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JOURNAL OF THE TRANSACTIONS
OF
THE VICTORIA INSTITUTE

VOL. LXXX

1948



AIR COMMODORE P. J. WISEMAN, C.B.E.
Chairman of Council, 1943 to 1948

JOURNAL OF
THE TRANSACTIONS
OF
The Victoria Institute
OR
Philosophical Society of Great Britain

VOL. LXXX

1948



LONDON:

PUBLISHED BY
THE INSTITUTE, 12, QUEEN ANNE'S GATE, WESTMINSTER, S.W.1

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HARRISON AND SONS, LTD.,
PRINTERS TO HIS MAJESTY THE KING,
44-47, St. MARTIN'S LANE, LONDON, W.C.2.

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

VICTORIA INSTITUTE

REPORT OF THE COUNCIL FOR THE YEAR 1947.

READ AT THE

ANNUAL GENERAL MEETING, MAY 24TH, 1948.

1. *Progress of the Institute.*

In presenting the eighty-first Annual Report, the Council express gratitude to those authors who have contributed papers. During 1947 it has been possible to increase the number to ten and there has been an increased interest.

The Council much regret the delay in the issue of the Annual Volume of the Transactions. This has been mainly due to considerable difficulties experienced in the printing and bookbinding trades.

2. *Meetings.*

(Papers circulated.)

“The Use and Abuse of Mathematics,” by E. H. BETTS, Esq.,
B.Sc.

“The Textual Background of the Use of the Old Testament
by the New,” by B. F. C. ATKINSON, Esq., M.A., Ph.D.

“The Present Status of Teleology,” by Lt.-Col. L. MERSON
DAVIES, D.Sc., Ph.D., F.R.S.E., F.G.S.

“Immortality,” by Rev. G. R. BEASLEY-MURRAY, M.Th.

(Papers circulated and read.)

“Theology and Some Recent Sociology,” by Rev. D. R. DAVIES.
Rev. John W. Carroll, in the Chair.

“The Spheres of Revelation and Science ?” by R. E. D. CLARK,
Esq., M.A., Ph.D.
Kenneth Walker, Esq., M.D., F.R.G.S., in the Chair.

“The Nature of Christ’s Authority,” by Principal the Rev.
P. W. EVANS, D.D.
Rev. C. T. Cook, in the Chair.

“Psychical Research in the Light of Some Recent Develop-
ments,” by WILSON E. LESLIE, Esq.
Rev. J. Stafford Wright, M.A., in the Chair.

“Sex Morality,” by D. R. MACE, Esq., M.A., B.Sc., Ph.D.
R. E. D. Clark, Esq., M.A., Ph.D., in the Chair.

“Presidential Address,” by Sir FREDERIC KENYON, G.B.E.,
K.C.B., D.Litt., LL.D., F.B.A.
Air Commodore P. J. Wiseman, C.B.E., in the Chair.

3. Council and Officers.

The following is a list of the Council and Officers for the year 1947 :—

President.

Sir Frederic G. Kenyon, G.B.E., K.C.B., D.Litt., LL.D., F.B.A.

Vice-President.

Professor A. Rendle Short, M.B., B.S., B.Sc., F.R.C.S.

Trustees.

Wilson E. Leslie, Esq.,
Air Commodore P. J. Wiseman, C.B.E.

Council.

(In Order of Original Election.)

Douglas Dewar, Esq., B.A., F.Z.S.	Air Commodore P. J. Wiseman, C.B.E.
Lt.-Col. L. M. Davies, M.A., Ph.D., D.Sc., F.G.S., F.R.S.E.	(Chairman of Council).
Wilson E. Leslie, Esq.	Rev. C. T. Cook.
Percy O. Ruoff, Esq.	Ernest White, Esq., M.B., B.S.
Robert E. D. Clark, Esq., M.A., Ph.D.	O. R. Barclay, Esq., M.A., Ph.D.

Treasury Officers.

Wilson E. Leslie, Esq., *Treasurer.*
 R. E. D. Clark, M.A., Ph.D., *Papers Secretary.*

Auditors

Messrs. Luff, Smith & Co., *Incorporated Accountants.*

Assistant Secretary.

Theodore I. Wilson, Esq.

4. Election of Officers.

In accordance with the Rules the following Members of the Council retire by rotation: Lt.-Col. L. M. Davies, M.A., Ph.D., D.Sc., F.G.S., F.R.S.E., and Wilson E. Leslie, Esq., and are eligible for re-election.

The Auditors, Messrs. Luff, Smith & Co., Incorporated Accountants, offer, and are nominated by the Council, for re-election as Auditors for the ensuing year, at a fee of five guineas.

5. Obituary.

The Council regrets to announce the following deaths:—

W. R. Payne, Esq., Mrs. Bertram Philipps, Professor Glen Gates Cole, So.D., Ph.D., Rev. R. A. Smith, M.A., Rev. P. Marr Davies, M.A., J. D. Bunyan, Esq., Keith Bawtree, Esq., B.Sc., J. Inglis Wright, Esq., Sidney Arkwright, Esq., M.A., Mrs. Ada B. Frome, Mrs. A. S. D. Maunder, F.R.A.S., Francis T. Bendall, Esq.

6. New Fellows, Members and Associates.

The following are the names of new Fellows, Members and Associates elected in 1947:—

FELLOWS: Cosmo Sheridan Grant, Esq., Percy L. Watts, Esq., Joseph Smith, Esq., Ph.D., M.Eng., B.Sc., A.M.I.E.E. (on transfer from Member), Archie Henry Boulton, Esq. (on transfer from Member), John Joseph Carr, Esq., Philip Sydney Henman, Esq., M.I.N.S.T., Hugh Terence Combe, Esq., M.A., L.C.P., Harold Winnock Parrott, Esq., M.D., B.S., John Alfred Eaton, Esq., F.R.S.A., Charles Henry Welsh, Esq., Rev. Howard Bechert, Th.B., B.D., S.T.D. (Life Fellow), President Andrew Martin, M.A., Ph.D., B.D., D.D., **Rev. Matthew Francis** (on transfer from Member), Rev. W. E. Dalling, M.A. (on transfer from Member), Eric J. J. Daley, Esq., A. Oakley John, Esq., M.B., B.S., M.R.C.S., L.R.C.P., Rev. J. W. Wenham, M.A., B.D., Life Fellow (on transfer from Member), Rev. Frank Martyn Cundy, M.A., Rev. W. St. Clair Taylor, Stuart James Sears, Esq., Rev. Ernest F. Kevan, M.Th., Rev. T. Christie Innes, M.A., D.D., J. D. C. Anderson, B.Sc., F. A. Raynor, M.A., Alfred Joseph Crick, Esq.

MEMBERS: Mrs. Erica N. D. Butler, Victor Charles Reed, Esq., M.A., L.C.P., W. H. Mason, Esq., B.Sc., Edwin T. Shepherd, Esq., Dr. John Norval Burgess, M.B., B.S., D.D.R., Miss Myra Chave Jones, Henry Leslie Harris, Esq., Professor Warren C. Young, A.M., Ph.D., Thomas Finlayson Miller, Esq., M.B., Ch.B., Frederick Langwith Denton, Esq., B.Com., The Very Rev. S. Barton Babbage, M.A., Th.D., Humphrey Grantham-Hill, Esq., B.Sc., Matthew Francis, Esq., Frank Eric Guest, Esq., James Hislop, Esq., M.A., B.Sc., Rev. Mervyn Gray Milmine, M.A., Rev. John Stafford Wright, M.A., Rev. Matthew Francis, L.Th., T. A. Hogg, Esq. (Life Member), Stanley Pattenden, Esq., Herbert J. Salter, Esq., B.Sc., Daryl Chase, Esq., M.A., Ph.D., Rev. Roderick J. Wilson, M.A., C. L. Laurence Binder, Esq., B.A., A. Derrick Rose, Esq., M.B., B.S., W. H. Thompson, Esq., Rev. R. S. Roxburgh, L.Th. (on transfer from Associate), Ralph Hulme, Esq., B.A., A. J. Greenfield (Life Member), T. W. Bunyan, Esq., B.Sc., A.M.I.Mech.E., A.M.I.M.E., J. S. Elwood, M.D., B.Ch., William Henry Steventon Thompson, Esq., David Charles Thompson, Esq., O.D., George T. Padgett, Esq., M.B.E., W. A. Douglas Cole, Esq.

ASSOCIATES: Olaf Raymond Johnston, Esq., Peter E. Purkiss, Esq., James I. Packer, Esq., Geoffrey Sturman, Esq., B.A.

7. *Membership.*

Life Fellows	...	...	...	25
Annual Fellows	...	...	...	124
Life Members	...	...	...	20
Annual Members	...	...	...	280
Associates	...	...	...	62
Library Associates	...	...	...	45
Total Nominal Membership				556

8. *Donations.*

H. H. Goodwin, Esq., £1; Conway Ross, Esq., £1 1s.; Francis Grim, Esq., £4 1s. 6d.; Dr. Barcroft Anderson, £10; Charles Tresise, Esq., 10s.; Dr. C. Elliott, 13s.; Dr. Zamrazil, 18s.; Charles J. Young, Esq., 12s.; J. J. Carr, Esq., £2 2s.; Rev. T. Christie Innes, £2 2s.; Rev. S. M. Robinson, £1 8s. 11d.; Professor A. Kelley, £9; W. Wardle Sales, Esq., £5; F. Grim, Esq., £2 2s. Miscellaneous, 7s.

9. *Finance.*

The serious increase in the cost of printing and binding has added considerably to the annual expenditure, yet membership fees have remained unaltered. The most practical way of meeting this increased expenditure is to increase the number of Fellows and Members. Applications from Members for transfer to the list of

Fellows would be welcomed and it is requested that Fellows and Members bring the work of the Institute to the notice of suitable persons, or let the Institute know of such persons. Further, any contributions to the work will be very gratefully acknowledged.

It will be observed that the Council has made provision in the accounts of the Institute for the sum estimated to be required to meet the cost of printing and binding the unissued Transactions and other printing liabilities.

The Council offer their humble thanks to God for enabling them to maintain the witness of the Institute throughout another year.

P. J. WISEMAN,

Chairman.

BALANCE SHEET, 31st DECEMBER, 1947.

LIABILITIES.				ASSETS.			
	£	s.	d.		£	s.	d.
SUBSCRIPTIONS PAID IN ADVANCE			9 9 0	CASH AT BANK :—			
SUNDRY CREDITORS FOR EXPENSES		336	4 3	Current Account	491	18	2
LIFE SUBSCRIPTIONS :—				" Gunning " Prize Account	16	15	11
Balance at 1st January, 1947....	570	0	0	" Langhorne Orchard " Account	7	4	10
Additions	136	18	0	" Craig Memorial Trust " Account	19	15	0
	706	18	0	<hr style="width: 100%;"/>	535	13	11
Less Amount carried to Income and Expenditure Account	26	18	0	PETTY CASH AND STAMPS IN HAND			5 16 3
	<hr style="width: 100%;"/>		680 0 0	DEBTORS :—			
" GUNNING " FUND (<i>per contra</i>)			508 0 0	(a) Subscriptions in Arrears	150	0	0
Balance at 1st January, 1947	63	16	6	(b) Inland Revenue re Income Tax Repayment Claim	70	9	1
Dividends and Interest receivable	23	12	5	<hr style="width: 100%;"/>	220	9	1
			87 8 11	INVESTMENTS (At Cost) :—			
" LANGHORNE ORCHARD " FUND (<i>per contra</i>)			200 0 0	" Gunning " Fund :—			
Balance at 1st January, 1947	25	6	8	£673 3½ per cent. Conversion Stock	508	0	0
Dividends and Interest receivable	9	1	10	" Langhorne Orchard " Fund :—			
	<hr style="width: 100%;"/>		34 8 6	£258 18s. 0d. 3½ per cent. Conversion Stock	200	0	0
" SCHOFIELD " MEMORIAL FUND (<i>per contra</i>)			220 0 0	" Schofield Memorial " Fund :—			
Balance as at 1st January, 1947	18	18	8	£378 14s. 6d. 2½ per cent. Consolidated Stock	220	0	0
Dividends receivable	9	9	4	" Craig Memorial Trust " Fund :—			
	<hr style="width: 100%;"/>		28 8 0	£376 7s. 4d. War Stock 3½ per cent.....	400	0	0
				<hr style="width: 100%;"/>	1,328	0	0

" CRAIG MEMORIAL TRUST " (per contra)

400 0 0

LIBRARY, FURNITURE AND EQUIPMENT (not valued) —

INCOME AND EXPENDITURE ACCOUNT :—

Balance at 1st January, 1947 188 16 9

Add :—Net Excess of Expenditure
over Income for the year ended
31st December, 1947 264 5 8

453 2 5

Deduct :—Donations received 39 3 0

413 19 5

£2,503 18 8

£2,503 18 8

We report to the members of the Victoria Institute that we have audited the foregoing Balance Sheet dated 31st December, 1947, and have obtained all the information and explanations we have required. We have verified the Cash Balances and Investments. In our opinion the Balance Sheet is properly drawn up so as to exhibit a true and correct view of the affairs of the Institute according to the best of our information and the explanations given to us and as shown by the books of the Institute.

LUFF, SMITH & Co.,
Incorporated Accountants.

Drayton House,
Gordon Street,
London, W.C.1.
19th April, 1948.

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st DECEMBER, 1947.

EXPENDITURE.		£ s. d.	£ s. d.		£ s. d.	£ s. d.
To Rent, Light, Cleaning and Hire of Lecture Room		68 10 0		By SUBSCRIPTIONS :—		
„ Salaries		178 16 4		Fellows	248 6 9	
„ Assistant Secretary's Expenses		25 0 0		Members	262 14 9	
„ National Insurance		4 16 8		Associates and Libraries	52 17 1	
„ Printing and Stationery		245 2 3			563 18 7	
„ Postages, etc.		50 8 11		„ Proportion of Life Subscriptions ...		26 18 0
„ Audit Fee		5 5 0		„ Sale of Publications		44 14 8
„ Sundry Office Expenses		35 1 1		„ Income transferred from "Craig Memorial Trust" Fund		13 3 4
„ Balance carried down			613 0 3			
			£648 14 7			£648 14 7
„ To Reserve for cost of publication of Transactions for the years 1946 & 1947			300 0 0	By Balance brought down		35 14 4
			£300 0 0	„ Amount carried to Balance Sheet		264 5 8
						£300 0 0

THE ANNUAL GENERAL MEETING
OF THE
VICTORIA INSTITUTE

HELD AT 12, QUEEN ANNE'S GATE, LONDON, S.W.1, ON
MAY 24TH, 1948.

SIR FREDERIC KENYON, G.B.E., K.C.B., D.Litt., LL.D., F.B.A.,
THE PRESIDENT OF THE INSTITUTE, IN THE CHAIR.

The Minutes of the Annual General Meeting held on June 2nd, 1947, were read, confirmed and signed.

The Report of the Council and Statement of Accounts for 1947, having been circulated, were taken as read.

The Chairman then called upon Rev. A. E. HUGHES to propose, and Mr. H. F. SANDFORD to second, the *First Resolution*, viz. :—

“ That the Report and Statement of Accounts for the year 1947 presented by the Council, be received and adopted ; and that the thanks of the Meeting be given to the Council, Officers and Auditors for their efficient conduct of the business during the year ; and that the Auditors, Messrs. Luff, Smith & Co., be, and hereby are, re-elected Auditors at a fee of five guineas.”

There being no comments or amendments, the Resolution was put to the Meeting and carried unanimously.

Mr. POYNTER ADAMS then proposed, and Rev. A. E. HUGHES seconded, the *Second Resolution*, viz. :—

“ That the President, Sir Frederic G. Kenyon, G.B.E., K.C.B., D.Litt., LL.D., F.B.A. ; Vice-President, Professor A. Rendle Short, M.B., B.S., F.R.C.S. ; the Honorary Treasurer, Wilson E. Leslie, Esq. ; and R. E. D. Clark, Esq., M.A., Ph.D., Honorary Editor of Transactions, be, and hereby are, re-elected to their offices.”

There being no comments or amendments, the Resolution was put to the Meeting and carried unanimously.

Mr. DOUGLAS DEWAR proposed, and Mr. A. W. YOUNG seconded, the *Third Resolution*, viz. :—

“ That Lt.-Col. L. M. Davies, M.A., Ph.D., D.Sc., F.G.S., and Wilson E. Leslie, Esq., retiring members of the Council, be, and hereby are, re-elected.”

There being no comments or amendments, the Resolution was put to the Meeting and carried unanimously.

It was announced that the Langhorne Orchard Prize and Schofield Prize which had been offered for competition had not been awarded.

The Gunning Prize for 1949 was next mentioned, the subject chosen being “ The Decalogue and Psychological Well-being ; its Present-day Significance and Value to Mankind.”

A hearty vote of thanks to the Chairman terminated the Meeting.

AIR COMMODORE P. J. WISEMAN, C.B.E.,

*Chairman of Council,
Victoria Institute.*

Air Commodore P. J. Wiseman, C.B.E., Chairman of the Council, Victoria Institute, passed to his rest on October 16th, 1948. Although he had been a sufferer for a considerable time—a fact unknown, perhaps, to most of his admirers—he worked assiduously and at a tempo which few could have maintained and which has been seldom witnessed, for a multitude of Christian interests, to the extreme end. His loss will be deeply felt by the Victoria Institute to which he gave labour and devotedness with such great lavishness. He joined the Institute in 1919, was elected Fellow in 1939, becoming a member of the Council in the same year, and Chairman of the Council in 1943. The death in 1945 of the permanent Honorary Secretary (Lt.-Col. T. C. Skinner) threw a weight of additional work on to the shoulders of the Air Commodore, as a suitable permanent Secretary was not found for several years.

He was born at Southsea, in 1888, and educated at Buckingham Academy. He became an accountant and in 1914 entered the R.N.A.S. as Paymaster Lieutenant. Transferred in 1918 to the newly-created R.A.F. he was soon given a post at the Air Ministry. During the 1939–45 war he was appointed to the Supreme Headquarters Staff of the Allied Expeditionary Force, and for his services was mentioned in despatches; and in the the New Year's Honours List of 1943 he was invested C.B.E.

Air Commodore Wiseman was associated with and a leader and inspirer of many forms of Christian witness. These included the Inter-Varsity Fellowship of Evangelical Unions for which he had just completed his comprehensive *Guide to Christian Reading*, the Bible League (Editor of the famous *Quarterly*), the Crusaders' Union, of which he succeeded the late Viscount Caldecote as President, the Officers' Christian Union (Vice-Chairman), Soldiers' Sailors' and Airmen's Association (Vice-President), and the Scripture Gift Mission (Treasurer). He was also a highly esteemed and beloved elder of a Christian assembly.

He was, of course, best known and most widely appreciated for his knowledge of and writings on Archæology and its applications to Bible history. He put to the greatest possible use his service years spent in the Near and Middle East, 1921-1926, and visited practically every known Bible town and site. He was well known to Sir Leonard Woolley and to Professor Stephen Langdon, who welcomed his co-operation in their excavations. He was himself the possessor of a number of treasured and greatly coveted "finds" disinterred during his own travels. His book, *New Discoveries in Babylonia about Genesis*, which has reached its fourth edition within a few years, was an epoch-making and devastating reply to the learned puerilities of the more destructive theories of Higher Criticism. It is apparently unanswerable. A later volume was *Creation Revealed in Six Days*, offering further suggestions as to the historical significance of Genesis I and providing well-documented evidence of the unique antiquity of that great classical chapter. His booklet *Modern Archaeology and the Bible* (I.V.F.) has been an acknowledged source of help to many.

His capacity for and his output of work was amazing. He never cried off and never spared himself even when he might with every good reason have done so. His great aim was, in every way and by all means, to serve his loved Master and His people to the utmost limit of his powers. This he did with a devotion and a devotedness which none who knew him can ever forget.

He leaves a widow, two sons and three daughters.

It has sometimes been necessary in the interests of economy, etc., to summarise discussions on these papers. In many instances the spoken word or the written communication is of greater length than that given in the Transactions.

(This paper was not read before the Institute, but was circulated in proof form).

THE ORIGIN OF THE ALPHABET.

By F. F. BRUCE, ESQ., M.A.

IN order to proceed from the known to the unknown—or at any rate from the well known to the less well known—let us take as our starting point the English alphabet as we know it to-day : A B C D E F G H I J K L M N O P Q R S T U V W X Y Z.¹ (The lower case letters are, of course, simply modifications of the capitals.) This English alphabet of 26 letters is derived from the Latin alphabet of 23 letters. I and J are by origin variants of one and the same Roman letter ; the same is true of U and V ; while W is exactly what we call it, a double U.

Y and Z were appended to the Roman alphabet in the 1st century B.C. for the more accurate transliteration of Greek words in Latin, Y representing the modified *ū* sound of Greek *upsilon*, and Z the double *dz* or *zd* sound of Greek *zeta*, neither of these sounds being found in native Latin words. The Roman alphabet was derived through the Etruscans from a West Greek alphabet, such as was used in the early Greek colonies of southern Italy. It is due to Etruscan influence that the Roman letter C had not the “voiced” quality of its Greek counterpart *gamma* ; Etruscan had no such “voiced” stop, and therefore in the alphabet which the Romans acquired through Etruscan intermediation the letters C, K, Q had all the same “unvoiced” quality. Later, when the Romans wished to distinguish the “voiced” guttural stop from the “unvoiced,” they employed G, a variant form of C, for this purpose, and inserted it in the alphabet in the place formerly occupied by Greek *zeta*, which the Romans jettisoned in those early days because it represented no Latin sound. Five other letters of the West Greek alphabet were similarly jettisoned.

¹ The article “Alphabet” in the *Encyclopædia Britannica*, 14th ed., Vol. I (1929), pp. 677 ff., should be consulted ; it was written by a Member of the Victoria Institute, Dr. B. F. C. Atkinson.

There were numerous varieties of alphabets in use in the Greek world. One was the West Greek alphabet from which the Roman alphabet was derived; another was the East Greek or Ionic alphabet, which was officially introduced at Athens in 403 B.C., and not long afterwards replaced the local varieties in other parts of Greece. This is the alphabet of 24 letters which we commonly know as the Greek alphabet. One of the main differences between it and the West Greek form is that in the latter, H represents the aspirate sound, while in the former (since most of the Ionic Greeks dropped all their *aitches*) there was no need of a letter to indicate the aspirate, and so H (*eta*) was used to represent a long open *e*, like *è* in French *père*.¹ In this, as in some other respects, however (*e.g.*, in its retention of the letters F and Q), the West Greek alphabet, and hence the Roman alphabet, kept nearer to the original Greek alphabet than did the Ionic alphabet. The earliest inscriptions in the Greek alphabet occur in the islands of Thera, Melos and Crete; they cannot be dated with exactitude, but belong to the 8th or 9th century B.C.

Greek tradition derives the alphabet from the Phœnicians. Cadmus, the founder of Thebes, and legendary inventor of the alphabet, was the son of Agenor, king of Phœnicia. Not only does he bear a Phœnician name (from *qadmu*, possibly meaning "first"), but several features of his legend have marked Phœnician affinities, and the legend itself reflects an historical situation several generations before the Trojan War.² It is quite likely, however, that the legend confuses the introduction of a syllabic form of writing on the Greek mainland *before* the Trojan War and the introduction of the Phœnician alphabet to the Greek world several generations *after* the Trojan War.³

In any case, the Phœnician derivation of the Greek alphabet is a matter of plain fact. The early Greek alphabet *is* the Phœnician alphabet, with some adaptations to the necessities of the Greek language which, being an Indo-European tongue,

¹ By the end of the B.C. era the sound of this letter had become that of *ee* in English *see*—the sound which it retains in Modern Greek.

² See J. L. Myres, *Who were the Greeks?* (1930), pp. 321 f., 347 ff.

³ If the Cadmus-legend reflects the historical situation of c. 1400 B.C., it was *chronologically* just possible for the Phœnician alphabet to be imported into Greece at that time. But there is no evidence of its presence in the Greek world for five or six centuries after that date. Traces of writing of the period 1400-1200 B.C., found when the site of the Cadmeia (the citadel of Thebes) was excavated in 1907, were of non-semitic origin.

was totally different from the Semitic tongue of the Phœnicians. The most important of these adaptations was the use of five Phœnician letters (representing three Phœnician gutturals and two semi-vowels) to indicate vowels.¹ All 22 letters of the Phœnician alphabet represented consonants. One of the letters used by the Greeks as a vowel, Phœnician *waw*, used as Greek *upsilon*, was also required by the Greeks as a semi-vowel with the sound *w* (its original value in Phœnician), and so it was used, in two variant forms, twice over in the Greek alphabet—once in its Phœnician position (No. 6), in its old semi-vocalic character,² and again at the end of the alphabet (No. 23) in its new character as a vowel-letter. (The letters which follow *upsilon* in the Greek alphabet were added subsequently and do not concern us here.)

The names of most of the Greek letters are simply the Phœnician names taken over into Greek along with the letters. *Alpha*, *beta*, *gamma*, *delta* are meaningless in Greek, except as they serve to denote letters of the alphabet; but their original Phœnician forms, *aleph*, *beth*, *gimel*, *daleth* and so on (practically identical with the Hebrew names of the letters) are not only the names of letters but have a meaning of their own.

The Phœnician alphabet was written from right to left, as four of its derivatives, the Hebrew, Samaritan, Syriac and Arabic alphabets, are written to the present day. The earliest Greek writing also ran from right to left. When Herodotus (*Hist.* v, 59) says that he saw "Cadmeian characters" engraved on tripods in a temple in the Bœotian Thebes, he may be referring to right-to-left writing. The next stage in Greek writing was the writing of alternate lines right to left and left to right; this practice was known as writing *boustrophedon* ("ox-turning-wise"), as it resembled the alternate directions followed in ploughing, up one furrow and down the next. Then came the third stage, in which the left-to-right direction was standardized, and this has remained the direction in which the Greek alphabet and its derivative, the Roman alphabet, are written to this day. This matter of the direction of writing has no such metaphysical significance as

¹ The three gutturals were *aleph*, *he* and *'ayin* (used by the Greeks as *alpha*, *epsilon* and *omicron* respectively); the two semi-vowels were *waw* and *yod* (used as *upsilon* and *iota*).

² The letter *digamma*, pronounced *w*, which occupied the sixth place in the West Greek and other local Greek alphabets, but was lacking in the Ionic alphabet.

some people like to read into it; it is a matter of pure convention.¹

How old is the Phœnician alphabet? The sarcophagus of Ahiram, king of Gebal (Byblos) in Phœnicia, discovered by Pierre Montet in 1922, has an inscription of some length in this alphabet which is usually dated in the 13th century B.C.² But there is earlier evidence than this. A vessel found in the same town of Gebal, belonging to the time of Amenemhet IV of Egypt (early 18th century B.C.), has marked on it two signs which are pretty certainly the Phœnician letters, 'ayin and kaph.³ And a date round about this time is probable on various grounds for the origin of the Phœnician alphabet.

The origin of writing, of course, long antedates the origin of the alphabet. Simple and convenient as alphabetic writing appears to us, it was reached at a late stage in the development of writing. This was inevitable, in view of the fact that writing developed out of drawing. A picture, say, of an old man, so long as it represents an old man and nothing else, remains a picture (or pictogram) only. Some of our traffic signs are of this character—those for cross-roads and various other types of road junction, for example. But when the picture of an old man is intended to convey the general idea of old age, we have moved a step—and a long step—in the direction of writing; the pictogram has become an ideogram. Thus, in our system of traffic signs, a torch does not denote a literal torch but the torch of learning, which by a further extension of meaning is (in this particular

¹ The cuneiform writing was originally in columns read downward, and from right to left; but after c. 2500 B.C. it regularly runs from left to right. The Egyptian hieroglyphs were usually written from right to left (as the derived hieratic and demotic scripts always were), but sometimes from left to right, and sometimes in vertical columns. The Sinaitic alphabetic script was written indifferently in any of the three directions. The Indian *nāgarī* script, probably derived from the Semitic alphabet, is written from left to right. The oldest extant piece of Latin writing (the inscription MANIOS MED FHEFHAKED NVMASIOI on the Prænестine fibula of c. 600 B.C.) runs from right to left. The earliest extant Latin inscription in stone (not later than 400 B.C.) has its letters written in vertical columns, from bottom to top and from top to bottom alternately. For right-handed writers the left-to-right direction has the advantage that one is less likely to smear or deface the words already written.

² The Ahiram inscription runs as follows in translation: "Ethbaal, son of Ahiram, king of Gebal, made this coffin for Ahiram his father as an everlasting abode. And if any king among kings or governor among governors besiege Gebal and uncover this coffin, may the sceptre of his authority be broken and the throne of his kingdom overthrown, but let peace rule over Gebal. If any man efface this inscription, may his seed perish."

³ C. F. A. Schaeffer, *The Cuneiform Texts of Ras Shamra-Ugarit* (1939), p. 36.

context) intended to indicate the presence of a school. Again, the picture of a bear, so long as it denotes that animal only—whether the species or an individual—remains a pictogram. But let the use of the picture be extended to cover other words which happen to have the same sound—the verb “bear” and the adjective “bare”—and another very important step forward has been taken; the pictogram has become a phonogram, a sign indicating a sound, or rather, in this case, a group of sounds, forming one syllable. And this phonogram may further be used to denote the same syllable when it forms part of a longer word, as if, for example (in charade fashion), we expressed the word “forbear” by writing a sign for the numeral “four” (4, IV or IIII)¹ followed by the picture of a bear. The representation of every syllable by a distinct sign is a great advance on the primitive stage when ideograms or logograms were the only written symbols. The number of possible syllables in any language, though large, is limited; with a syllabary (a set of syllabic signs), therefore, we are on the way to a more convenient system of writing. The number of signs in a syllabary can be further reduced if, instead of having a sign for every syllable of the consonant-vowel-consonant type (*e.g.*, *cat*, *dog*), we use only signs which represent either the consonant-vowel or the vowel-consonant type of syllable (*ba*, *ab*), and so instead of using signs which represent *cat*, *dog*, use signs which represent *ca-at*, *do-og*.

In point of fact, it was seldom that one of these improvements was adopted to the complete exclusion of the earlier stages. Thus, in the cuneiform writing of the Euphrates-Tigris valley and adjacent lands we find intermingled the simpler syllabic writing, the more complicated syllabic writing, and the still more primitive ideograms.

There were several independent syllabaries in use in the Middle East in the second millennium B.C. There was the cuneiform script already mentioned, first used for writing Sumerian² and later for Elamite and Akkadian and many other languages of

¹ The numeral-signs are modern ideograms. The sign 4, for example, has exactly the same meaning for a reader speaking English, French, German or any other language, though they pronounce it quite differently from each other—*four*, *quatre*, *vier* and so on.

² About 3000 B.C. we find two distinct forms of writing in Mesopotamia—the semi-pictographic script of Elam and Jemdet Nasr (near Kish), and the proto-cuneiform of Ur and Lagash. Possibly both were derived from a common pictographic source, but the Sumerians made a more rapid advance from it than did the Elamites.

Western Asia; there was the hieroglyphic script of Egypt; there were other hieroglyphic scripts in Syria and Anatolia, including that in which one dialect of Indo-European Hittite was written and that *printed*¹ on the Phaistos disc (which, though found in Crete, must have been carried there from Asia Minor); there was the linear script of Minoan Crete, which was carried thence to the Greek mainland and to Cyprus.²

While these syllabaries were in official use in the great Empires of the second millennium, the first experiments were being made in alphabetic writing. The Egyptians, as early as 3000 B.C., developed out of their hieroglyphic writing a sort of alphabet of 24 signs, representing all the consonants current in their language; this alphabet, however, never became independent of the cumbersome hieroglyphic system, but served only to supplement it. The bold step of detaching the alphabetic system completely from its unwieldy parent was taken by a people in close contact with the Egyptians. The Egyptian origin of the Phœnician alphabet has been generally accepted for quite a long time, but the absence of any connecting link between the Egyptian and Phœnician alphabets led from time to time to the propounding of other theories to account for the Phœnician alphabet; Sir Arthur Evans, for example, thought that the Phœnicians were to some extent at least indebted to the Cretan linear script, and he envisaged the Philistines as the intermediaries. But we now know that the Phœnicians had their alphabet before the advent of the Philistines in those parts.

The missing link between the two alphabets made its appearance when it was discovered that rough inscriptions in the Sinai peninsula, the work of miners employed in the turquoise mines at Serabit el-Khadem, were written in an alphabet based (at any

¹ Yes, *printed* with movable stamps; not written! Sir A. Evans suggested that the inscription was a religious chaunt in honour of the Anatolian Great Mother of the Gods. It shows 45 different signs. See Evans, *Scripta Minoa* i (1909), pp. 22 ff., 273 ff.

² The Cretan linear script, which also goes back to a pictographic stage, remains undeciphered. However, the clue to its decipherment may now be within reach. In 1939 C. W. Blegen found about 600 tablets, written in a variation of Cretan linear script, on the site of Nestor's city of Pylos in S.W. Greece. The script seems to have been used for various languages, including Mycenaean Greek. When the tablets have been published and studied, it should not take long to decipher them. The Cretan linear script was also taken over by the pre-Greek population of Cyprus, and then adapted to Greek by the Achæan colonists in that island. As used for writing the Cyprian dialect of Greek, it was reduced to a syllabary of 54 characters, indicating open syllables only.

rate to a large extent) on Egyptian hieroglyphics, but nevertheless a real, self-sufficient alphabet.¹ This Sinaitic alphabet now appears to supply the connecting link between the Egyptian writing and the classic Phœnician alphabet. Dr. Alan Gardiner, who played a prominent part in identifying the script of these Serabit *graffiti*,² assigns it to the period of the Twelfth Dynasty of Egypt (c. 1898-1776 B.C.), when these turquoise mines were being worked.

It is noteworthy that the alphabet originated as the writing of common men, in contrast to the older systems which were the prerogative of priests and clerks. The alphabet made it possible for all classes to be literate; its invention is therefore a landmark of great importance in the history of civilization.

The excavations at Tell ed-Duweir (the Lachish of Old Testament times), begun in 1933, provided further examples of early alphabetic writing (including a line of writing on what is known as the "Lachish Ewer" belonging to the early 13th century B.C., and four characters on a dagger of the Hyksos period), which provide links between the primitive Sinaitic script and the developed Phœnician alphabet. Other links have been found on ostraca at Beth-shemesh and Gezer.³

The principle on which the alphabetic system was developed out of the hieroglyphic is generally agreed to have been the acrophonic (or initial-sound) principle. To denote the sound *b*, for example, an ideogram was chosen which represented a word beginning with that sound—the ideogram for *beth*, meaning "house," which in its earliest form shows the outline of a house. Similarly, to denote the sound *y*, the ideogram for *yod*, meaning "hand," was chosen, and here too, in the earliest form of the letter, the outline of a hand with outspread fingers is clear. The close relationship of the Sinaitic symbols with the Phœnician alphabet became plain when it was realized that the names of the Phœnician letters designate the objects depicted by the Sinaitic symbols. The Egyptian alphabet was also based on the

¹ The inscriptions were first discovered by Flinders Petrie in 1905. They are now in the Cairo Museum.

² See his articles in *Journal of Egyptian Archaeology* ii (1915), pp. 61 ff.; *Pal. Expl. Fund. Quarterly Statement* (1929), pp. 48 ff.

³ An article by J. W. Flight, "The Present State of Studies in the History of Writing in the Near East," in *The Haverford Symposium on Archaeology and the Bible*, ed. E. Grant (New Haven, 1938), gives a convenient summary of the data, with bibliography. See also C. C. McCown, *The Ladder of Progress in Palestine* (1943), ch. 8, "The Quest for an Alphabet" (pp. 100-117).

acrophonic principle, and it was from the Egyptians that the inventors of the Sinaitic alphabet adopted the principle. Many of the pictographs used are common to the Egyptian and Sinaitic alphabets, but in the former they designate the initial sound of the Egyptian word, while in the latter they designate the initial sound of the Semitic word. Thus the pictograph of a house is common to both alphabets, but in the Egyptian one it represents *h* (the initial of an Egyptian word meaning "house"), whereas in the Sinaitic and Phœnician alphabets it represents *b*, the initial of *beth*.

The chief reason for the absence of vowel-letters from the Semitic alphabets is their absence from the Egyptian alphabet from which these were developed. The Semitic languages in their written form managed to get on quite well without vowel-letters. Though in some of them at a later date some letters were employed in a secondary role to denote important vowels (e.g., in Hebrew, *aleph*, *he*, *waw* and *yod*, the so-called *matres lectionis*) and still later vowel-points were added to the written text, these are helpful adjuncts for the novice, but by no means indispensable for the experienced reader. I am told by expert Hebraists that in reading Hebrew quickly they find the points a positive hindrance; it is such a nuisance to have to stop and decipher them.

It is far otherwise with Indo-European languages. Vowels play so distinctive a part in their roots and inflections that they must be represented in the written language. And so, as we have seen, when the Phœnician alphabet was taken over by the Greeks, certain letters, five in number, were utilized as vowel-signs. Why five? There were seven distinct simple vowel sounds (quite apart from differences of quantity) in classical Greek—those represented in the Ionic alphabet by *a*, *ε*, *η*, *ι*, *ο*, *υ* and *ω*. "Whoever adapted the Semitic alphabet to vocalic as well as consonantal notation," it has been remarked, "chose precisely the five vowels used in the Cypriote syllabary, in spite of the fact that a Greek ear heard at least seven vowels in the language."¹ This suggests the possibility that the pre-Greek system of writing which originated in Crete and spread from there north and east may at some stage have influenced the adaptation of the Phœnician alphabet to Greek usage.

¹ Quoted by Sir G. Hill, *History of Cyprus*, i (1940), p. 53, with a reference to Rhys Carpenter in *American Journal of Archaeology*, xlii (1938), p. 67.

There was one early form of the Semitic alphabet which did to a limited extent express vowel distinctions. This was the cuneiform alphabet of Ras Shamra, which was in use in the 15th century B.C. This cuneiform alphabet is not a development from Babylonian cuneiform; it is the result of trying to write the early Phœnician alphabet with a metal stylus on clay tablets. And the Ras Shamra alphabet is so well advanced that the alphabet from which it developed must be substantially older.¹ This agrees with the evidence we have already noticed for dating the origin of the Semitic alphabet in the Twelfth Egyptian Dynasty. The Ras Shamra alphabet, however, instead of having but one sign for the letter *aleph*, has three, according as *aleph* is followed by *a*, *i* or *u*. Professor O. Eissfeldt² connects this fact with the tradition in Sanchuniathon that Eisirios, the brother of Khnâ (the eponym of Canaan), was "the inventor of 'the three letters'." Eissfeldt suggests that *Eisirios* represents ultimately a corruption of Semitic *Ugar*, the eponym of Ugarit, the ancient Canaanite city whose site is now known as Ras Shamra. Sanchuniathon ascribes the invention of letters in general (as distinct from these special three) to Tautos, who is obviously the Egyptian Thoth; it is interesting that the Phœnician mythologist and historian should thus preserve a tradition of the Egyptian origin of the alphabet which modern discovery has shown to be securely based.

What is the relevance of all this for Biblical studies? The alphabet, as we have seen, brought writing and reading within the reach of ordinary people. In Judges viii, 14, we are told how Gideon laid hands on a youth of Succoth in Transjordan, who, according to the text of the Authorized and Revised Versions, "described" to him the chief men of the city. But the margins of both Versions honestly point out that the word means "wrote" (Heb. *kathab*). But that a chance young man should have been able to write seemed too unlikely, down to the days when the oldest alphabetic autograph known was Mesha's Moabite stone (inscribed c. 850 B.C. and discovered in A.D. 1868). Now, however, it seems perfectly probable that we are to understand the narrative literally, and that the youth *wrote down* for Gideon a list of the chief men of his city.

The Hellenistic Jewish writer Eupolemos, in the 2nd century

¹ C. F. A. Schaeffer, *The Cuneiform Texts of Ras Shamra-Ugarit* (1939), p. 36.

² *Ras Schamra und Sanchuniathon* (1939), p. 60.

B.C., put forward the view that writing was invented by Moses. This view was repeatedly put forward by Jews and Christians down to the 19th century; but now we know that men were writing at least 2,000 years before the time of Moses. In our own day, however, the belief has been revived in another form; if Moses did not invent writing, may he not at least have been the inventor of alphabetic writing? Sir Charles Marston, in *The Bible Comes Alive* (1937), p. 180, used italics to give emphasis to his conclusion that "*the Bible began to be written when, and where, alphabetical writing began to be written.*" And he went on to suggest that "there may be an even closer relationship than has yet been brought to light." If the "closer relationship" in his mind had anything to do with the idea that Moses invented the alphabet, it is disposed of by the evidence which puts the origin of the alphabet back to the days of Dynasty XII.¹

But we do know that Moses may perfectly well have written in Hebrew in an early alphabetical script. There is no necessity now, as there seemed to be 35 years ago when Professor Naville wrote his *Archæology and the Old Testament*, to believe that Moses must have used the cuneiform script on clay tablets like those of the Tell el-Amarna collection. Of course he could have done so, but it is now seen to be equally possible—and perhaps more probable—that he used the alphabet. (I do not touch the question of how his documentary sources were written.) The history of the Bible, at any rate, is closely bound up, right from the start, with the history of the alphabet. And believers in the providence of God may well conclude that it was by that providence that, when "God's Word written" was about to make its first appearance, a form of writing lay ready to hand for the purpose, the understanding of which was not restricted to specially trained scholars, but lay within the capacity of Everyman.

WRITTEN COMMUNICATIONS.

Brig.-Gen. H. BIDDULPH wrote: Col. C. R. Conder, in *The First Bible* (Blackwood, 1902; esp. chap. 4), produces strong evidence,

¹ Some light relief in the progress of research was provided by H. Grimme's attempt to read the names Moses, Hatshepsut, Yahu, Sinai, in the Sinaitic inscriptions—partly through interpreting as significant letters mere cracks and weather-marks in the stone (*Althebräische Inschriften von Sinai* [1923]; *Die Lösung des Sinaischriftproblems* [1926]).

based upon variants in personal names, that the Pentateuch was written originally in cuneiform characters. Conder is not an authority who can lightly be set aside.

AUTHOR'S REPLY.

I am indebted to Brig.-Gen. Biddulph for raising the point about Conder. I am aware that Conder, like Naville after him, argued that the Pentateuch was written in cuneiform characters on clay tablets, and therefore presumably in the Akkadian language. The early date of alphabetic writing was unknown to them. Now that we know that its invention ante-dated the time of Moses, it is no longer necessary to think of him as writing in Akkadian cuneiform. This was used by the Egyptian foreign office in the Eighteenth Dynasty for diplomatic correspondence with subjects and allies in Western Asia, but it does not follow that Moses would use it, especially as his reading public would not understand it. We may take it that the Pentateuch (as such) never existed in any earlier form than alphabetically written Hebrew. The variants in personal names (especially divine names) have a much simpler explanation.

Since my paper was communicated to the Institute, Professor W. F. Albright has made a further study of the Sinai alphabetic inscriptions. According to the *New York Times* of January 22nd, 1948, and the *Biblical Archaeologist* for February, 1948, Albright finds that they are written in an alphabet of 28 consonantal characters, and he dates them, on the basis of pottery found near the mines, about 1500 B.C. See also *B. A. S. O. R.*, April, 1948, where Prof. Albright gives his own account. It seems most likely now that the Sinaitic and Phœnician alphabets go back to a common alphabetic ancestor, which originated about 2000 B.C. or shortly after, probably at Gebal, which was in close contact with Egypt.

To my bibliographical notes two very important additions may now be made: D. Diringer, *The Alphabet: A Key to the History of Mankind* (Hutchinson, 1948), and G. R. Driver, *Semitic Writing: From Pictograph to Alphabet* (Cumberlege, 1948). The latter work contains the British Academy Schweich Lectures for 1944.

(This paper was not *read* before the Institute, but was circulated in proof form).

THE EARLIEST KNOWN ANIMALS.

BY DOUGLAS DEWAR, B.A., F.Z.S.

THE most striking feature of the geological record is the abundance of fossils in the rocks laid down during the Cambrian and all later periods and the complete lack of *indubitable* fossils in all the earlier rocks—all those laid down in the pre-Cambrian period. Yet in many places these pre-Cambrian rocks seem to be well-fitted to hold and preserve fossils. Examples of such are the Torridon Sandstones of Scotland, 8,000 feet thick, the Green Shales of Brittany, 17,000 feet thick, the Huronian Series of Canada, 18,000 feet thick, the Tindir Group in Alaska, 20,000 feet thick, the Belt Series of North America, 40,000 feet thick, and the Cuddapah Series of India, 20,000 feet thick.

This sudden appearance of fossils in great variety and of high specialisation presented no difficulties to the older geologists, who regarded this as proof of a great creation at the beginning of the Cambrian period. But to the geologists who were induced by Darwin to accept the evolution theory this sudden advent in the rocks of a vast array of fossils presented a most formidable difficulty, because, in the words of Darwin (*Origin of Species*, 6th edn. (1882), p. 286) “if the theory be true, it is indisputable that before the lowest Cambrian stratum was deposited, long periods elapsed, as long as, or probably far longer than, the whole interval from the Cambrian age to the present day, and that during these vast periods the world swarmed with living creatures.”

Darwin admitted the seriousness of this difficulty, because (p. 287), “it does not seem probable that the most ancient beds have been quite worn away by denudation, or that the fossils have been wholly obliterated by metamorphic action.” He, however, took comfort because “only a small portion of the world is known with accuracy.”

He was confident that further geological exploration would bring to light a copious pre-Cambrian fauna. In full confidence that such organisms existed in their millions in the pre-Cambrian

epoch, scores of geologists set themselves to search for fossils of these. This intensive search has continued for seventy years. In his Presidential address to the Royal Society of Canada, in 1938, E. S. Moore said, "A large number of very able geologists are almost wholly engaged in work on these ancient and complex formations, and the literature on the subject is voluminous." This prolonged search, far from removing the difficulty to the evolution theory, has rendered it very much more serious than it was in Darwin's time, because, while it has resulted in the discovering of a great many fossils of Cambrian organisms, the rocks have not yielded a single indubitable fossil from the pre-Cambrian period. Seventy years ago, some 250 species of Cambrian animals were known. Today, the number exceeds 5,000. Every object found in any pre-Cambrian rock, having the remotest resemblance to a plant or an animal has been carefully preserved and minutely examined by experts. As there seems to be no end to the forms that some kinds of rocks, particularly limestones, may take, a few enthusiasts have reported the discovery of what they believe to be fossils and to which they have given names, such as *Eozoon*, *Beltina*, *Carelozoon*, *Atikokania*, *Newlandia*, etc., but not one of these has satisfied every expert that it is a fossil or even an organic product. A short account of these finds is given in an Appendix, in order to justify the title of this paper, in view of the belief of evolutionists that the Cambrian fauna was far from being the earliest; indeed, according to them, it is comparatively modern!

The discovery and the naming of these supposed pre-Cambrian fossils has enabled evolutionists who write textbooks to give their readers the impression that animals and plants existed in abundance in pre-Cambrian times. These writers speak of fossils of algæ, worms, foraminifers, etc., without stating that most experts deny the authenticity of these¹.

¹ This does not necessarily denote dishonesty on the part of the author. The discoverer of a supposed pre-Cambrian fossil records his find in a scientific periodical. This is utilised by the writer of a scientific book. Later the fossil in question is re-examined and rejected, and the fact recorded in a scientific journal. The writers of later text-books copy their remarks about this fossil from the first textbook, unaware that the fossil has been discredited. Thus Walcott's rejected fossils recorded by him in 1899, are cited by Depéret in his "Transformations of the Animal World," written more than 40 years ago, and this error is repeated in books published as recently as 1947, for example "L'Evolution Régressive (1943)," by Salet and Lafont, and "Human Destiny" (1947) by Du Noüy.

It is noteworthy that the standard book on Palæontology, the 1937 edition of von Zittel's "Text Book of Palæontology," edited by Professor C. R. Eastman, refers (p. 4) to "the total absence of fossils," in pre-Cambrian rocks.

That some 5,000 species of Cambrian animals have been described does not mean that only this number of fossils have actually been dug up. In the case of many of these species, fossils of thousands of individuals have been collected. These are a minute fraction of those still lying *in situ*. There are millions of these. That this is not exaggeration will be seen from such a fact as that on the hills adjoining the left bank of the Thornton river in N.W. Queensland, there are Cambrian limestone strata 40 feet thick "closely packed with fossils of the echinoderm Cymbionites, weathering out beautifully on the surface." Dr. F. W. Whitehouse gives in volume XII of *The Memoirs of the Queensland Museum*, a photograph of a slab of this limestone $5\frac{1}{2}$ ft. by $3\frac{1}{2}$ ft. in which some 60 complete specimens of this animal are shown, "This limestone," he writes, "with specimens crowded as richly and as well preserved, may be traced continuously around the contour of these hills. Following it is like walking over thickly-strewn embedded marbles." "Twenty-four feet above this rich band occurs the bed, five feet thick, with Peridionites (another genus of echinoderm). This is packed almost as tightly as the other . . . and they . . . too . . . weather out in relief. Between the two horizons are other echinodermal horizons, greatly crowded with ossicles that, however, do not stand out with naturally etched surfaces. Thus, what echinoderm types occur in them is unknown." These are exceptionally rich beds; but Cambrian rocks rich in fossils are known to exist in more than 100 localities in various parts of the earth.

Here then we have, on the one hand, the complete absence of indubitable fossils in all the rocks laid down before the Cambrian period, and on the other hand millions of fossils in the rocks of the Cambrian period and every later period.¹ The natural explanation of this phenomenon is that there was a great creation of marine animals and plants at the beginning of the Cambrian period. Owing to the influence of Darwin modern biologists and palæontologists mostly refuse to accept this explanation, and in consequence biology and geology have not kept pace with the exact sciences. The present predicament of biologists and geologists is just as it was described by A. Heilprin in 1887 (*The Distribution of Animals*, p. 194): "If we attach full weight

¹ Although the rocks of the Cambrian and all later periods abound in fossils, there are in every period some beds in which fossils are scarce or even entirely lacking, but such beds are rarely more than a few hundred feet thick, whereas the unfossiliferous pre-Cambrian beds are thousands of feet thick.

to the imperfection of the geological record, it is not difficult to account for the apparent abrupt appearance of certain animal groups of faunas But there is one special instance which is not so readily accounted for, and which, under any hypothesis, is almost inexplicable. We refer to the sudden appearance of the numerous forms of life which characterise the oldest fossiliferous formation with which we are at present acquainted, the Cambrian, when no unequivocal traces of pre-existing life are anywhere to be met with in the formation next preceding. So absolutely universal is this condition that it almost staggers belief. It cannot rationally be conceived that the varied Cambrian fauna could have come into existence *de se*, without there being a line of progenitors to account for its existence: but, if such progenitors did exist, which was doubtless the case, what has become of their remains? Can it be that all over the world, so far as we know, every fragment of such a pre-Cambrian fauna should have been so completely wiped out as to leave not a determinable vestige behind? It must be confessed this seems very incredible, seeing with what absolute perfection many of the oldest, and in many respects, the most delicate, structures have been preserved through all the vicissitudes of geological time."

In consequence of this obstinate refusal to believe that God has, or could have, created simultaneously all the earlier Cambrian animals, palæontologists have devoted an immense amount of time and labour in a vain search for pre-Cambrian fossils and in inventing fantastic theories to account for the non-discovery of these.¹ Had all this expenditure of time and energy been on more useful work, the biological and palæontological sciences would not have been in their present backward state. Let us hope that the time is at hand when, at long last, biologists and palæontologists will realise that they have been led by Darwin into a *cul-de-sac*, and that, until they turn back towards the road which leads to progress, biology and palæontology will continue to stagnate.

¹ Some of these theories are dealt with on pp. 116-120 of my "More Difficulties of the Evolution Theory," (1938). Here it must suffice to controvert the assertion that there is everywhere unconformity representing a large time lapse between the deposition of pre-Cambrian and Cambrian rocks. This is true of most localities, but in a number there is no apparent break, e.g., in the Kimberley and Adelaide Districts of Australia (*Vide Ency. Brit.* vol. 10, p. 168 and Vol. 2, p. 705), the Lake District of England ("General Stratigraphy" (1931), by Gregory and Barrett), Yukon, Alaska (*U.S.A. Geol. Survey Bull.*, 872 (1937), p. 64).

The Cambrian fossils known to us show that all the phyla or great groups of animals were in existence at that remote period, with the possible exception of the vertebrata, or back-boned animals.¹ Up to date only one fossil has been described from a Cambrian rock which may represent a vertebrate. This was found in a mid-Cambrian deposit in Vermont State, U.S.A. by W. L. Bryant, who named it *Eoichthys howelli*. It is thus described (*The Fifteenth Biennial Report of the Vermont State Geologist*, 1925): "An ellipsoid plate, 3 mm. in length, truncated at one end, ornamented with rows of tubercules which radiate from a point near the truncate border." Bryant believes this fossil to be a scale of an armoured fish. Dr. F. A. Bather, on the other hand, considers it to be part of the integument of a Cystid—an extinct order of Echinoderms. Thus the existence of vertebrates in the Cambrian period has not been proved, but the fossils show that these animals did exist in the Ordovician period. The fossils prove that representatives of all the other great phyla existed in the Cambrian period and that no new Phylum has appeared since the earliest known vertebrate fossil was laid down.

In the Cambrian period the phyla and classes of animals were as sharply separated from one another as they now are. "The Lower Cambrian Crustacea," writes W. K. Brooks (*The Foundations of Zoology*, (1899), (p. 218)) "are as distinct from the Lower Cambrian Echinoderms, or Pteropods, or Lamellibranchs or Brachiopods as they are from those of the present day." If there has been any evolution since the Cambrian period, it has been within each phylum.

Nor is this all. The smaller groups—families, genera and species of the Cambrian period were as sharply defined as they are today. The Cambrian animals, writes Brooks (p. 206), "far from showing us the simple unspecialised ancestors of modern animals, are most intensely modern themselves in the

¹ These fossils are all of marine animals and plants. This is to be expected because all the Cambrian rocks which have been preserved seem to have been laid down on the sea bed. All Cambrian freshwater and land deposits seem to have been weathered out of existence. Thus the Cambrian rocks known to us give no answer to the question: were terrestrial and freshwater organisms in existence in the Cambrian period?

Moreover, all the known Cambrian rocks contain terrigenous matter, therefore they must have been deposited in the sea at no great distance from land, and the fossils they hold must be almost all of animals and plants that lived near the shore. Thus they tell us little, if anything, about organisms which were confined to the open oceans while they were being deposited.

zoological sense, and they belong to the same order of nature as that which prevails to-day."

The above assertions of Brooks have been fully confirmed by the later exploration of the Black Burgess Shales—a Mid-Cambrian formation—in British Columbia. These Shales, very exceptionally, exhibit a number of impressions of the whole body of jelly-fishes, worms and other creatures lacking hard parts, which rarely leave a good record in the rocks, because normally, immediately after death, their soft bodies are decomposed by the action of bacteria. In this case it is thought that the black mud of these shales gave off sulphuretted hydrogen which killed off the local bacteria and so permitted the preservation of these delicate fossils. These are of 79 genera represented by 130 species, some of which have not been found anywhere else. Some of these most ancient animals are so like those now living in the sea that it takes an expert to distinguish between them.

The most interesting of these fossils are those of worms, sea-cucumbers and crustaceans. The only known rocks, apart from these Burgess Shales, which contain fossils of worms other than tracks and burrows made by these creatures in the sand or mud, are the Ordovician Shales of Cincinnati and Ohio, the Upper Jurassic Lithographic Shales at Solenhofen in Bavaria and the Eocene Shales at Monte Bolca in Italy. The worm fossils yielded by the Burgess Shales are of eleven genera representing three classes of worms, all of which are still living—the Gephyrea (segmented worms), the Chaetopoda (bristle-worms) and the Chaetognatha (arrow-worms).

Before the discovery of the Burgess Shales the only fossils of the group of Echinoderms known as *Holothuria* or sea-cucumbers which had been found in rocks of the Primary Epoch consisted of spicules of forms having a calcareous body-covering. These shales have yielded fossils showing the whole body of four species, representing three of the six families composing this class. This shows that the earliest known *Holothurians* were much diversified.

As regards the Crustaceans, fossils of Trilobites are not very abundant in these shales, but those of the other classes are numerous. Some of these are very like those now living. Walcott, who has made a special study of these fossils, writes (*Smithsonian, Misc., Coll.* vol 17 (1914), p. 161); "The bivalve carapaces of *Tuzoia* and *Carnarvonina* are so similar to the living

forms of the Nebalicea that there is little question of intimate relationship between them . . . The alimentary canal has been preserved in a number of species. The branched hepatic cæca are beautifully preserved in the shield of Burgessia, Naracia and Molaria. Among recent crustaceans the hepatic cæca are branched in some copepods . . . but none have the beautiful structure found in Burgessia . . . Marella splendens has an apus-like form, but it is evidently a more highly developed form than Apus (now living in our seas). This is shown among other characters by its carapace, long and jointed legs and fewer segments . . . The Burgess shale crustacean fauna was a tremendous surprise to me . . . That Branchiopoda of the order Anostraca lived in Cambrian time is not so surprising, but that they should be perfectly preserved, and closely allied to the living worms, certainly is unexpected."

As our knowledge of the Cambrian fossils grows, it becomes increasingly apparent that the representatives of all the phyla, except the vertebrata, were not less complex in Cambrian time than they are today.

All the known Cambrian animals belong to existing phyla, the majority to existing classes, and a fair percentage to existing orders, but comparatively few are members of the smaller groups now living. The only known Cambrian fossil which is clearly of an existing species is that of the beautiful little spiral-shelled foraminifer, *Spirillina groomi*, now living off the West coast of Ireland, of which a fossil has been found in an Upper Cambrian deposit at Malvern. Fossils of about ten living genera of foraminifera, lampshells and molluscs, and those of perhaps a score of living families are known from Cambrian rocks.

Some of the Cambrian orders and classes have become extinct, and the fossils of new ones have appeared in the later rocks at sundry times.

Further, the relative abundance of the various phyla was not the same in the coastal waters in Cambrian times as it is to-day.

Trilobites afford a striking instance of a great Class which has become extinct. Their fossils constitute more than half the total number found in Cambrian rocks. They died out during the Permian period. They had the appearance of great wood lice; some of them could curl themselves up as wood lice do. They varied in length from about $\frac{1}{4}$ inch to nearly 2 feet. Both

large and small forms occur in the earliest Cambrian rocks. They are called trilobites because longitudinal furrows divided the back of the body into three lobes. They were provided with a head shield and a smaller tail shield. Their legs were biramous, like the abdominal legs of lobsters. There were five pairs of these in the head region and a pair to each body segment. The number of body segments varied from two to 20. Some trilobites had compound eyes and some seem to have been devoid of eyes. They appear to have crawled on the sea bottom or burrowed in the mud. Fully 3,000 species have been described from Cambrian rocks. Their fossils seem to occur in every muddy sediment, but are not confined to rocks of this description.

The Decapods are an order of crustacea, which includes crabs, lobsters and shrimps, but no fossils of this order have been found in any Cambrian rock. The earliest known fossils of this order occur in rocks of the Triassic period. Next to the Crustacea, the Brachiopods (Lampshells) are the most numerous fossils. Over 130 Cambrian genera of these have been described, which is considerably more than double the number of genera now living. To-day, the lampshells form an insignificant part of the fauna.

The foregoing facts raise the question; Are the animals now living (*a*) modified descendants of those of which the fossils occur in Cambrian rocks, or (*b*) are they later creations, or, (*c*) did they exist in much their present form in the Cambrian period, and no fossils of them have been found because, in some cases, they were confined to localities where the rocks containing their fossils have been eroded out of existence, or, in other cases, the rocks holding their fossils have not been geologically explored for various reasons, such as their being under the sea or covered by ice in the polar regions?

These questions are dealt with in my paper "Current Theories of the Origin of Living Organisms" (*Jour. Trans. V.I. vol. LXXVI (1944)*), in which I contend that the fossils are definitely against (*a*), and that in the present state of knowledge it is not possible to decide definitely between (*b*) and (*c*). (*c*) seems to be highly improbable unless we bear in mind that the marine fossils we know are almost entirely of organisms which lived in the coastal seas and that probably every rock laid down at elevations a few hundred feet above sea level during the Primary and Secondary epochs has been weathered out of existence with all the fossils it contained.

CAMBRIAN FOSSILS.

<i>Phylum or Class.</i>	<i>Number of Genera of which fossils have been recorded.</i>
Trilobites	644
Other Arthropods	49
Molluscs	77
Brachiopods (Lamp-shells)	134
Bryozoa or Polyzoa (Sea-mats)	2
Echinoderms (Starfish, Sea-urchins, etc.)	39
Worms	41
Sponges	91
Coelenterates (Corals, Medusæ, etc.) ...	30
Radiolaria	3
Foraminifera	9
	<hr/>
TOTAL NUMBER OF GENERA ...	1,119
	<hr/>

In the above table disputed fossils such as *Eoichthys* are not included, nor are fossils not found earlier than in the Ozarkian System, because most authorities regard this system as transitional between the Cambrian and the Ordovician Systems. If Ozarkian fossils be included, the total number of Cambrian genera is 1,162.

APPENDIX.

Alleged Pre-Cambrian Fossils.

“Certain geologists,” writes C. W. Knight (Article ‘Pre-Cambrian’ in *Encyclopædia Britannica* p. 426), “consider that the evidence for the occurrence of fossils in pre-Cambrian rocks is hardly conclusive. This sparsity of fossils is the main feature which distinguishes the pre-Cambrian from Palæozoic and later eras.”

In the above passage I would substitute “far from” for “hardly” and “total lack” for “sparsity,” for the following reasons:—

1. If the evolution theory be true, the pre-Cambrian seas swarmed with living creatures; in consequence the rocks laid down in the pre-Cambrian should have yielded nearly as many fossils as those that have been found in Cambrian rocks—i.e., scores of thousands of fossils.

2. A search extending over 80 years has yielded nothing approaching a complete fossil.

3. Less than a dozen enthusiasts have described finding what they believe to be fossils of sorts, chiefly in limestones, which exhibit a great variety of structures of inorganic nature.

4. The supposed fossils are not mainly of trilobites and brachiopods which constitute three-fourths of the Cambrian fossils. Walcott has described what he thinks might be a segment of a trilobite and doubtful specimens of parts of brachiopods have been described by F. Chapman.

5. Most of the supposed pre-Cambrian fossils are of groups, such as worms, jelly-fishes and radiolaria, which are not commonly fossilised, while none are of molluscs which are commonly fossilised.

6. Most of the supposed pre-Cambrian fossils occur in rocks far older than the Cambrian and in consequence are overlaid by great thicknesses of rocks which seem to be completely devoid of fossils. This absence of fossils in the overlying rocks militates strongly against the idea that the structures in the earlier beds are fossils.

7. A comparison of the supposed pre-Cambrian fossils or the photographic plates of them with those of Cambrian fossils demonstrates the problematical nature of the former.

For example, compare David's plates of pre-Cambrian fossils (plates XIV-XVIII of Vol. 52 of the *Transactions of the Royal Society of South Australia*, 1928), with Cobbold's plates of Cambrian fossils found at Comley in Shropshire (*Quarterly Journal, Geological Society*, Nos. 261 (1910) and 304 (1920).)

8. Dr. Percy Raymond (who is an evolutionist), devoted his Presidential Address to the Palæontological Society of America, in 1935, to a survey of the objects which have been put forward as pre-Cambrian fossils. He rejects all of them (they include all on the following list except *Brooksella* which has since been discovered), except the burrows, etc., of worms, on which it is impossible to pronounce definitely, and two specimens of *Beltina*, of one of which he says, "there can be little doubt that it is a fragment of an arthropod. Somewhat less satisfactory, but still fairly satisfactory, are the specimens figured from the Algonkian on the continental divide of Alberta. They may, I think, be accepted as evidence of the presence of **Arthropods** in what may be part of the Belt Series. Unfortunately, these

finds cannot be fully accepted until checked by future discoveries." (*Bul. Geo. Soc. Amer.* vol. 46 (p. 378).)

No better specimens of Beltina have been recorded since Raymond gave his address. Raymond's warning is very necessary, on account of the extraordinary forms inorganic concretions may take. A classical example of this is afforded by what appears to be the fossilised leather sole of a child's shoe, size 13, which apparently has a double line of stitches, one line close to the outside edge and the other parallel at a distance of one-third of an inch. The edges of the sole are rounded off smoothly as if cut by an expert cobbler. The right side of the heel seems to be worn more than the left. This object occurs in a rock of the Triassic period.

LIST OF ALLEGED PRE-CAMBRIAN FOSSILS.

ANIMALS.

Name of fossil.	Name of Discoverer and Locality.	Reasons for rejecting.
Archæospherina	Sir W. Dawson, Laurentian Limestone, Canada	Dawson thought that certain singular rounded bodies found by him might be casts of shells of a Foraminifer, allied to Globigerina. Nearly all the authorities deem this to be inorganic and I can find no mention of it in any book written in the past 40 years.
Aspidella....	Billings, Huronian, Newfoundland	These are limpet-shaped objects seen in a deposit "apparently referable to the Huronian." As in the case of Archæospherina, nearly all authorities deem this inorganic. The last mention of this supposed fossil that I have seen is in Dana's "Manual of Geology," published in 1895. He there describes it as "a supposed fossil of uncertain relations."
Atikokania	A. C. Lawson and C. D. Walcott, Steeprock Limestone, Ontario	The discoverers deem this to be a peculiar kind of sponge. Raymond does not accept it as a fossil, and E. S. Moore later searched these rocks diligently for fossils and found nothing that seemed to be indubitably organic. Moore concludes his report (<i>Trans. Roy. Soc. Canada</i>), (1938), p. 15), thus: "However much the writer believes in the existence of life at a very early period in Pre-Cambrian time, he was unable to verify the existence of fossils in this series."

Animals—contd.

Name of fossil.	Name of Discoverer and Locality.	Reasons for rejecting.
Beltina	F. C. Walcott, Belt Series, Montana, U.S.A.	<ol style="list-style-type: none"> 1. Dana and others doubt its organic nature. 2. The deposit holding the Beltinas is overlain by some 5,000 feet of shales and limestones which are completely devoid of fossils. 3. Hundreds of Beltinas have been found, but all are very fragmentary; some deem them bits of the integument or of appendages of an animal; others regard them as parts of a plant (alga). 4. If Beltina be an organism, it is strange, in view of its numbers, that nothing approaching a complete animal or a complete organ has been found. 5. Most of the Beltinas are supposed to be bits of legs. This is true of 14 or 18 of the best specimens figured by Walcott. But, although thousands of fossils of trilobites have been found, nearly all are the complete animal minus the legs, or parts of head, body or tail. For years it was thought Trilobites lacked legs. Recently, Raymond, Walcott and Beecher have found trilobite fossils with legs attached. 6. No fossil of Beltina has been found in any other formation.
Brachiopoda	F. Chapman, Adelaide Series, South Australia.	<p>Sir T. W. E. David (see entry Eurypterids below), asked Chapman to report on the supposed Brachiopods he had collected. Chapman (<i>Trans. Roy. Soc., South Australia</i>, vol. 53 (1929), declared them to be brachiopods of the genera <i>Lingulella</i> and <i>Obolella</i>. Raymond does not accept this verdict.</p>

Animals—contd.

Name of fossil.	Name of Discoverer and Locality.	Reasons for rejecting.
Brachiopoda —cont.	F. Chapman, Suket Shales, Vindhyan Central India	In 1908, H. C. Jones, of the Indian Geological Survey described what he thought might be brachiopods. These were discussed in 1908, 1926, 1927, 1931, 1932 and 1935, and opinions differed. Howell deemed these objects to be parts of plants. Chapman, however, (1935), declared them to be brachiopods and named them <i>Femoria</i> and <i>Protobolella</i> . The pictures of them in his plates are not convincing. The head of the Indian Geol. Survey, Sir L. Femur asked M. S. Sahni to examine these "fossils" and report. He reported that they exhibit NO character that establishes beyond doubt that they are brachiopods. Raymond does not accept them as fossils.
	C. D. Walcott, Grand Canyon Series, Montana	Walcott described in vol. 10 of the <i>Bulletin of the American Geological Society</i> in 1899, what he deemed fragments of fossils of brachiopods, crustaceans, molluscs, bryozoa and tracks of worms. This discovery was at first accepted uncritically, as we have noticed above. But Walcott, although he did a vast amount of good work on early fossils, seems to have allowed his imagination rather free scope, and today, nearly all authorities regard his supposed fossils as inorganic concretions. Thus his supposed brachiopod which he named <i>Cuarua circularis</i> , is not mentioned in Zittel's <i>Palæontology</i> or, so far as I am aware, in any modern textbook. Raymond does not even mention these fossils, and I doubt whether anyone accepts Walcott's supposed segment of a trilobite as such.
Brooksella canyonensis	C. E. Van Gundy, Nankoweat Red Sandstones, Grand Canyon, Arizona	1. Some believe this to be the impression of a jelly-fish in the sandstone. Others assert positively that it is inorganic. The leading authority on medusæ, Dr. G. Stiasny is very doubtful of its being a fossil. He says the furrows it shows do not represent radial canals and the pouches are not stomach pouches. If it be a jelly-fish it is quite unlike any known Cambrian form.

Animals—contd.

Name of fossil.	Name of Discoverer and Locality.	Reasons for rejecting.
Brooksella canyonensis —cont.		2. This object was named Brooksella, because it resembles Brooksella alternata found by Walcott in a mid-Cambrian deposit in Alberta. But Walcott's belief that his find is the impression made by a jelly-fish is not shared by some authorities.
Eozoon canadense	Sir W. Dawson, Grenville Lime- stone, Canada	3. Careful subsequent search for fossils in the deposit in which <i>B. canyonensis</i> was found has revealed none. (<i>Proc. Geo. Soc. Amer.</i> (1936, p. 304), "Science," Aug. 26, 1938, <i>Proc. U.S. Nat. Mus.</i> (1941), vol. 89, No. 104).
Eoozoon bavaricum	In various parts of Europe	For many years nearly all biologists accepted this as a fossil. Some deemed it a coral, others a giant foraminifer. A few asserted it to be an inorganic structure. Then it was shown that it is almost certainly inorganic. Finally it was found that blocks of limestone enveloped in molten lava at Vesuvius have, by the absorption of silicates, developed into typical Eozoon!
Eurypterids	David. Adelaide Series, South Australia	Sir T. W. Egerton David, has described a number of objects deemed by him to be fossils, most of which were found by Howchin, in the Adelaide Series which David believes to be pre-Cambrian, but Howchin regards them as Lower Cambrian. These supposed fossils are very fragmentary, and are believed by David to represent parts of giant eurypterids and polychaete worms, small parasitic brachiopods, radiolaria and other unidentified fossils. Illustrations of these are given on plates XIV-XVIII of vol. 52 (1929), of <i>Trans. Roy. Soc. South Australia</i> , and in <i>Memoirs of fossils of the late pre-Cambrian from the Adelaide Series</i> , by David and Tillyard. The plates are not convincing. David and Tillyard have drawn freely on their imagination. Raymond does not even mention these supposed fossils. In any case David himself admits that the rocks in which these structures occur may

Animals—contd.

Name of fossil.	Name of Discoverer and Locality.	Reasons for rejecting.
Eurypterids —cont.		be basal Lower Cambrian. As these rocks are easily accessible, David expressed the hope that later geologists would find more satisfactory fossils in these deposits. So far no confirmation of David's views has been published.
Foraminifera	Cayeux, Cherts, Brittany	Cayeux found in pre-Cambrian rocks in Brittany what he believed to be fossils of many species of animals. These include six species of foraminifera. Few, if any, experts believe these to be fossils. They are very minute, the largest having a diameter of barely .01 millimetre. Raymond points out that some of the specimens cannot possibly represent foraminifera, because the new chamber is not formed over the principal opening of the preceding one.
Orthoceras	Waterberg Sand- stones, South Africa	This was believed to be a fossil of a Cephalopod Mollusc, but has since proved to be an inorganic concretion.
Radiolaria	Cayeux, Cherts, Brittanny	Cayeux describes 45 species of these supposed radiolarians. As they are only from .001 to .022 millimetres in diameter, they had to be magnified from 1,000 to 2,300 times to enable an artist, who had never seen a radiolarian, to draw them. The smallest known Cambrian radiolarian is 10 times the size of the largest of Cayeux's finds. Rust, who is an authority on Radiolaria, says positively that these are not radiolaria. Rust could not get more than five species of palæozoic radiolaria on 1,000 slides, whereas Cayeux got 41 of his species on one slide! Moreover, Cayeux, although he got so many specimens on to one slide, did not manage to obtain a cross section of any of them.
Sponges	G. F. Matthew, Laurentian, New Brunswick. Cayeux, Cherts, Brittany	H. Rauff asserts (<i>Neues Jahrbuch für Mineralogie</i> (1896), that these supposed spicules of sponges are inorganic, and today no one appears to accept them as fossils.

Animals—contd.

Name of fossil.	Name of Discoverer and Locality.	Reasons for rejecting.
Worms	Murray, Huronian Newfoundland. Walcott, Belt Series, Montana. David, Adelaide Series, South Australia	These supposed fossils of worms are all either tracks or burrows. No one claims to have found any fossil of the actual body or even an appendage of a worm. It is not possible to say definitely whether or not any mark in a rock has been made by an animal.
Xenusion auerswalde	J. F. Pompeckj. A glacial erratic in N. Germany thought to be derived from the Algonkian Dala Sandstone of Central Sweden	The pre-Cambrian age of this Sandstone is doubtful. Frodin asserts that it is of later date. In the "Zoological Record," for 1927, Xenusion is described under the heading "Crustacea" as "an enigmatical fossil organism of uncertain affinities." Zeuner gives a picture of this, and describes it as "a representative of a group intermediate between annelid worms and arthropoda . . . its stratigraphic age is Dala Sandstone, Upper Pre-Cambrian (?) 500-600 million years ago." It is quite unlike any known Cambrian animal. (Pompeckj: <i>Palaeon.</i> 26, Berlin (1927), Zeuner <i>Dating the Past</i> (1946), p.350.

NOTE.—The problematic fossil Ainiktozoon has not been included in the above list, although it would seem that Dr. A. Morley Davies deems it pre-Cambrian (see pp. 172-3, of "Evolution and its Modern Critics." (1937), because it undoubtedly was found in an Upper Silurian rock. (*Proc. Roy. Soc., Lond. (B)*, 1937, p. 533).

PLANTS.

Name of fossil.	Name of Discoverer and Locality.	Reasons for rejecting.
Algæ Coblenia	C. D. Walcott, Belt Series, Spokana Shales, Montana.	Walcott has described and illustrated these supposed fossils (<i>Smithsonian, Misc. Col.</i> vol. 64 (1916). He believes them to be products of calcareous (blue-green) algæ. They are not fossils because: 1. Their structure is quite unlike a product of any known alga. 2. They occur in shales which are overlaid by strata, over 3,000 feet thick, of unfossiliferous shales and limestones. In fact they occur in the same rocks as Beltina
Newlandia Camasia Weedia Kimieyia Greysonia Copperia Gallatinia	C. D. Walcott, Belt Series, Newland Limestones, Montana.	

Plants—contd.

Name of fossil.	Name of Discoverer and Locality.	Reasons for rejecting.
Algæ—cont.		<p>If these algæ were so readily fossilised in these shales and limestones, the overlying shales and limestones should contain many fossils. 3. The belief that these are fossils entails the belief that these beds were laid down on land, but no land beds have been found in any Cambrian or Ordovician deposits. All very early land sedimentary rocks appear to have been weathered out of existence. 4. Holtedahl shows that precisely similar concretions have been found in situations that preclude their being made by organisms. 5. Liesegang has shown that such structures can be made artificially in the laboratory.</p>
Archæophyton newberrianum	N. L. Britton, Crystalline Limestone, New Jersey, U.S.A.	<p>Dana writes of this (<i>Manual of Geology</i> (1896), p. 454), "The specimen consists of graphite arranged in narrow parallel stripes with a regularity that suggests organic origin; but the arrangement may well be an effect of the pressure attending metamorphism." Darrah and Walton do not deem it a fossil.</p>
Archæoxylon krasseri	Krausel, near Prague	<p>Krausel deems this part of a conifer-like plant. Seward writes of it: "The weak point is that its pre-Cambrian age has not been proved, and its structure is too imperfect to admit of any satisfactory determination."</p>
Bacteria		<p>Both Walcott and Gruner believe they have discovered the remains of Bacteria. Raymond points out that Walcott "makes no argument in favour of the identification and leaves it to be accepted on faith that an organism without hard parts and less than .001 millimetre in diameter could be preserved in identifiable condition from pre-Cambrian time to the present." This criticism applies with greater force to Gruner's finds which are in much older rocks. Seward writes: "These finds, though worth recording are by no means convincing."</p>

Plants—contd.

Name of fossil.	Name of Discoverer and Locality.	Reasons for rejecting.
Carelozoon jaticulum	Metzger, Jatulian Dolomites, Finland	This supposed fossil is not mentioned by Raymond, presumably because it occurs in dolomite in which, as Adam Sedgwick pointed out, there is no end to the different forms of inorganic structure. These dolomites are overlaid by two unfossiliferous formations—the Rapakivi Granites and the Jotnian Sandstones.
Corycium enigmaticum	Sederholm, Jatulian Dolomites, Finland	This is not noticed by Raymond. It is open to the same objections as Carelozoon. Seward describes it as "a problematical body," and deems it inorganic.

NOTE ON GRAPHITE. It has been contended that the graphite in pre-Cambrian rocks proves that living organisms were in existence. For example, Dr. Julian Huxley and Messrs. H. G., and G. P. Wells write ("The Science of Life," (1938), p. 673): "There exist great beds of carbon in the form of graphite, and these as far as our chemical knowledge goes, must be derived from the remains of living things, most probably aquatic plants." Unfortunately the knowledge of these gentlemen does not go quite far enough. The British Museum Mineralogist Dr. L. J. Spencer writes (Article "Graphite," in *Enc. Brit.*): "Graphite occurs mainly in the older crystalline rocks—gneiss, granulite schist and crystalline limestone—and also sometimes in granite . . . It has also been observed as a product of contact metamorphism in carbonaceous clay slates near their contact with granite, and where igneous rocks have intruded into beds of coal: in these cases the mineral has clearly been derived from organic matter. The graphite found in granite and in veins in gneiss, as well as that contained in meteoric irons cannot have had such an origin . . . The graphite veins in the older crystalline rocks are probably akin to metalliferous veins and the material derived from deep-seated sources; the decomposition of metallic carbides by water and the reduction of hydrocarbon vapours have been suggested as possible modes of origin."

WRITTEN COMMUNICATIONS.

Dr. L. RICHMOND WHEELER: This is a most valuable and learned summary of modern knowledge about the rich Cambrian fauna and the reputed fossils which have been claimed at various times as having been found in pre-Cambrian formations. The strong factual background against which Mr. Dewar's observations and criticisms are set is particularly useful; and we are indebted to him for

rounding off a discussion about animals with a summary of the reasons for rejecting the authenticity of the alleged pre-Cambrian plants.

But, as regards his theory that all organisms were probably created contemporaneously, he has not shed any further light on one outstanding difficulty—that is, the absence of any fossils of fishes from the marine Cambrian formations—apart from one very dubious “ellipsoid plate, 3 mm. in length.”

DR. A. S. MASLEN: From the anti-Evolutionist point of view, Mr. Dewar makes a plausible case for special creation at the beginning of Cambrian times, but how any zoologist and palæontologist can be an opponent of evolution passes my comprehension. It is perfectly true that the pre-Cambrian rocks have yielded next to nothing of indubitable organic origin, in spite of the fact that these rocks have been intensively searched for fossils for very many years in many countries, and through such thicknesses of rock as probably represent as long an interval of time as all the rocks formed since pre-Cambrian times, most of which time may have been really Azoic.

Then, as Dewar says, comes suddenly the well-defined and abundant fauna of the Cambrian representing many families of Invertebrata, some of which are remotely similar to their modern representatives. This sudden appearance has always been an “abominable mystery”!

Geologists, who perforce must be evolutionists, see in this only another example of the imperfection of the palæontological record and consider it reasonable to postulate a long series of ancestors of which there are few or no remains.

As regards plants no certain fossil forms are known before Silurian times, some millions of years later than early Cambrian. So there is the same “sudden” appearance. These earliest known plants belong to relatively low orders, and the higher woody plants appear much later. Ordinary Angiospermic flowering plants are Tertiary only.

So that on fossil evidence the first plants came long after the first animals. In spite of this it seems highly probable that plants really came long before animals as the life of animals depends ultimately on plants.

These are theories suggested to account for the almost complete absence of fossils in the oldest rocks. Both plants and animals may have had entirely soft bodies and thus be incapable of preservation. The absence of hard parts may be due to the almost complete absence of lime salts in pre-Cambrian seas. There is reason to believe that the primordial ocean was fresh and that the salinity (including the lime salts, etc.) was gradually increased by material carried down by rivers from the land areas.

AUTHOR'S REPLY.

In reply to Dr. Wheeler, I agree that the non-discovery of undisputed fossils of fishes in Cambrian rocks is an outstanding difficulty of the One-Creation Theory, as is the fact that only a few fossils of fish plates have been found in Ordovician rocks, and these only in Colorado, Wyoming and South Dakota, while no fish fossils have been found in Lower or Middle Silurian deposits. Upper Silurian fossils are fairly numerous in Spitzbergen, Norway, the Baltic, Scotland, England, Galicia and Portugal. Some of these fossils are of almost complete fish. They represent 4 Orders, 12 families and 29 genera.

A suggested explanation of these facts is that the earliest fishes were confined to fresh water. I doubt this. I attribute this lack of fish fossils to the fact that in the Cambrian, Ordovician and Silurian periods the coastal seas swarmed with trilobites. These probably completely devoured dead fishes before they were buried in the mud; or after burial, since many kinds of trilobites seem to have burrowed in the mud for their food.

It is significant that the Late Silurian marks the beginning of a rapid decline in the Trilobite population. According to the latest edition of Zittel's Palæontology the 22 families of trilobites living at the close of the Ordovician period were reduced to 11 at the end of the Silurian, 5 at the end of the Devonian and 1 at the end of the Carboniferous period.

In reply to Dr. A. S. Maslen, the following are some reasons why I reject the evolution theory: (1) It demands morphological transformations which I regard as impossible, except by miracle, such as the conversion of a land quadruped into a bat or a whale; (2) many animals have habits and instincts which cannot have developed

gradually, *e.g.*, the habit of making a nest like that of a sun bird or an oriole; (3) anatomical characters are so distributed among members of every large group of animals, *e.g.*, Primates, as to preclude all the members of the group being descended from a common ancestor; (4) the sudden appearance of the Cambrian fauna in the rocks; (5) not a single fossil has been discovered really intermediate between any highly specialised animal, such as a bat, or a whale, or a pterodactyl, or a turtle and its supposed generalised ancestor; (6) the evolution theory contravenes the Law of Entropy; (7) the evolution theory purports to explain phenomena which I regard as scientifically inexplicable.

As regards fossil plants. Algæ may occur in Cambrian rocks; they certainly do in Ordovician formations. It is land plants of which no undisputed Cambrian or Ordovician fossils have been found. The sudden appearance of a diversified land flora in Devonian rocks could be accounted for by supposing that these rocks (except possibly the fern ledges of New Brunswick) are the earliest land or fresh-water rocks which have not been weathered out of existence.

The facts that, apart from a doubtful carboniferous plant and two Jurassic fossils, no remains of flowering plants have been recorded before the cretaceous period, and in the rocks of this period their fossils are abundant and much diversified, could be accounted for by supposing that in the early periods of the history of life these plants were confined to high altitudes or high latitudes, and all rocks laid down in such situations have been eroded away or are now covered by ice caps. The fall in temperature which caused the extinction of so many Mesozoic plants permitted the flowering plants to replace those in the lowlands.

In view of the fact that fossils of jelly-fish are not very uncommon in Cambrian and later rocks, it seems to me that, even if no pre-Cambrian animals had hard parts, good impressions of the bodies of many of these should have been discovered by this time.

The abundance of limestones among pre-Cambrian rocks renders it improbable that the seas were devoid of calcium.

I have discussed, in Chapter XV of "More Difficulties of the Evolution Theory" (1938), the various theories advanced by evolutionists to account for the lack, or extreme rarity, of fossils in pre-Cambrian rocks.

875TH ORDINARY GENERAL MEETING

HELD AT 12, QUEEN ANNE'S GATE, LONDON, S.W.1, AT 4.30 P.M.
ON MONDAY, MARCH 1ST, 1948.

ERNEST WHITE, ESQ., M.B., B.S., IN THE CHAIR.

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

The following elections were announced :—Rev. F. M. Cundy, M.A., Fellow ; Rev. W. St. Clair Taylor, Fellow ; Rev. Ernest F. Kevan, M.Th., Fellow ; Rev. T. Christie Innes, M.A., D.D., Fellow ; J. D. C. Anderson, Esq., B.Sc., Fellow ; F. A. Rayner, Esq., M.A., Fellow ; A. J. Crick, Esq., Fellow ; Rev. A. R. Smith, F.R.G.S., Fellow ; J. A. van Niekerk, Esq., Fellow ; W. H. Clare, Esq., Fellow ; Spencer D. Thomas, Esq., Fellow ; L. E. Porter, Esq., B.A. Fellow ; A. Derrick Rose, Esq., M.B., B.S., Member ; W. H. Thompson, Esq., Member ; Rev. R. S. Roxburgh, L.Th., Member (on transfer from Associate) ; Ralph Hulme, Esq., B.A., Member ; A. J. Greenfield, Esq., Life Member ; T. W. Bunyan, Esq., B.Sc., A.M.I.M.E., Member ; J. S. E. Elwood, Esq., M.D., B.Ch., Member ; W. H. S. Thompson, Esq., Member ; D. C. Thompson, Esq., O.D., Member ; G. T. Padgett, Esq., M.B.E., Member ; W. A. Douglas Cole, Esq., Member ; W. R. Coates, Esq., F.B.O.A., Member ; Jan Murray Hofmeyr, Esq., B.Sc., Member ; William Richardson, Esq., Member ; F. I. Anderson, Esq., B.Sc., Member ; R. N. Tyrell, Esq., M.V.O., Member ; Samuel Milner, Esq., Member ; J. S. Phillips, Esq., Member ; F. King, Esq., Member (on transfer from Associate) ; G. K. Lowther, Esq., Member ; Kenneth N. Taylor, Esq., Member (on transfer from Associate) ; A. S. Deeks, Esq., B.Sc., Member ; David Frank Sage, Esq., Member ; Geoffrey Sturman, Esq., B.A., Associate ; M. G. Brown, Esq., Associate ; H. J. Blackmore, Esq., Associate.

The CHAIRMAN then called on the Rev. J. Stafford Wright, M.A., to read his paper entitled "The Bearing of Psychological Research upon the Interpretation of the Bible."

THE BEARING OF PSYCHICAL RESEARCH UPON THE INTERPRETATION OF THE BIBLE.

BY THE REV. J. STAFFORD WRIGHT, M.A.

NOTHING which concerns the being and nature of man can be regarded as being without importance to the Christian. The Christian may say, as the character in Terence said, "Homo sum, humani nihil a me alienum puto." It is true that the Christian must add also "divini," since his concern is never with man alone, but with man in relation to God. None the less, the Christian must be interested in any facts which help to a better understanding of what man is.

Broadly speaking the last two generations have each been faced by a new approach to the understanding of man. Last century there was the doctrine of Evolution, which sought to explain man in terms of his supposed animal ancestry. Then came the New Psychology, which delved into the subconscious or unconscious mind, and explained man's actions in terms of such things as reflexes, complexes and inhibitions.

Is there any movement comparable to these two in the present generation? I believe that there is, and that it is to be found in the assessment of the investigations of Psychological Research, and the recognition by scientific thought of what has been called the Psi factor in man. If one is to give a name to this new science, probably "Parapsychology," will become the scientific title, though "Psychical Research" is more generally used. To avoid later misunderstanding, let me emphasise that Psychological Research is not another name for Spiritualism, and that I am not a Spiritualist.

We should probably agree that Christians were slow off the mark in dealing with the facts and theories of Evolution and the New Psychology. When however, they saw that these things were being used as a handle against Christianity, they flew to the defence of the faith, sometimes with more, sometimes with less success.

The important question for seriously-minded Christian people today is, What is likely to happen with Parapsychology? Is it a menace or is it an ally? It is vitally important that some Christians should be abreast of the movement, so as to assess the results, to sift the facts from the theories, and to show the bearing of the facts upon Biblical truth. In this work, I believe that the Victoria Institute can play an important part as it has done in the past.

We may instance the paper by Mr. W. E. Leslie last year on "Psychical Research in the light of some recent developments." I am assuming in this paper that members are acquainted with the facts and references that he gives there. But since he wrote his paper, there has been a further book published that gives a most able review of the whole field of Psychological Research. It is in the Pelican Series, and is entitled "The Personality of Man." The author is G. N. M. Tyrrell, President of the Society for Psychological Research. Let me remark, as Mr. Leslie remarked, that for the serious student of the subject, there is no substitute for a knowledge of the Proceedings of the Society for Psychological

Research, which can be obtained through the larger public libraries. Many volumes from the enormous collection of books in the Society's library may also be borrowed through the interchange scheme of the larger public libraries.

But, to return to the facts that confront us, let me begin by sketching out very briefly what I think may happen. Three great movements are coalescing, and, if they unite, they will have a radical effect upon religion. In psychology the Jungian school is giving what one might well call a spiritual view of the Unconscious, and some members of that school are moving in the direction of Buddhism. The writings of Dr. Graham Howe are instructive in this connection. The second movement is associated with the popularising of mysticism by such men as Gerald Heard, and Aldous Huxley. They too, are moving in the direction of Buddhism. Both of these movements are emphasising that at a certain depth of his mind man can experience and make use of forces that are not amenable to the observed laws of nature. The laws of the unconscious are of a different order altogether.

At this point the third movement, Psychical Research, comes in as the scientist of the trio. It seeks by observation and experiment to build up an ordered concept of this realm of the Unconscious. It is compelling scientists and philosophers to admit the reality of a new order of being that manifests itself in such things as telepathy and clairvoyance.

The result is that we are rapidly approaching a time when the existence of the non-material (or, as many would say, the spiritual) in man can be established on strictly scientific grounds. The tremendous importance of this for religion is obvious.

If the scope of this paper permitted, it would be fascinating to consider whether this new view will make it easier for people to come into contact with the God and Father of our Lord Jesus Christ. By proving that there is a part of man that cannot be embraced by materialistic laws, we can demonstrate at least the possibility of survival. But merely to shift man on to another realm of existence after death, does not prove anything at all about God. The most that can be done will be to encourage experiments in mysticism, possibly along the lines of Yoga; but it seems that a non-Christian mysticism leads its followers not into personal communion with a personal God, but into a conscious experience of the universal life-force of God that, according to the Christian belief in the immanence of God,

runs through all creation. This is not the same as the Christian truth of the indwelling of the Holy Spirit in the Christian, which comes as the result of personal faith in the Lord Jesus Christ and His atoning Blood.

Thus I think that the union of this trio of movements will be the death-blow of materialism, but may be equally dangerous to Christianity in that it will offer a pleasing substitute for the Bible experience of salvation through Christ alone.

Our immediate concern, however, in this paper is to consider the bearing of one member of the trio, the scientific part, upon the interpretation of the Bible. Briefly, one can see in it both a friend and a foe. As a friend, it presents a challenge to all Biblical criticism that is based upon the rigid reign of natural law. It can no longer be regarded as scientific to deny miracles and the fact of prediction. This is tremendously important when it is remembered how many modern interpretations of Biblical statements and events are governed by this outlook. It would be a good thing for some of our Bible scholars to take a course in Psychological Research.

On the other hand, those who are already biassed against the supernatural may use Psychological Research as a stick with which to beat Christians. Granted, it will be argued, that we can no longer explain everything by materialistic laws: but we can still account for them as being manifestations of the Psi factor in man. Hallucinations, clairvoyance, clairaudience, precognition, psycho-kinesis, can all be evoked without bringing in God at all. The mere fact that a prophet had a precognitive vision and interpreted it as coming from God, is no proof at all that the man was really so inspired.

The answer to this would require a very full treatment, far fuller than we have space for here. It would mean going into the field of apologetics and teleology. It would mean a careful comparison between the observed cases put forward by Psychological Research, and the cases recorded in the Bible. All that we can do here is to mention a few comparisons, which may help to show the advantages to be gained through the approach to the Bible by way of Psychological Research, and also the limitations of such an approach. It will probably be best to limit ourselves somewhat arbitrarily to the two fields of prediction and miracle.

Since we have mentioned Precognition several times, we may conveniently start with this.

There are several examples of precognitive dreams in the Bible. Some are symbolical. Joseph dreamed two dreams of which the symbolism was obvious. (Gen. xxxvii, 5-10). The dreams of Pharaoh's servants (Gen. xl, 5-19) and of Pharaoh himself (xli, 1-32) were not so obvious, nor was Nebuchadnezzar's dream of the image (Dan. ii) and of the great tree (Dan. iv.)

The use made by the Unconscious of symbolism has been demonstrated by Freud and Jung and others. But, so far as I know, neither Freud nor Jung have dealt with symbolic precognition in dreams. But the fact of precognitive dreams has been demonstrated by J. W. Dunne in his *Experiment with Time*, and by many well attested contributions to the Society for Psychical Research. Dame Edith Lyttelton's book *Some Cases of Prediction*, lists a number of them, as also does H. F. Saltmarsh in his book *Foreknowledge*.

Some of these modern precognitive dreams are concerned with matters of life and death, others with matters of extreme triviality. It is one thing to list cases, but quite another to explain how the mind of man can foresee the future in sleep, or, indeed, at any other time, or to attempt to construct an ordered philosophy of life in which the future appears already to exist (I use the term "appears" deliberately).

Whatever the true explanation may be, the same explanation might be used of the Biblical examples. It is probably the explanation of the dream of the cake of barley bread in Judges vii, 13. On the other hand, the Bible states in at least two of the above examples, that God Himself sent the dream. (Gen. xli, 25, Dan. ii. 28). The language might of course be interpreted in the light of the Hebrew tendency to by-pass second causes and to ascribe all to God, but a fair reading of the passages would suggest that these were more than what one might describe as naturally precognitive dreams.

Moreover, in some dreams, God Himself or an angel appears and announces the future in plain terms. Abraham's great dream in Genesis xv and Jacob's at Bethel (Genesis xxviii) were of this type.

When we turn to the prophets it is clear that one means of revelation to them was the dream in sleep, as distinct from the trance vision. (Numbers xii, 6, Deut. xiii, 1, Jer. xxiii, 28). On one occasion Jeremiah says, after speaking of the future, "Upon this I awaked, and my sleep was sweet unto me" (xxxi, 26).

The apocalyptic visions of Daniel, and of John in the Book of the Revelation, appear to have been of the trance vision order. Many critics, of course, regard these as purely literary concoctions, but, while granting that some of the non-canonical apocalypses were uninspired and artificial productions, it seems to me that the existence of fakes demands the existence of genuine originals, whose authority was such that they were worth copying. Much of the symbolism appears to be the same "furniture" of the Unconscious that the work of Jung and his school has discovered in the dreams of patients, but the arrangement and plan of the "furniture" to reveal significant points of future history belongs to God alone.

The dream and the trance vision were not of course the only forms in which the prophet received a revelation of the future. Our evidence for the nature of prophetic inspiration is somewhat scanty, though we have sufficient to show that both the prophet himself and his hearers were clearly able to distinguish between an enlightened teacher and an inspired prophet. There was believed to be some direct contact between the prophet and God at a level that involved more than a divine quickening of intelligence. That is to say, prophecy belonged to the sphere of the Unconscious.

Here I feel that one must be cautious. Is this Unconscious only that same Unconscious as is explored by psychologists, mystics, and Psychological Research? Or is it a further extension (to speak spatially) of that Unconscious? The latter is, I believe, the truth, though I do not see how to prove it. But I believe that while the Unconscious is the link with that life-force of God that is immanent in all things, there is a higher realm of spirit that in the Christian is the seat of the Holy Spirit's indwelling, and in the prophet is the seat of the Holy Spirit's direct revelation. Just as psychological research has penetrated to the hitherto unknown, or ignored, Unconscious, so a Christian "pneumatical" research may establish certain facts about the spirit. But from the point of view of the outsider, that which emanates from the prophet's spirit and that which emanates from his Unconscious may appear to follow the same pattern, since both come from the non-material realm. This is what made it difficult for the hearers to distinguish between the true and the false prophets.

Our concern now is with the precognition of the prophets. This of course, is not the only element in the prophetic teaching,

but it is the one that falls most naturally within the scope of this paper.

There are in the prophets some striking examples of precognition. The two that have attracted a great deal of attention are the naming of Josiah as the destroyer of the altar at Bethel in I Kings xiii, 2, some 350 years before his birth, and the naming of Cyrus as the deliverer from Babylon in Isaiah xliv, 28 and xlv, 1, nearly 200 years before he appeared.

It is, of course, open to anyone to deny the facts, and to say that the former account was written after the event, and that the prophecies of Isaiah xl—lxvi were not by Isaiah the son of Amoz. This is too easy a way out of the difficulty. To begin with there is nothing inherently more difficult in the naming of a man centuries before his birth than in giving detailed predictions of the birth, life, and death of the Messiah centuries before His birth. The latter is certain, and therefore we have no right to rule out the former.

In the next place the naming of Cyrus occurs in a context that is vitally concerned with God's ability to predict in a unique fashion, e.g. xli, 22, 23, xlii, 9, xliii, 9, xliv, 7, xlvi, 10.

Commentators who ascribe these chapters to a time when Cyrus was embarking upon his conquering career cannot give any real weight to these claims. There must have been many oracles and politicians in Babylon who could foretell just as much as this Jewish prophet was claiming to foretell in the name of his God. These claims only make sense if the chapters contain a stupendous prediction. Such a prediction is found in the naming of Cyrus and in the promise of deliverance from Babylon.

What bearing has *Psychical Research* upon this? At first sight it seems as though we have cut the ground from under our own feet in pointing out that God claims to be making a unique prediction in naming Cyrus. If *Psychical Research* can produce secular parallels, how can God's prediction through Isaiah be held to be unique?

It must be admitted that the records of *Psychical Research* up to now cannot, to the best of my knowledge, produce much in the way of a parallel to the naming of Cyrus. To descend from the sacred to the profane, the precognitive naming of winners in horse races, as instanced in Dame Edith Lyttelton's book, already quoted, can hardly count as a parallel, since the horses were already in existence, and the "revelation" can be classified as a case of precognitive telepathy.

There is, however, a group of predictions which I do not think have ever been seriously considered by official Psychological Research, though it is possible that by the time this paper is read, something will have been written about them. These are the prophecies of Nostradamus.

Nostradamus was a Frenchman and a Hebrew Christian (Roman Catholic), who lived from 1503 to 1566. From 1555 onwards, he published several editions of a book known as the Centuries, in which, in a series of quatrains, he claimed to foretell the future up to the year 2000. A complete edition of his work has recently been published in America, but he may conveniently be studied in a book by James Laver, "Nostradamus, or the Future Foretold," (Collins 1942).

Amidst a mass of obscurities which can be interpreted in many ways, there does not seem to be the slightest doubt that in a book published before his death in 1566 he foresaw the French Revolution of 1789. We have space for one quatrain only, with its translation. It is found in IX. 34.

Le part solus mary sera mitré :
 Retour : Conflict passera sur le thuille
 Par cinq cens : un trahyr sera titré
 Narbon : et Saulce par coutaux avons d'huile.

Laver translates as follows: "The husband alone will be mitred. Return. A conflict will pass over the tiles by 500. A traitor will be titled Narbonne; and from Saulce we have oil in quarts."

The first two lines could refer to the mob who invaded the Tuileries and compelled Louis XVI to wear the red cap of Liberty, which was not unlike a mitre. But from our point of view the two names are most striking. The Comte de Narbonne was Louis XVI's War Minister, who was deep in intrigues with the revolutionaries. The other man was actually named Sauce, and was the procureur of Varennes, who arrested Louis XVI on his attempted flight: he was by trade a grocer and chandler.

This is a most remarkable prediction, and it is not the only one. It is a secular parallel to the naming of Josiah and Cyrus beforehand. We cannot here discuss the methods that Nostradamus used. Undoubtedly he possessed the gift of clairvoyance. He himself indicates that he practised astrology. Laver also thinks that the evidence of his writings shows that he

was steeped in occult practices. It would take us too far from our subject to discuss the relation between these practices and the revelation made to the prophets. It must suffice to say that Nostradamus was apparently unique amongst secular seers, and according to his own showing his inspiration was not of the same type as that of the Biblical prophets. Those quatrains that are at all clear and that can be identified with historical facts are few and far between: they are spasmodic outcroppings of truth amidst quantities of what may or may not be error. In this they differ from Biblical prophecy. Isaiah, for example, is solely concerned to exalt God. His prophecies are not rambling masses of obscurity with occasional flashes of light, but a broad and sweeping revelation of God's care for His people, with the introduction of Cyrus as God's chosen instrument of deliverance. It is thus possible to point to a parallel to the naming of Cyrus without thereby surrendering the uniqueness of God's claim to be revealing through His prophet Isaiah the whole scheme of deliverance from Babylon.

We notice also in this connection that Isaiah writes as one who is a sharer in the events of the closing days of the exile. There is a Babylonian atmosphere about the chapters. So far from this being an argument against Isaianic authorship, it is consistent with other Biblical prophecies. When Jeremiah speaks of the coming destruction in iv, 19-21, when Micah sees the invasion in chapter i, or when Ezekiel is transported to Jerusalem in viii and ix, they see and feel that they are sharing in the events of which they speak.

A parallel to this would be those people who have the gift of what is called psychometry, in which by contact with some person or object belonging to some person, they can perceive facts that concern this person's past, present and future. Two writers on the subject are Eugene Osty (*La Connaissance Supra-normal*, translated into English under the title *Super-normal Faculties in Man*) and J. Hettinger (*The Ultra-Perceptive Faculty* and *Exploring the Ultra-Perceptive Faculty*). Although there appears to be no single method in which the facts present themselves to the subject, there are occasions when the subject speaks as though he or she is feeling and experiencing those things of which he speaks.

Before leaving the subject of prophecy, it is worth mentioning a point about the recording of the prophet's vision or revelation. The greater part of the prophetic books cannot have been taken

down in shorthand, but must have been set down after the prophetic vision had died away. There is in fact a classic example in Jeremiah xxxvi, where Jeremiah dictates to Baruch all his prophecies up to date, and later, when the copy is destroyed, repeats them.

There is an interesting parallel to this in Osty's book on page 78. One of his subjects, M. de Fleurière, told Dr. Osty that he remembered accurately afterwards the exact words that he had repeated while he was exercising his gift of psychometry. Since Dr. Osty always had his words recorded in shorthand, he was able to prove that the subject's claim was true. M. de Fleurière said that the exact words returned to him under the form of large printed letters that he could read as one reads a book. There is thus no reason why, once the prophets had had the divine revelation imprinted upon their subconscious minds, they should not be able to repeat it accurately afterwards.

It is tempting to continue the discussion of prophecy, especially in relation to the time element in what is foreseen. But to avoid overmuch attention to one subject, we must turn to the bearing of Psychological Research upon the miracles of the Bible. Undoubtedly a student of Psychological Research will be most hesitant about denying miracles. Here again the old materialistic concepts have been smashed, and the incredible powers of mind must be accepted, even though as yet they are little understood. E. J. Dingwall's book, *Some Human Oddities*, is a recent work by a leading member of the S.P.R., that tackles some of these post-Biblical miracles in a careful and scientific manner. The evidence for levitation for example, appears undeniable in the case of the friar Joseph of Copertino in the 17th century and others later. Dr. Dingwall also records extraordinary examples of insensibility to pain and freedom from bodily injury under conditions approximating to trance.

If one admits in addition some of the stories told of Eastern yogis, it is clear that the limits of the power of mind are so far beyond our normal experience as justly to be termed miraculous. The difficulty is that so few of these yogis have demonstrated their powers under the rigid conditions demanded by Psychological Research. Thus, without doubting the good faith of those who record them, one feels that there is always a loophole for questioning whether the facts actually occurred as they seemed to the writer to have occurred. Otherwise such a book as Dr. Alexander Cannon's *Invisible Influence*, takes us into

realms where physical miracles such as levitation and destruction of living things by the power of mind are almost commonplaces.

One of the most spectacular miracles of the Old Testament is the preservation of Shadrach, Meshach and Abed-Nego in the fiery furnace in Daniel iii. The nearest secular parallel to this is the eastern fire-walking. Dr. Cannon describes one that he witnessed in which the participants walked for a considerable distance through a fiery trench without harm. According to him, even those who walked in stockinged feet did not have their stockings burnt. Similar examples are quoted from Africa by Dr. Frederick Kaigh in *Witchcraft and Magic of Africa* (recently published). Dr. Dingwall records that one of the *convulsionnaires* at the tomb of the Jansenist François de Paris, who died in 1727, was at her own request repeatedly roasted in flames without her clothes suffering damage. There is some evidence too, that the medium, D. D. Home, carried blazing coals about the room without injury.

But controlled fire tests in this country have not been so spectacular. The most famous one was televised by the B.B.C. in 1937 at the Alexandra Palace, and is recorded, amongst other places, in Harry Price's *Search for Truth*. The fire trench made from logs and other inflammable material was twelve feet long, with the surface temperature at 800° C. (water boils at 100 degrees centigrade). A professional fire walker, Ahmed Hussain, walked first, and he was followed by a Cambridge undergraduate who had had no special training. Both were unburnt. The solution, according to Mr. Price, was that if the walker walks without hesitation, any one part of the foot is in contact with the surface only for a tiny fraction of a second. Wood is a bad conductor of heat, and fire-walking on red-hot metal would be an impossibility.

It seems then that controlled tests cannot show any parallel to the miracle of the burning fiery furnace in Daniel, but that there is some evidence that on occasions people have by some means handled fire without being burnt. The miracle in Daniel goes far beyond anything that can be paralleled, but the lesser examples warn us against dismissing the whole thing as a fairy tale.

The New Testament miracles are still the subject of discussion. It is quite common to ascribe Christ's miracles of healing to the psychic powers that were inherent in Him as they appear to be in some healers today. We cannot now discuss this.

It is, however, the so-called nature miracles that are frequently rejected on scientific grounds. Healings can be paralleled, but these other miracles are thought to be infringements of the laws of nature.

Psychical Research has demonstrated that the laws of nature go far deeper than the observed laws that govern material phenomena. This should make us hesitate before we deny the likelihood of the occurrence of nature miracles in the life of Christ. None the less, so far as my own reading has gone, I am convinced that there is a uniqueness about Christ's nature miracles, and that at present no well-attested parallels to them have been found. One must of course, freely admit that evidentially even the miracles of Christ, with one exception, do not come up to the exacting standards required by the best Psychical Researchers.

That one exception is the one with which the Christian begins, namely the bodily resurrection of Jesus Christ. To a fair-minded enquirer the evidence is overwhelmingly convincing. For a recent review of the evidence one may refer to G. R. Beasley-Murray's *Christ is Alive*. The evidence is clear that the resurrection of Jesus Christ was not a mere resuscitation of a corpse, or survival of the spirit, but the transformation of the body into something of a new order altogether. Here is something unique in history, and a divine miracle.

To the Christian this is an attestation of the deity of the Lord Jesus Christ, and therefore one is prepared to say that not only the unique miracle of the Virgin Birth, but the other recorded miracles during His life on earth are congruent with His Deity. But if we are wise we shall not attempt to draw a line too rigidly between what was possible for Him alone, and what may be possible for others to do.

Thus Dr. Alexander Cannon in his book *Invisible Influence*, states that he has several times witnessed personally the withering of trees by the power of directed thought-energy. If this should appear absurd, let us recall recent experiments at Duke University and in this country, which appear to have established the existence of a psycho-kinetic force (spoken of as PK), whereby concentration on given numbers affects the fall of dice over a series of throws in a proportion greater than chance. In addition to articles in the *Journal of Parapsychology*, a summary of the facts is given in Part 170 of the *Proceedings of the S.P.R.* (Aug., 1945), and further experiments are recorded in Part 173 (May, 1947).

Such miracles as the turning of water into wine and the feeding of the 5,000 and 4,000 cannot I think, be paralleled, though in *Modern Loaves and Fishes*, a small book in typescript published in 1935, Philip S. Haley, president of the California Psychical Research Society, claims that he and one or two others, under seance conditions, have increased the number of small pieces of food. The evidence did not strike me as convincing.

Such attempts to reproduce objects come under the classification of what are called apports. Mediums have claimed to produce objects miraculously in the seance room, but so many cases of fraud have been found that the production of apports must still be regarded as non-proven. It is interesting that some anonymous investigators have offered £250 to any medium who can produce genuine physical phenomena before the infra-red telescope in the seance room of the Society for Psychical Research. At the time of writing this paper there has been only one response, and this proved to be a failure.

The miracle of walking on the water might be regarded as a form of levitation, but such an example of lengthy and controlled levitation would be, I think, unique, though it is claimed that some disciples of the Buddha did actually walk on the water, and Peter himself walked on the sea for a few moments without sinking.

In a similar connection, Christ's stilling of the storm by a single word of command seems to have been a unique manifestation of his inherent deity, and is something that lies beyond man's power to accomplish.

These few examples must suffice to show how far Psychical Research is a help and how far it is inadequate in approaching the subject of Biblical miracles.

In bringing this paper to a close, I recognise that I must have disappointed those who want all or nothing. I have not been able to set Psychical Research on one side as irrelevant or dangerous, and on the other hand I have not been able to use it to prove the Bible. I trust, however, that I have been able to show that, like all other branches of research, Psychical Research has a very definite relevance for any serious study of the phenomena of the Bible. It is in no sense a substitute for the revelation of the Bible, but, in so far as it can discover truth,—and I believe that it can—then that truth will fit into the scheme of revealed truth that forms the Holy Scriptures.

DISCUSSION.

Dr. E. WHITE (Chairman): I am sure that I am voicing the feelings of all present this afternoon when I express thanks to Rev. Stafford Wright for a very interesting and informative paper on an obscure and little known subject.

In comparing Psychical Research with Evolution and the New Psychology, he describes Psychical Research as the scientist of the trio. I hope that he does not mean to suggest that Psychology does not rank as a science. That might have been true fifty years ago, but to-day so much objective experimental work is being carried out, that I think Psychology may fairly claim to be a science. A book recently published by Eysenck, *The Dimensions of Personality*, records the results of experimental work done by a team of workers at Maudsley Hospital. Most ingenious objective experiments are described, and certain inferences made from them. This is but one example of the large amount of scientific work which psychological research has called into being.

On page 37 the author states that "neither Freud nor Jung has dealt with precognition in dreams." In one of his reprinted papers Freud has a brief essay on this subject.

Having read J. W. Dunne's book, *Experiment with Time*, I am not convinced by the evidence he produces of precognition in dreams. There are other possible explanations of the phenomena he describes. In Freud's analysis of the phenomenon known as *Déjà Vue* he points out that the repetition of an emotional state may give the sensation that one has experienced certain circumstances before. It would be possible, in the case of a certain event happening, to connect its emotional content with a similar emotional state in a previous dream, and to interpret the content of the dream in terms of the event. There are further reasons for doubting Dunne's interpretation, and there is room for more careful research into the question of precognition in dreams.

If the paper we have listened to stirs up a further spirit of enquiry, it will serve a very useful purpose. There is plenty of scope for further investigation, and perhaps we are on the threshold of new and important discoveries concerning the depths of human personality.

In the discussion several speakers made contributions.

Mr. C. H. WELCH complimented the lecturer on his use of the word "pneumatical." He drew attention to the confusion which has arisen as a result of using the word *psyche* as a synonym for *pneuma*, though the two words are always used with discretion in the Bible. It was possible for a man to be psychically alive but spiritually dead.

Mr. O. R. JOHNSTON wondered whether forces of evil were involved in such prophecies as those of Nostradamus. He also asked the author if he could give, in the briefest outline, what he had in mind when he spoke of "Christian pneumatical research."

Mr. RONALD MACGREGOR also drew attention to the various biblical miracles, stated to have been accomplished by the powers of evil. He wondered if the speaker had any views on the matter.

Mr. W. E. LESLIE pointed out that Mr. Wright, in the course of his paper, had devoted so much space to the discussion of modern physical phenomena, that he thought that readers would often be in danger of forgetting that the evidence for them was rather slender. He also wondered whether Mr. Wright could explain more definitely what he meant by the expression "the life force of God."

WRITTEN COMMUNICATIONS.

Dr. L. R. WHEELER: I agree that Christians should welcome Psychical Research and co-operate in it as far as possible.

The Victoria Institute is doing service to religion and science by publishing thoughtful and informative papers like those by Messrs. Wright and Leslie. As the former says, psychical research is compelling even materialistic scientists and philosophers to admit "the reality of a new order of being." It contributes with other modern ideas and knowledge to discredit materialism among thinking people. This applies particularly to the study of miracles and other abnormal events recorded in the Bible, concerning which Mr. Wright's paper is most helpful, notably his description of the resurrection of Christ as a unique occurrence.

I have seen fire-walking by Indians in Malaya, and there is no doubt about the genuineness of this phenomenon. Even after full

allowance has been made for exaggeration or fraud, it certainly seems as if various happenings which are difficult or impossible to explain on the usual lines occur among non-European peoples.

Unfortunately it has not been possible to trace the author of the following comments :

The paper has been read with great appreciation, and all sections are worthy of study and comment. For the sake of brevity, however, these remarks will be restricted to the difficulty of differentiating between false and true prophets. Possibly the clearest presentation of the data underlying this particular problem was by William James in his book *The Varieties of Religious Experience*, and I am surprised that more reference has not been made to this work. It has, it is true, a strong agnostic atmosphere, yet it contains a vast amount of evidence which any Christian whose object is truth would be foolish to ignore.

Possibly most people who think of prophecy, think of it in terms of *Deut.* xviii where a sharp distinction is drawn between divination (seeking knowledge of the future from elemental powers intermediate between God and man) and prophecy (divine guidance from God speaking through the lips of man). In this chapter it is suggested that the prophet speaking in the name of Yahweh may be tested by observing whether his word comes to pass. What is not so often recognised is that this test is secondary in importance, and applies only to a prophecy *in the name of Yahweh*, since in *Deut.* xiii, 1-5, it is stated that a prophet speaking in the name of another god may give a correct forecast, but, nevertheless, is to be condemned. The primary test, therefore, is consistency of message, God is not a God of confusion, and only the man speaking in accord with His known character is to be considered.

This test is admirably illustrated in 1 *Kings* xiii, where the second prophet claims to have a message negating the clear instructions previously given to the first prophet. The first should have applied the criterion of consistency, and was justly condemned for listening to that which *he*, who had personally received the message from Yahweh, knew to be contrary to His instructions.

So also an expression used by St. Paul (1 *Cor.* xii, 2) suggests that the spiritual gifts (*glossalalia, etc.*) had been experienced by some of the Corinthians while serving idols, and he clearly outlines

the test of consistency—"Wherefore I give you to understand that no man speaking by the Spirit of God calleth Jesus accursed : and that no man can say that Jesus is the Lord, but by the Holy Spirit." St. John, in his day, found the same necessity (1 *Joh.* iv, 1-3), "Beloved, believe not every spirit, but prove the spirits, whether they are of God : because many false prophets are gone out into the world. Hereby know ye the Spirit of God : every spirit which confesses that Jesus Christ is come in the flesh is of God : and every spirit which confesses not Jesus is not of God."

Several citations of Old Testament prophecy which are made in the New Testament (*e.g.*, *Matt.* ii, 15) prove that in some cases where the prophet spoke with local events in mind, the Holy Spirit guided his message to cover wider spheres of which he was ignorant. An extreme case of this type is recorded in the New Testament (*John* xi, 47-53). The High Priest, afraid that the people will rebel against Rome under the influence of Jesus, and foreseeing that such an event would terminate his period of authority as virtual ruler of Judea, counsels His death as the only effectual preventive. Speaking thus, even under motives of self-preservation, and counselling supreme wickedness, nevertheless, being High Priest that year, the Spirit of God spoke through him of the universal salvation which was to be wrought in that Name. It is not suggested that any Old Testament prophet (with the possible exception of Balaam) framed his prophecy while striving against God : the witness of this case to the nature of inspiration is important, however, as demonstrating that a prophet of Yahweh may concentrate his human energies upon the affairs of his day, and unwittingly utter the depths of God's wisdom.

Lieut.-Col. P. W. O'GORMAN : The scope of Mr. Wright's paper is too wide to review briefly, but I offer a few observations.

Several phenomena of "Spiritualism," not attributable to fraud or a small minimum to evil spirits, are explicable by *telepathy*, which may be defined as a psychic force communicable between human and animal minds, conveying messages appreciable by the senses. Animals normally communicate by telepathy. As man becomes civilised he loses much of this faculty. Intuition or instinctive feeling may thus be influenced and knowledge in an

obscure way can be transferred. But in certain cases positive information can be transmitted long distances, especially among minds *en rapport* with each other. This has been experimentally proved by transference of visions, as well as by other means. Notable cases are of distant tragic deaths of relatives perceived by visions of events. Physical analogies are electric wireless, telegraphy, and television.

Clairaudience and *Clairvoyance* are super-normal faculties of audibility and visibility of distant events gifted to certain seers. Hypnotism greatly manifests here.

Prophecy is more than *Prediction*. *Prediction* may be said to be logical inference from extant knowledge: *Prophecy* is a penetration through the screen concealing future events. How are we to account scientifically for this? We rightly consider prophecy as a special sacred gift of God to select persons for the benefit of humanity. How is this brought about? I venture to make a suggestion with all due reverence. *Time* is a temporal succession of events due to things created. *Eternity* has no past, present, or future. It is an ever-existent eternal NOW. This is how the Creator regards eternity and time. God sees and resolves unalterably from all eternity, for He is immutable—"I am the Lord, I change not."—*Mal.* iii, 6). Prayer has already been accepted, ordained, and answered. Dr. Eugene Osty's *Supernormal Faculties of Man* (Ch. iii, pp. 38-45) gives some authentic examples of supernormal cognition ("metagnomy") in detailed vision of coming events, *e.g.*, the French and Polish wars.

Time began when God created out of nothing the first creature. If we conceive that God has designed a recording chart, as it were, of all events, He may permit a peep through a misty screen beyond this curtain to select individuals, holy persons and prophets. This chart suggests a living *Camera Obscura* or a Cinema of sound and television life pictures. Prophecies are not precise expressions of what are actually perceived but *are the interpretation in words of the percipient's vision*, which may be written down some time after experience. As Osty says of experimenters, "our modes of thinking have to adapt themselves to an order of phenomena manifest indeed on the natural plane of our ordinary sensations, but *originating* on another plane of which our physics can give

us no idea." Sacred prophecy, however, may be in a separate category, as it is more intimate with its origin, *e.g.*, Isaiah's visions which are dictated to him, and he asserts "Thus saith the Lord," as in ch. 53, describing Christ, whom he perceives as present before him, depicting Him in His Passion.

Hypnotism manifests amazing phenomena, and *Spiritualism* is much indebted to it. Narcotic drugs also affect the mind and are apt to deceive. I personally know Dr. Alexander Cannon, but reliable witnesses are needed of the levitation and other feats in Tibet which he records. (See also Mrs. A. David Neal's *Mystics and Magicians in Tibet*.) But the astounding levitations of St. Joseph of Copertino (A.D. 1602-1662) are well authenticated. (See life by Rev. A. Pastrovichi, trans. by Rev. F. S. Laing). Minor raisings of the body during prayer are frequently related in the history of the Saints, *e.g.*, St. Teresa of Avila.

Miracles—defined by modern theologians, are a *sensible, unusual, Divine, and Supernatural work*. And, they may be divided into *above nature, beside nature, and against nature*.

Dr. R. E. D. CLARK : It appears that much more might be made of the remarkable story of the resurrection of Christ. This falls into no psychic pattern and comparison with the hundreds of modern instances of hallucinations, etc., only serves to show how unparalleled it is.

Two modern instances of apparent prophecy which are frequently cited are (1) that of Swift, who says that when Gulliver visited Laputa he found that the astronomers there had found two moons associated with Mars. Swift then tells us their precise distance from Mars and also their periods. The moons in question were not discovered until 1877 and the figures Swift had given were not far wrong! "Several writers," we are told, "took a mystical view," believing that the prophecy had been divinely inspired. Even Camille Flammarion, the eminent French astronomer, referred to it shortly after 1877 as "second sight," and asserted that the prophets of many religions had been far less accurate. However, investigation has shown that Swift was only repeating, and satirizing, a common conjecture of the period, and the figures he gave were not obtained by inspiration but by arithmetic. (See S. F. Gould, *Journal of History of Ideas*, 1946, 6, 91.)

(2) Tennyson's prophecy in *Locksley Hall* (1842). This has often been quoted as if it were a wonderful prediction of modern warfare. The relevant lines are these (II, 119-124) :

For I dipt into the future, far as human eye could see,
 Saw the Vision of the world, and all the wonder that would be ;
 Saw the Heavens fill with commerce, argosies of magic sails
 Pilots of the purple twilight, dropping down with costly bales ;
 Heard the Heavens fill with shouting, and there rain'd a ghastly
 dew
 From the nation's airy navies grappling in the central blue.

Here Tennyson was picturing balloon flights and balloons had already aroused much enthusiasm in his day. Moreover, his "prophecy" was in no way original! (See C. Emery, *Isis*, 1944, 35, 139.)

In view of these instances one is inclined to wonder whether the long-term prophecies of Nostradamus will fare much better. Certainly any one who tries to read him will, as Mr. Wright points out, meet with little but frustrating obscurities.

An interesting modern prophet is Te Kooti, a Maori by race. His prophecies were written down at the time by a private secretary who alone had access to them and, in some instances, they are said to have had very remarkable fulfilments. (See Greenwood, *Journal of the Polynesian Society*, 1942, 51, 65.)

One other point. The Bible very often suggests that there is at times a kind of all-pervading idea, implanted in the world by God, which can be "picked up" by men. It is extremely interesting to note that, though with no reference whatever to the Bible, Mr. Whately Carington reached an almost precisely similar point of view in his book *Telepathy* (1945). This view will, it seems to me, explain a great deal in connection both with Biblical and non-Biblical prophecies. Has Mr. Wright any views on the subject?

AUTHOR'S REPLY.

I am grateful to the Chairman for correcting two lapses on my part. The expression about Psychological Research being the scientist of the trio was badly worded, and was not intended to deny that

Psychology was a science. I am interested to learn that Freud dealt with precognition in dreams. Personally, I am impressed with Dunne's evidence, and there are other examples of precognitive dreams in the books that I have mentioned. Some of these at least appear to lie beyond the suggested explanation of *déjà vue*. From time to time I find precognitive elements in my own dreams.

The problem of the powers of evil is complex. The Bible indicates that Satan and others may use miracles to deceive mankind (*Matthew xxiv, 24*). But does Satan have *complete* knowledge of the future? Apparently the angels do not possess this (*1 Peter i, 12*). But this does not exclude *some* knowledge of the future. If we grant that some human beings can on occasions penetrate the curtain, it would be unreasonable to deny some powers of precognition to Satan. One might then, if one chooses, hold that Nostradamus obtained his knowledge through the Black Art, in spite of his denials.

Mr. W. E. Leslie calls attention to the slender evidence for supernatural physical phenomena. It is true that the evidence is less strong than for the purely psychical phenomena of clairvoyance and telepathy. But Dr. Dingwall, who is one of the most "sceptical" men I have met, accepts the fact of the levitations of Joseph of Copertino, and of some others. The physical phenomena of the seance room are still a bone of contention. Personally, I think there is adequate evidence for some of them. A notable instance would be Rudi Schneider, who was willing to work "under merciless conditions of control never before imposed upon any medium or sitter." Mr. Harry Price testifies that under these conditions he and others witnessed "the intelligent movements (sometimes to order) of waste-paper basket, hand-bell, toy zither, handkerchief, etc. (*all these objects were right out of reach of medium or any sitter*); the tying of knots in handkerchiefs. . . ." (*H. Price. Search for Truth, p. 142.*) What is not proved is that these things are due to the spirits of the departed. The P.K. experiments at Duke University and elsewhere would suggest that they are due to latent and unexplored capacities of certain human minds; so that on occasions mind can have incredible effects upon extraneous matter. It is a pity that so far mediums

have not produced any phenomena of this kind in front of the infra-red telescope. I should have mentioned on page 45 that a part of the £250 challenge was the production of phenomena in front of this telescope, which enables the observer, though sitting in total darkness, to see all that is happening on a fluorescent screen. When I gave this paper, three mediums had accepted the challenge, but with negative results. Provided that the phenonema in their own home circles were genuine, the most likely explanation of their failure in the S.P.R. rooms was that the knowledge of the stringent test inhibited their minds, so that they could not produce the results. If the phenomena were due to spirit intervention, it is difficult to see why the test conditions should have hampered the manifestations, especially since it is alleged by mediums that the spirits of the departed are so anxious to convince us of their continued existence.

Mr. Leslie asks what I mean by "the life-force of God" (p. 35). This is an attempt to work out the implication of "In Him we live, and move, and have our being" (*Acts*, xvii, 28), and "In Him all things consist (margin 'hold together')" (*Col.* i, 17). I believe that all life and existence perpetually derives from God, and in this sense God is immanent in the world. This life manifests itself according to the quality of the creature. In man it produces a personal and self-conscious being, but it is none the less the same life that runs through all creation. The non-Christian mystic sinks, or rises, into an awareness of this life, and thus reaches the sense of impersonal oneness with all creation. By itself this awareness has no saving capacity, since man has fallen, and must be redeemed from outside. He also needs the incoming of a new quality of life that results in fellowship with the personal God. He must not only be born of the flesh, which brings him into the stream of life in the world, but he must be born again of the Spirit, through faith in the Lord Jesus Christ as his Saviour, into the higher plane of divine life that is often called in the Bible "eternal life." The story of the Tree of Life is relevant here, but it would be going beyond our subject to amplify this whole theme now.

Dr. Clark's warnings on prediction are salutary, but I think that some of Nostradamus's predictions go beyond the type of thing that he quotes.

I find myself in close agreement with Lt.-Col. O'Gorman, except that I think he has overstated the effect of hypnotism on releasing supernormal faculties. Mr. Eric Cuddon has experimented along these lines with almost, though not quite, negligible results. This emerges from his book *Hypnosis; its Meaning and Practice* (pp. 40—53), and when I heard him speak recently he had nothing further to add.

876TH ORDINARY GENERAL MEETING

HELD AT 12, QUEEN ANNE'S GATE, LONDON, S.W.1, AT 5.30 P.M.
ON MONDAY, APRIL 12TH, 1948.

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

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

The following elections were announced :—H. V. Goold, Esq., L.R.I., B.A., Fellow ; Rev. E. W. Mills, Fellow ; A. E. Hyam, Esq., Member ; John Byrt, Esq., B.Sc., Member ; Professor L. Ramm, A.B., B.D., M.A., Member ; Capt. E. P. Flowers (late R.A.), Member ; E. E. Oakes, Esq., A.M.I.C.E., Member ; Rev. M. J. B. Fuller, B.A., Member (on transfer from Associate) ; Rev. Paul Faunch, Member (on transfer from Associate) ; Peter Hill, Esq., Member (on transfer from Associate) ; K. J. Frampton, Esq., Associate.

The CHAIRMAN then called upon Frank T. Farmer, Esq., B.Sc., Ph.D., to read his paper entitled "Physical Science and Miracle."

PHYSICAL SCIENCE AND MIRACLE.

By FRANK T. FARMER, B.Sc., Ph.D.

THE statement, "I would believe in miracles if I saw one happen" is a common criticism of the view that miraculous events do in actual fact take place. Those who criticise their existence are generally ready enough to admit that astonishing happenings, commonly called "miracles" do from time to time occur, but they attribute these to coincidence or freak of chance rather than to any supernatural processes, and are quite unconvinced that departures from the well-established laws of nature do ever manifest themselves. They point out (rightly) that in the case of any physical system capable of random variation there must necessarily be extreme departures from its normal state at times, and these inevitably attract attention while its normal variations pass unnoticed. It is always the odd extreme, whether in physical phenomena or in the wider world of human affairs, which catches people's minds and arouses interest often out of all proportion to its true significance.

This type of reasoning represents the commonest of all criticisms of the view that miracles are real.

Of the many alleged instances of miracles recorded in history the greater number have undoubtedly been concerned with healing of disease. This is a subject which has, not unnaturally, held the interest of people throughout the centuries; sickness is always a matter of vital concern to any class of people. The "miraculous" cures so recorded, however, rarely convince anyone who is disinclined to believe them in the first place, for it is well known that the healing of disease in everyday life often occurs in a manner which is wholly unexpected and which, not uncommonly, appears at the time to be supernormal in character. Unless we can say what course an illness would have taken if it had been left to itself, we can never decide with certainty whether recovery was a natural process or whether it was due to some supernatural power.

Similar criticism may be made of the "supernormal" explanation of the many other strange incidents which are continually being reported as miraculous—an unusual escape from death or the chance encounter of a long lost friend under the most unlikely circumstances.

Such considerations have made many people, among them many Christians, sceptical about the reality of miracles. They say, moreover, and not unnaturally, that since miraculous events cannot be proved to occur in our own time, we have no valid ground for believing they ever occurred in the past. Nature works according to definite laws and principles, and, in the absence of overwhelming proof to the contrary, it would be illogical to suppose that she capriciously departs from these at times for the sake of some anxious or suffering human being.

With the advance of science in the nineteenth century this critical point of view became much more widespread than it had been hitherto. For until relatively recent times a great many natural events which we can understand readily enough today were quite unintelligible, and it was no cause for wonder that these should be given an explanation in terms of spiritual instead of physical forces. There was no other known interpretation of them. During the last hundred years or so, however, the outlook has totally changed. We have reason now to believe that the whole behaviour of the physical world is governed by just a few simple fundamental laws. And, whether or not we can perform the necessary calculations relating to any physical system to predict what its future course will be, we believe that the future of such a system is determined, and that nothing we may wish or think about it can alter this course.

Such a view has far-reaching implications. It follows from it, for instance, that to expect the weather to change from what it would otherwise be today is really to expect a miracle to happen in the same sense (though perhaps not to the same degree) as it would be for water to flow up hill. This does not mean that we should not pray for rain; but it does not mean that in this as in every instance of the intervention of a mind with the working of the physical world something has happened in the determinism of matter which is not normally taken into account in the consideration of physical systems.

The deterministic view may be summed up by the well-known statement that the world is a vast machine. Its present condition is determined by the past and its future is determined by the present. All three are, to use a phrase of C. S. Lewis, "interlocked,"¹ and the material universe follows its inexorable course as laid down from the day when it was created. There is clearly no room for miracles if this is a correct picture.

This "closed universe" conception has formed the background of scientific and philosophical thought for a long time. Yet it has been felt too, by many, that it does not represent the whole story. It does not, in particular, take into account the mind of man. Men make decisions and act on them. These decisions are derived from thoughts, ideas and emotions which are clearly not wholly physical in character, yet they result in actions which enter and become part of the physical world, and the course of a material system is altered from that which it would have been in their absence. Does this mean that physical laws have been disobeyed? Or do the thought processes going on in our minds somehow run parallel and hand in hand with the physical world so that no such conflict is produced?

To many people the idea that so "insignificant" a thing as the mind of man should be capable of interfering with the vast machine universe seems incredible, and they deny that any real interference does take place. To them the universe is essentially material, and the interference by mental events must be regarded as an illusion, not a real disturbance of the mechanism.

The human mind on such a view, is merely an *epiphenomenon*; it is the result of a particular configuration of molecules and atoms in the brain. When we think we are doing something

¹ Lewis, C. S., *Miracles*, G. Bles, 1947.

from choice we are really doing the only thing possible, because our action represents the only way in which these molecules and atoms can move. The brain is like the pendulum of a clock. This can only follow the motion laid down for it by the person who made it and set it in motion; no other course is possible. Our thought processes are merely a "decoration" which we weave into the picture, making it appear that they are really causing things to happen in a way different from that due to physical law.

There can be little doubt that this view is totally false, since (apart from its physical difficulties) it simply does not fit in with experience. We know certain facts about the physical world which have enabled us to discover the familiar laws of nature; we have learned these facts by observing material objects. We know, also, certain other facts which are equally gained from experience, one of which is that we are influenced by such things as fears, affections, envies, dislikes, and so on, and all of these may lead in various ways to the movements of our muscles and of our whole bodies. If I am actuated by fear, I am likely to move in a different way from that in which I would move if I were actuated by love or sympathy; and the mere existence of two alternatives shows, when we analyse it, that physical determinism does not reign here.

R. O. Kapp in his valuable book, *Science versus Materialism*, supports such a view. He recognises that our bodies have a chemical structure much the same fundamentally as non-living matter and that, wherever physiological and chemical processes have been studied, they are found to be governed by the same basic laws as we find operating in the inanimate world. But the difference, he says, is that we, as living beings, are subject to a *double determinism* and not only to the determinism of physics. Every molecule of our bodies obeys all the laws of physics, but, in addition, it is subject to a further determinism imposed by the mind.

This view would seem to explain the difference between living and non-living matter were it not for the fact that where physical laws reign there can be no place for any *alternative* course which a double determinism might be expected to impose: as soon as we conform to the uncompromising laws of the inanimate world, there ceases to be any situation in which a second determinism could operate. If the non-material qualities of a living creature, therefore, have any reality at all, there is no alternative

but to abandon the rigid determinism applied to the molecules of which it is composed, and to allow the possibility that processes contrary to the laws of physics are somewhere taking place in them.

Eddington¹ arrives at this same conclusion, and says that we can only account for the observed behaviour of living organisms if we assume that in some part of their bodies there is matter which does not follow ordinary physical laws, and which is not deterministic. This he calls "conscious matter." When we think, and when we are influenced by an idea or emotion, the atoms in these parts of our bodies behave in a way which is *not* simply the result of their previous motion. A train of processes is thereby set in operation, which results in the contraction of a muscle or group of muscles. Once the initial disturbance is set up the whole process may, and in all probability does, follow the fundamental laws of non-living matter, but, somewhere at the beginning of the series of events, there must be the movement of an electron, an atom, a molecule, or an aggregate of these, in a direction and with a velocity which are not determined by the laws of dynamics, and which indeed contravene these laws.

Whether there must be a large number of such conscious centres in the brain, all of which act simultaneously and in harmony to produce each physical movement and each behaving as a "trigger" to its neighbouring molecules, or whether only a single electron need be controlled at any time by our thoughts or emotions, we have as yet no way of discovering.

The latter supposition would however appear to be a very improbable one, since it clearly requires that the whole system should be extremely well balanced and sensitive. In view of the fact that the process is going on all the time while our minds are at work, it seems difficult to conceive that a single atom or electron could initiate all the various movements that we make, every one of which corresponds exactly with the thoughts that happen to be in our minds at the time. The physical structure of our brains does not suggest that such a high degree of complexity is present in them* ; and it seems much more likely

* Indeed the brain is not one of the most complex structures of the body, if we take ease of damage by molecular rearrangement as the criterion. The brain is far less sensitive to X-rays, for instance, than the glands or other seemingly less vital parts of our bodies.

¹ Eddington, A. S., *The Nature of the Physical World*.

that, taken in the aggregate, the conscious centre or centres are of an appreciable size and contain a very large number of molecules.

PHYSICAL INDETERMINISM.

Until the beginning of the present century it was thought that the behaviour of particles of atomic size was determined by precisely the same laws as those which govern larger pieces of matter, namely Newton's laws of motion. On this view any material system was wholly determinate in character. The above argument for the existence of a centre of conscious matter in the body, on this basis, seems to stand quite unassailable.

With the coming of modern physics, however, a new factor has been introduced, namely, indeterminism within atoms themselves. Heisenberg first drew attention to this. He showed that there is a limit to the precision with which the position and velocity of an electron can be measured in any given circumstances. We can either determine the position accurately and leave the velocity in doubt, or we can determine the velocity accurately and leave the position in doubt. There is a complementary relationship, by which the product of the "uncertainties" in the two measurements is always equal to a small, but nevertheless finite, quantity, Planck's Constant. This conception was something entirely new to physics, and has been, consequently, the subject of much criticism and speculation.

The basic contention of Heisenberg was that there is an uncertainty in the measurements themselves. This, in itself, does not seem of great significance. We are familiar with imperfections in measurements in the larger world and, indeed, expect them. They arise from the use of imperfect apparatus. In atomic phenomena, however, the situation is different, since the limit is imposed by something outside our control; it is imposed by the finite sensitivity of the most delicate measuring device known to us, namely a single quantum of light. The clumsiness of this, in comparison with an electron, causes it to "blur" the experiment, and so prevent any precise result being obtained. The limiting factor is not one of skill on our part, but is inherent in the make up of matter itself; it is beyond even our mental powers to find a way out of it.

Blunders were sometimes made in early atomic physics by

visualising mechanical models of atoms and electrons and from these deducing the way in which real atoms should behave. By doing this, physicists fell into the trap of supposing that matter of atomic dimensions was the same kind of stuff as that which we can handle or otherwise be conscious of with our senses, and several false lines of thought were started in this way. As a reaction against this certain physicists insisted that we ought only to consider as real those things which can actually be observed and measured. If we cannot observe a certain type of particle, however certain we may be that it is present, we have no right to suppose it exists. The same is true of concepts such as momentum and position; if they cannot be determined experimentally, their existence must be regarded as unreal.

In this way indeterminacy of measurement came to be regarded with much greater significance. An electron now came to be thought of as being hidden in an "envelope of uncertainty"; within that envelope its position was not determined by physical law, but only by probability. We could describe it by saying, "it might be here, but it is more likely to be there"—its reality was no more substantial than that. This was something strangely new to physics. It meant that there was an arbitrariness right at the heart of physical phenomena where causality had hitherto been assumed to be firmly established.

It is sometimes said that all physical laws are ultimately statistical in character and only appear to be exactly obeyed because we deal in practice with large numbers of molecules. Thus, in a gas every molecule is moving and colliding in a random manner, yet the large scale quantities we measure, pressure, temperature, etc., are known to obey quite exact laws. Nothing in our measurements could tell us what a particular molecule is doing at any time, but the molecules taken together behave according to precise laws.

It is clear that the "indeterminacy" in this instance is merely an expression of our ignorance of the precise position and velocity of every molecule at any time, a "crypto-determinism" as Prof. E. T. Whittaker¹ describes it. In theory we could observe the motion of every molecule separately, and then calculate precisely the behaviour of the whole gas at any future time; and according to this classical view there would be no arbitrariness or uncertainty in the result.

¹ Whittaker, E. T., *Proc. Phys. Soc.*, 55, 459 (1943).

We may well ask whether the indeterminacy in electrons which we have been considering is a real physical indeterminism or whether it also is merely an admission of our ignorance of some hidden factor that we cannot measure. Opinions among physicists differ on this issue. Von Neumann¹ concludes from a mathematical analysis that the phenomena of atomic physics cannot be explained as a mere ignorance of hidden parameters and that there is a real arbitrariness at the root of things. Pelzer,² on the other hand, indicates a way in which such hidden parameters might enter in physical phenomena and shows that there is at least a reasonable justification for assuming that atomic processes are in fact determinate. Many physicists believe that this is the case; and that Heisenberg's indeterminism is no more than a lack of knowledge on our part. Later we shall have occasion to revert to this point in considering the miraculous.

The idea that an arbitrariness might exist in the physical world was hailed by philosophers, who immediately suggested that here was the key to the problem of free will. This loophole in the strict causality of physics provided just that way of entry for which they had been seeking, by which a non-physical entity, mind, could act on the material body. All the mind had to do, they said, was to influence the electrons within their range of indeterminacy and so bring about a movement of some part of the body in the way that the mind had selected. There was no need to postulate any departure from the laws of dynamics, as had previously been necessary. Here was the link between the mental and the physical which they had been seeking so long.

Such an easy going conclusion however, is far from adequate. It is doubtful, indeed, whether an influence by the mind upon electrons within the fine limits which physical indeterminism allows, could account for any of the large scale movements of our bodies which occur. It would be necessary, if this were so, to have an extremely delicately adjusted system if each response is to occur in exactly the correct manner for every thought and impulse in the mind. As we have already noted, the available evidence does not suggest that the brain is of this character.

It is important to note here that if in fact the mind works by operating on electrons within their arbitrary limits, its behaviour

¹ J. von Neumann, *Mathematische Grundlagen der Quanten Mechanik*.

² Pelzer, H., *Proc. Phys. Soc.*, 56, 195 (1944).

would *still be contrary to the laws of physics*. If the same process occurred in non-living matter it might well manifest itself in a way that the physicist would call "miraculous"; for example, it might cause the separation of hot and cold molecules in a liquid, contravening the second law of thermodynamics. That such things do not happen in the external world shows that, whatever precisely living matter may be it does not obey the same laws, wholly and simply, as does non-living matter. It constitutes, in some degree at least, a miraculous system.

Normal Miracles.

The above considerations suggest that we may divide miracles into two groups, which we may call *normal* and *abnormal*. The normal are those which we find occurring every day in the mind of every living being under the influence of thoughts, instincts, emotions, etc., and it is only because they are so extremely familiar to us that we do not recognise their profound significance. They are miracles in the sense that they are unpredictable by any dynamical calculation from events that have gone before; they are a new "creation," thrust into the material world from outside and are not linked by any mechanical process with that which is already there.

By way of contrast, we may enquire into abnormal miracles, which bear no such familiar characteristics and occur, if at all, only on the rarest occasions. They will be considered separately.

The normal operation of our minds on our bodies has been the subject of many discussions, and it has been characteristic of such discussions that they have tended to become discourses on the existence or non-existence of free will. This subject is of profound interest, but it should not be allowed to obscure the issue we are considering. Many of our actions are certainly influenced by our previous experiences and by the state of our subconscious minds, and often when we think we are making a free choice, we may not really be doing so at all but instead may be following an inevitable course. Thus it is often argued that it is unnecessary to assume that there is any interference with the physical behaviour of our bodies at all; they are machines like the rest of the world and are obeying physical laws in just the same way.

This argument carries little weight, since the need to assume an interference with physical laws does not arise only from the existence of free will in the mind; it arises from our reaction

to any non-material cause. We respond a thousand times a day to emotional or instinctive impulses. These cause our muscles to move just as much as an unconditioned impulse would do, if it could exist in our mind. It would be necessary to show, therefore, if we are to evade the above conclusions, that all such impulses are, in fact, just the mechanical interactions of molecules and atoms instead of the mental processes they seem to be. Thus, if I feel sympathy towards a person and go to his help, it would have to be shown that the quanta of light from that person and a multitude of other objects, falling on my eyes, and causing photo-electric effects in the retina, in conjunction with vibrations through the air on to my ear drums and other sensory experiences of this nature, result mechanically in the movement of molecules in my brain in a particular way, and in the contraction of such muscles as cause me to move in the way I do; and that if the influences had differed in some minute detail I would have moved in a completely different manner. Such a theory may be upheld, but it requires an almost inconceivable stretch of imagination to account for our many varied actions in this way. Moreover, it is not what experience leads us to believe; it can only be regarded as highly speculative in character.¹

Should our illustration not prove convincing, however, we may consider a further instance. Let us take for example the process underlying a creative act such as the invention of a calculating machine. Here the mind works in a different capacity, namely that of producing from an idea in the abstract a device of an ingenious and complex character. The idea is generated in the mind by a creative process. Following that process, the inventor causes it to be expressed in material form by the action of his mind on his muscles: thus a non-material entity gives rise to a tangible physical instrument which has no previous counterpart in the world of matter.

Such a process is typical of a multitude of things we do in art, in science, and in our everyday lives. It represents an intrusion from without into the mechanism of our bodies and provides the strongest evidence for the type of miraculous process we have been speaking of as taking place in the material substance of our brains.

Whether free will exists or not, therefore, we can say that

¹ West, G. D., *Nature*, 154, 464 (1944).

our minds are the focus of an interaction between the non-material and material worlds, and in this respect a miracle is happening in precisely the sense in which a physicist uses the word when he is thinking in terms of his mechanical laws.

Considerations of a similar character are true also of animals. For instance, the instinct which makes a bird care for its young cannot be explained adequately as a purely mechanical process, but only as the action of non-physical and physical parts of its being combined.*

These and many other examples may be described as *normal miracles*. They occur all around us every day, and, to a physicist, they can be described in no other terms than as an interference with the laws that govern ordinary material particles. They are miracles of a special, but very common, type.

Abnormal Miracles.

The healing of disease is an everyday occurrence. We all recover from minor ills without any special attention. There is little doubt, however, that the state of our minds plays a definite part in the process of recovery. A confident, cheerful disposition is one of the greatest healing factors we know.

Clearly, therefore, our minds unconsciously, as well as consciously, react on the molecules of our bodies, and cause them to function in a way in which they would not function alone. Indeed, it seems very probable that our whole living structure depends all the time on a non-material influence from our subconscious minds, to maintain its proper function and to repair the minute damage which is constantly occurring. In principle, our very existence as living organisms seems to depend on this interaction between the mental and the material parts of our being.

In all these considerations it is immaterial whether the interaction of mind and matter is through an indeterminacy of electrons, or through some completely unknown interference with physical law by the mind. The interference is seen to take place, and on this account the body is not just a deterministic mechanical system but is a centre of miraculous events.

Other phenomena of a less familiar character are of interest in this connection, and may be referred to briefly here. Tele-

* Mechanical in the physicist's sense, not in the sense commonly used of "by force of habit."

pathy is one of these. There is little doubt that some interchange of thought between widely separated people does occur, and there is much evidence, too, that a similar process takes place among animals. Ants for instance are known to influence each other over considerable distances and the influence is independent of any physical barriers that may separate them. Numerous other instances are known too of responses between animals which cannot be accounted for by electro-magnetic waves or any of the other physical processes that are frequently put forward by way of explanation.¹ They are in a category outside known physical agencies. Whatever may be the explanation of these phenomena, it seems clear that a transfer of an idea or thought pattern from one individual to another does in certain circumstances take place.

As for ourselves we normally think of our minds as being attached in some way to the molecules of our brains. If this is so, such instances of telepathy suggest that they are able to "reach out" at times and exert an influence on other minds at a distance; they escape momentarily from their material prison. Perhaps the process is similar to the way in which they reach out to the remote cells of our own bodies and exert a co-ordinated healing influence on them. At any rate it seems that the mind is not as completely bound to the material substance of the brain as is usually assumed and can, under some conditions, operate through distances.

There are various other phenomena which are relevant to this consideration and mention should be made here of those classed as "occult." Although this is a branch of knowledge in which little is known with certainty, there seems ample evidence to support the existence of such manifestations as Levitation and Telekinesis.² The fact that these phenomena are associated with a mind (that of a medium) in an abnormal or strained state, suggests that the effects on matter which occur are due in some way to the mind of the medium "reaching out" from its normal body to these remote objects and influencing them in a way not unlike that in which it influences its own body under normal conditions. If this is so, then the various phenomena concerned would seem to be further examples of the way in which a mind can contravene the normal physical laws, and they need not be

¹ Duncan, F. M., *Wonders of Migration*. Sampson Low, 1947.

² Duffy, B. J., *Food for Thought*, 1944.

regarded with such amazement and scepticism as is customarily shown towards them. They are miraculous in the sense that they are a departure from the normal behaviour of material objects. But they are no more contrary to the laws of physics than the processes which are going on in our brains all the time and which we regard as entirely natural.

Other phenomena¹ than telekinesis accompany the activity of a medium, but we should be going too far afield if we considered these. We may, however, notice that each involves the breaking of some physical law which in the normal world is rigidly adhered to, and in this respect they are all related and can be grouped together. In the instance of the lifting of objects at a distance the law of conservation of energy is broken; in the instance of the brain it is more probable that the law of conservation of momentum is broken. In other instances, such as materialisation,² it appears that the law of conservation of matter is broken. If we accept any one of them there can be no valid reason to deny that the others also take place in suitable circumstances. Physically, one is no more incredible than another.

The examples we have just referred to are interesting because they cannot be accounted for simply as an interference with the *motions* of molecules within a particular mass of material. They represent something more radical. This seems to suggest that the process of interaction of mind on matter is not achieved through the loop-hole of Heisenberg's indeterminism. This will only explain the rearrangement of particles with the same average energy, and while this might be the key to our mental processes it cannot account for the other phenomena which call for an explanation.

We make no pretence in the above discussion to have explained any of the phenomena that have baffled science for such a long time. The instances we have given are intended to show that, to a physicist, many everyday occurrences are, in fact, in the nature of miracles, using the word in the sense in which he habitually uses it, and that there is no foundation for the materialistic belief regarding our minds and bodies which is so prevalent. Many things in the world remain obscure; but we now know enough to say that, even if they should some day be understood, they will not come within man's simple scheme

¹ Geley, G., *Clairvoyance and Materialization*. Unwin.

² Schrenck-Nötzing, A., *Phenomena of Materialisation*. Engl. Trans., 1920.

of physical laws. He must leave room for the non-material, the mental, as well as the physical.

If the mental aspect is allowed, why not also the possibility that a much greater Mind may sometimes interfere with the events taking place in the physical world, now, in the past, and in the future experience of men ?

DISCUSSION.

Dr. R. E. D. CLARK (Chairman) said : On behalf of the Institute I should like to say how grateful we are to Dr. Farmer for his interesting, valuable and stimulating paper.

The paper raises so many points and covers so wide a field that it is difficult to know where to begin and what to omit. In my comments as Chairman, therefore, I should like to confine myself to a discussion of one point only.

Dr. Farmer has called attention to a matter of fundamental importance which has been much overlooked of late—the question of the existence of “conscious matter” in the central nervous system. On this point I should like to make a few additional comments which would seem to be relevant.

The brain is a highly “divergent” system, that is to say it contains mechanisms able to convert an exceedingly *small* stimulus, such as a small potential difference, into a large scale event. We see this in a particularly striking way in, say, strychnine poisoning, when very small stimuli result in convulsions. It is not, therefore, intrinsically impossible that an action of the mind upon a single electron within its normal “envelope of uncertainty” might be magnified into a bodily movement. But if this actually takes place we should expect bodily movements to arise spontaneously—since probability alone, in addition to volition, will, in the course of time, bring our electron into all possible positions within its “envelope.” Since this is *not* in accordance with experience, domination by a single electron centre would appear to be out of the question.

May we not seek an analogy from recent findings concerning the physiology of the sense organs ? An immense number of fibres connect the retina to the occipital cortex and each obeys the “all or none” rule—it is either stimulated or not stimulated.

Whether or no stimulation occurs is largely a matter of chance (*i.e.*, stimulation of such a fibre lies within the normal "envelope of uncertainty"). But the sensation of light is not registered by the stimulation of a single fibre—were it otherwise we should be incapable of distinguishing between real light and random electronic fluctuations. The synchronization of responses by a number of nerve fibres is necessary before the sensation of light can be evoked. In the ear the circumstances appear to be similar.

Analogy would suggest, then, that *if* the mind functions by acting upon individual areas of "conscious matter," within the limits imposed by the Heisenberg principle, then there must be a number of such centres and the "miracle" which the mind performs must lie in the synchronization of the fluctuations in the centres. The mind, in short, must act by ensuring some kind of non-physical action-at-a-distance.

Another argument for the existence of a number of centres would appear to be furnished by the work of Lashley on the brains of animals. This has conclusively shown that one part of the cortex can generally take over the functions of another. This suggests that "conscious centres" are numerous and well distributed in the cortex.

If we assume that the brain contains many "conscious centres," it is not necessary to suppose that it is inordinately complex. It becomes, in fact, more like a *manually operated* than like an *automatic* telephone exchange. This would appear to agree with the X-ray evidence cited by Dr. Farmer, and it is then no longer necessary to assume that the brain is "an extremely delicately adjusted system."

However, none of those considerations invalidate Dr. Farmer's contention that the ordinary functioning of our minds must, in the fullest sense of the word, be "miraculous" in its nature. In his valuable work on *Miracles*, C. S. Lewis has reached an identical conclusion and it is refreshing to learn that Dr. Farmer has reached the same view as a result of an approach from a scientific rather than from a philosophical angle.

Dr. E. WHITE said: I was very much interested in Dr. Farmer's suggestions concerning the possible way in which the mind acts

upon the matter of the brain. No doubt he is familiar with the researches carried out by means of the electroencephalograph. In one experiment, which I witnessed, the subject was sitting quietly with his eyes closed, and the waves recorded on the moving tape showed a regular form and rhythm. The subject was then told that he would be given a simple problem to solve in mental arithmetic, which was then given him. From the time of the announcement of the problem (how many pence in half-a-crown?) the waves altered very considerably in form and in rhythm. As soon as the problem was solved, they returned to their original form. It is believed that the waves represent the common denominator of changes of electrical potential in a very large number of cortical cells. If this is so, may we not infer from the above experiment that the change in consciousness consisting of a conative mental effort affects a large number of nerve cells at the same time?

Concerning the healing of tissues, certain experiments performed by suggestions made to a subject under the influence of hypnotism show that physiological changes can be brought about, *e.g.*, flushing and sweating of an area of the skin. Further it has been found possible to produce a blister on the skin by suggestion, and even to affect the rate of healing of a blister by the same means, without the subject having any conscious memory of the suggestions made during hypnosis. Other evidence may be added to show that the processes of the body under the control of the autonomic nervous system (*e.g.*, heart beat, rate of breathing) are modified by mental processes going on in the unconscious mind. It would appear that healing processes are not brought about by the direct influence of the unconscious mind upon the tissues, but *via* the mediation of the autonomic nervous system.

In reference to what the chairman (Dr. Clark) said about centres of consciousness, modern neurological investigations show that the limited motor centres described by Hughlings Jackson are not adequate to explain all the phenomena of motor activity. A number of accessory motor centres in the brain have been discovered.

Probably we must abandon the conception of a centre, or centres of consciousness. It seems more likely that in consciousness the brain acts as a whole, although there are certain centres directing particular groups of muscles in voluntary movements.

I should like to thank Dr. Farmer for his interesting paper, which deals with many important questions relating to mind and body.

Dr. NORMAN S. DENHAM: Miracle, as usually regarded, involves the abnormal, and is held to transcend the laws of Nature. Though manifested in the transformation or renewal of the material, it is always accompanied by what may be termed psychical or spiritual determination. Besides this, miracle takes place in the realm of the immaterial. Indeed, the transformation in such cases is not explicable by atomic laws, or by indeterminism within the atom. In the case of a man converted to God, the changed life issuing in alterations of speech, dress, habits and associations, is indicative of a fundamentally new, purely spiritual outlook. Once earth-bound, his sphere and interests are heavenly.

Dr. Farmer's main concern, however, is with the commonest and most spectacular type of miracle, the healing of disease. He justly maintains that the course of the material system is definitely changed because of mental processes, by what R. O. Kapp calls "double determinism"—a dual imperative of mind and physical law. The "conscious matter" of Eddington seems to call for "conscious mind." Mind, being indeterminate, necessarily dominates the matter which the Creator has provided to subserve the needs of the organism. It is irrational to regard the psychic impelling of the brain-cells, causing unfamiliar processes, as due to indeterminism within the atom. The organism is surely a useless entity without the mind, witness the lunatic, or a thousand accidents in animal life calling for adaptation and adjustment.

An animal will automatically crouch to deceive its prey or to elude its enemy. A bee will find a deadly hawk-moth in its hive, and it will at once be sealed up. A swan will pull a bellrope because in that way only will it be fed. The psychic process leading to unusual action is essential to its existence. It is a soul, not a physical thing only. If, as Dr. Farmer affirms, there is reasonable justification for assuming that atomic processes are determinate, then indeterminism within the atom has no effect upon the large scale movement of bodies.

We welcome the Lecturer's affirmation that our very existence as living organisms seems to depend on interaction between the

physical and non-physical parts of our being—also his statement as to the grouping of miracles as *normal* and *abnormal*. The *normal* could be defined in the words of Holy Writ, "By faith we apprehend that the worlds were framed by the word of God, so that things which are seen were not made of things which do appear." Of the *abnormal*, we remember that "Jesus . . . was moved with compassion . . . and He healed their sick."

Dr. Farmer describes as *normal* the miracle unpredictable from events which have gone before, and cites the calculating machine. Plastic surgery also might be instanced; where a surgeon grafts portions of the patient's limbs to a deficient facial member, and produces a new ear, nose or lip. By no means could we maintain that the mind of man does not interfere with and control matter. Much further evidence along the same lines is available from psychic research which seems to give us a vision of the powers now largely latent which it may please God one day to release for man's good.

WRITTEN COMMUNICATIONS.

MR. E. H. BETTS: Either man must be left to his own devices to discover God, were it possible, by experiment and observation, or else God must Himself break in upon the world of Nature in which man finds himself. This He could not do apart from a display of the supernatural, unless we identify God with the works of His hands (which is pantheism).

Christianity then, which is essentially God's Self-Revelation, is miracle, and must call for miracle. There is no escape from this.

What then is the relation between science—not merely physical science, but any true science—and miracle? The relation is that in both, man's position, in the ultimate, is that of viewer—of looker-on. In both, the whole question is one of evidence. We accept the so-called laws of science because they are firmly based on numerous well-attested observations. We Christians likewise accept the miracles of Christianity because they have been satisfactorily attested. Logically the two things are homologous; epistemologically they are complementary. My belief in the law of gravitation and my belief in the miracle of 2 *Kings* 6: 5 which seems to controvert it are equally founded, being logically of precisely the same status. Allowance for miracle is *inherent* in the very nature of inductive, *i.e.*, observational, science.

Those people who think of the laws of science as constituting a completely deterministic system are guilty of the old and all but universally besetting sin of over-generalization. Heavy bodies sink in water. We know that this is "true" because there have been observed innumerable instances of it. But to conclude from these exceedingly numerous instances of actual and recorded observation, that heavy bodies have always sunk, and will always sink in water, and that the rule can have no exception, is invalid. It is to mistake induction for omniscience.

It is not within the competence of science to negative Miracle. For we must remember and insist on the fact that there are *no* laws of science which are any better founded logically than the simple one just instanced. However elaborately the observed data may be worked up and however beautifully they may have been crystallized in shapely formulæ, they are in effect simply condensed observation, and have no other status. This point is elementary but it is often overlooked and needs constant re-assertion with emphasis.

We have, therefore, no need to look wistfully to the physical indeterminism of Heisenberg in the hope that there, perhaps, the thin end of a logical wedge may be inserted to prise open some room for miracle. And as to prayer, its petitions are selected, if he who prays be spiritually intelligent, by one criterion, *viz.*, Is this within the will of God? Super-physical phenomena are envisaged in the Christian story of the past, *e.g.*, *John* xx : 19, 26 ; super-physical events in the future are our lively expectation, *e.g.*, 1 *Thess.* iv, 2 *Pet.* iii : 10, 12. In the meantime "the just shall live by his faith," and this can even move mountains.

I am glad that though in his excellent paper Dr. Farmer follows a different route he reaches the same destination. "A much greater MIND may sometimes interfere with the events taking place in the physical world, now, in the past, and in the future experience of men."

Mr. A. CONSTANCE : Miracles are contradictions of known laws : contradictions which no amount of further knowledge will or can explain. God makes His own laws, and is in no way bound by them. To seek logical explanations of them is to take step after step backward in a series of regresses (in the style of Dunne's *Serialism*),

each of which finds us looking at the backs of our own heads. Dr. Farmer, in an otherwise logical and well-informed paper, makes this serious blunder: he views his universe from that position designated by Dunne as the "second observer" position. He gets as far back as this position and no farther—he sees himself in his universe, examining laws and miracles and seeking some explanation of them, while remaining in the third dimension. If there are, as we have every reason to believe, an infinite series of observers, behind each of us, and an infinite series of dimensions, then what becomes of all our "explanations" of miracles?

I am sorry that Dr. Farmer says nothing of Biblical miracles, and feel that it is particularly regrettable that he makes no mention of that supreme miracle of all time, upon which the faith and hope of every Christian rests: the Resurrection of our Lord and Saviour Jesus Christ.

Lieut.-Col. P. W. O.GORMAN also wrote commenting on Dr. Farmer's paper. He doubted if theologians would find Dr. Farmer's division between normal and abnormal miracles easy to accept. The word "miracle" had not hitherto, he said, been used by theologians to embrace everyday events, such as the ordinary working of men's minds. A true miracle is a supernatural event due to God.

AUTHOR'S REPLY.

I am much indebted to the Chairman for his comments. If the action of the mind is in fact by way of the uncertainty of position or velocity of electrons we should, as he points out, expect a randomness to show itself beside the ordered movements of our muscles. The situation is analogous to an electrical amplifier in which, as is well known, it is impossible to separate a small input voltage from the voltages due to thermal agitation, etc., and inevitably the unwanted potentials are amplified as well as the wanted. It seems clear, therefore, that if the mind does work through the uncertainty principle it must operate simultaneously on a large number of electrons synchronized to some plan. Lashley's experiments are very interesting, as Dr. Clark points out, in bearing out the same contention.

Dr. White refers to the electroencephalograph. It we are right in interpreting the voltages developed in the brain as due to the summation of potentials in a very large number of cells, and not some other chemical or physiological mechanism, then the regularity of the waves observed certainly points to an interesting synchronizing of the actions of the individual cells by the mind. This would, as Dr. White says, imply a widely distributed influence of the mind on the material of the brain, and not action at some localised point.

Dr. White gives interesting evidence that the healing processes in various parts of the body are controlled by the subconscious mind. This would certainly seem to be true. It must be remembered, though, that cells even completely separated from the body, and grown as tissue cultures, are also capable of withstanding certain destructive forces, if only those of thermal agitation, and they have therefore some inherent capacity to combat injury. This seems to apply to every part of every living creature; and we should probably be wrong, therefore, to say that healing forces derive *entirely* either from the subconscious mind, the conscious mind or the non-material part of each individual cell.

Dr. Denham says, if I interpret him correctly, that it is silly to imagine that any living organism could have no non-material part, for nature abounds with evidence that their behaviour is not the result simply of pushes and pulls of molecules, but is due to something non-physical. With this I fully agree. But it has to be remembered that the contrary view is still held by many, among whom are the majority of scientists at the present time. It has been my attempt in the present paper to try to carry the analysis materialistic a step further and to show where the fallacy in the outlook arises.

Dr. Betts says miracles are necessary if God is to reveal Himself. I would disagree with this if he means miracles in the ordinary sense of the word: God can and does reveal Himself through the minds and actions of men, and this is surely the main channel through which He works. If we accept, however, that every action through the operation of the mind is a miracle in the sense referred to in the paper, then I would agree that it is only by interference in some way with the world of mechanism that any mind, God's or our own, can make itself manifest in the material world. There

can be no revelation of personality of any kind without such intervention—a fact the importance of which surely cannot be too strongly emphasised in relation to modern scientific thought today.

Mr. Constance says I make the serious blunder of viewing the universe from the “second observer position” and limiting myself to three dimensions. This is a shrewd criticism indeed, and I do not deny it! But surely all the vast realms of physical knowledge which mankind has gained have been derived under these same limitations, and if the limited premises discredit our arguments about miracles they must equally discredit those upon which all science has been based. Science embodies a great store of truth—truth none the less valid because miracles also happen—and we are surely not in error in approaching other aspects of truth with the same human limitations. Biblical miracles are of the past and carry little weight to most modern thinkers; they are, as Mr. Constance says, apprehended by faith; but we have also something which can be apprehended by reason, and this is perhaps more likely to influence those who have no confidence in historical records and seek the truth in their own experience.

877TH ORDINARY GENERAL MEETING

HELD AT 12, QUEEN ANNE'S GATE, LONDON, S.W.1, AT 5.30 P.M. ON
MONDAY, MAY 3RD, 1948.

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

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

The CHAIRMAN then called upon Gordon S. Humphreys, Esq., M.A., to read his paper entitled "Use of the Bible in School Education. A Study of the Place of Religious Instruction in the State System of Education."

USE OF THE BIBLE IN SCHOOL EDUCATION.

A STUDY OF THE PLACE OF RELIGIOUS INSTRUCTION IN THE STATE SYSTEM OF EDUCATION.

By GORDON S. HUMPHREYS, M.A.

Head Master, Woking Grammar School.

RETROSPECT.

THE history of Education in this country could be summarised as the story of a growing sense of responsibility on the part of the State towards the young. As the years have passed, larger and still larger sums of money have flowed from the Exchequer to cater for the education of children and youth at all levels. The situation to-day is that the great mass of the children of the land are educated in State schools, from the nursery school stage through the junior and primary school, to the secondary school; and of those who proceed to the University, the great majority are assisted there by Government grants.

As the State has come to exercise a more comprehensive control of Education, it has been seeking to exercise its responsibilities very widely. Education is no longer thought of merely as a mental process, as the inculcation of the three R's. As

early as 1933, current opinion on this subject in respect of younger children was crystallised in the Board of Education's Report of the Consultative Committee on the Primary School (1933): "The schools have broadened their aims until it might now be said that they have to teach children how to live. . . . The 'primary aim' of the primary school must be to aid children, while they are children, to be healthy and, so far as is possible, happy children, vigorous in body and lively in mind, in order that later, as with widening experience they grow towards maturity, the knowledge which life demands may more easily be mastered and the necessary accomplishments more readily acquired."

In a similar way, a very broad interpretation of the responsibility of the schools towards the adolescent child has been consistently emphasised by educationalists and accepted by the State. It is recognised that there are many manifestations of the growth and development that accompany adolescence. The body, subject to considerable physical growth, needs careful feeding and exercise; the maturing sex organs influence outlook, interests and loyalties; the developing emotions may be a prelude to religious activity, the crystallising of a moral code; a social awareness arouses a sense of responsibility to the community of citizenship. In all these manifestations of growth, the State has become increasingly concerned.

The movement in educational thought has been markedly in this direction: that the State must have a responsibility towards the *whole* child. One is reminded of Plato's definition of a good education as one that "strives to develop in the body and in the soul all the beauty and perfection of which it is capable."

An examination of the provisions of the Education Act of 1944 will indicate how far the State has gone to implement the modern conception of national responsibility for the education of the *whole* child. Let us cite some examples. The Act empowers the local education authority "to make such arrangements for securing the provision of free medical treatment for pupils in attendance at any school or county college" (clause 48 (3)). Clause 49 imposes upon local education authorities "the duty of providing milk, meals and other refreshment for pupils in attendance at schools." Under clause 50 the authorities are given power, if necessary, to provide boarding accommodation. Clause 51 gives them the power to provide a child with clothing if he "is unable, by reason of the inadequacy of his clothing, to take full advantage of the education provided at the school."

Again, it is an obligation on the local authority to provide camps, holiday classes, playing fields, playgrounds, etc., etc. (clause 53). By clause 55, the L.E.A. is empowered to provide free transport, and by clause 56 to make arrangements if necessary for a child or young person to receive education otherwise than at school.

This long list of examples has been cited as an indication of the temper of our time in respect of education. The State, whilst recognising parental duties and wishes, feels it is highly responsible to make provision for the care and education of the *whole* child. It is not surprising, therefore, that the importance of the *religious* education of the child was not only evident in the passage of the new Act through Parliament, but that it is also reflected in the new statutory system of education.

PREVIOUS STATE INTEREST IN RELIGIOUS INSTRUCTION.

For many years the Board of Education took no official interest in religious education in State schools. It was benevolent and advisory, but as no obligations were imposed upon it, there could be no official directives from it.

Whilst many individuals at the Board and among the Inspectorate might have had a very real faith in religious education, the Education Act of 1921 gave them no empowerment.

“The School shall be open at all times to the inspection of any of His Majesty’s Inspectors, so, however, that it shall be no part of the duties of such inspectors to inquire into any instruction in religious subjects given at such schools, or to examine any scholar therein in religious knowledge or in any religious subject or book.”

This Act also repeated the famous Cowper-Temple clause of 1870, forbidding the teaching of any catechism or religious formula which is distinctive of any particular denomination.

Therefore, in 1921, let it be repeated, there was no compulsion with regard to the provision of Religious Instruction by local education authorities.

During the last half-century European society has been in revolt against its own long-held and long-cherished traditions. We have witnessed country after country repudiate the official Christian yoke. Some went even further. In 1921, the Russian Government attempted to prevent public Christian witness. In

England, among other manifestations of this social change, there has been the decline in church attendance and the secularisation of the Sunday. It has been interesting to note, particularly in the last twenty years, the emergence of an interesting paradox.

On the one hand, there was throughout the country a general movement away from organised religion, a decline in church attendance and an increasing ignorance of the Bible. On the other hand, the leaders of educational thought were continually being heard emphasising the importance of Religious Instruction.

It will be advisable to examine these two aspects of the subject separately. It does not lie within the scope of a paper of this sort to give personal opinions, but to note events and to state facts. For instance, whilst it is generally agreed that there has been a considerable increase in juvenile delinquency, it is not my purpose to assess with any dogmatism the cause of it. There are those who would state that it is a direct cause of the war and war conditions. There are others who would say—and American opinion largely supports this view—that delinquency was not the result of, but was accelerated by, war conditions. Others cite other causes; the purely material reason of a reduced police force physically incapable of exercising a vigilant enough control, the attractions of artificial forms of entertainment, the decline in Sunday school attendance and church-going, economic stringency bringing the law into contempt, as irregularities and law evasions are considered clever. Whatever the cause or causes, it is important for our survey to note that delinquency is becoming a matter of increasing public concern.

No matter what one has to say of church attendance on the part of young people, it has to be conceded that, examined at the most elementary level, it does bring children into touch with a written code of living which, all critics agree, is of a very high ethical order. Whilst the Christian knows that the Christian life is something more than the "moral" life, the biblical doctrines as enunciated in the Ten Commandments, the Prophets and in the Sermon on the Mount are linked with practical instructions for personal righteousness, moral relationships and social responsibilities. One recalls our Lord's declaration of man's threefold responsibility: to God, to his neighbour, to himself. "Thou shalt love *The Lord thy God* with all thy heart . . . and *thy neighbour* as *thyself*."

Apart from any other considerations, the reduction of contact

on the part of children with moral precepts of this standard would appear to have had an influence upon them. In his book, *How Heathen is Britain?*, Mr. B. G. Sandhurst gives an account of an interesting experiment that he made with a large group of young men, between eighteen and twenty-two years of age. Employing the methods of the Gallup Poll, he posed a number of questions to the group, taking the greatest care that anonymity and the confidential nature of the enquiry were preserved.

Among his questions was the following: "Your ancestors believed in the permanent standards of life because they were laid down by the Carpenter of Nazareth. Were they right? Were they wrong? Or do you not know?"

The result of this enquiry was that "half of them answered "Right," a third were doubtful, and less than twenty per cent. were positive sceptics." After a discussion of an hour and a half on the subject, "the Rights" increased to 73 per cent., the doubters were reduced to 21 per cent., and the hardy sceptics to a mere 6 per cent.

If we may be permitted to make a reasonable deduction from this enquiry and from other evidence, it would appear that there is a considerable and perhaps a majority body of opinion in the country that the Christian religion could continue to be our standard of personal and national life, *provided it is known, believed and followed.*

If, for reasons which it is not my province here to examine, the children are not receiving religious training through the home or a church ministry, where shall they, where must they, receive **it?**

During the last twenty years, therefore, it has become increasingly claimed that the State itself was under an obligation to make provision for religious education in its schools. Quite apart from the warning notes struck by the leaders of the churches, in press and pulpit, other voices were heard, authoritative but solemn.

A President of the Board of Education said in 1933: "No system of State Education can afford to ignore the vital element of religion in the face of the many disintegrating forces at work." About the same time, a President of the British Association wrote that "the aid that our educational system can increasingly give to this complicated social and economic transformation is being limited because we refuse to solve the fundamental problem

of religious instruction and to allocate to institutional religion its harmonious place in the task of training for life." The Hadow Report concluded its section on "Religious Education" with the words: "We would urge upon all responsible for the education and training of teachers, that adequate facilities should be offered for acquiring a sufficient knowledge of the Bible."

So the paradox persisted. In an age of increasing materialism and emptying churches, the local education authorities began to produce their agreed syllabi of Religious Instruction, some of them triumphs of co-operation between churches and the education committees. By 1934 two-thirds of the authorities were using an agreed syllabus in their primary schools. In the long and rich history of this island, the fiercest battles have been fought in the cock-pit of religion. But it would appear that men of vision sank differences in the face of a need they considered desperate.

The warnings of wise men, the advice of consultative committees and the suggestions of some of the teachers themselves, together, may we venture to hope, with the widespread sense of urgency on the part of a large mass of the people, yielded their fruit in the Education Act of 1944.

RELIGIOUS EDUCATION IN THE 1944 ACT.

It has already been emphasised that the Butler Act of 1944 sought to provide for the education of the whole child and thus, *ipso facto*, for his religious education. It is laid down in clause 25 that,

"The school day in every county school and in every voluntary school shall begin with collective worship on the part of all pupils in attendance and the arrangements made therefor shall provide for a single act of worship by all such pupils."

And that

"religious instruction shall be given in every county school and in every voluntary school."

Although in most schools some form of religious instruction and some form of collective worship were common, it had never previously been a statutory obligation. The Board of Education, from 1944 the Ministry of Education, had official powers in the realm of Religious Education. Previously it was a matter of permission: since 1944 it was a matter of compulsion. Not without considerable resistance, however, was this effected.

Some teachers thought the compulsion unjustified, and their views were reflected in the press and in Hansard. Some thought it a slight on those teachers who had always undertaken their responsibilities with conscientiousness and effectiveness; others thought it disallowed freedom of thought.

The Government, however, stood firm. Probably the reply of Mr. Chuter Ede represented the majority feeling in the country at the time.

“There is, I think, a general recognition that even if parents themselves have in the course of life encountered difficulties that have led them into doubts and hesitations, they do desire that their children shall have a grounding in the principles of the Christian faith as it ought to be practised in this country.” (*Hansard*, March 10th, 1944.)

The Bill, of course, gives the parent the right to withdraw a child from “attendance at religious worship in the school, or from attendance at religious instruction in the school.” (Clause 25 (4).)

The Act proceeds to give further definition to its two main requirements in respect of Religious Education.

(a) *The School Assembly.*

Clause 26 requires that the collective worship shall not, in any county school, be distinctive of any particular religious denomination.

(b) *The Agreed Syllabus.*

The religious instruction “shall be given in accordance with an agreed syllabus adopted for the school . . . and shall not include any catechism or formulary which is distinctive of any particular religious denomination.

This would be, I judge, an appropriate point to leave the Education Act and to see it in operation, four years after its passage through the House of Commons. Before doing so, I think it would be fitting for me, in the presence of this learned assembly, to re-affirm our faith in the wisdom of this piece of educational legislation. Among us all it will be a matter of sober gratitude that during the years of war, when many traditional elements in our national life were sore pressed, a Government, representative of the three leading political parties in the country, made it an obligation on the part of the State to provide for the religious education of its children.

So we leave the House of Commons, the legislative assembly, for the local Education Authority whose responsibility it is to administer the Act.

THE AGREED SYLLABUS.

Under the Fifth Section of the Education Act, procedure is laid down for preparing and bringing into operation an agreed syllabus of religious instruction. The authority was instructed to form a committee consisting of persons representing :—

(a) Such religious denominations as, in the opinion of the authority, ought, having regard to the circumstances of the area, to be represented.

(b) Except in the case of an area in Wales or Monmouthshire, the Church of England.

(c) Such associations representing teachers as, in the opinion of the authority, having regard to the circumstances of the area, ought to be represented : and

(d) The authority.

It is laid down as the duty of the Committee to seek unanimous agreement upon a syllabus of religious instruction.

In the event of a failure to secure unanimity, "the Minister shall appoint to prepare a syllabus of religious instruction a body of persons having experience in religious instruction, which shall, so far as is practicable, be of the like representative character."

When the syllabus is prepared and a copy transmitted to the authority and to the Minister, "as from such date as the Minister may direct, the syllabus so prepared shall be deemed to be the agreed syllabus adopted for use in the schools for which . . . it was prepared."

As has been already stated, before the new Education Act, a great majority of the authorities had either prepared their own Agreed Syllabus or had agreed to use that prepared by another authority. For instance, the Cambridgeshire Syllabus, first issued in 1924, revised under the chairmanship of Sir Will Spens, and published in 1939, was used by other authorities, and the authorities agreed to print as an appendix to the Syllabus a section dealing with the religious history of a particular area.

Other authorities approved the use of three or four syllabi in their schools, leaving the final choice to the teachers to choose

one or even all of them. Many teachers, especially in the secondary schools, valued this freedom as it gave a very wide selection for senior pupils.

The majority of the earlier syllabi had been designed primarily for elementary school children between the ages of 5 and 14. Some added a few sections for older pupils, but these were brief and sketchy in comparison with the detailed schemes for infants and juniors. The Cambridgeshire syllabus of 1939, in anticipation of the raising of the school-leaving age to 15, made provision for children in the secondary school to age 16, with suggestions for advanced courses. To a somewhat less extent, the West Riding and other syllabi made similar provision. The Sunderland syllabus, however, made detailed arrangements for children to age 16, on the basis of primary and post-primary, the dividing line being at age 11. It devoted twenty pages to "suggested subjects for Advanced Study, age 15 and over."

It is, of course, altogether impossible to attempt an examination of all the agreed syllabi at present in use in this country; that would be a task beyond the endurance of both speaker and listener here to-day, but from the many examined for the purposes of this paper, a selection is made from districts with varying characteristics. It will be interesting to consider the syllabi of some authorities in the industrial North, of others in the South, of others in the East of England, of one closely linked with an ancient University, of others in the West and others in the Midlands. It must not be imagined that the agricultural, industrial or academic interests of each area are represented in the syllabi, but it must be emphasised that each syllabus does indicate what local religious and educational opinion considers necessary for the growing child.

THE NURSERY SCHOOL.

The amount of attention given to the different age groups varies with the authority: some, for instance, give only broad suggestions for themes appropriate to the nursery schools, while others give definite lines of approach.

The majority of syllabi recommend for the nursery school, or class, that the first teaching about God should represent Him as a Loving Heavenly Father, with talks on the sun, moon, stars, the food, shelter and clothing He provides, and His loving care. The greatest gift of this loving Father is His Son, Jesus Christ,

whose life in the home as a baby and as a boy will be simply told. These lessons will be illustrated by talks on daily prayer, grace before meals, care of plants in the schoolroom, and kindness to others.

At the next stage, the infants of age five to seven, the children are now able to follow a story of greater length, and most syllabi recommend this as essentially the Bible story period, emphasised, where appropriate, with drawings on the part of the children, with little tableaux or short plays of missionary efforts. There will be some memory work of hymns and carols.

During this period the timeless stories of the life of Jesus will once more be told, His deeds of love, His stories, His suffering. The syllabi also recommend that the children should now be coming to have an acquaintance with the stories that the boy Jesus was told: Abraham, Joseph, Moses, Samuel, David, etc.

The children will be thrilled by the well-told story. In very many cases they will be hearing them for the first time. The syllabus warns us, however, that "it cannot be too strongly emphasised that Scripture lessons should lead to and give opportunity for definite service to others."

THE PRIMARY SCHOOL.

We have now reached the primary school age, where the syllabi insist that a carefully worked out plan is essential. The child is passing through a period when he is not only highly imaginative, but when he is also a very practical young person who will not take everything and everyone for granted. At this point in his development, whilst the syllabi are in broad agreement on the subjects to be covered, the order of treatment varies, and therefore six representative syllabi are tabulated (see p. 88).

THE SECONDARY SCHOOLS.

There is a measure of difference of emphasis noted in the Agreed Syllabi in respect of children of age eleven years and over. Some syllabi would appear to reflect the view indicated in the Spens Report, that Scripture "should be taught primarily with a view to the understanding of what the books of the Bible were in fact intended to mean by their authors. Such an objective treatment of Scripture reduces the difficulties in teaching it." Other syllabi attack the problem more boldly.

HNETS (1932).	CUMBERLAND (1934).	LINDSEY (1935).	CAMBRIDGESHIRE (1939).	BOOTLE (1946).	SURREY (1948).	YEAR.
—	Life of Christ. Parables.	Select Stories from O.T. and N.T. Lord's Prayer. Ten Commandments.	(a) Jesus in relation to his people, e.g., sick, poor, chil- dren. (b) Stories of early Hebrews. Abraham to Joseph.	(a) Life of Jesus, call of disciples, mira- cles. Sermon on Mount. (b) God's revelation to early Hebrews, Abraham to Joseph.	(a) The world God made. (b) God's love and care to O.T. patriarchs. (c) Loving deeds of Jesus. (d) Why He died. (e) Early disciples.	1
O.T. Stories.	Abraham to David. Life of our Lord. Stories of Saints. Duty to our neighbour.	Life of Christ. Parables. Episodes from Church History.	(a) Parables of Jesus. Stories from early followers of Christ: Peter, Barnabas, Mark. (b) O.T. Moses to Samson.	(a) Our Lord's Minis- try (particularly just before and just after Trans- figuration). (b) Beginning of Jew- ish nation. Moses to Joshua. (c) Modern Christian Leaders.	(a) Our Lord as Minis- ter and Saviour. (b) His passion and triumph. (c) Christian ministry and service. Christian prayer and conduct.	2
Christian Church. Stories from Acts. English Church. Missions.	Solomon. Prophets. Life of Our Lord. Duty to God.	— Church History. — —	(a) St. Paul. (b) Saul to Solomon. (c) Prayer. —	(a) Life of Christ, especially last events. (b) Judges to David. (c) Modern Christian leaders.	(a) Our Lord as King (power, humility), from John the herald — Ascen- sion. (b) The Christian Kingdom. How to achieve it— people who worked for it. (c) The spread of the Kingdom.	3 3
Prayer. Worship. Obedience. Service.	(a) God, Creator. (b) God, the Spirit. (c) Sin. (d) Paul and spread of Church. (e) Church in England.	Church History.	(a) Life of Jesus. (b) O.T. Prophets. (c) Psalms.	(a) Spread of Christianity from Jerusalem to Rome. (b) David to Reho- boam. (c) Modern Christian leaders.	(a) Lord as friend and teacher. His work of teaching, includes refer- ence to Moses and prophets. (b) Spirit of Christ in the world. Lord's Prayer. (c) Holy Spirit.	4

AGE.	YORK (1930).	LIVERPOOL (1934).	LINDSEY (1935).	CAMBRIDGE (1939).	GLOUCESTER (1945).	DURHAM (1946).	ROOTLE (1946).	EXETER (1947).	SURREY (1948).
11+	Mark. Acts i-ix. Decline and Fall of Northern Israel, 933-722 B.C.	Abraham to Elijah. Mark. Geography of Holy Land.	Abraham to Elijah. Mark. Acts i-xii. Geography.	Mark. Acts i-iv. Patriarchal Age to Exile.	Life of Jesus in story form. Abraham to David. Heroes of the Kingdom.	Abraham to David. God and Man. Person and Character of Jesus. Heroes of the Kingdom.	Abraham to Moses. Life of Christ (1). Joshua to Solomon.	The Christian Faith. Christian Origins (O.T.). Outline of classification of books of O.T.	The Holy Land, its people, their lives and hopes. How the Apostles preached the good tidings. Men who helped to spread the Gospel in Europe.
12+	Luke. Acts ix-xvi. Story of Judah, 933-586 B.C.	Amos to end of O.T. Luke. Life of Paul.	Amos to Exile. Luke. Paul.	Exile to Herod. The Universal Gospel. Spread of the Gospel in Acts.	Mark. Acts i-iv. Solomon to Exile. How Christianity came to Britain.	Solomon to Exile. Mark. Earliest Church History. "The Gospel Reaches Northumbria."	Life of Christ (2). Acts i-viii. Joshua to Solomon. Acts viii to end.	The Christian Faith. Christian Origins (O.T.). Religion from early times to Moses.	History of God's Chosen People. Life of Our Lord in relation His Time and Country.
13+	John. Acts xvi-xxviii. Captivity and Return, 586-400 B.C.	Prophets of the Exile. Matthew. Epistles of Paul.	Exile to Macc. Matthew. History of Bible.	The Old Covenant. The New Covenant. The Church in the World.	Teaching of Jesus (Matthew and Luke). Post Exile Period and Apocrypha. Gospel reaches Gloucester.	Exile to Roman Period. The Kingdom of God. Notable Citizens of the Kingdom.	Teaching of Christ. God's Revelation to Moses—Division of Kingdom. Making of N.T. Teaching of the Apostles.	The Christian Faith. Christian Origins. Moses to Elijah.	What men in O.T. taught about God and His Will. The Teaching of Jesus about God's Will. How the Holy Spirit Inspired Men to Serve God.
14+	The Bible before Our Lord. The Bible after the days of Our Lord. The Bible in England.	Wisdom Literature. John. The Bible and its making.	Wisdom Literature. John. Bible studied as a whole.	The Apostolic Preaching. Development in Early Church. Unto all the World.	The Holy Spirit. Message of the Cross. Expansion of Church. Development of Idea of God in O.T. Making of N.T. Reformation.	Life and Teaching of Jesus. The Book about God. Christianity in England since days of Bede.	Making of O.T. Genesis. Selection from Epistles. Prophets.	The Christian Faith. Faith in Action. Place of Religion in Life of Man. Making of Bible.	Either the Gospel of John or the Synoptic Gospels or St. Paul. Either the Story of the Bible or Christian Work in the Modern World.
15+	Eighth Century Prophets. Sermon on the Mount. Study of the Epistle.	No provision made.	No provision made.	The People and the Book. The Christian life.	Letters of Paul. People and the Book. Modern Movements in English Christianity. Modern Church Missions.	Relevance of Christianity to Personal and Social Life.	Gospel of John. Psalms or Church History. Christian Life and Worship.	Various suggestions, especially in Devon Supplement.	What Jesus taught about God and His Kingdom. How the Revelation of God was explained and interpreted by the Apostles in their Letters. Christendom (Brief Historical Survey). Worship and Prayer.

Indeed, an examination of the syllabi in their chronological appearance reveals a most interesting fact. It is that later drafting committees seem to favour a more positive form of religious teaching. The old apprehensiveness seems to be going ; the anxiety that the teaching shall be purely literary or purely historical seems to have given place to a real desire for positive teaching.

For instance, a member of a drafting committee of a newly-produced syllabus wrote :

“ It was assumed throughout that the syllabus adopted a positive attitude, rather than a detached or objective one, on religious knowledge as a whole. Certain sections are mainly historical, and to that extent are treated objectively ; but all through there is at least as much stress on religious feeling and attitude as on information.”

One syllabus, used by schools outside the area of the authority besides those in it, states : “ The Christian faith is something definite, not to say dogmatic. In an age so untheological in its outlook as ours, dogma is suspect and sometimes rightly so. Yet a purely undogmatic Christianity is a contradiction in terms. . . . The Christian religion is not vague religiosity but a way of believing and living, revealed in the concrete stuff of history and mediated from generation to generation across the continents and the centuries in well-defined forms of thought and practice. It is not a colourless and inoffensive piety to suit all tastes, but a word of judgment and forgiveness and blessing proceeding from a Person in history, to believe in Whom is to believe in the living God ” (*see table facing*).

As we are still dealing with the Agreed Syllabi, it should be stated that there is agreement among the drafting committees that a wider latitude should be left to the Sixth form teacher of Religious Instruction. Some syllabi merely give a list of subjects to be discussed, others by means of appendices give introductions to special courses. Of recent syllabi, Surrey gives a list of subjects with a bibliography attached to each subject, the books suggested referring to both teacher and pupil use. The subjects fall under four headings :

1. A detailed study of a book or a portion of the book, in the Bible, in relation to modern problems.
2. A subject of religious knowledge chosen by the pupils themselves with the teacher's guidance, *e.g.*, What is Christianity ? Christianity and Science/Humanism, etc.

3. A study of Church History as a whole or an outstanding movement or period in Church History.

4. Study of Christian Belief and Conduct. Under this section—to give an example of the literature recommended—the following Bibliography appears:—

For students' own use or possession :

(a) Christian Faith and Life ... William Temple.

(b) Christian Doctrine J. S. Whale.

or

Christian Belief and Modern

Questions O. C. Quick.

(c) Christian Behaviour ... C. S. Lewis.

(d) Getting Things Straight ... Christian Auxiliary
Movement.

Devonshire and Derbyshire give very full and detailed suggestions for Religious Instruction at this age range. As an example, let us consider the suggestions of the Derbyshire Education Committee. They indicate a number of themes which might be studied, suggesting that a minimum of two periods a week is required :

(a) The Book about God. How the Bible was made, and by its actual use, a discovery of what it is and what it does.

(b) The influence of the Bible on our life and thought. This is worked out in history, in literature, in thought and in everyday life.

(c) Comparative Religions.

(d) Study of Christian people and Movements of the last 200 years.

(e) Problems of Personal and Social Ethics, *e.g.*,

What is a Christian ?

Why should I be good ?

Is prison reform my business ?

(f) The Life and Teaching of Christ.

(g) The development of the conception of God from the Prophets to St. Paul and St. John.

(h) A closer study of selected works. One should be taken from the Old and another should be taken from the New Testament.

Each of the foregoing subjects is treated with some measure of detail with a useful bibliography.

Some general observations on the use of the syllabi in schools are obviously necessary at this point.

It is obvious that the intention of the drafting committees is to put in the hands of the teacher a foundation on which to build. He cannot and should not escape from his own personal responsibility of interpretation. The use and, indeed, the success or failure of the syllabus depend upon the teacher.

If he is indolent he will be disappointed that the syllabi do not do more for him; if he is timorous, he will feel in some cases that he is not given adequate lead; if he is unduly partisan, he may feel "cribbed, cabined and confined"; if he is keen, he will constantly feel, with Cecil Rhodes, "so little done, so much to do." If he is a poor teacher, no syllabus in the world will help him much. But if he is alive to his opportunity, he will find most of the syllabi an excellent framework on which to build. It will ensure, as the pupil moves through the school, that the main aspects of the Christian faith are considered, that he is brought face to face with the claims of Jesus Christ, that he understands in some measure the impact of Christianity upon civilisation, and that each Christian has a life to live towards God and his fellows.

BROADCAST TALKS.

It will be well known that for many years now school broadcasts have been planned and produced by the School Broadcasting Corporation in accordance with the educational policy determined by the Central and Scottish Council for School Broadcasting. The broadcasts "are intended to provide something which the teacher cannot normally give, and, in particular, to supplement the work of the school on the imaginative side."* Talks and lessons are given in English, History, Modern Languages, Geography, Music, Science, etc. But as far as Religious Instruction is concerned, the School Broadcasts have been limited to two items:

(a) A short religious service of twenty minutes' duration given twice a week.

(b) A series of Bible Talks to Sixth Forms of Grammar Schools.

* B.B.C. Broadcasts to Schools 1948.

(a) RELIGIOUS SERVICE.

Many teachers find great value in these services, especially where the conduct of school worship is made difficult by local circumstances, *e.g.*, accommodation, little musical ability.

The B.B.C. is right in limiting these broadcasts, as it would be unwise for any school to use these services as a regular substitute for a service held in the school for the school. The beauty and dignity of a B.B.C. service, appropriately conducted, can give interest and avoid monotony in school worship.

(b) BIBLE TALKS IN THE SIXTH FORM.

The Central Council for School Broadcasting has given the most detailed consideration to this now established feature. It consults teachers and religious leaders of all denominations before drawing up its programme. It seeks in the main to supply a basis of knowledge and interpretation of the Christian faith so that the Sixth former, who is always ready for a discussion, is equipped for intelligent thought and consideration of Christian belief and teaching.

The talks are usually given by a theologian or a recognised authority. The charge is sometimes levelled that the theologians know nothing about teaching and the teachers nothing about theology. In fairness it must be remembered that the standard of knowledge of matters relating to the Christian faith varies sharply between school and school. One Head Master has been heard to say that he uses the broadcast talks for his *Third* form, another that the lecturer was completely over the heads of his *Sixth* form.

As has been noticed in the evolution of the modern agreed syllabus, so, in School Broadcasting, the objective and often colourless lecture is now giving place to an examination of Christianity and its challenge. Sixth formers are not interested in academic irrelevancy, but they are interested in the personal and social implications of being a Christian.

The Central Council gives the schools adequate notice of their proposed list of talks and supplies valuable notes for the use of the class teacher. Although at present the number of Grammar Schools taking advantage of the Broadcast lessons is small in comparison with those taking broadcast lessons in other subjects, it is necessary for purposes of this study to state the subjects examined these last few years in the Broadcast Talks.

1945-46.

The world of the New Testament.

- Term 1. The New Faith in the Ancient World.
- Term 2. The New Faith and its Source in History.
- Term 3. The New Faith and its Development.

1946-47.

The newness of the Old Testament.

- Term 1. God of the Present. Presentation of outstanding ideas in the Old Testament about God.
- Term 2. People of the Past. Customs, ritual, etc., of the people of the Old Testament.
- Term 3. World of the Future. Indicates the way in which the Old Testament is a preparation for the Christian Faith.

1947-48.

The Relevance of the New Testament.

- Term 1. A general study—"The New Testament writers believed that God is purposefully active in human history and that his activity is seen in sharpest focus in the life of Jesus and the early Christian Community."
- Term 2. Study of one of the New Testament Letters (Romans) raising important contemporary religious, moral and social questions.
- Term 3. A study, based on a gospel (St. Mark), of the source of Christian, religious, moral and social judgments in the person and life of Jesus.

It is not always simple for a school to arrange broadcast lessons, owing to time-table difficulties. Not only so, but where only one period per week is allotted to Sixth form Religious Instruction, some teachers prefer to use this period solely for teacher-pupil consideration of subjects and problems.

SCHOOL WORSHIP.

"The School day shall begin with collective worship on the part of all pupils." So reads the Butler Act.

In the main this statement was insisting upon something which was, in point of fact, a common practice in the schools. But even this part of the Act did not pass without gentle criticism.

Writes a contributor to *Religion in Education*, "The word is SHALL. We should have shown little surprise had such a command come from the Holy Church, for she has always been a little enamoured of authority and ever since the days of Moses has loved the sound of 'Thou shalt' and 'Thou shalt not.' But now the mantle has fallen from the prophet on to a new spokesman, and the voice comes not from Sinai or Rome but from Westminster."

It has to be admitted that the morning assembly in some of our State schools is conducted under conditions not at all conducive to a spirit of worship. The hall is often too small and the pupils stand in closely serried ranks; it is often used for many purposes—for physical training, for class lessons, for the school library, for school dinners. It is not always easy in such an environment for children to discover what the Cambridgeshire Syllabus calls "the deep things of God." Fortunate indeed the school having its own chapel with the "storied windows richly dight."

Nevertheless, in spite of these difficulties, in many schools of the country the morning assembly is effective. Services are conducted, calculated to aid children in their approach to God; there is a note of reverence, praise and consideration.

It is advisable if, in the religious instruction lessons, there is adequate teaching on the meaning, nature and history of Christian worship. In that way the assembly is not merely an opening ceremony, but a preparation for the day.

In some of the more comprehensive syllabi the teacher is given some suggestions on the conduct of the collective act of worship. Not only so, there have appeared numerous books and articles on the subject. As this is a survey of existing conditions rather than a further list of suggestions, we confine ourselves to painting the picture as we see it. In State schools, the morning assembly is usually conducted by the Head; a pleasing variant of this practice is that once a week or once a month the school meets in houses, and the Housemaster takes prayers.

The morning assembly comprises the following items:

- Hymn or Hymns.
- Prayers and the Lord's Prayer.
- Lesson.
- Head Master's Remarks.

Each school has its own order of service and there are, of

course, schools where invocations, sentences, chants, psalms and responses are introduced, but for our purpose the four items above-mentioned constitute the main elements.

(a)

There is a very wide selection of hymn books available for schools. Such excellent work has been done in recent years towards the provision of suitable hymns which, in respect of both words and music, are suitable for children. Some schools have their own collections; some still use Ancient and Modern and the Public School Hymn Book. Some of the popular modern collections are:

The Daily Service: Prayers and Hymns for Schools (Oxford).

Prayers and Hymns for use in School. (Oxford.)

Hymns of the Kingdom. (Oxford.)

Songs of Praise. (Oxford.)

The day of the "organist" hymn is waning in schools; children are no longer compelled to learn hymns and tunes which their elders value for sentimental reasons. Most schools are aware for instance, that the natural piety of little children responds to the wonder and beauty of nature. More than one child playing in the sunshine or in the garden quite naturally finds expression in the words of a hymn learnt at school:

God who has made the daisies
And every lovely thing
Now loves to hear our praises
And listen while we sing.

As the child grows older, and his religious experience matures, he is able to be brought into contact with some of the great hymns of the Christian Church. Teachers find that the morning assembly is less effective if the hymn chosen is not sufficiently known to the school, and for that reason some practice beforehand is required.

It is, perhaps, fitting at this point to emphasise the difference between the religious hymn and ethical verse. Some collections have an abundance of the latter. Ethical poetry has its place in the thought and experience of childhood, but for Christian worship the hymn chosen should lead to the worship of God and dedication to His service.

(b) Prayers.

It must be remembered that the Head is leading Worship and in Prayer. The prayer, therefore, should be appropriate to the occasion—to a child's needs, aspirations and intelligence, and also vocabulary. It should not be an indirect sermon.

Again, numerous excellent collections are available ; a few only are enumerated :

1. The Daily Service. (Oxford.)
2. The Oxford Book of School Worship.
3. The Daily Prayer. (Oxford.)
4. An Anthology of Prayers. (Longmans.)
5. A Book of Prayers for Schools. (S.C.M.)
6. A Chain of Prayer across the Ages. (Murray.)
7. Prayers and Hymns. (Oxford—an abridged edition of Songs of Praise.)

The Teacher who uses these collections finds full appreciation of the many aspects of prayer : adoration, thanksgiving, confession, petition. If systematic use is made of them, not only the child's spiritual needs and aspirations are made articulate, but also a wide range of his interests is also covered : his school, his studies, his games, his hobbies, his home, his career, his country and empire.

The Prayers are almost invariably followed by the Lord's Prayer. There is a danger here that if it is spoken too fast it becomes purely repetitive, mechanical and meaningless. Some schools, to avoid this, chant the Lord's Prayer on occasion. Short litanies, responses and chants are used in some schools.

THE LESSON.

At the morning assembly in the majority of schools, a passage of Scripture, usually from the Authorised Version, is read, either by a member of staff or senior pupil. The school has to choose between the superior literary quality and the traditional acceptance of the Authorised Version, and the greater accuracy of the Revised Version. In most schools careful attention is given to the selection of the passage to be read ; it must be a unit in itself, albeit part of a scheme ; must be appropriate to the understanding of the child, and it must be sympathetically and effectively read.

Most schools prefer to have the large pulpit Bible, as it lends a certain dignity and ritual to the occasion ; but some schools

use lectionaries and various collections of Bible passages. The following are some in common use :

St. Andrews Lectionary of Bible Readings. (Baskerville Press.)

The Daily Reading. (Oxford.)

The Little Bible. (Oxford.)

Short Bible in Authorised Version. (Blackwell.)

Little Children's Bible. (Cambridge.)

Children's Bible. (Cambridge.)

Two-minute Bible Readings.

It will be found in schools where considerable importance is attached to this act of collective worship that there is correlation between the hymn, the prayers and the passage selected. Frequently a scheme of readings and hymns is drawn up by the scripture and music master in collaboration, and the Head Master introduces, if necessary, prayers which are appropriate to the themes indicated in the hymn and lesson.

A plan such as this also serves the purpose of ensuring that a wide range of both hymns and Bible passages is covered and that the service is not spoiled by ill-considered or hasty choices.

Last of all, there are the remarks of the Head. The criticism is often expressed that the inevitable school notices spoil the atmosphere of an act of collective worship. Their number, it is found, tends to increase rather than decrease. Nothing really should be introduced which might mar the dignity and effectiveness of the school service. Heads and teachers have often discussed this problem. Here are some of the solutions offered :

(1) Keep the notices to one day a week and let there be a recognisable pause at the end of the Act of Worship.

(2) Let the break be made distinct by the retirement of the Head Master at the conclusion of the Act of Worship, and let the second master, duty master or some other person make the day-to-day announcements.

(3) Let the children be made to feel by training that, as notices relate to the school and its welfare (for which prayer is constantly being offered), therefore school announcements are a natural part of the collective act of worship. Supporters of this view will remind us of the insertion of practical details in St. Paul's richest passages of Christian dogma. For instance, after his eloquent declamation on the doctrine of the Resurrection in I Cor. xv, he proceeds : " Now concerning the *collection* for the saints."

Christian teachers are aware of their very great obligation in giving a lead to their pupils in the matter of worship. If the attitude of the staff is born of reverence, interest and responsibility, it will be recognised and followed by the school. If it savours of unwillingness, indifference, cynicism or hostility, it were better if they were excused attendance from what is probably the most significant few minutes in the school day.

THE TEACHER.

It has been apparent throughout this study that whatever assistance is given him, the success of the religious teaching will be measured by the quality of the teacher. In some schools the subject is taken by the form master ; in others it is taken by the Scripture specialist or specialists. It would appear that it is less common than formerly that a teacher takes Religious Instruction because he is so directed by the Head. Increasingly it is true that the subject is taught by those who are interested in it. As the Scripture lesson is the focal lesson of the week, when the spiritual aims of the school are made articulate, it is essential that it should be taught by an able and competent teacher. In a great number of schools, the Head himself takes charge of the subject and does some of the teaching himself.

The teacher must be qualified for his work. He must be equipped with adequate knowledge of the Bible and its teaching, and be conversant with some of the problems of Christian faith and conduct. Not only so, he must understand something of child psychology, keenly aware of the correct approach to religious matters at various ages. He must be a man of religious conviction himself, one who knows God and walks in His precepts. And above all, like Chaucer's "poore persoun," it must be true of him :

But Cristes lore and his apostles twelve
He taughte, but first he folwed it him-selve.

In recent years many of the Universities have made provision for courses in Religious Instruction. Many teachers have taken advantage of these and, in order that this survey should give as complete a picture as possible, a list of courses and certificates commonly taken by teachers is appended :

1. Lambeth Diploma in Theology.
2. Archbishop's Licence to teach Theology.
3. University of London Diploma.

4. University of London External Diploma.
5. University of London Certificate of Proficiency.
6. Associateship of King's College for Non-Theological students in Religious Knowledge.
7. University of Cambridge Certificate of Proficiency in Divinity.
8. University of Oxford Diploma in Theology.
9. University of Durham Testament in Biblical Studies.
10. University of Manchester Certificate in Biblical Knowledge.
11. University of Manchester Certificate in Theology.
12. Bristol, Leeds, Dublin Diploma in Biblical studies.
- *13. Selly Oak Diploma in Religious Education, Birmingham.
14. Some Universities include Divinity as a subject for a Pass Degree.

In addition, a number of holiday courses in Religious Education are held annually by the Ministry of Education, the Institute of Christian Education and by the Christian Education Committee. These last two bodies, the one with a liberal approach and the second with a more conservative outlook, have both produced most adequate handbooks to the Agreed Syllabus which are used by thousands of teachers. The I.C.E. also acts as a clearing-house of information for members. Besides giving replies to specific questions, it publishes bibliographies on various connected subjects, which, being in typescript, can be kept up-to-date. Also in some districts (*e.g.*, Liverpool) there is a Joint Diocesan Board which arranges evening lectures for teachers and Sunday School teachers, under the ægis of the local C. of E. and Free Church authorities.

The teacher, therefore, has ample opportunity of equipping himself for his work, and there is every reason to believe that the number of uninformed and disinterested teachers of religious instruction is very small.

CONCLUSION.

This study has, I venture to believe, indicated that in the matter of Religious Instruction in the schools, the door is open,

* For fuller treatment cf. *Christian Education*, published by the Christian Education Committee.

never more widely. The question that will be asked us: To what extent are we entering in?

It is, of course, difficult to answer. There are hundreds of teachers who conscientiously and effectively are facing their responsibilities and discharging them. Not only are they seeking to teach Christian doctrine, but they seek to encourage young people in Christian behaviour and service. Many schools interest themselves in medical missions, social work, settlements, orphanages and train their pupils in applied Christianity. For all this let God be thanked.

As these lines are being written, we are seeing the advance of materialism and irreligion across large territories of Europe. How far will the shadow creep? It can only be halted by the clear-sounding message of the faith as it is in Jesus Christ. This obligation lies upon every Christian, clerical or lay. But upon those who are in contact with the young, the obligation lies heaviest; for, if we fail, the lights will surely dim over Europe, and perhaps go out.

Wrote St. Teresa: "God has no body now on earth but yours; no hands but yours; no feet but yours; yours are the eyes through which is to look out Christ's compassion to the world; yours are the feet with which He is to go about doing good; and yours are the hands with which He is to bless us now."

DISCUSSION

After the Chairman (Dr. R. E. D. CLARK) had spoken briefly, drawing attention to the immense change which had come over the Christian attitude towards education in the past century, the meeting was thrown open to discussion.

Mr. W. E. LESLIE: Religious education in schools raises various problems not touched upon in Mr. Humphreys' Paper. Here are a few of them.

From a Conservative Evangelical point of view most modern Bible teaching is erroneous and misleading.

We are told that the teacher must be "a man of religious conviction." If he has no religious convictions, and is not prepared to take part in religious services, the fact is hardly likely to help his career. Does not this place a premium on hypocrisy?

The author emphasises the command to love one's neighbour as oneself, and refers to "social responsibilities" and the "social implications of being a Christian." This is crucial. Unfortunately the religious education that has been given for very many years has created the impression that this great commandment is a social platitude which does not go beyond a high standard of "good form"—which is good so far as it goes. But the idea that Christians should in actual practice live in such a way as to show that they love their neighbours as much as themselves is rarely found in Christian teaching: indeed it would be hotly resented. Hence the empty churches, and "the advance of materialism and irreligion across large territories of Europe," which Mr. Humphreys deplures.

Mr. F. A. RAYNER pointed out that the modernist-fundamentalist controversy left the youthful mind in a state of confusion, as did also teaching of evolution by biologists and other specialists.

Mr. CHARLES H. WELCH asked whether a teacher today was at liberty to expound the Christian message in terms of a personal challenge during the Scripture lesson, provided this was relevant to the reading for the day.

Mr. R. MACGREGOR urged the need for evangelistic teaching for children.

Rev. A. E. HUGHES again emphasised the desirability that those who teach Scripture should themselves have a saving faith in Christ.

WRITTEN COMMUNICATIONS.

Mr. F. F. BRUCE: That a paper on this subject should be included in the programme of the Victoria Institute is most gratifying, for I am persuaded that, under the conditions brought about by the passing of the Butler Act, the position of Christian education in the schools of this country is one which contains rich promise of a Christian future for British life and thought, provided that the opportunities now presented are intelligently grasped. There is no more fertile or more encouraging field for true evangelism to-day

than in our national schools, and the vision with which many Christians who have the necessary vocation are setting themselves to this service is most heartening to all who have a concern for the Christian good of our land. Mr. Humphreys has shown us the situation from the viewpoint of one who has both that vision and inside experience, and he merits our gratitude for what he has done.

I should like to mention that to the list of University and similar courses open to teachers should now be added the Certificate in Biblical History and Literature awarded by the University of Sheffield by examination after two years of part-time study.

Mrs. R. E. D. CLARK : I have taught Scripture in two modern secondary schools for a number of years, using the Cambridgeshire Syllabus. I am sure that for the modern school the syllabus is far too advanced and complicated, especially in view of the fact that Scripture specialists are rare in modern schools and the form mistress is usually expected to take the subject.

With regard to dramatisation, it would appear that this tends to give children a passive enjoyment of entertainment value, rather than an incentive to understand the underlying truths of the Bible and to apply them to their own lives. It must be nearly impossible to get a true dramatisation of Bible characters or to "relive" the actual scenes. A musical setting, moreover, tends to "romanticize."

The old-fashioned language of the Bible presents the teacher with a formidable difficulty—for it is nearly unintelligible to the modern school child. Modern translations, if used, may solve the difficulty at school but are scarcely a preparation for worship in church.

Whilst we may recognize with thankfulness the great opportunity presented by the modern situation, these facts should not be overlooked by the Christian teacher.

Mr. L. E. PORTER : I have read with great interest Mr. Humphreys' able and comprehensive survey of the present position of Religious Instruction in the State Schools.

I feel that the great scarcity of qualified teachers needs to be much emphasised. It is a deep source of satisfaction that so many teachers are taking advantage of the courses, etc., mentioned by

Mr. Humphreys, but it remains true that, generally speaking, teachers are much less competent to teach Scripture than they are to teach any other subject, especially at the Senior School stage. To give an example, almost all the syllabuses examined in the present paper include either the Prophets or later Old Testament history for study sometime before age 15-*plus*, *i.e.*, at a stage which *all* pupils must take, in view of the raising of the school-leaving age to 15. Now either of these two topics presupposes a knowledge on the teacher's part of the historical facts of the Divided Kingdom, the Exile and the Return in their setting of world-history, at least equal in detail to the knowledge possessed by the general subjects teacher of, say, the history of England from 1066-1485. Can we claim that teachers of Scripture are thus well equipped?

It may be true that "the number of uninformed and disinterested teachers of Religious Instruction is very small"; it is, alas, true also that the number of reasonably qualified teachers in this subject is by no means large. Much has been done, there is much more yet to do. The certificates, courses, etc., mentioned by Mr. Humphreys are of immense value, but before the position is satisfactory there must be a steady flow from the training colleges of teachers with qualifications in religious instruction comparable with those in the other subjects they offer.

Meanwhile, all the aids referred to must be used to the full, and Local Education Authorities should be encouraged to provide help, such as lectures for teachers, as allowed for in para. 2 of section 29 of the 1944 Act.

By all these means, of course, it will not be ensured that every teacher of religious instruction will be "a man of religious conviction himself, one who knows God and walks in His precepts"; but it ought to mean that conscientious teachers will be thoroughly grounded in their subject, and competent to impart to their pupils a balanced knowledge, at all events, of "the holy scriptures which are able to make thee wise unto salvation through faith which is in Christ Jesus."

Mr. E. H. BETTS wrote commenting, especially, upon the value of the daily service irrespective of whether it was held in a school

hall or a chapel. He felt that the service was an act of dedication for the day's work so that the daily notices about school routine found their natural place at prayers.

A communication, covering the same ground as that covered by other speakers, was also received from Mr. A. CONSTANCE.

AUTHOR'S REPLY.

The problems that had been raised should be examined against the proper background. In 1944 it was a matter of *either . . . or*. There was either to be an accepted compromise on the part of religious leaders in the matter of religious education in the schools or education would be secularised in the manner we find it in some European democracies to-day. Critics should not expect, in an age when only 10 per cent. of the population attend church, that each school should be a centre of evangelism. What they should rejoice to know is that the Bible is read over a planned course in every school, that there is an adequate syllabus upon which to work and that worship and prayer form a part of every state school in the country.

I agree that in the final count the responsibility lies with the teacher and I venture to hope that, as the opportunity is realised, there will be an increasing number of Christian teachers taking up the work of religious instruction in the schools.

878TH ORDINARY GENERAL MEETING

HELD AT 12, QUEEN ANNE'S GATE, LONDON, S.W.1, AT 5.30 P.M.
ON MONDAY, MAY 24TH, 1948.

AIR COMMODORE P. J. WISEMAN, C.B.E., IN THE CHAIR.

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

The following elections were announced :—V. D. K. C. Ross, Esq., Fellow ; E. C. Staddon, Esq., A.M.I.E.E., Member ; Rev. E. W. L. May, M.A., Member ; William Bennet, Esq., M.A., Member ; E. F. Witts, Esq., Member ; Rev. H. F. MacEwen, B.A., B.D., Member ; G. V. Prosser, Esq., Associate.

The CHAIRMAN then called upon the President, Sir Frederic G. Kenyon, G.B.E., K.C.B., D.Litt., LL.D., F.B.A., to deliver his Presidential Address entitled "New Testament Criticism To-day."

PRESIDENTIAL ADDRESS.

NEW TESTAMENT CRITICISM TO-DAY.

BY SIR FREDERIC G. KENYON, G.B.E., K.C.B., D.Litt.,
LL.D., F.B.A.

I SHOULD like to take this opportunity to review the present position of New Testament criticism. It seems to me that we have come to a point where that position should be re-assessed and a fresh departure made in the light of modern discoveries and critical examinations relating to the Bible. Biblical criticism should not be static. Throughout the ages it has varied from time to time, and when it has solidified and become stationary, it has been in danger of losing touch with contemporary thought, and thereby losing influence on contemporary life. Its duty, as it seems to me, is to be cautiously progressive, holding fast that which is true, testing all things,

but ready to assimilate that which is found sound in new thought and new discoveries. It is of the essence of such a society as ours that it should be awake to new developments, though I hope it will always be content to move cautiously and to accept only that which, on full examination, is found to be soundly based.

There seems to me to be special reason for such a re-assessment now. In the nineteenth century we passed through a period when two different points of view stood in strong contrast—a traditional habit of uncritical acceptance of what seemed to be the face-value of the Biblical record and, on the other hand, a strongly critical attitude which held all tradition to be suspect and new interpretations to be sought and preferred. The conflict between these two points of view, strongly held by two different types of mind, led to a great unsettlement of belief, of which we are now experiencing the consequences. The twentieth century, on the other hand, has been a period of objective research, archaeological and literary, the results of which have been steadying and re-assuring to those who look to the Bible as the supremely authoritative guide to life. Much of the froth of extravagant and ill-founded theorising which characterised the middle of the nineteenth century has been cleared away and we are in a better position now than before both to get rid of the dead word of a too stationary tradition and to discard the extravagances of ill-founded conjecture. New Testament criticism has, in fact, in the past been too much under the influence of two conflicting streams of thought; on the one hand the remains of fundamentalism, on the other the remains of Tübingenism. The former is the outcome of too little criticism, the latter of too much. We are now, I believe, in a position to discard what was mistaken on either side, to absorb much new knowledge that has been brought to light during the past generation, and to make a fresh start on more assured foundations.

Such a review of the present position of Biblical criticism seems to me all the more necessary in view of the recent resuscitation of mid-nineteenth century criticism by the Bishop of Birmingham in his book *The Rise of Christianity*. Such a book, issued under the name of one who holds so high a position in the Church of England, may well have much weight among those who do not realise that it is a revival of a school of thought which was discredited half a century ago, that it is full of mis-statements and uncritical assumptions, that it ignores most of the advances in knowledge made within the past generation and by no means

represents the up-to-date criticism of to-day. I have tried to substantiate these assertions in a booklet recently published; but I cannot assume that this has reached all the members of the Institute, and the matter is so important that some insistence upon it may be permissible.

No one reading the Bishop's book without previous knowledge of the subject would realise that it is a revival of the ultra-sceptical valuation of the books of the New Testament which had its vogue in the second half of the nineteenth century, and which in this country was represented by such works as *Supernatural Religion*, by W. R. Cassels (1874-77), and the articles of van Manen and Schmiedel in *Encyclopædia Biblica* (1899-1903). The Bishop conceals this fact by giving no authority for his assertions beyond frequent references to unnamed "analytical scholars," whose dates and authority are left completely obscure. This book is, moreover, vitiated by its ready acceptance of any anti-orthodox view however slight the evidence in its favour, and its almost complete ignoring of the progress of knowledge in the last half-century. This progress, be it observed, does not merely represent a change in subjective opinion; it is the result of objective discoveries due to archæological research. In some cases these additions to concrete knowledge are wholly ignored; in others they are barely mentioned and then left aside as though they were of no importance.

The latter is the case with the most striking modern discovery in this category, the Rylands fragment of St. John's Gospel, supported as it is by the "New Gospel" fragments in the British Museum, both of them published in 1935. The former of these is barely mentioned by the Bishop, the latter is not mentioned at all. Both of these manuscripts are assigned (not by theological controversialists but by objective papyrologists, on purely palæographical grounds) to the first half of the second century. Now if the Fourth Gospel, which is universally regarded as the latest of the four Gospels, and indeed the latest of the books of the New Testament except perhaps the Second Epistle of Peter, was circulating in Egypt in the first half of the second century, the date of its composition is thrown so far back as to make it hypercritical to reject its traditional assignment to the last decade or so of the first century—that is, within the life-time of St. John as recorded in general early tradition, and in any case within the life-time of those who had known the disciples of our Lord.

If this be so, the whole fabric of the Bishop's criticism, and that of the scholars whom he is belatedly following, falls with a crash to the ground. While placing St. Mark's Gospel about A.D. 75-85, he assigns the other Gospels and Acts to the second century, together with much of the Epistles (both Pauline and Canonical), notably the historical sections of 1 Corinthians, and thereby interposes an interval of from fifty to a hundred years between the life of Our Lord and the extant records of it. All his reverence (the genuineness of which there is no reason to question) for the character and teachings of our Lord cannot obscure the fact that he has cut away nearly all the ground for belief in the historicity of our knowledge of His life and teachings and all our belief in His divine nature. But all this argument collapses if the first-century dates of the New Testament books are assured. We must go back to the position affirmed half a century ago by no less an authority than Harnack, that "in all main points and in most details the earliest literature of the Church is from a literary-historical point of view trustworthy and dependable . . . The chronological framework in which the tradition has arranged the documents is, in all the principal points, from the Pauline Epistles to Irenaeus, correct. . . . The time [of the school of Baur] is over. It was an episode during which science learnt much, and after which it must forget much."

It would be highly unfortunate if the Bishop's book were taken to represent the views of modern scholarship. It is in fact merely a revival of a school of thought which reached its climax about three-quarters of a century ago, was then discredited by the scholarship of such men as Lightfoot and Harnack, and of which the ground has since been cut away by the discoveries of the twentieth century.

The point which I wish to make, and which I think cannot be too emphatically repeated at this time, is that we ought to free ourselves from the prepossessions, whether ultra-conservative or ultra-radical, prevalent at the end of the nineteenth century, to recognise the steady effect of the objective advances in archæological criticism affecting the dates of the New Testament books during the present century, and, so to speak, take breath for further progress on the basis of assured first century dates for practically all of them. The effect of the Tübingen school of criticism was to set free a flood of scepticism which shook the faith of many who were unable themselves to test its validity, and to throw the defenders of the Christian tradition on the

defensive. We are now entitled to make a fresh start, free alike from the uncritical obscurantism of the sixteenth and later centuries and from the ultra-critical extravagances of the nineteenth century. We can accept criticism and utilise it, satisfying and indeed welcoming the results of scholarship, as showing that the external foundations of the Christian belief stand sure.

It may be observed in passing that the establishment of such a position as this is a remarkable vindication of the best British scholarship of the last two generations. There was, no doubt, a general unwillingness to accept the results, not merely of the Tübingen hypothesis, but of any progressive research into the history and development of the books of both Testaments; but the best British scholars, while ready to accept the assured results of literary and archæological research, were not led away by the extravagant licence of much Continental scholarship. The works of Lightfoot, Salmon, Westcott, Gore, Sanday, and many others stand, in effect, secure and dependable to-day, while scores of extravagant speculations which had their temporary vogue abroad and affected not a few in this country, have vanished down the wind into oblivion. The motto, *Festina lente*, holds good here as in other fields of scholarship.

The point which those who are inclined to accept disruptive criticism of the New Testament books have to face is the very limited period within which the developments that they postulate must have taken place. If the Fourth Gospel is securely fixed, as it now appears to be, to a date not later than the last decade of the first century, we have to find room before that for the Gospels of Matthew and Luke, and before that again for the Gospel of Mark and the compilation known as Q, which they utilise. That brings back the date of St. Mark to the neighbourhood of the date of the destruction of Jerusalem in A.D. 70—I am not concerned now with considering whether it should be placed shortly before or shortly after that event. On the other hand, we have as our limit the date of the Crucifixion, which must lie between A.D. 29 and 33 (see *New Commentary on Holy Scripture*, N.T., p. 730). There is therefore only the period between (approximately) A.D. 30 and 70 for the development of the Gospel story; and from this a considerable portion must be cut off from the beginning, before the need for a written record of the Lord's life would have become apparent. When the Second Coming was regarded as imminent, there was no need of

such a record. There is, at best, little evidence of the existence of such a record in St. Paul's epistles. Some materials may have been accumulating, but they can hardly have amounted to more than sporadic reminiscences or formulations of belief. St. Luke's affirmation of the existence of works by "many [who] have taken in hand to set forth a declaration of those things which are most surely believed among us"—declarations resting on the gathered testimony of eye-witnesses, can hardly be taken to cover a period of more than some twenty years, say between A.D. 55 and 75. Only some such period as that is available for such development as may be taken to precede the assured tradition as we find it in the narratives of Matthew and Luke; and part of that is already occupied by Mark.

There is, therefore, as it seems to me, little time for the elaborate processes of what is now known as "Formgeschichte," as expounded by Dibelius and accepted with curious readiness by some scholars in this country. It implies the existence of collections of anecdotes and narratives, of different characters and various qualities, in systematical categories; and this again implies a good deal of inter-communication of written material between different parts of the Christian community scattered over the Roman world, between Rome and Ephesus and Antioch and Jerusalem and Alexandria. Speculation must be checked by the hard facts of chronology and topography and the material conditions under which Christianity developed. I cannot help thinking that many of the speculations on which modern theories rest imply an inadequate conception of the historical circumstances amid which the books of the New Testament came into being. Theories which involve long processes of development, of the creation, classification, combination, publication and circulation of material seem to me to be ruled out by the hard facts of chronology and the conditions, so far as we know them, of the primitive Christian communities. Bishop Barnes is by no means alone in ignoring what may be called bibliographical probabilities, but he seems to me exceptionally free in his assumption of the existence of *disjecta membra*, which at some time in the second century were collected in the form in which we now possess the books of the New Testament. He and not a few other critics appear to assume that the letters of St. Paul, written approximately between A.D. 52 and 66, suffered a process of detrition in the course of the next sixty or seventy years until the surviving fragments were collected and put together with the addition of

highly important passages of later origin, and issued substantially as we now know them. Dr. Barnes is inclined to believe that the first collection was made by the heretic Marcion about A.D. 140.

Looked at bibliographically, the difficulties of such a theory seem to me not to be realised by its advocates. It implies that the original letters of St. Paul (of which copies were evidently sent to other churches) had been suffered to disappear or to be mutilated (I don't know which is the less likely assumption) so that the way was free for a second-century editor to re-issue them with the addition of supplementary passages either found existing without known authorship or invented by the editor. Take, for example, the first Epistle to the Corinthians, on which Dr. Barnes lays much stress. He does not deny that portions of it are Pauline, but much of it, including the narratives of the Last Supper and the Crucifixion and Resurrection and the hymn in praise of Charity, he would regard as much later additions, and not all from the same source. The chapter dealing with the Resurrection story would be a deliberate falsification, since it speaks of the existence of many witnesses of the Risen Lord; the evidence of some person or persons present at the Last Supper is implied; while the eulogy of Charity is of so distinct a literary quality as to involve yet another author. Now how did Marcion or any other editor about the middle of the second century impose this agglomeration on the Christian world? Would the affirmations of a heretic command general acceptance? The Church of Corinth would surely be in a position to say, "This is not the letter which we received from the Apostle," and other churches which had obtained copies at the first would also detect and question the falsified form. And how would this form be spread over the various scattered churches and obtain unanimous acceptance to the exclusion of all previous copies? If the church at Corinth had preserved St. Paul's original letters, or even copies of them, it would have said of the expanded composition, "These are not the letters we received." If it had lost them, it would have said, "What are these letters which purport to have been written to us, but of which we have no record?" Bibliographically the thing does not make sense.

The position for which I would argue is that the books of the New Testament must be taken much more at their face value, as they would be if they were works of pagan literature. They are open to criticism, but there is no case for destructive scepticism.

Now I think that the attitude of the Victoria Institute with regard to Biblical criticism is a matter of great importance. It is the regrettable fact that the traditional acceptance of Christian doctrine in this country has been severely shaken. The spectacular advances of science in the latter part of the nineteenth century, and its confident claim to provide a complete basis for human life went far to detach the younger generation from the unquestioning belief of their forefathers in Christian beliefs and Christian practice; and this tendency was intensified by the uncritical character of much of the Christian defence. If the lost ground is to be regained, it must be on a basis which accepts the assured results of natural science and historical criticism, and which shows that they are fully reconcilable with Christian belief. This involves no departure from the principles of the Institute. As I quoted last year from the records of its foundation, our object is "to investigate fully and impartially the most important questions of Philosophy and Science . . . with the view of reconciling any apparent discrepancies between Christianity and Science."

It would be fatal if we took up the position of refusing to consider the assured results (so far as they are assured) of natural science and free historical criticism. Our claims would then simply be brushed aside, as they too often are, as unfounded and out of date. If the coming generations are to be won back to Christian beliefs, it must be on the basis that these are compatible with the best history and the soundest science, and that they supply what science and history by themselves have conspicuously failed to supply, a guide to the human race along lines of peace and mutual charity. This we can fully do without departing from the principles which the Institute was founded to support. Our duty is not to stand fast obstinately in old ways which satisfied those who had grown up in pre-critical days or with pre-critical beliefs, but to be cautiously progressive, prepared to welcome the results of modern knowledge and modern points of view—in short, to "prove all things, and hold fast that which is good."

The essence of our position, as I have tried to argue before, is the recognition of the principle of *progressive* revelation, and of the existence of human elements in the records which have come down to us in Holy Scripture. On the one hand, we must get rid of the Victorian habit of miscellaneous text hunting, by which any words in the Bible might be taken as applicable to

all times and any circumstances, regardless of their original context. We have also to recognise, what many have found difficult to recognise, that there may be human imperfections in the record. What is important is to see and to maintain that imperfections in the historical record do not affect the moral teaching in the Bible, nor its fundamental basis in the Divine Person of our Lord. On the contrary, I maintain that we shall find that historical and literary criticism applied to the Old Testament removes many difficulties inevitably connected with primitive states of society, and brings out more clearly the moral value of the teaching of the great prophets who preceded the full revelation of Jesus Christ. We have not to throw over the Old Testament, as some would do, but to recognise its enduring value, both in itself and as leading up to that which was to come.

This, surely, is compatible—and indeed only this is compatible, with the recognition that the present life is a time of trial. We are given the means of finding the way that leads to eternal life, but we have got to find it. Accordingly, while we believe that we have the words of eternal life, the interpretation and application of them is left to us. This is a world of trial, and it is in accordance with this fundamental principle that we are challenged to interpret the Scriptures.

And it is only so that we can hope to win back the world to the Christian view and the Christian way of life. It is quite useless to attempt to impose our view by dogmatic assertions. Still less is it helpful to denounce those who at present hold aloof as “atheists” or “infidels.” Their characters, their practice, their beliefs often stand high, even though we may believe that their roots do not stand sure. It is useless to hope to impress them unless we can show that the full Christian doctrine can stand up to modern criticism. Then we can hope to show that Christianity, so far from being incompatible with modern science and scholarship, is their complement, and supplies the foundation which they by themselves have proved unable to do. The times are favourable for such an advance. The positiveness of science in its power to provide a complete explanation of life and a guide to conduct is weakening; and the way is open for a re-assertion not only of the reasonableness of faith, but of the essential need for it. On the one hand we can point to the now admitted fact that natural science cannot claim, and does not in fact claim, to cover the essential fields of morals and theological belief; and on the other we can claim that

modern knowledge has re-established the historicity of the Christian record. On that basis we can go forward to re-assert the *spiritual* values in life, which have been too much obscured by the assertion of materialistic values and claims.

We are, I think, all the more entitled to insist on the essential importance of a spiritual interpretation of life by pointing to the results of two generations of weakened faith and lessened Christian teaching and belief. They have led us to two wars of world-wide devastation, and in the second of these an appalling revelation of human depravity and abandonment of moral standards. Twice within a generation we have had to face claims of domination resting upon unbridled power, and in the second case on an avowed denial of Christian standards and even of ordinary decent human morality. I think it is not without significance that the outstanding leaders against this flood of evil have been men who made no concealment of their Christian faith. One need only name Foch and Haig in the first war, Wavell and Montgomery in the second ; to whom many others might be added but for the fact that the mention of some might seem to exclude others whose beliefs, if equally well known, would be seen to be equally firm.

We have therefore to rebuild from the foundations, and here I think a society such as ours is called to take its part. We are a society largely of laymen, and therefore should escape the depreciation with which the Bishop of Birmingham lightly dismisses the writers of his own cloth. But if our testimony is to carry weight, we must show that we are not rooted in out-of-date traditions ; that we are ready to meet critics on their own ground. But we have a right to claim that we should be met on equal terms—that our opponents should not, like the Bishop of Birmingham, lightly beg one of the questions at issue by assuming that miracles do not happen, and therefore that all the stories of miracles in the Gospels are fictitious. “ If Christ, as thou affirmest, be of man, mere man and nothing more ” . . . such an argument may have its plausibility. But what if He is not mere man and nothing more, which is the point at issue ? The Bishop does not seem to see that his own attitude is as uncritical as that of the obscurantist that he treads upon.

It is on these grounds and in this spirit that I hope the Institute will carry out the mission which it undertook eighty-three years ago. But some of those who may feel that they can play no part in the re-establishment of our shattered material civilisation

may be assured that both in their private life and as members of the Victoria Institute they can make their contribution to that moral revival on which the future welfare of humanity yet more totally depends.