syriac Gospels in 1892. Previously the Syriac version of the Gospels which preceded the standard Peshitto version, made by Bishop Rabbula in the first quarter of the fifth century, was known only in the Curetonian manuscript in the British Museum. The Sinaitic MS. plainly contained the same version in a somewhat earlier form, and did much to establish our knowledge of that version. Now the importance of the Old Syriac versions is that it has something of the same character as Codex Bezae and the Old Latin. It is pre-Syrian and non-Neutral; in a number of passages it agrees with these Western authorities; and it has a number of other additions, omissions and variations of the same character. On the one hand, therefore, it seemed to be an additional witness to the Western text; but on the other it showed that the Western text was not solely Western in distribution, and that it was very far from being homogeneous. These are very important elements in the problem with which we are dealing.

Next, in 1906, Mr. Charles L. Freer, of Detroit, acquired in Cairo a group of four Biblical manuscripts on vellum, two of the Old Testament and two of the New. For our present purpose the important one is a copy of the four Gospels, written apparently in the fifth or late fourth century, with the first quire of John added (no doubt to replace a lost or damaged sheet) in the seventh. This at once attracted attention through its inclusion, after Mark xvi, 14, of a plainly apocryphal passage, partially known already through an allusion by Jerome; but its whole text proved worthy of study. It was not of one character throughout, and had plainly been copied from different manuscripts. This is very natural, for in the first two or three centuries of the Church books were written, not in volumes of the kind with which we are familiar, but on rolls of papyrus; and a papyrus roll could not contain more than an amount of text equivalent to one of the Gospels. Hence the Gospels must for some time have circulated in separate rolls, and when a scribe in the fourth or fifth century came to transcribe rolls of the four Gospels into a single codex (as the modern book-form is called), he might easily have four rolls of different textual character. So it evidently was with the Freer or Washington Codex. In Matthew, and in Luke from viii, 13, to the end, its text is of the ordinary Syrian or Byzantine form; in John (except for the supplementary quire at the beginning) and in Luke i, 1 to viii, 12, it is Neutral in character; in Mark i, 1 to v, 30, it is akin to the Old Latin version, *i.e.* it is Western; and in the rest of Mark it is something different from all of these. Now in the course of the intensive study of the minuscule manuscripts of the Gospels (*i.e.* manuscripts in the small current script which from about the ninth century onwards superseded the large uncial or capital writing previously in use in vellum manuscripts), two small groups had been isolated as containing texts of a rather unusual character. The first of these was known as the Ferrar group, from the name of its discoverer, or Family 13, from the number of the first manuscript of the group in the current register of Bible manuscripts. The second was similarly known as Family 1. Each group consisted of four manuscripts, though other relatives were identified later. All of these had been partially brought into conformity with the standard Byzantine text, but only partially; they retained, in greater or less measure, readings which were not of the Byzantine type, but showed affinities, especially in Mark, with the Old

Syriac. In other cases they show interesting agreements with Neutral or Old Latin authorities. So long as they stood alone, a parcel of relatively late manuscripts did not appear to carry much weight, or to add much to the authority of the earlier witnesses with which they agreed ; but it was decidedly interesting to find that the Washington Codex in the greater part of Mark appeared to belong to the same class.

Then, in 1913, the text was published of a manuscript from an out-of-the-way part of the world, known as the Koridethi Codex, from the name of a monastery in the Caucasus, to which it had once belonged, or Θ, from the letter assigned to it in the register of uncial manuscripts. It was late in date, probably not earlier than the ninth century, and uncouth in appearance ; but it aroused interest when it appeared that its text had much in common with Families 1 and 13. This fact, taken in conjunction with what has been said about the Washington MS., shows that a number of separate lines of investigation were appearing to draw together, and to constitute a new element of some importance in the textual history of the New Testament.

The time was now ripe for an interpretation of these new facts and combinations. This was supplied in 1914 by Canon B. H. Streeter, in his remarkable book, *The Four Gospels*, which brought together and interpreted a good deal of work that had been done by textual scholars in the previous generation. It showed that Θ and Families 1 and 13 constituted a distinctive group, with affinities to the Old Syriac version, and also with the Georgian and Armenian versions, which themselves were originally derived from the Syriac. But his important discovery was that the great scholar Origen, in the latter years of his life, which he spent at Caesarea in Palestine, habitually used a text or texts of this character. He claimed, therefore, that this type of text might rightly be called Caesarean and associated with the great name of Origen, which would at once give it great weight in the field of textual criticism. Streeter went even further than this. An examination of Origen's *Commentary on St. John* showed him that in the first ten books of this work (which contains many quotations from the other Gospels) Origen used a text of Mark of the Neutral type, while in the remaining books he used one of Caesarean type. Now it is known from an express statement by Eusebius that Origen began this work in Alexandria and finished it at Caesarea, to which place he migrated in A.D. 231. Hence he concluded that at Alexandria the MSS.

at his disposal were of Neutral type, while at Caesarea they were of this new type, to which the name of Caesarean could rightly be given.

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So far, so good; but further investigation modified and complicated the story. Professor Kirsopp Lake, formerly of Oxford and now of Harvard, showed that Streeter's history was not quite accurate. It is true that the first ten books of Origen's commentary show the use of a Neutral text; but only the first five of these, according to Eusebius' explicit statement, were written at Alexandria. Moreover, in these five books the quotations from Mark are so few that it is difficult to be sure what text he is using; according to Lake, it may quite as well have been Caesarean as Neutral. Therefore the actual facts are that Origen may have used a "Caesarean" text in Alexandria; that he certainly used a Neutral text at first in Caesarea; and that he subsequently reverted to, and thenceforward habitually used, a Caesarean text. It is therefore quite legitimate to use the term "Caesarean"; but the question arises, Did Origen know this text already in Alexandria, and did he perhaps himself bring it to Caesarea? Did the Caesarean text actually originate in Alexandria, or, at least, were there elements there from which the Caesarean text was formed?

It was at this interesting stage in the discussion that the last great discovery of new evidence was made, that which is known as the Chester-Beatty papyri, the existence of which was made public towards the end of 1931. They consist of portions of twelve manuscripts, eight of which contain parts of nine books of the Old Testament, while three contain parts of ten books of the New, and one has the last eleven chapters of the lost Greek original of the apocryphal book of Enoch and part of an unidentified Christian homily. They are interesting on account of their early date, their external form, and their contents. Most of them are probably to be assigned to the third century; one is almost certainly of the second; three, or perhaps four, seem to be of the fourth. Though all are written on papyrus, they are not rolls, but codices, and therefore are a final proof of what was previously coming to be realized, that the Christian community made preferential use of this transitional form of book, the papyrus codex, at a time when the papyrus roll was still predominantly employed for pagan literature. This is a fact of some importance; for among them are extensive remains of a

codex which contained all the four Gospels and the Acts. Consequently we now know that in the third century the four Gospels could at any rate sometimes be known as a single unit in a single volume, instead of circulating only in separate rolls. Such a practice, of course, facilitated the marking off of the four Gospels as the accredited record of our Lord's life, as distinct from the various apocryphal Gospels which are known also to have been in existence. Another manuscript apparently contained all the Pauline Epistles (including Hebrews), except the Pastorals.

There is not time to describe all the manuscripts in detail, and my main subject is the Gospels. Of the Old Testament I will therefore only say that all the manuscripts are more or less mutilated, but that all except one (half a leaf of Jeremiah) are sufficiently extensive to give us an idea of the character of their text. Two of them contain Genesis, one having about two-thirds of the book, the other about one-third. One contains large portions of Numbers and Deuteronomy; one, some scattered fragments of Isaiah; one has eight leaves each of Ezekiel and Esther; one, thirteen imperfect leaves of Daniel; and one a leaf and a half of Ecclesiasticus. Of these the most important are the Numbers and Deuteronomy, which seems certainly to be of the second century, and therefore is the earliest extant manuscript of any portion of the Greek Bible, and the first example of the use of the codex form of book; and the Daniel, which contains the original Septuagint form of this book, previously known only in a single much later copy, all other copies of Daniel in Greek having the version of Theodotion, which at an early date superseded the Septuagint in general use.

Of the three New Testament manuscripts, one, as already mentioned, originally contained the four Gospels and the Acts. The second contained the Pauline Epistles; of this ten leaves survive, containing a considerable quantity of Romans and smaller portions of Philippians, Colossians, and 1 Thessalonians. The pages are numbered, and thereby the other contents of the manuscript can be calculated. The third, consisting likewise of ten leaves, is the middle third of Revelation. Naturally it is the Gospels and Acts MS. which attracts the most attention. It is here that the textual problem is most important and most intricate. Here is a manuscript, or at any rate a substantial portion of a manuscript, about a century older than the oldest authority on which we have hitherto depended, the Codex

Vaticanus. What light does it throw on the problems which I I have been trying to state to you ?

The manuscript consists of thirty leaves (that is, sixty pages), all more or less mutilated, out of an original total of 110. All five books are represented, but Matthew only by small portions of four pages. Of Mark there are twelve, far from complete, though six are of substantial size. Luke is in better case, for there are fourteen pages, in nearly all of which the full width of the writing is preserved, though some lines are imperfect or lost on the top or bottom of the page. Of John there are two pages complete in width and about two-thirds complete in height, and two of which only about half is preserved. Of Acts there are twenty-six pages, though none is so complete as the best of Luke and John. All in all, one is able to say that, except in the case of Matthew, enough of the text is preserved to enable us to determine the character of the text.

Each book must be examined separately; for, as already explained, each may have had a different textual lineage. One turns first to Mark; for on the text of this book more work has been done in recent years, and more manuscripts exist in which pre-Syrian texts, or traces of them, have survived. This is probably due to the fact that Matthew and Luke, being fuller and containing more of our Lord's teaching, were more frequently read and copied, and were therefore more liable to be affected by the mistakes of scribes, by deliberate assimilation, and by alterations which aimed at producing a full and readable text. Now in Mark the striking fact emerges that the papyrus ranges itself distinctly with the Caesarean text rather than the Neutral or the Western, and decidedly more than with the Syrian or Received Text. The manuscript with which it shows the greatest amount of agreement is the Washington MS.; next to this, Families 1 and 13 and the Koridethi MS. After these come, in order of agreement, the Alexandrinus and Codex Bezae, and last of all the champions of the Neutral text, the Vaticanus and Sinaiticus.

The other Gospels show different results. In Luke the papyrus agrees predominantly with the Vaticanus and its later adherent known as the Codex Regius or L. Next to these comes Codex Bezae, then the Sinaiticus and Families 1 and 13. The Washington and Koridethi MSS. in this Gospel are mainly Byzantine in character, and consequently get much less support. Whether the papyrus represents the Caesarean text is uncertain,

and must await a comparison of it with the quotations in Origen and Eusebius. All that can be said provisionally is that it stands about midway between the Neutral and Western texts. On the whole it is rather nearer the former, but it has a considerable number of readings characteristic of the latter. It is, however, significant that while it has many readings for which the main support is Western, it has none of the more striking and serious Western variants, which are so numerous in this Gospel. In John the position is much the same; the papyrus is again about midway between Neutral and Western, but this time the evidence is slightly in favour of the latter. In Acts the papyrus is definitely more Neutral than Western, and has none of the marked variants which are particularly characteristic of the Western text in this book.

The general result would therefore seem to be that the papyrus gives no support to the Syrian or Received Text; that is strongly Caesarean in Mark, possibly also in Luke and John, but that is uncertain for the present; that its support is about equally divided between Neutral and Western, but that it gives no countenance to the more strongly marked variants of the latter.

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What conclusions, then, may we draw from this new evidence as to the character and history of the Neutral and Western texts? In what sense is the former really Neutral, and in what sense is the latter really Western? Let us take the problem of the Western text first. The papyrus seems to show that readings of the type called Western were current at an early period in Egypt, as well as in other parts of the world, and that in this sense the Western type was not confined to the Latin Churches, but was prevalent also in those of Syria and Egypt. But it would be a great mistake to extend this admission to those wider divergences which most attract attention in the Codex Bezae and the Old Latin version, or again those which are found in the Old Syriac. The truth is that the term "Western" is wholly misleading. As used to cover all early readings which are not in the Neutral text, it is not a unity at all. There is no uniformity in the support given to the readings which are lumped together as "Western." Sometimes the support is Latin, sometimes it is Syriac; often both Latin and Syriac witnesses are divided. The extremists, as they may be called, Codex Bezae and the African Old Latin, often stand alone. In twenty-

seven important readings of the Old Syriac, it agrees sixteen times with the Vaticanus and only five times with Codex Bezae; it agrees five times with the Old Latin, but disagrees seventeen times; in seven instances the Old Syriac evidence is divided; in five instances the same happens with the Old Latin evidence. Again, in a single chapter of Luke in which readings of the "Western" type are rather numerous, the principal variants are found only in Codex Bezae and the African Old Latin; the European Old Latin has several variants of a less pronounced kind; the Old Syriac almost always agrees with the Neutral.

All this shows that the so-called Western text is not a text at all, in the sense that the Neutral and the Caesarean, and even the Byzantine, may be called texts. It is a mistake to try to subsume under a single head the various forms of Old Latin, the Old Syriac, and the non-Neutral readings found in Egypt. It may be possible to envisage a truly Western text, preserved (though with much variation) in the Latin authorities; but it would often be opposed by the Syriac authorities, and while it would receive sporadic support for certain of its readings from the Egyptian evidence, this would very seldom occur in respect of its more important variations. And some other explanation or designation must be found for a large number of readings for which there is early support, which have hitherto been swept together under the category of "Western."

If then the new papyrus makes a material contribution towards the disintegration of the Western text, it does not leave the position of the Neutral unaffected. It confirms the conclusion, to which previous discoveries of small fragments of early papyrus manuscripts had pointed, that the texts circulating in Egypt were by no means wholly of the Neutral type. A similar conclusion may also be drawn from the Sahidic or Old Coptic version. While the later Coptic version, the Bohairic, may be definitely classed as Neutral, the Sahidic has a considerable sprinkling of readings which have been regarded as Western, but may perhaps be more truly interpreted as non-Neutral readings current in Egypt. It is also now fairly clear that the Caesarean text had at least strong roots in Egypt. The Neutral text is therefore only one of the texts of Egypt; it may be the best, but it does not represent the uniform testimony of a country. It is also becoming increasingly difficult to regard it, and the Codex Vaticanus in particular, as a text untouched by editorial revision, as was held by Hort and others. Its very uniformity is against

it. It is improbable that, except by careful selection, a number of distinct papyrus rolls, all of the same textual character, could have been brought together to serve as its ancestors. A single editorial mind, judging between alternative readings in an austere critical spirit, seems to be required to account for this uniformity.

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What, then, is the picture which this new evidence, or, rather, the application of this new evidence to the old material, seems to give us of the history of the New Testament books, and especially of the Gospels, during the century or two that followed their composition? We must bear in mind the circumstances of the time, and the methods of book-production. There were no complete New Testaments. There was no Christian book-trade, issuing from an authoritative centre certified copies of the Christian Scriptures. Each Gospel, the Acts, the Apocalypse, each Epistle or small group of Epistles, circulated separately in separate rolls. Not every local church would possess a complete collection; it had not indeed been determined what a complete collection was. We must imagine a local church, hearing that a neighbouring community had got a copy of a certain book, borrowing it and making a copy of it, as best it could, without much guarantee of precise accuracy and with little or no opportunity for comparison with other copies.

Nor is it reasonable to expect a high standard of literary conscientiousness or scholarship. The Gospels were not regarded as the literary compositions of Mark or Luke, but as the records of the life of the Saviour. A copyist might have qualms about altering or adding to the words of Sophocles or Plato, but he would not be thinking of the literary style of Mark or Luke. If he could smooth away roughnesses or obscurities of phrase, if he could make the meaning clearer by the insertion of a name or a pronoun, if he could harmonize different descriptions of the same event, even if he could add a detail to the narrative, he could do so in the belief that he was doing, not harm, but good service. The Gospels have come down to us, in their earliest stages, not, as the classics have, through the tradition of great libraries, but from the uncorrelated efforts of a multitude of copyists in small places as well as large, over the face of the earth, working with little opportunity of comparison, and with much danger from time to time of the destruction of copies, and

especially of the official copies belonging to churches, in periods of persecution.

During the first century or so, therefore, after the original production of the books of the New Testament, it is reasonable to suppose a large production of copies in conditions which led to the creation of a large number of variants, mostly minor ones, but some major. Such control as came gradually to exist would be local, not central or general. It would principally exist in the larger centres, the seats of bishoprics, which might be expected to exercise some influence over the surrounding districts. Hence local texts would spring up, and different types of text might become characteristic of different districts, between which there would be no great amount of communication. In the principal centres, such as Alexandria, Antioch, Edessa, Jerusalem, Ephesus, Rome, Carthage, and so on, there would be more opportunity of comparison and revision, and copies would be sought from them by the surrounding churches. In this way it is easy to envisage the emergence of types of text which would be identified with Egypt, Syria, Palestine, Italy, Africa and perhaps Greece and Asia Minor, though we know at present of no text that can be identified with these latter countries.

As time went on, we can suppose that more systematic attempts would be made to reduce the variety of texts to some sort of order. Here we reach the stage of deliberate editorial revision. But editors might quite naturally proceed on very different lines. One editor might aim at making his text as full as possible, incorporating all readings that he found, perhaps including incidents or phrases for which he found some evidence, adding words from one evangelist to the narrative of the same event in another, and so on. Another, without treating his text so freely, might aim at making his text as easy and as edifying as possible, and would either make minor stylistic alterations himself, or at least select from the alternative readings before him those which he thought would give the smoothest and most intelligible text. A third, with more of the training of a scholar, would aim at getting as near as possible to the original words of the authors, applying the same canons of textual criticism as he would if he were dealing with the text of Plato or Thucydides. Such an editor would produce an austere text, pruning away just those additions which an editor of the other type would insert, and tending to choose the rougher and less obvious readings, as

more likely to represent an original which scribes or editors had sought to improve.

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This seems, in briefest outline, to be the most probable explanation of the various types of text with which we have been dealing. The Western text seems to be the result of the freest method of editorial handling, in which sentences have been added, omitted or altered according to the judgment of an editor who was not afraid of taking liberties. The Neutral text, on the other hand, appears to be the work of a more scholarly and conscientious editor, who has aimed, to the best of his ability, at putting together an accurate and authentic text. It is in Egypt, and above all in Alexandria, that we should naturally expect to find such a text, since Alexandria was the home of scholarship, where the principles of textual criticism were better known and respected than elsewhere in the Greek world. Hence it is natural that the principal representatives of the Neutral text, the Codex Vaticanus, the Codex Sinaiticus, the Bohairic and Sahidic versions, should all be referable to Egypt. It was not the only text known in Egypt, as the evidence of the papyri shows; but it may well be the result of conscientious editorship working on the materials which Egypt could provide, in a great centre of scholarship.

The Caesarean text also, so far as it is yet known to us, would seem to be the result of scholarly work. It has none of the extravagances of the Western text, but its choice among the various readings that lay before its editor has sometimes fallen on readings which the Neutral editor rejected but the Western editor retained. Which is right in such cases it is impossible to say with certainty. In trying now, in this twentieth century, to recover the authentic form of the sacred books, an editor in the last resort has to depend to some extent on his own judgment. He may select one manuscript (such as the Vaticanus), or one family of text, as generally to be preferred; but all our evidence, in respect of classical as well as sacred literature, goes to show that it is not permissible to depend on one witness alone, and that the best manuscript is not right in every case. While, therefore, I believe that Hort's conclusion is in the main right, that the Neutral is on the whole the best type and the Vaticanus the best single manuscript, I believe also that a more open mind must be kept with regard to other early readings, such as occur

in the Caesarean text, and that in dealing with the Latin and Syriac texts, while their wilder variations have no sufficient authority, we may yet find readings worthy of acceptance. The minor variations, if in themselves acceptable, do not accredit the more extreme ones; but neither should the inacceptibility of the major variations altogether discredit the minor ones. We have to try to see our way back to the materials which lay before the Western editor, and to separate the grain from the chaff.

To sum up, therefore, the main results of the discovery of the Chester-Beatty papyri, and especially of the Gospels MS., I would say that in the first place it materially advances the disintegration of the Western text, showing that it includes both a specifically Western edition, in which the text of the Gospels and Acts was handled very freely, and a large number of minor early variants which are not Western more than they are Eastern or Southern, but are due to the conditions under which the sacred books were copied in the earliest generations of their existence. Next, it materially strengthens our knowledge of the Caesarean text, and shows that it is both early in date and sober in character. Finally, it strengthens our confidence, by evidence of an earlier period than we hitherto possessed, that the text of the New Testament, while still open to doubt as to many minor details, has yet come down to us in a trustworthy and substantially authentic form. The providence of God, while not exempting it from the conditions which attended the transmission of all ancient literature, and while leaving to us the duty of using our best faculties to ascertain its correct form and its true interpretation, has yet guarded it from serious loss and corruption; and the result of all criticism is to assure us that we can use it with the fullest confidence in its authenticity.

I would only warn you, in conclusion, that, in speaking of the Chester-Beatty MSS., I have been giving you only the results of the study of a single individual. The texts of these MSS. have not yet been published, though I hope that the publication of the Gospels and Acts papyrus is imminent. Other scholars, therefore, have not yet been able to examine them, and it may be that they will modify or extend my interpretation. All that I have been able to do is to give you, to the best of my ability, a first survey of the new material which has so fortunately been brought to light.

The CHAIRMAN (Dr. R. KILGOUR) moved that the best thanks

of the meeting be given to Sir Frederic Kenyon for his very instructive lecture; and the same was seconded by Mr. Sidney Collett and carried with acclamation. Mr. W. Hoste, B.A., followed with a few remarks on the classification of well-known uncial MSS. and related questions.

771ST ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL, WESTMINSTER, S.W.1, ON MONDAY, MAY 22ND, 1933. 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 election of Albert Hooper, Esq., B.Sc., as a Student Associate.

The CHAIRMAN then called on Mr. G. F. Claringbull, B.Sc., who, in the absence of the author, had kindly consented to read Professor Albert Fleischmann's paper on "The Doctrine of Organic Evolution in the Light of Modern Research."

THE DOCTRINE OF ORGANIC EVOLUTION IN THE LIGHT OF MODERN RESEARCH.

By DR. ALBERT FLEISCHMANN, GR., Professor of Zoology and Comparative Anatomy in the University of Erlangen.

The Obsolete Roots of Darwinism.

THE earth, with its living creatures, is an indescribably great wonder. The more it is investigated in search of its secrets, the less comprehensible does it become. Yet our contemporaries, especially of the younger generation, have been taught to regard the riddle as solved. They believe that the animal kingdom has, by the natural selection of fortuitous little improvements during millions of years, reached ever greater and greater perfection. Following Charles Darwin, they regard all animal groups as branches of one gigantic tree. Few of them realize that this idea of Evolution belongs to the days of our grandfathers and great-grandfathers, while its roots pertain to the middle of the eighteenth century and stretch back to G. Leibniz. It is precisely for this reason, however, that the theory suffers from grave defects, which are becoming more and

more apparent as time advances. It can no longer square with practical scientific knowledge, nor does it suffice for our theoretical grasp of the facts.

The manner in which the doctrine of organic evolution has fallen behind during the progress of events may be seen if we briefly review the growth of zoological knowledge. About two hundred years ago, K. Linné gave zoology its fundamental principles. A hundred years later (1831) Charles Darwin concluded a three years' tour round the world, returning to England with a rich store of new observations, and the rudiments of his theory, which, some thirty years later (1859), roused a delirium of enthusiasm in scientific circles, and finally afforded to the wider circles of both educated and uneducated society the illusion of a revelation of natural science.

Linnæan Classification.

Linné's principles of research are so simple and clear that they have unquestionably served to guide the work of all subsequent generations up to the present time. He insisted, in the first place, that statements should be limited to matters of actual fact, all play of the imagination being avoided. His second principle is implied by the title of his work (1735), named *Systema animalium*; for he held that the study of animals is facilitated by their proper arrangement—that is, by their synthesis (or grouping together) into genera, families, orders and classes, and their antithesis (or separation apart) into unlike animal groups. These two principles have served zoology throughout its great development during the last two hundred years. They have enabled the pupils of the great master to classify systematically not only the species known in his day, but also the vast numbers which have since been discovered; so that the arrangement of animals according to his system remains to this day the standard method of registering all special knowledge which we have acquired in regard to them. Anyone who would pass judgment on the correctness or otherwise of the doctrine of Evolution, must first master the details of this arrangement. For most of the laity such a task is impossible to undertake, owing to the colossal dimensions to which this classification has now attained. The first edition of his work, compiled by the youthful Linné, dealt with 560 animal species. After a century (1830), some 30,000 were included; and now, after another century (1933), about

a million species. This fundamental work underwent a sudden expansion at the close of the first hundred years, owing to the recognition of fossils—which had long been known, but disregarded as *Lusus naturæ*—as the remains of once living types. They then had to be inserted in their proper places, among still living types, in the Linnæan system; and this gave new work to naturalists, and led to manifold observations being made on the characters of many strange animals which once lived on this earth in countless numbers.

Darwin's Dream.

Charles Darwin's youth was passed during the early years of this great expansion, and he received from it a strong impression which mastered his whole thought. He expected to find, in fossil types, much information regarding the origin of living things. He regarded fossil species as the ancestors of living ones, and dreamed of a *genealogical tree* embracing all species of animals, both past and present.

This fascinating dream has not, however, been confirmed by later discoveries, for the fossil fragments of extinct types are limited to their harder parts (bones, teeth, shells, etc.), while the softer parts have almost always been entirely lost. Hence the increasing mass of palæontological discoveries has only served to multiply our problems and emphasize our ignorance during the second hundred years, at the same time that increasing knowledge of the soft parts of living species, and of their minute structure, attained unexpected dimensions, and swept away the ground from beneath the feet of the evolutionists. Charles Darwin lived in a day when few people realized the value of detailed anatomical research in regard to Linnæan groupings of creatures; he consequently acquired comparatively little knowledge of anatomy, and never heard of modern anatomical methods.

The Progress of Anatomical Research.

Indeed, during the first hundred years of zoological work, anatomy had only played a subordinate part. Linné and his contemporaries had studied the outer appearance of the animals of their own and foreign countries, and arranged them according to similarities in such matters. Hence the early classifications were often based upon striking peculiarities of form, and single

superficial features; study of the inner structure of the animals concerned being left severely alone. One might almost say that there was a general aversion to anatomical research at that time, although the great anatomist G. Cuvier (1769–1832) had insisted, soon after the death of Linné, that classification should be based upon internal details as well as on external ones. His chief supporters were found among students of human anatomy.

A revolution in methods during the second hundred years has succeeded in raising anatomical knowledge to the high status which it holds to-day. This is realized by experts, although the general public knows little about it. Hence few adherents of the doctrine of evolution realize how incompatible their shibboleths are with the leading modern concepts of animal anatomy.

A hundred and fifty years ago, detailed anatomical work was restricted to the study of the human body, and not extended to zoology in general. Instructions given to doctors of medicine was mainly in accordance with the syllabus drawn up by A. Vesalius (1514–1565) in 1543, which spoke of such organs as Bones, Ligaments, Muscles, Blood-vessels, Nerves, etc. Such a classification, based upon the structure of the human body, could not be utilized by zoologists in general, who had to deal with very different types of animals (Insecta, Crustacea, Echinodermata, Vermes, etc.). Cuvier had emphasized this fact in 1804, when he distinguished four main types or *phyla* of animals (Vertebrata, Articulata, Mollusca and Radiata). Only the first phylum* (Vertebrata) contains creatures whose structure is comparable with that of man; the other three phyla differ from it fundamentally. In spite of this, for many decades, the results of research in animal anatomy were still tabulated according to Vesalius's arrangement of organs. Ultimately, the latter was abandoned; but not until a great increase in knowledge had led to seeming correspondences being better understood, and anatomical divisions being more scientifically defined—and before this could happen, the whole technique of anatomical research had to be fundamentally altered and refined.

The New Methods and Concepts.

If one desires to study the inner constitution of animals, one can only do so by dissecting, or progressively dividing up their bodies, which resemble intricate shrines, until one resolves them

* *See* Note, p. 209.

into many separate parts, and finds that they appear to be composed of separate organs. This dissection of bodies is so essential to their study that the whole process of research work on them is briefly termed a "Cutting up" (Anatomy). In place, however, of methods of dissection which had been followed from very ancient times, new processes and instruments were introduced during the second hundred years (1830–1930). At first there came the dissection of frozen bodies by means of a saw into what were still comparatively thick longitudinal and transverse sections; then followed an increased refinement whereby, with the help of a razor, very thin sections (0·5 to 0·002 mm.) of parts of bodies, and of small animals, hardened and embedded in paraffin, were obtained by the microtome invented in 1876. By this latter means the investigation of body structure was revolutionized. Instead of dealing with bodies divided crudely into thick masses, we can now examine long ribbons of sections, as thin as may be required, which expose the inner structure without materially disturbing its arrangement. This new method of cutting sections facilitated an excellent new method of dealing with anatomical material which, under the name of topographic anatomy, was first practised by doctors in England and France. The structure of the body was no longer regarded from the standpoint of isolated organs, but from that of body regions—head, trunk, limbs, etc. By this more enlightened practice, a method of dealing with bodily dispositions was adopted which had long been known to those who had to solve architectural, geometrical and mathmatical problems. Thanks to the *microscopically enlarged sections*, the eye of the research worker was also enabled to penetrate deeply into the minute structure of the body and discovered the fact, which had previously been unknown, that all animal structures are developed from special layers which recall the annual rings of trees.

The growth of knowledge of the *body layers* affords, in fact, the most remarkable feature in the progress of zoology during the second century of that science's existence. It provided rich material for new connections of ideas, to which Darwin and his contemporaries had been strangers. Likewise, the microscope disclosed the fact that all the body layers are made up of cells—tiny little building stones from 0·07 to 0·1 mm. in length. Owing to the thorough work of talented investigators, our knowledge of histology has increased to such an extent that anatomical

relationships are regarded in a very different light to-day from that in which they were viewed during the first half of the nineteenth century.

The Importance of Ontogeny.

At the same time that these facts were being revealed, other pioneers of research, headed by K. E. von Baer (1792–1876), were showing that anatomical work should not be restricted to the fully-grown body, but that it was necessary to study sections of the body during *all* the phases of its existence (adult, youth, child and egg). When this is done, an extraordinarily manifold transformation-scene is witnessed, which runs throughout the whole life of every individual, and brings about great changes in both its inner and its outer form, often accompanied by changes in its geometrical proportions. Something of this nature had been noticed, during the seventeenth and eighteenth centuries, in regard to the easily seen changing life stages (egg, caterpillar, pupa, imago) of the Lepidoptera and other insects; and most surprising changes, from simple larvæ into highly complex adults, were now discovered among marine organisms.

Every year assiduous research work revealed more plainly that the course of every animal's life is, from egg to adolescence and even to death, one continual *tranformation*, be it rapid or slow. Earlier and later life stages often seemed quite irreconcilable (*e.g.* tadpole—frog, etc.) so long as only a few growth stages were known, separated by considerable intervals of time. But the greater the number of stages of the building up of the body that were placed in correct series, the greater became the knowledge of their regular logical sequence. A splendid revelation was thus obtained of the progressive building up of the body, governed by laws of space and time; and the sequence of life phenomena emerged from their former obscurity like a continuous cinematograph film, the individual pictures in which follow each other in necessary order.

Many great transformations are seen to take place; a tiny double cell, the fertilized egg, from 0·5 to 0·2 mm. in diameter, grows into a great adult creature weighing many hundred kilogrammes. The investigation of this marvel is far more profitable than making unverifiable guesses regarding the genealogical changes of long-extinct animal species of former ages, which are only known to us from bits of their skeletons.

Effect on the Concept of Species.

The concept of the *species* also received, during the course of the second hundred years, a new far-reaching significance, much beyond Linné's conception. It no longer signifies, to us, the constant form of a pair of adult individuals, but it rather represents the ceaseless flow of a determinate change in organization which, beginning with the simple spherical form of the fertilized egg-cell, is so strictly regulated for each species that one can actually wait, watch in hand, for the appearances of the destined form conditions. At first, simple structures begin to appear within the enclosed space of the egg. Soon they emerge from this, especially after food begins to be absorbed, and the tiny mass unfolds itself like a graduated series of concentric spheres into the form of a living animal. Exhibiting, at first, only a simple lace pattern, the fertilized egg-cell becomes, by progressive segmentation, or doubling, split up into an increasing number of cells (2, 4, 8, 16...128, 256, 512, 1,024). Then the cells arrange themselves into three *basic layers*, called "germinal layers," which enfold each other. In all the animal groups (except the Protozoa) a cylinder-shaped structure then arises, which consists of an outer single-layered wall (or tube) formed by a stratum of connected cells known as the *ectoderm*, beneath (or inside) which lies a mass of densely crowded cells called the *mesoderm*, and lastly comes an innermost single layer (or tube) of cells—the *endoderm*. Since these three germinal layers remain distinct throughout life, we are able to trace the subsequent development, from each layer, of the structures to which it respectively gives rise.

Fundamental Distinctions of the Phyla.

The new view-points stimulated, on all sides, assiduous research in the wide field of animal anatomy. The resulting well-grounded knowledge soon led to a complete change in ideas, which swept aside the old widespread notion of Darwin's day that the human body supplied the pattern for all animals, or, as it used to be said, that the organs of all members of the animal kingdom correspond to those of a dissected man (L. Oken); a preconceived notion which, by encouraging talk of "the ascending scale" of animal species, has led to great confusion. In place of this notion, the clear conviction arose that the Invertebrate phyla are, throughout their history, fundamentally

different from the Vertebrata (including man), just as Cuvier had, with admirable insight, pointed out between the years 1795 and 1832. Now, in the year 1933, we actually recognize more than a dozen such groups of *fundamentally different* types of body structure, namely: Vertebrata, Arthropoda, Crustacea, Annelides, Rotatoria, Mollusca, Brachiopoda, Echinodermata, Tunicata, Platodes, Bryozoa, Coelenterata, Protozoa.

Had Darwin lived to witness this advance, he would have abandoned his illusion of a single great genealogical tree for all species of animals. The layman, however, could not formerly, and still cannot to-day, understand why the genealogical tree and the phyla conceptions are so irreconcilably opposed to each other, because he lacks the comprehensive knowledge, of the developmental phases of all the phyla, which would make this opposition clear to him.

The Reference Planes of Anatomical Measurements.

When once the recognition of *positions in the germinal layers* was realized to be the most important business of anatomical research, it became obvious that measurements of stereometric bodies had to be made with reference to the three chief planes (XX, YY, ZZ), in order to make proper comparisons of those bodies. Since the animal body has an outer *and* an inner aspect, and a curved instead of a straight boundary surface, the outer boundary is not taken into consideration, because of its extremely manifold modelling. All references are therefore made to the three chief inner planes. These are allotted definite positions in the body, in order to determine the relative distances of all points in the germinal layers, and in the numerous outgrowths from those layers. Most animals clearly bear, in their outer form, indications of the middle plane (ZZ) of the body, which is witnessed to by the mirror-like duplication of their right and left sides, so similar in shape, but developed in opposite directions. Owing to the discovery of the three germinal layers the work of measurement has been greatly lightened, because the body-complex is no longer regarded as a mass of organs, but as a co-ordinated combination of the three chief layers. One clearly sees how these germinal layer masses have developed similarly varying thicknesses on each side of the middle plane. Each layer shows a certain freedom in disposing of its mass; it may remove itself further from the three planes, or sink closer to

them. In consequence of this, the layers are at times bent outwards to a greater or less extent; at other times they are bent inwards to form cavities, pouches, funnels, sometimes alternating with protuberances. There are, however, always fixed limits to their expansion in height, length and breadth.

The importance of the three chief layers has been incontrovertibly proved, particularly in cases where anatomical investigation has followed the whole course of life (egg to death), during which decisive changes of state follow one another in rapid succession. Reference to the three layers has the great advantage that the animal body is regarded as a whole, all regions and parts of it being equally observed, while the three chief planes only are taken into consideration.

Measurement Fixations of Growth Phenomena.

Just as the geologist reckons the strata of the earth by stages, so does the anatomist look for layer differences which characterize successive life phases. Traces of future structures first appear as exceedingly faint indications in the three-layered complex, and gradually develop into their final forms. All this results from the multiplication, often to an incredible degree, of minute cells which—except in rare instances—never become large enough to be seen by the naked eye. Indeed, this intricate cell structure of the body is one of the chief discoveries of the second hundred years. The more carefully we follow the developments of the three layers, with reference to the three main planes, the more clearly do we appreciate the strict order of bodily growth, down even to its minor details; while, at the same time, we also begin to realize even more clearly the wonderful regularity of body structures, which had previously only been recognized in regard to the segments and appendages of Insects, Arachnoids and Crustaceans. All this has contributed to emphasize the value of the new methods of treating animal anatomy by counting, reckoning, and (above all) by measuring.

It is due to the study of the three germinal layers that the structure of nearly a million species has now been fairly well elucidated, in contrast with the darkness which covered the subject a hundred years ago. We accept those three layers to-day as our means for accurately estimating likenesses and differences in the animal world. The new system insists that names, often incorrectly used in a universal sense (for example,

eyes, teeth, stomach, lungs), should be restricted to the particular phylum; and it endows them with their proper meanings within the same. The head of an insect, for instance, has a very different derivation from that of a vertebrate!

The limits of the phyla, in comparing body structures, are now determined by the law of situation. He who measures the distances of important surfaces and regions from the main planes, obtains a true *group-picture* of the arrangements in species of all features which either grow out of each germinal layer like peninsulas, or else are detached as independent islands and become embedded in the middle layer. The idea of local relationships has prevailed over the conception of organs, which was universal in Darwin's time. The text-books of animal anatomy have likewise acquired a wider outlook, because the large body areas are now regarded as entities, and comprehensible pictures of the most important features of the phylum are thereby presented.

Resulting Whole-Life View of Species.

As compared with the obsolete methods of procedure of 60 to 100 years ago, the modern one has the advantage that it takes into consideration not only the fully developed body, but also all the stages of its growth, from egg to adult. This comprehensive review shows us that the foundations of the ultimate structure are laid down in the earliest stages of existence, and development proceeds, as if of logical necessity, to the preordained magnitude and final condition. The same identical sequence of earlier and later life stages repeats itself, in the case of each member of the species, just as if the process of bodily development clung to a rigid track, along which the germinal layer complex was compelled to travel during life, through a definite number of fixed intermediate stages to the appointed end. The course of life of every individual within the phylum traverses a special, native and unchangeable sequence of phases, which finally produces the fully developed body with all its parts. The wonderful regularity shown by the course of this development forbids the idea that the mode of growth within the phylum ever left one track in order to follow another. It is clear that, in supposing that existing species had sprung from other species, Darwin was only taking adult structures into consideration. In any case, Darwin's followers must now suppose that the developments of the germinal layers of earlier

species underwent very frequent changes! But modern knowledge of the constancy of development shown by species lends no countenance to this.

There is no ambiguity about the general results reached by the clear-cut methods of modern anatomical research. One certainly sees, in the universal appearance of the three germinal layers and their regular placing with reference to the three chief planes, a general likeness in the structure of all species of animals; but we nevertheless find that those germinal layers perform different tasks in each phylum, according to the size and weight of the body and its inner and outer details. Thus the supporting structures required by the living body are formed, among insects, arachnids and crustaceans, from the outer layer, which produces a calcareous shell; among the vertebrates, on the other hand, the outer layer is unfruitful in this respect, all the masses of cartilage and bone of their skeletons being derived from the middle layer. It is certainly true that the calcareous plates and spines found in the phylum Echinodermata are also derived from the middle layer, but they are derived in quite a different manner. Hundreds of examples are known of the incredible differences to be found among the products of the germinal layers, according to the groups concerned.

The Added Certainty in Classification.

As the result of these investigations into the details of structure and developmental processes of animal bodies, many new characteristics have been added to the distinctions recognized by earlier workers, and have endowed the conceptions of zoological classification with an unexpected new element of certainty. Thus the hopes of Cuvier have been fulfilled during the second century of anatomical work, and Linné's efforts after classification have finally resulted in a system well grounded on anatomical facts.

Sound work on the structure and connections of the layers must begin by dealing with groups of the most closely related species. This reveals the regularity and wonderful individuality of the development of each species, and habituates the mind to think more and more in terms of anatomical group measurements. Broad facts which Cuvier outlined 130 years ago are now practically illustrated by group-pictures of the growing layer connections and chief tissue complexes during the whole life-

history of individual species; and such evidence affords a firm foundation on which to base our arrangement of species, each according to the wonderful shading of its common group features, into well-selected higher groups of like forms (genera to classes). The phyla thus constituted usually agree, in general, with improved groupings under the older system of classification. Every recent handbook of Zoology places the classes within the phyla so delineated (for example, the Coleoptera, Diptera, Hemiptera, Hymenoptera, Lepidoptera, Orthoptera, etc., among the Insecta), and the lesser groups within the classes, down to the individual species group. If an arrangement originally based upon external adult features agrees so well (in a general way) with our later classification based on the whole developmental history of structures, inner as well as outer, it would seem to imply that those thinkers are right who regard the animal body as a *wonderful self-contained work of art.*

Phenomena of Layer-Combination.

Modern anatomy clearly emphasizes the indivisibility of the parts of the body at all times, past and present. Cuvier designated this the "Correlation" of the parts; E. Geoffroy St. Hilaire styled it their "Connection"; I myself have hitherto called it the "Layer-Combination" ("unlösbaren Lageverband"). This expression indicates the fact that anatomical structures cannot be regarded as results arrived at by accumulations of little accidents, but that each is a superhuman work of art, living, regulated enigmatically by strict laws, and itself conserving and producing new life forms.

Specific Constancy Unaffected by Variation.

Study of the higher groups reveals a striking regularity, which was unknown 100 years ago, and which, in view of the rules of position and form which are obeyed down to the smallest details, lends no support to the idea that the strict laws of one species could be changed, by means of minute fortuitous variations, into the structural laws of another species. Seventy years ago, Darwin could talk as if varietal differences tended to "change the species," and such talk met with approval; but since the strict orderliness of development has been discovered, the assumption of an evolution of species has encountered insuperable difficulties. No one can demonstrate that the

limits of a species have ever been passed. These are the Rubicons which evolutionists cannot cross. The fact of *variability*, on which Darwin based his ideas of fortuitous differences linking allied species, is countered by the sobering fact of the *law of variation*, which expresses the fundamental agreement of measured characters among the members of a species, as known from the statistics of variations during the last decade. This shows that the variations are centred round a mean value in the form of the binomial curve which represents the law of averages, and is constant and true for one species, but not for related species. The question, therefore, is not whether the species is variable or invariable. The essential point is that the concept of the species is based upon the *regular* destiny which is inscribed on the three germinal layers, and the place-form peculiarities of their complexes in the course of life of the individual. Thus accident, caprice and arbitrariness are eliminated from zoological discussion.

Incongruity of the "Genealogical Tree" Concept.

In the same way, the altogether useless concept of the animal *genealogical tree* is found to disappear. It affords no satisfactory picture of the relationships between the million living species of animals and the 120,000 known extinct species. For the last 70 years evolutionists have discussed hundreds of supposed ancestral derivations, without having agreed about a single one. Attempts to blend together the characters of the fourteen different phyla into one hypothetical common stock only result in producing an opalescent pattern of body structure, which proves nothing for the common origin of those phyla.

The so-called pedigree of the animal kingdom is utterly unlike the genealogical trees of human families, because the latter deal only with members of one species, whereas the former include multitudes of different species and postulate countless purely hypothetical links between them. Even the shortened genealogical trees found in popular writings are apt to dognatize about the derivations of whole phyla—that is, of anything from 2,000 to 100,000 species at a time.

The family genealogical tree shows a limited number of names, arranged in the semblance of a tree, of people actually known to have been related by descent. It is a compilation of facts, like a dictionary. Nothing resembling it is known regarding species connections. When we come to discuss the latter, we

are no longer dealing with first-hand evidence (*i.e.* with verbal or written traditions) as to the connections concerned. All is hypothesis. We postulate long ancestries simply because we do not know the real ones, and because creatures have to be accounted for somehow. We note the incontrovertible fact that new creatures, born every year, experience the same time- and form-regulated fate as their parents; hence the sequences we see are obviously links in chains of organisms of which neither the beginnings nor the ends are visible to us. But that does not justify us in supposing that, just because each individual changes in form while developing from childhood to adolescence, therefore its remote ancestors must have changed from one species into another. Again, even when we deal with the members of a single existing species, we find it impossible, on purely anatomical grounds apart from historic testimony, to demonstrate the connection between individual parents and their offspring. Among animals, the father is apt to disappear nameless among the multitude of his species, after taking his brief part in procreation, and science is powerless to re-identify him. Despite these facts, evolutionists search for "ancestors" in the graveyards of the past, and arrange fossil fragments (*e.g.* leg bones, teeth, or skulls) of various extinct species of horse into hypothetical series, and—in complete disregard of the rules of group-position and form—believe that these represent real ancestries. Yet the facts which they quote go no further than, for example, the science of malacology went 200 years ago, when only empty shells were examined. Malacology has long grown out of that stage, owing to our increased knowledge of the soft parts of shelled animals; but palæontologists, whose researches are of necessity confined to the hard parts of extinct species, still know nothing about the minute cell-structure of those species.

Nothing is gained by glib talk about "ancestors," "stem-parents," "ancient progenitors," etc., as classificatory concepts of extinct species, on the supposition that evidence to prove the truth of those concepts will be found later on. Our hopes in this respect are very remote, especially in the case of the thousands of species of minute creatures whose tiny bodies rapidly decompose after death and leave no enduring hard parts.

Conclusion.

A survey of the history of zoology thus reveals an actual situation very different from that generally claimed by the advocates

of evolution. The business of classifying animal species began, in 1735, with very little knowledge. During the course of the second century since that date, however, about a million species have been mastered by means of a detailed study of their major and minor body structures throughout their development from the egg, at the same time that incontrovertible methods of measuring the degrees of likeness have been invented, and the unvarying form and time stages of the life of animals have been discovered. On the other hand, the study of palæontology has not fulfilled the hopes that Darwin and his contemporaries placed in it. As it happened, they found themselves in much the same condition in regard to palæontology, 100 years ago, as Linné had found himself, in regard to zoology, a century earlier. He had little knowledge to begin with, although zoological science has since so greatly expanded. But palæontologists are still confronted by the fatal difficulty that their field of research lies in the graveyards of the buried past, instead of in the living world which continually renews its youth. While attempting to deal with similar problems, the palæontologist has only a skeleton to work upon, while the zoologist can study the entire animal in the full vigour of its existence.

This limitation of the palæontological field of research can obviously never be removed, and the very antiquity of the fossiliferous strata precludes our attaining certain knowledge regarding the animals which lived while they were being laid down. All that we can do is to group the fragmentary remains of these animals as best we may, after careful examination of all the available evidence, together with existing species. It is obvious that we can never compare their minute structure with that of living things, or with that of other fossil types. In other words, we can never hope to attain adequate knowledge of the fossil world, much less can we prove its evolution.

Seventy years ago, Darwin ransacked other spheres of practical research work for ideas. In particular, he borrowed his views on selection from T. R. Malthus' ideas regarding the dangers of overpopulation, to which he added the facts recorded by breeders regarding the variability of domestic animals, the results of artificial selection of the best pairs in herds, the pedigrees of domestic animals, and the improvements of existing races and the development of new ones, etc. In order to adapt these things to a theory of wild life, he then added the very reasonable concepts (in J. Kant's opinion) of the struggle for

existence and natural selection. But his whole resulting scheme remains, to this day, foreign to scientifically established zoology, since actual changes of species by such means are still unknown. On the other hand, our greatly increased knowledge of specific anatomy throughout life, as well as the new variation statistics and our increased knowledge of Mendelian laws, have all tended —especially within the last 30 years—to accumulate evidence against Darwin's theory.

In my opinion, the most serious defect in the Darwinian school of thought is that it is not based on the knowledge of rigid law. No matter how much eloquence the advocates of Evolution may pour forth, they will not cancel the facts briefly outlined above!

[*Note.*—It is unfortunate that the word "phylum" should imply that very concept of a genealogical tree to which this paper takes exception. To substitute another and less familiar term might, however, lead to misunderstanding, since "phylum" has now acquired such definite significance, in classification, as referring to one of those great sections of the animal kingdom whose fundamental structural designs are so distinct from each other. The term "phylum" is therefore retained in this paper; but it should be clearly understood that it is here used in the sense only of a great *division* of organized beings, and not as implying any doctrine of common genetic origin. All modern research emphasizes the distinctions not only between the great divisions themselves, but also between the subdivisions of which each is composed; and it shows the absence of all factual grounds for postulating genetic connections between them.]

Discussion.

The Chairman (Mr. Douglas Dewar) moved that the thanks of the Institute be given to the learned author of the paper, and the same was accorded with acclamation.

Rev. Dr. H. C. Morton said: We have listened to a really notable paper by one of the world's great zoologists, who, especially in the light of anatomical research, finds only one course open, viz., the emphatic and unfaltering denial of the "illusion" of Darwinian Evolution, and of "the fascinating dream" of the genealogical tree of the Doctrine of Descent.

I am not an anatomist, and even if I were, this occasion lends itself but little to technical discussion. But there are two things I want to say. The first is that it is worthy of note that Professor Fleischmann does not trouble to distinguish between Darwinism and Evolution in general, but evidently treats Darwinism as the

one attractive and widely influential form of the evolutionary hypothesis. What applies to Darwinism applies also to any other form in which the same concept, of progress from the lower to the higher forms by long succession of changes, may be embodied. It is this whole concept "which no longer squares with practical scientific knowledge." Just as Bateson said, in 1921, that forty years ago (that would be 1881) real scientists had ceased even to talk about Evolution, so Fleischmann says that this concept belongs "to the days of our grandfathers and great-grandfathers." Not merely Darwinism but "the altogether useless concept of the animal genealogical tree" is found to disappear.

The second thing I want to say is this: that those who desire to preserve faith in the Bible have got to deal with Evolution. It is not possible for a logical mind to hold both Bible teaching and evolutionary teaching at the same time. The main cause of that failing faith which is bringing down all the levels of our life, and with them the whole structure of British power, is found in Evolution. The common practice of cramming evolutionary ideas down the throat of the youth in our schools and colleges and universities, is not only an outrage upon fairness and justice, but it is hastening that collapse which is so evidently sweeping up upon us. I believe God is giving us our call and our chance. We have got to make our choice, and a deliverance like Fleischmann's to-day should help us to make it.

Sir Arthur Keith has twice publicly given to the British Nation his religious experience. He began as an Evangelical Christian, then became an evolutionist, and found every belief of the Christian Faith, slowly perhaps but surely, destroyed within his mind; and he has declared that the Christian Church has no half-way house, she must accept everything or else reject everything. The Bible and Evolution represent two absolutely diverse, alien, and hostile realms of thought. No logical mind will even try to dwell in both at the same time. Some of us are not logical, but in the long run logic has a wonderful way of asserting itself. If the Bible does not kill Evolution, Evolution will kill the Bible; and the choice between the two is big with doom.

Mr. GEORGE BREWER said: Our thanks are due to Dr. Fleischmann for his clear statement of the result of modern discoveries

in confirming the unscientific basis of the theory of Organic Evolution. He assures us that "modern anatomy clearly emphasizes the indivisibility of the parts of the body at all times, past and present," and that this "layer combination indicates the fact that anatomical structures cannot be regarded as results arrived at by accumulation of little accidents, but that each is a superhuman work of art, regulated by strict laws, and itself conserving and producing new life forms."

Galen, a celebrated physician, who practised in Pergamos and Rome in the second century, and the author of a large number of medical works, which formed the chief text-books of the medical profession for several centuries, was converted as the result of his dissections, and compelled to own to a Supreme Being, as the Author of nature's wonderful handiwork. The Psalmist records a similar conviction that he is "fearfully and wonderfully made," when he declares: "Thine eyes did see my substance, yet being unperfect; and in Thy book all my members were written, which in continuance were fashioned, when as yet there was none of them." (Psalm 139.)

There has been an utter failure on the part of Evolutionists to prove their theory. The arguments from natural selection, embryology and palæontology have completely broken down; and the feverish anxiety to find the supposed "missing link" failed, even though not one, but thousands of links would be in evidence if the theory were true, such zeal shows the natural desire of man to account for the wonders of creation, apart from the Creator.

It is refreshing to turn from evolutionary fables, based on assumption and speculation and falsely-called Science, to the inspired record in the Book of Genesis, and the statement of the Apostle Paul in 1 Cor., 15, "That all flesh is not the same flesh: but there is one flesh of men, and another of beasts, and another of fishes, and another of birds." And while all flesh is as grass which withereth away, "the Word of the Lord endureth for ever" (1 Pet. i, 24.).

Written Communications.

The President (Sir Ambrose Fleming, F.R.S.) wrote: The Members of the Victoria Institute will all, no doubt, agree with the opinion that we are fortunate in having secured from such an

eminent naturalist as Dr. Albert Fleischmann, the Professor of Zoology in the University of Erlangen, a valuable criticism of the theory of Organic Evolution. We have had many papers read to us in recent years bringing to bear a critical insight on the defects and tendencies of the above-mentioned hypothesis. The Darwinian theory of natural selection for the production of animal species, and its logical outcome, in the origin of the human species, is still strongly advocated by writers and speakers who can command public attention. The serious objections to that theory do not easily obtain a hearing, and hence the general public are led to believe that no forcible objections or anything but prejudice can be urged against it.

In the Press, on the platform, and even in the pulpit, it is taken for granted that the human race began millions of years ago, as the product of Darwinian Natural Selection operating in animal ancestors. The grave objections to this hypothesis and its absolute failure to explain the origin of the ethical, altruistic, religious, and spiritual qualities of mankind, are not given the weight they demand, whilst its logical consequences are disastrous, in their influence on human aims and thought. But it is clear that the theory as regards the human species stands or falls by its correctness as regards animal species, and hence any scientific, learned, and valid criticism of Darwin's theory is of great importance. Even though we ourselves may not have sufficient technical knowledge to search out the valid arguments against this popular theory of Organic Evolution, we can all appreciate the very masterly survey of them which Dr. Fleischmann has given us in his paper. He has dealt fresh and powerful blows at the theory, and shown us that, at the bottom, it is in truth destitute of a solid scientific basis. In short, it is not a scientific theory or explanation in any true sense of the word, but an unverified hypothesis which has apparent strength but falls to pieces under any really searching examination. I desire, therefore, to associate myself very strongly with the thanks which will be offered to Professor Fleischmann for his powerful and useful contribution to our Proceedings.

Lt.-Col. L. M. DAVIES, F.G.S., wrote: More than 30 years have passed since Professor Fleischmann roused a storm in biological circles by throwing over his own long-standing belief in Darwinism

and publishing a book "Die Descendenztheorie" (Leipzig, 1901), in which he poured scorn upon the whole case for Evolution. What particularly stung his opponents was the fact that Fleischmann could not be dismissed as an incompetent judge; even Kellogg admitted him to be "reputable zoologist," and a "biologist of recognized position" (*Darwinism To-Day*, p. 8).

So the matter was hushed up. When, therefore, people like Bishop Barnes—who, by the way, is a mathematician, and not a biologist—declare that no competent biologist to-day questions the doctrine of Organic Evolution, it should be realized that they are coolly ignoring an expert—one like Fleischmann—who has held the chair in Zoology and Comparative Anatomy at a great German University, since days before Barnes was heard of.

I am unable to judge of some of the facts which the Professor stresses in this paper; but it is useful to have the impression of so good an authority regarding the consistence (as evidenced in their development, etc.) of specific types, which the evolutionist must assume to be so mobile. Where he deals with some other points, I am better able to confirm the Professor's remarks. Thus, when he stresses the importance of the regional study of structures, I recall the nonsense which people, who ignore this principle, have written about the supposed "human tail." It will be remembered that Darwin, following the old "organ" view of anatomy, tried to treat all vertibræ below the pelvic girdle as a "tail"—even though they might have no external existence or functions *as a tail*. The folly of this is seen when we examine the great apes, which are supposed to link man to the tailed monkeys; for those creatures have even "less tail" (as Sir Arthur Keith admits) than man. Their coccygeal vertebræ are less developed than our own! To anyone trained to regard structures as a whole, the reason is obvious: semi-erect creatures, like the apes, require even less of a coccyx than do fully erect creatures. In other words, our supposed "hidden tail" is not a tail at all; it has functions to perform (relatively small, since the coccyx itself is small) which are purely internal, and exactly suited to the needs of an erect structure like man's.

When Professor Fleischmann turns to the subject of Geology, I am glad to see that he stresses several of the chief points which I tried to emphasize in a paper read before this Institute seven

years ago. Evolution, is essentially, a doctrine of *unbroken genetic connections:* yet, from the moment that historic testimony is lacking, not a single genetic connection can be proved by any means known to science. When we deal with fossil forms, we are inevitably afloat upon a sea of hypotheses. We can believe what we please; but we can actually prove nothing for descent. Provided that a God exists who can literally create, we have no way of showing that He has not created. The evolutionist will, of course, go his own way; but it is good, occasionally, to receive such direct evidence as this paper of Professor Fleischmann's affords that (despite all assertions to the contrary) first-rate biologists do exist who, knowing all that their science can say upon this subject, still flatly disbelieve in Evolution.

772ND ORDINARY GENERAL MEETING.

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL, WESTMINSTER, S.W.1., ON MONDAY, JUNE 12TH, 1933,

AT 4.30 P.M.

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

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

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

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

ANNUAL ADDRESS

FREE WILL VERSUS DETERMINISM.

By SIR AMBROSE FLEMING, F.R.S. (*President*).

1.—THE PROBLEM STATED.

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

There is one question complying with the above condition which has been the subject of countless discussions in books and essays, namely, the enquiry as to the freedom of the human Will, or power of spontaneous choice as against Determinism or necessity.

In spite of the abundant consideration it has already received I think, however, I may draw your attention to it to-day for a brief period, because it has acquired some additional importance from its close connection with a recently enunciated scientific Principle of Indeterminacy, further reference to which will be made presently.

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

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

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

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

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

things or do others because we remember that the consequences of our choice in past times involved us in some trouble or produced some disagreeable result.

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

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

2.—The Moral Law.

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

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

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

The same requirement is evident in the spiritual and self-conscious world of minds. It is clear that a permanent and stable society cannot be built up on general dishonesty, general untruthfulness, breaking of agreements, or unlimited violence. It would crash to ruin like an ill-designed piece of machinery. Hence the necessity for a moral law.

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

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

The moral law, however, implies freedom of choice. If it says to me I "ought" to do or not to do certain things, then that implies that I "can" do them or refrain from doing them, and also that I may perhaps not comply. If the moral law forbids dishonesty, that implies that both honesty and dishonesty are possible.

There would be no meaning in saying Thou shalt not steal, if men were under compulsion to steal, nor if they could not possibly steal even if they desired it. Hence the moral law implies freedom of choice and its language is quite inapplicable to mere machines. The compliance with the moral law we call "doing right" and non-compliance we call "doing wrong."

We cannot, however, use these words "right" and "wrong" except in a metaphorical sense of mere machines. We cannot say, for instance, that our motor "did wrong" to break down

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

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

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

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

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

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

Then in the next place we are given in the literature we call the Bible not only the most complete enunciation of the moral law but illustrations in actual, vivid, and veracious biographies of the results of compliance or non-compliance with it.

Lastly, in the narratives of one absolutely perfect human life we are shown in its full brilliancy the beauty of holiness and the infinite perfection of a life in all respects absolutely obedient to the utmost demands of the moral law.

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

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

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

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

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

Also we know the forces acting on a celestial body such as the moon, and we can predict where it will be at any future time, and our forecast is verified by eclipses happening at the predicted time. The result is therefore absolutely determined. But we cannot do this for the conduct of a living agent nor for the action of a human being under the action of mental, moral, or spiritual motives. It is not the absence of motive which constitutes free will but the possible variability in the reaction to those motives. If he yields or responds to a certain motive it

is not necessarily because that motive in itself is most powerful. It is because all his previous choices, past experience, training and disposition have made him more sensitive to one kind of motive or influence than another.

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

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

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

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

A person, for instance, may be presented with some opportunity of a dishonest action. In general there would be a strong resistance to this for various reasons. If, however, that person had previously or often yielded to influences inviting small acts wanting in strict honesty his power of resistance to such inducements would be weakened and he might therefore yield. Hence what is commonly called the exercise of free will is usually a cessation of resistance to some motive rather than an arbitrary selection of one out of several courses of action. The " responsibility " consists in this yielding or ceasing to resist. If, however,

it is often repeated under the same class of motive it becomes confirmed into an almost automatic response. Hence the saying: Sow an act and you reap a habit, Sow a habit and you reap a character, Sow a character and you reap a destiny. This process, however, is something quite different from enforced or mechanical compulsion.

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

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

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

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

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

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

People who are called impulsive act without sufficient consideration, and those with so-called bad judgment act on in-

sufficient information. There is, however, a resultant or residual effect which finally determines action.

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

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

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

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

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

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

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

6.—The Principle of Indeterminacy in Physics.

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

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

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

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

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

combined with determination for the multitude explains many other known facts.

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

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

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

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

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

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

8.—Conclusion.

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

or between Calvinism and Arminianism, as a creed, we are exercising free will or choice.

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

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

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

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