This page is blank.
THE
NINETEENTH
CENTURY.
A MONTHLY REVIEW
EDITED BY JAMES KNOWLES.

No. 84, FEBRUARY 1884.

I. On the Inspiration of Scripture. By his Eminence CARDINAL NEWMAN 185

II. The House of Lords
(1) Its Reform. By the Right Hon. the EARL OF DUNKAVER. 200
(2) On its Abolition. By T. E. KEBB.

III. The State and the Medical Profession. By Professor HUXLEY 228

IV. A Walk to Coomassie. By GODFREY Y. LACDEN 239

V. The Universities and the Poor. By the REV. SAMUEL A. BARNETT. 255

VI. ‘Cramming’ in Elementary Schools. By the Right Hon. LORD NORTON 262

VII. India, her Wheat and her Railways. (With a Map) By William FOWLER, M.P. 274

VIII. Proportional Representation. By ROBERT H. HAYWARD 293

IX. An Ecclesiastical Olive Branch. By the Right Hon. A. J. B. BERESFORD-HOPE, M.P. 305

X. The Germ-Theory of Zymotic Diseases. By Dr. W. B. CARPENTER 317

XI. Christian Agnosticism. By the REV. CANON CURTEIS 337

XII. On Rainbows. By Professor TYNDALL. 345

KEGAN PAUL, TRENCH, & CO., LONDON.

PARIS: LIBRAIRIE GALIGNANI, 224 RUE DE RIVOLI.
AGENTS FOR AMERICA: THE INTERNATIONAL NEWS COMPANY, NEW YORK.

Price Half-a-Crown. All rights reserved.
Diploma of Honour (Highest Award), Amsterdam, 1883.

FRY'S COCOA

Try 'FRY'S COCOA EXTRACT' Guaranteed Pure.

DOULTON & CO., LAMBETH, S.E.

MANUFACTURERS OF

GLAZED CERAMIC WARE,
OPEN AND CLOSED PORTABLE STOVES,
OPEN FIREPLACES,
MANTelpieces, FENDERS,
HEARTH TILES, ETC.

A special Show Room recently fitted up at the Works.

ALBERT EMBANKMENT, S.E.
The Editor of The Nineteenth Century cannot undertake to return unaccepted MSS.

The Nineteenth Century Advertiser, February 1884.

SAMPSON LOW, MARSTON, & CO.'S NEW PUBLICATIONS.

THE LIFE OF PETER THE GREAT. By Eugène Schuyler, Author of 'Turkestan.' 2 vols. Demy 8vo. 32s.

DEDICATED BY PERMISSION TO HIS ROYAL HIGHNESS THE DUKE OF EDINBURGH.

VOYAGES OF DISCOVERY IN THE ARCTIC AND ANTARCTIC SEAS, AND ROUND THE WORLD. Being Narratives of PersonalAttempts to reach the Poles, North and South, and of an Open Boat Expedition up Wellington Channel in Search of Sir John Franklin and Her Majesty's Ships ' Erebus' and ' Terror ' in the Boat ' Forli; or Hope,' under the Command of the Author; to which is added an Autobiography, Appendix, and Portraits, Maps, Charts, and numerous Illustrations. By Deputy-Inspector-General Robert McCracken, R.N., F.R.C.S., Chief Medical Officer, Naturalist and Geologist to the Expedition. 2 vols. Royal 8vo. cloth, £2. 12s. 6d. [Ready.

'The most recent authority on WHITE ELEPHANTS is Mr. CARL BOCk.—PALL MALL GAZETTE.

THE NEW WORK BY THE AUTHOR OF 'THE HEAD-HUNTERS OF BORNEO.'

TEMPLES AND ELEPHANTS; or, the Narrative of a Journey of Exploration through Upper Siam and Laos. By Carl Bock. With Coloured Plates and numerous Woodcuts. 1 vol. 8vo. cloth extra, 21s.

PREPARING FOR IMMEDIATE PUBLICATION.

THE RIVER CONGO, from its Mouth to Bôlôbô; with a General Description of the Natural History and Anthropology of its Western Basin. By H. H. Johnston, F.Z.S. With numerous full-page and other Illustrations, and a new Map of the Congo from its Mouth to Bôlôbô. Vol. 1. Demy 8vo, cloth extra, Price One Guineas.

MR. DUTTON COOK'S LAST WORK.

ON THE STAGE. Studies of Theatrical History and the Actor's Art. By the late Dutton Cook, Author of 'A Book of the Play' &c. 3 vols. Crown 8vo. cloth. 24s.

'Few books that have been written on the subject of the drama and the theatre are more entertaining, and still fewer more learned and trustworthy, than the series of works by the late Mr. Dutton Cook, now brought to a close in the two volumes bearing the title of "On the Stage."...... The writer of these pages is not to be confounded with the host of compilers of books of dramatic gossips. His reading was very extensive; his faculty for selecting what was significant was guided by excellent judgment, and his essays always exhibit that mastery of his subject which is quickly felt by the educated reader.'—DAILY NEWS.

THE DIARY AND LETTERS OF THOMAS HUTCHINSON, Esq., B.A., LL.D., Captain-General and Governor-in-Chief of His late Majesty's Province of Massachusetts Bay, in North America. With an Account of his Administration when he was Member and Speaker of the House of Representatives, and of his Government of the Colony during the difficult period that preceded the War of Independence. Compiled from the Original Documents still remaining in the possession of his Descendants. By Peter Orlando Hutchinson, one of his Great-Grandsons. Demy 8vo. cloth, about 600 pp. 16s. [Nearly ready.

A NEW NOVEL BY MRS. COMYNS CARR.


THE IRISH BIRTHDAY-BOOK. Selections from the Speeches and Writings of Irishmen and Women, both Catholic and Protestant. Arranged by MELUSINE. Small post 8vo. bound in Irish linen, with design in gold. 5s.

Now ready. Crown 8vo. cloth. 270 pp. price 5s.

THE HOME KITCHEN. A Collection of Practical and Inexpensive Receipts. By MARION HARRIS.

"THE NEW VOLUME OF POEMS BY THE AUTHOR OF 'YESTERDAY, TO-DAY, AND FOR EVER.'"

FROM YEAR TO YEAR: or, Poems and Hymns for all the Sundays and Holy Days of the Church. By the Rev. E. H. Bickersteth, M.A. 16mo., with red border lines, cloth, 3s. 6d.; roan, 5s.; calf morocco, 8s. Second Edition.

'We cannot agree with Mr. Bickersteth, in his preface, that he has strong "inferior pedlars," upon the "golden threads" of the Church's year in this charming volume: on the contrary, he has given us not a mere circle of shining stones of poetic fancy and religious sentiment, but living flowers of glad and holy truth in a fragrant and faultless wreath.'—THE RECORD.


'Captain Hargreaves has evidently been an observant traveller; he has jotted down wherever he has come under his observation, and has recorded his impressions in a pleasant gossipy way that will make his book entertaining to many, whether they have made a voyage round Great Britain or not.'—MANCHESTER COURIER.

London: SAMPSON LOW, MARSTON, SEARLE, & RIVINGTON, Crown Buildings, 188 Fleet Street, E.C.
Messrs. MACMILLAN & CO.'S LIST.

TENNYSON'S WORKS.

Messrs. Macmillan & Co. beg to announce that they will for the future publish Lord Tennyson's Works.

They are now prepared to supply the Trade with an entirely New Edition of the complete Works (corrected throughout by the Author), in crown 8vo., price 7s. 6d., printed from new type, and containing a new Portrait engraved on steel.

A NEW NOVEL BY GEORGE FLEMING.

VESTIGIA: a Novel.

By GEORGE FLEMING, Author of 'A Nile Novel,' 'Mirage,' 'The Head of Medusa,' &c.


[Ready Feb. 5.]


'This Book has not previously appeared in a Serial form.'

A NEW NOVEL BY MRS. OLIPHANT.


'This volume is not only a great literary work, it is a fitting monument to a noble character. Mr. Green was a born historian. . . . This book is one of the most valuable contributions to historical literature that has been made for many years past—interesting alike in its master and its form, and in the pathetic circumstances under which it appears.'

BY SIR SAMUEL W. BAKER, F.R.S.


MACMILLAN'S 4s. 6d. SERIES—NEW VOLUMES.


FRENCH POETS AND NOVELISTS. By Henry James, Author of 'The American,' 'The Europeans,' &c. New Edition. Crown 8vo. 4s. 6d.

ADISON. By W. J. Courthope. Crown 8vo. 2s. 6d.

NEW BOOK OF TRAVEL.

THE HIGH ALPS OF NEW ZEALAND; or, a Trip to the Glaciers of the Antipodes, with an Ascent of Mount Cook. By William Silverwood Green, M.A., Member of the English Alpine Club. With Maps. Crown 8vo. 7s. 6d.

'He has contrived to incorporate with his narrative many interesting facts relating to the natural history and physiography of these remarkable islands, and raises his work far above the level of an ordinary book of travel.'

NEW NOVEL BY MR. JOHN FISKE.

RALPH WALDO EMERSON, The Collected Works of. (Uniform with the Eversley Edition of Charles Kingsley's Novels.) Globe 8vo. 5s. each volume.

1. MISCELLANIES, With an Introductory Essay by John Morley. 2. ESSAYS. 3. POEMS. 4. ENGLISH TRAITS; and REPRESENTATIVE MEN. 5. CONDUCT OF LIFE; AND SOCIETY AND SOLITUDE. 6. LETTERS; AND SOCIAL AIDS, &c.

NEW BOOK ON MILITARY ITALY.

MILITARY ITALY. By Charles Martel. With Map. Demy 8vo. 12s. 6d.


NEW BOOK OF MR. JOHN FISKE.

EXCURSIONS OF AN EVOLUTIONIST. By John Fiske, M.A., LL.D., formerly Lecturer on Philosophy at Harvard University, Author of 'Outlines of Cosmic Philosophy;' 'Darwinism,' and other Essays. Crown 8vo.

PRINCIPLES OF PHYSICS, A Text-Book of the. [By Alfred Daniell, M.A., Lecturer on Physics in the School of Medicine, Edinburgh.] Demy 8vo.

THE RELATIONS OF MIND AND BRAIN. By Henry Calderwood, LL.D., Professor of Moral Philosophy in the University of Edinburgh. Second Edition, revised and enlarged, with Additional Chapter on 'Animal Intelligence.' 8vo. 12s.

Of the first edition the Academy says:—'Altogether his work is probably the best combination to be had at present in England of exposition and criticism on the subject of physiological psychology.'

MACMILLAN & CO., London, W.C.
HER MAJESTY'S JOURNAL.

On February 12 will be Published,
With Portraits and Woodcut Illustrations, 8vo. price 10s. 6d.

MORE LEAVES FROM THE JOURNAL OF A LIFE IN THE HIGHLANDS,
FROM 1862 TO 1882.

NEW WORK BY JOHN ADDINGTON SYMONDS.
Now ready, demy 8vo. 18s.

SHAKSPERE'S PREDECESSORS IN THE ENGLISH DRAMA.

By JOHN ADDINGTON SYMONDS,
Author of 'Studies of Greek Poets,' 'The Renaissance in Italy,' 'Sketches in Italy and Greece,' &c.

NEW WORK BY LIEUT.-COL. R. L. PLAYFAIR.
Now ready, with Illustrations, demy 8vo. 14s.

THE SCOURGE OF CHRISTENDOM.

Annals of British Relations with Algiers prior to the French Conquest. With Illustrations of Ancient Algiers from 1578 to 1824.

By Lieut.-Col. R. L. PLAYFAIR, H.B.M.'s Consul at Algiers.

NEW VOLUME OF THE 'STANDARD EDITION' OF THE COMPLETE WORKS OF W. M. THACKERAY.

Large 8vo. 10s. 6d.

CITIES OF CENTRAL ITALY. 2 vols. crown 8vo. with Illustrations, 21s.

CITIES OF NORTHERN ITALY. 2 vols. crown 8vo. with Illustrations, 21s.

NEW EDITION OF AUGUSTUS J. C. HARE'S 'MEMORIALS OF A QUIET LIFE.'

Crown 8vo. 21s.

MEMOIRS OF A QUIET LIFE. Vols. I. and II.

NEW EDITION, WITH ADDITIONAL MATTER.

WALKS IN FLORENCE. By SUSAN and JOANNA HORNER. 2 vols. crown 8vo. with numerous Illustrations.

NEW NOVELS.

NEW NOVEL BY THE AUTHOR OF 'THE MARKHAMS OF OTTERTON' &c.
At all the Libraries, in 2 vols. post 8vo.


NEW NOVEL BY THE AUTHOR OF 'A LINCOLNSHIRE HEROINE.'
Will be ready in February, 3 vols. post 8vo.


London: SMITH, ELDER, & CO., 15 Waterloo Place.
The Inquirer:

A RELIGIOUS, POLITICAL, AND LITERARY NEWSPAPER,
AND RECORD OF REVERENT FREETHOUGHT.

ESTABLISHED 1842.

2d. weekly.

Orders and Payments to be sent to Mr. W. Mawer, 37 Norfolk Street, Strand, W.C.

THE LONDON LIBRARY,

12 ST. JAMES'S SQUARE, S.W.

President—LORD HOUGHTON.

Trusted—Lord Houghton; Earl of Carnarvon; Earl of Rosebery.

Committee.

H. R. Irwin, Esq. | A. Lang, Esq. | Professor Henry Morley | Herbert Spencer, Esq.

The Library contains 109,000 Volumes of Ancient and Modern Literature, in various Languages. Subscription, £1 a year, or £5, with Entrance Fee of £6; Life Membership, £50. Fifty Volumes are allowed to Country and Ten to Town Members. Reading Rooms open from Ten to Half-past Six. Catalogue, 1875, price 16d.; to Members, 12s.; Supplement (1875-80), price 6d.; to Members, 6d. Proceedings on application.

ROBERT HARRISON, Secretary and Librarian.
"A work of immense utility; both an Encyclopædia and a Dictionary."—Times.

NOW READY,

The FIRST MONTHLY PART.

Price ONE SHILLING, of

THE ENCYCLOPÆDIC DICTIONARY.

An Entirely New and Exhaustive Work of Reference to all the Words in the English Language, with a Full Account of their Origin, History, Meaning, Pronunciation, and Use. With numerous Illustrations.

Amongst the distinctive features of the Encyclopaedic Dictionary are:

1. Its thoroughly encyclopaedic character, the 'Encyclopaedic Dictionary' being not only a comprehensive Dictionary, but also a complete Encyclopaedia to all branches of knowledge.

2. Its comprehensiveness and its wideness of range, the work embracing not only modern words, whether of an ordinary or of a technical and scientific nature, but also all obsolete words and phrases to be met with in the works of English writers from the thirteenth century to the present day.

3. The history of each word and the historical and logical development of its various meanings and uses; the Editors having endeavoured to trace out and show to the reader, by illustrative quotations, the history and development of each word, such a system being for the first time fully carried out in the present work.

4. The richness and completeness of the illustrations and quotations, the value of which is materially increased by the fullness and exactness of the references.

5. The treatment of the etymological portion of the work in accordance with the results of the latest researches in Comparative Philology, and the grouping of the various spellings of each word under the principal form.

6. The exactness and clearness of the pronunciations, the system adopted being simple, and at the same time of such a nature as to show clearly and readily the minutest differences in the phonetic values of the vowels.

7. The large increase in the number of words registered, which is shown by the following estimate of the number of words appearing in well-known Dictionaries:

- Johnson's Dictionary, Todd's Edition ... ... ... 58,000
- " Latham's Edition ... ... ... 63,000
- Webster's Dictionary, Early Edition ... ... ... 70,000
- Worcester's Dictionary (American) and Supplement, recently published ... ... ... ... ... 116,000
- Webster's Dictionary (American) and Supplement, recently published ... ... ... ... ... 118,000
- The Imperial Dictionary, New Edition ... ... ... ... 130,000
- The Encyclopedic Dictionary ... ... ... ... 150,000

8. The numerous pictorial illustrations which, although eminently artistic in character, are in no sense mere embellishments, but in every case help to elucidate the text.

** Prospectus, with Specimen Page, can be had at all Booksellers, or will be sent post-free on application to the Publishers,

CASSELL & COMPANY, LIMITED, Ludgate Hill, London.
THE CLARENDON PRESS.

NOW READY.

Part I. A—ANT (pp. xvi, 352). Price 12s. 6d.

A NEW ENGLISH DICTIONARY,
ON HISTORICAL PRINCIPLES:

Founded mainly on the Materials collected by the Philological Society.

EDITED BY

JAMES A. H. MURRAY, LL.D.

PRESIDENT OF THE PHILOLOGICAL SOCIETY;

WITH THE ASSISTANCE OF MANY SCHOLARS AND MEN OF SCIENCE.

The object of the New English Dictionary is to present, as concisely as possible, the history of every word, and of all the different uses of every word in the written language, not omitting those which are now obsolete. In order to ensure complete accuracy and thoroughness, it has been judged desirable, instead of adopting the traditional and often erroneous instances contained in existing dictionaries, to make an entirely fresh selection of representative extracts from the original works themselves. To gather together this fresh and trustworthy material—in other words, to lay a secure and adequate foundation for the fabric of English lexicography—has been the task of five-and-twenty years, and of more than 1,300 readers, working under the superintendence of the London Philological Society. Over 5,000 of the chief English writers of all ages, and at least four times as many separate works, have been laid under contribution; and some idea of the bulk of the material which the Editor has drawn upon may be formed from the fact that more than 3,000,000 distinct quotations, each complete in itself, have been placed at his disposal, of which about a third part will be finally included in the Dictionary. Every passage is furnished with a precise date and reference for the purpose of verification, as shown in the specimen words printed on the opposite page.

Nor has the principle of co-operation been confined to the collection of the raw material. The Editor, though even the minutest details of the work have passed under his eye, has freely availed himself of the services of students of English, and of other branches of knowledge bearing thereon, in all parts of the world. The New Dictionary, therefore, will represent in a condensed form the accumulated knowledge of very many of the first scholars of our time; and will, if the expectations of its promoters are realised, be found in all respects abreast of the actual state of science. The Editor has sought to give such results only as are beyond dispute, avoiding rash speculation and all dogmatism on doubtful points. His object has been to allow each word, as far as possible, to tell its own story, by careful selection of the
most characteristic examples, and by a strictly logical arrangement and sub-division of its various meanings; his own explanations being as brief as may be found consistent with clearness.

The work is addressed, not only to the advanced student of English literature, who will find it to combine a glossary of obsolete words with an etymological dictionary of the living language; or to the student of the sciences, who will learn from it at what date the technical terms with which he is dealing were introduced, and what modifications of form or sense they have since undergone; or to the professed philologist; but also, and in no less a degree, to the general reader, who will here find, ready to his hand, the derivation and accepted pronunciation, the past history and present use, of every word which may occur in his reading, and concerning which he may desire to be further informed. It is thought that the extracts, even in the abridged form which considerations of space have rendered necessary, may still possess an independent interest of their own. Many vexed questions of etymology will be found to be settled once and for all when brought, as here, to the touchstone of history; and it can scarcely be but that new light will be thrown on various literary and bibliographical problems which have puzzled generations of enquirers. In the confident hope that it will be recognised as a contribution of solid and permanent value to the study of our language and literature, and as an attempt, carefully planned and conscientiously executed, to achieve for English all, and more than all, that Littre has achieved for French, the First Part of the New English Dictionary is now given to the world.

Subsequent Parts will be issued as rapidly as is found practicable, and the work will be completed in Six Volumes, each containing Four Parts similar to that now published.

The following are two specimen words:

Agnostic (agnostik), sb. and a. [f. Gr., knowing, unknown, unknowable, f. ἀνωτάτος + ἑρωδός; cf. Gnostic; in Gr. the termination ὀσ never coexists with the privative ἀ.] A. sb. One who holds that the existence of anything beyond and behind material phenomena is unknowable (so far as can be judged) unknowable, and especially that a First Cause and an unseen world are subjects of which we know nothing.

[Suggested by Prof. Huxley at a party held previous to the formation of the now defunct Metaphysical Society, at Mr. James Knowles's House on Chapham Common, one evening in 1859, in my hearing. He took it from St. Paul's mention of the author 'the Unknown God.' R. H. Hutton in Letter 13 Mar. 1881.]

1870 Spect. 29 Jan. 173 In theory he [Prof. Huxley] is a great and even severe Agnostic, who goes about exhorting all men to know how little they know. 1874 MIVART Ein Relig. etc. 204 Our modern Sophists—the Agnostics,—those who deny we have any knowledge, save of phenomena. 1876 Spect. 11 June. Nicknames are given by opponents, but Agnostic was the name demanded by Professor Huxley for those who discarded atheism, and believed in him in an 'unknown and unknowable' God; or in other words that the ultimate origin of all things must be some cause unknown and unknowable. 1880 Br. Franklin in Mon. Mag. 29 Nov. The Agnostic neither denied nor affirmed God. He simply put Him on one side.

B. adj. Of or pertaining to agnostics or their theories. 1875 Q. Rev. CXXXV. 192 The pseudo-scientific teachers of what has... been termed... the Agnostic Philosophy. 1876 Principal Tuchlo Agnosticism in Weekly Section, 18 Nov.

The same agnostic principle which prevailed in our schools of philosophy had extended itself to religion and theology. Beyond what man can know by his senses or feel by his higher affections, nothing, as was alleged, could be truly known. 1880 Birdwood Nat. Arts I. The agnostic teaching of the Sankhya school is the common basis of all systems of Indian philosophy. 1882 Froude Carlyle II. 216 The agnostic doctrines, he (Carlyle) once said to me, were to appear like the finest flour, from which you might expect the most excellent bread; but when you came to feed on it, you found it was powdered glass, and you had been eating the deadliest poison.

Alternately (altérnětěl), ol-. (Altern- nate a. + -Ly.)

1. In alternate order; one after the other by turns, by alternation, time about.

1852 Hulcot, Alternately, or by turns. Subalternation.


2. By taking the alternate terms; by permutation.

1695 Allingham Geome. Epit. 18 H 4: B: C: D; then alternately composed it will be as A: C: B: D.

3. In alternate positions, on each side in turn.

Alternately-finnen: see ALTERNATE a. 9.

1731 Chambers Cyc. s.v. Alternare. There are also two external angles, alternately opposite to the internal one. 1851 S. Gray Nat. Anti. 1. 73 Alternately disposed... Leaflets alternate, instead of being opposite and in pairs.
This day is published, Sixth and Cheaper Edition.

ALTIORA PETO. By Laurence Oliphant. Illustrated. Crown 8vo. 6s.

"Brilliant and delightful. . . . The book is one which everybody will greedily read and greatly admire. It is the outcome of singular originality and independence. . . . It contains enough to equip a score of ordinary novelists for the production of a score of extraordinary novels."—Athenæum.

"May be characterised as a novel of a thousand, if only for the fact that it may be read through consecutively twice, or even three, with augmented pleasure to the reader with every fresh perusal. . . . It is not a story that "Altiora Peto" challenges warm admiration, but as a brilliant picture of life and manners."—Spectator.

"The whole book sparkles with brilliant dialogue. It is rich in characters. . . . It is intricate and ingenious in plot."—London Guardian.

"To say that the book is one of the most sustained and brilliantly written that has seen the light of many a long day is to accord to it no greater praise than it deserves. . . . Every page sparkles with crystallised observations."—Morning Advertiser.

This day is published, Second Edition.

THE MILLIONAIRE. By Louis J. Jennings, Author of 'Field Paths and Green Lanes,' 'Rambles among the Hills,' &c. 3 vols. post 8vo. 2s. 6d.

"The Millionaire is the romantic figure par excellence of the nineteenth century. Mr. Dexter File, the American millionaire of the story before us, is a decided success. We follow his doings with unabating interest."—Pall Mall Gazette.

"The Millionaire shows much ability. It is never dull. No just idea of its merits could be given without saying that it is a novel of a high order and a piece of excellent workmanship."—Athenæum.

"The character of Dexter File, the millionaire, is wholly fresh and wonderfully interesting. The book throughout is smart and racy."—World.

"A good, well-written, dramatically-conceived story. What is more, there is a great deal of admirable dialogue in it."—St. James's Gazette.

This day is published.

GRANITE CRAGS. By C. F. Gordon Cumming, Author of 'Fire Fountains,' 'A Lady's Cruise in a French Man-of-War,' 'At Home in Fiji,' &c. Illustrated with 8 Engravings. 8vo. price 1½s.

This day is published.

THE APPARITION. By the Author of 'Post Mortem.' Crown 8vo. with Frontispiece, 6s.

This day is published.

SIMIOCRAacy: a Fragment from Future History. By the Author of 'Post Mortem.' Crown 8vo. 1s. 6d.

This day is published.

NORFOLK BROADS AND RIVERS; or, the Waterways, Lagoons, and Decoys of East Anglia. By G. Christopher Davies, Author of 'The Swan and her Crew,' Illustrated with 12 full-page Plates. Post 8vo. 14s.

This day is published.

THE PHILOSOPHER'S PENDULUM, and other Stories. By Rudolph Landau. Crown 8vo. 7s. 6d.

This day is published.

ALISON. By the Author of 'Miss Molly,' 'Delicia,' 'Geraldine Hawthorne,' &c. 3 vols. crown 8vo. 25s. 6d.

This day is published.

READINGS IN RABELAIS. By Walter Besant. Crown 8vo. 7s. 6d.

"The selection is made with equal care and judgment, and the result is a book that is as pleasant to read as it is edifying in perusal. . . . Mr. Besant has taken the great work of Rabelais in its entirety."—Athenæum.

This day is published, a Third Edition of


MARGARET SIM'S COOKERY. With an Introduction by L. B. Waldorf, Author of 'Mr. Smith: a Part of his Life,' 'Pauline,' and 'Cousins.' Crown 8vo. 5s.
ESSAYS BY GEORGE ELIOT.

In One Volume, post 8vo.

** This volume, which was left ready corrected for the press, will contain all the contributions to periodical literature that the author was willing to have republished. It will also include some short essays and pages from her note-book which have not hitherto been printed.

SECOND EDITION.

AN AUTOBIOGRAPHY BY ANTHONY TROLLOPE.

Two Volumes, post 8vo. with Portrait, price 21s.

'Mr. Trollope never wrote anything more vivid or more graphic than the autobiography which has just been issued.' PALL MALL GAZETTE.

'One of the first things that strikes the reader is the entire unreserve with which the autobiography is written. He has opened his life to all the world.'—MORNING POST.

'In this extremely frank autobiography of Anthony Trollope, there is more of the sensational than in any of his novels.... The whole of the volumes is of extreme interest, and we have had no little difficulty in making selections for comments.'—TUSE.

'Since Mr. Trelcyian told the story of his uncle's life, there has been published in England no more genuine or interesting record of a literary career than that unfolded in these volumes.'—SATURDAY REVIEW.

THE LIBRARY EDITION OF MR. STORMONTH'S ENGLISH DICTIONARY:

ETYMOLOGICAL, PRONOUNCING, AND EXPLANATORY.

Embracing Scientific and other Terms, numerous Familiar Expressions, and a Copious Selection of Old English Words, to which are appended Lists of Scripture and other Proper Names, Abbreviations, and Foreign Words and Phrases.

The Pronunciation carefully revised by the Rev. P. H. PHELP, M.A. Cantab.

This New and Greatly Enlarged Edition of Stormonth's English Dictionary forms a Book of Reference for the Terms in use in every Department of English speech; and from the extent, variety and fulness of the information given, it will, to a considerable degree, supply the place of an English Cyclopaedia. This Edition is printed in a bold and clear type, and, when completed, will form a handsome Volume of about 1,200 pages.

PARTS I. to V. are now published.

WILLIAM BLACKWOOD & SONS, Edinburgh and London.
Kegan Paul, Trench, & Co.'s New List.

Mr. Henry George's New Work.

Social Problems.

By Henry George,

Author of 'Progress and Poverty.' Crown 8vo, cloth, 5s.

'A new work by the author of "Progress and Poverty" is certain to secure a very large number of readers. Mr. George is beyond all question a writer of very considerable powers. His style is lucid, vigorous, eloquent, incisive...... No one can deny his fertility of literary resource, his extensive command of honest and apt illustration, his fervent social sympathies, his powers of vigorous invective, his capacity for vigorous denunciation.'—Times.

'Mr. George's new book will be read and will make converts. He is an opponent of the existing social order who will have to be met. He is a poet and sees visions; he is an enthusiast and dreams noble dreams. He is full of the best feelings; possessed with the enthusiasm of humanity, and able to awaken it in his readers. He has a clear vision, too, for present evils.'—Daily News.

The Historical Basis of Socialism in England.

By H. M. Hyndman.

Large crown 8vo, cloth, 8s. 6d.

Profit Sharing between Capital and Labour.

By Sedley Taylor, M.A. To which is added a Memorandum on THE INDUSTRIAL PARTNERSHIP at the Whitwood Collieries, by Archibald and Henry Briggs, With Remarks by Sedley Taylor.

Demy 8vo, 6d.

The Nationalization of the Land.

By Samuel Smith, M.P.

Crown 8vo, 6d.

Mr. Henry George's Unproved Assumption; or, the Pauperism of Capital. Being a Politico-Economical Sonata, in Four Movements. By F. J. Bruce.

Large crown 8vo, cloth.

Occasional Papers and Address.

By Lord O'Hagan, K.P.

Crown 8vo, cloth, 5s.

The Gold Treasure of India: an Inquiry into its Amount, the Causes of its Accumulation, and the Proper Means of Using it as Money. By Clarmont Danile, B.C.S.

Small crown 8vo, cloth, 1s. 6d.

Across the Hills.

By Frances Mary Owen.

Crown 8vo, cloth, 2s. 6d.


Crown 8vo, cloth, 5s.

Idyls and Lyrics of the Ohio Valley. By John James Piatt, Author of 'Western Windows,' 'Poems of House and Home,' &c.

Small crown 8vo, cloth, 2s. 6d.


MUSA SILVESTRIS. By Gerard Bendall.

16mo, cloth, 1s. 6d.

London: 1 Paternoster Square.
K EGAN PAUL, TRENCH, & CO.'S NEW LIST

Continued.

Demy 8vo, cloth, 21s.


Demy 8vo, cloth, 12s.

MENTAL EVOLUTION IN ANIMALS. By G. J. Romanes, F.R.S., Author of 'Animal Intelligence' &c. With a Posthumous Essay on Instinct by Charles Darwin, F.R.S.

Mr. Romanes's book is remarkable for its clearness of method, its cogency of arguments, for abundance of interesting evidence, and for exactness and lucidity of definition. That the metaphysicians will find many points on which to combat him we need scarcely say.—Saturday Review.

Demy 8vo. with Etched Portrait and Facsimiles of Pencil Sketches, 14s.

LIFE OF SIR DAVID WEDDERBURN, Bart., M.P. Compiled from his Journals and Writings by his Sister, Mrs. E. H. Percival.

Crown 8vo, cloth, 7s. 6d.

LINCOLNSHIRE AND THE DANES. By the Rev. G. S. Streatfeild.

Demy 8vo, cloth, 10s. 6d.


'The work of a careful student and critic. Mr. Gosse has worked at first hand. He has brought to his task a judgment at once sound and delicate, and his style is clear and easy . . . . A solid contribution to English literary history.'—Times.

Crown 8vo, cloth, 7s. 6d.

EDUCATION AND EDUCATORS. By David Kay, F.R.G.S.

Second Edition, 2 vols, demy 8vo. with Frontispieces, cloth, 30s.

MY REMINISCENCES. By Lord Ronald Gower.

'A good store of material not only for a liberal, but for a fashionable, a genealogical, an artistic, and a cosmopolitan education . . . . It is not my province to criticise his book; but I may testify to the entertainment and instruction which it has afforded me.'—G. A. S., in the Illustrated London News.

Limp parchment antique, or cloth, 6s.; vellum, 7s. 6d.

THE VICAR OF WAKEFIELD. Edited by Austin Dobson. [The Parchment Library.

"An ideal edition of "The Vicar of Wakefield," not too large, and yet ample in its form, carefully supplied with the needful notes, and with no more, adorned with a little sprightly preface, just short enough to make us wish that it were longer."—Saturday Review.

5 vols. crown 8vo, cloth, 5s. each.

ENGLISH VERSE. Edited by W. J. Linton and R. H. Stoddard.

I. CHAUCER to BURNS.
II. TRANSLATIONS.
III. LYRICS OF THE NINETEENTH CENTURY.
IV. DRAMATIC SCENES and CHARACTERS.
V. BALLADS and ROMANCES.

Fourth Edition, fcp. 8vo, cloth, 6s.

SONGS UNSUNG. By Lewis Morris, Author of 'The Epic of Hades' &c.

'Some of the more important pieces make almost equal and very high demands alike on my sympathy and my admiration, and I hope you may long be enabled to cherish the enviable gift of finding utterance for truths so deep in forms of so much power and beauty.'—Letter from Mr. Gladstone.

Small crown 8vo, cloth, 2s. 6d.

THE STRANGER'S STORY; and his Poem, 'The Lament of Love: an Episode of the Malvern Hills.' Edited by Charles Grundy, Author of 'Plays from English History' &c.

Small crown 8vo, cloth, 2s. 6d.


'Verses full of melody and bright fancy. His thoughts, often very beautiful, are clothed in exquisite rhyme . . . . It is so musical as to be assured of a cordial reception from a numerous public, who will look forward with pleasure to a future verse from the same gifted writer.'—Morning Post.

London: 1 PATERNOSTER SQUARE.
MESSRS. LONGMANS' PUBLICATIONS.


Contents.

I. Government of the Indian Empire.
II. The Spencerian Philosophy.
III. The Anarchy of Paris by Maxime du Camp.
IV. Eidersheim's Life and Times of the Messiah.
V. The Egyptian Question.
VI. The Literary Life of Anthony Trollope.
VII. Ecclesiastical Jurisdiction.
VIII. An Embassy to Rome.
IX. Parliamentary Reform.

LIBRARY EDITION.

DON JOHN OF AUSTRIA: or, Passages from the History of the Sixteenth Century, 1547-1578. By the late Sir William Stirling Maxwell, Bart., K.T. With numerous Illustrations engraved on Wood, including Portraits, Drawings of Shipping, Pieces of Armour, Weapons of War, Costumes, &c, from Authentic Contemporary Sources. 2 vols. royal 8vo. price 42s.

RED DEER. By Richard Jefferies, Author of 'The Gamekeeper at Home' &c. Crown 8vo. 4s. 6d.

THE LIFE OF MARTIN LUTHER. By Julius Koestlin. Translated from the German. With 4 Facsimiles in Lithography and about 90 Illustrations engraved on Wood from Authentic Sources. Large crown 8vo. 16s.


THE STORY OF THE UNIVERSITY OF EDINBURGH DURING ITS FIRST THREE HUNDRED YEARS. By Sir Alexander Grant, Bart. LL.D. D.C.L. &c. With 21 Portraits and 7 Illustrations engraved on Wood. 2 vols. 8vo. 36s.

SCRAPS; or, Scenes, Tales, and Anecdotes, from Memories of my Earlier Days. By Lord Saltoun. 2 vols. crown 8vo. 18s.


ELECTRIC LIGHTING: its Principles and Practice. By A. A. Campbell Swinton. With Illustrations. Crown 8vo. [In the press.]


NEW NOVELS.

WHOM NATURE LEADETH. By G. Noel Hatton. 3 vols. crown 8vo. 21s.


London: LONGMANS, GREEN, & CO.
SPEECHES FROM THUCYDIDES.
TRANSLATED INTO ENGLISH FOR THE USE OF STUDENTS;
WITH AN INTRODUCTION AND NOTES.

By HENRY MUSGRAVE WILKINS, M.A.
FELLOW OF MERTON COLLEGE, OXFORD.

'A very scholarlike and readable translation of a most important author.' Athenæum.

'A translation which, whether we regard the accuracy and skill of its exegesis, or the ease and fluency of the style, is thoroughly admirable, surpassing not only previous translations of the same author, but we may almost say all classical translations in the language.' Spectator.

Undergraduates and sixth-form fellows will find a godsend in this scholarly work of Mr. Wilkins's. Older heads, that still retain their Greek, will recognize its combination of critical with translational matter, and will derive pleasure as well as instruction from its very thoughtful and well-reasoned Introduction. And last, not least, English readers, though quite unable to comprehend the niceties of Greek construction discussed in the foot-notes, will get from it a capital notion of these far-famed speeches. . . . Mr. Wilkins's exact scholarship has of course led him duly to estimate the immense force of such connecting particles as ἐπὶ, ἐν, &c.; and as far as our examination serves, we should say that no former translation has come anywhere near his in the ease, as well as accuracy, with which these are made to exert their influence in the sense. . . . For a clear insight into the whole question of the authenticity of the speeches, we know not where to direct the student to abler or more concise assistance. . . . Of his success in catching not only the mind but the antithetic manner, where he chooses, of his author, we could produce many instances; and his general execution is immeasurably more spirited than even that of Mr. Crawley.' Contemporary Review.

London, LONGMANS & CO.

NOW READY, TWENTY-FOURTH EDITION, price 50s. elegantly bound. 1884.

Dedicated by permission to H.R.H. the Prince of Wales.

THE COUNTY FAMILIES OF THE UNITED KINGDOM.
A ROYAL MANUAL OF THE TITLED AND THE UNTITLED ARISTOCRACY OF GREAT BRITAIN AND IRELAND.

By EDWARD Walford, M.A.

Late Scholar of Balliol College, Oxford, and Fellow of the Genealogical and Historical Society of Great Britain.

CONTAINING
Notices of the Descent—Birth—Marriage—Education—&c. of more than 12,000 distinguished Heads of Families in 120 Counties of the United Kingdom, together with the Offices or Appointments which they hold or have held, their Heirs Apparent or Presumptive, their Town Addresses, Country Residences, &c. &c.

CHATTO & WINDUS, Piccadilly, W.
HAY FEVER & Colds
CURLED BY DR. DUNBAR'S
ALKARAM
2/9 EACH, SMELLING BOTTLE, 2/9 EACH.

Which, if inhaled on the first symptom, will at once remove them, and even when a cold has been neglected and become severe, it will give immediate relief, and generally cure in one day. To open the Bottle, dip the stopper into very hot water, and rub off the isinglass.
Address Dr. DUNBAR, care of F. NEWBERRY & SONS,
1 King Edward Street, Newgate Street, St. Paul's, London.

MILES DOUGHTY’S
VOICE LOZENGE,
FOR SINGERS, FOR SPEAKERS, RECITERS, &c.

SING WELL! SPEAK WELL!—Doughty's Voice Lozenge has been gratefully appreciated by thousands of clerical, musical, and other celebrities for nearly 40 years. It imparts to the voice clearness of sound and brilliancy of tone.
JENNY LIND.—I have much pleasure in confirming, as far as my experience extends, the testimony already so general in favour of the Lozenge prepared by you” (Miles Doughty).
6d., 1s., 2s. 6d., &c. and 11s.—post free. 7d., 1s. 6d., &c.
Ask your Chemists for them.—F. NEWBERRY & SONS,

ACTON & BORMAN’S
’GENUINE’ EMERY CLOTH.

ACTON & BORMAN’S
CABINET GLASS PAPER.

Goddard’s
Plate Powder

BECCKETT’S
WINTERINE
Registered

The Best Substitute for Brandy.
Invaluable for Pains in the Stomach.
An Excellent Preventive to Colds.
Can be used with either hot, cold, or acrated water.
Beckett’s Winterine is a capital drink, possessing a agreeable aromatic fragrance and a delicate flavour that will gain universal favour. —Grocers’ Journal.

Plants 1 ½ (sufficient for twenty tumblers), Half-Plants 1.

IMPORTANT.—Two Pints carriage paid to any address, for 4½; 4 Pints, 10/6; Twelve Pints, 20/.

The Nineteenth Century Advertiser, February 1884.
FURNISH THROUGHOUT. (Regd.)

OETZMANN & CO.

67, 69, 71, 73, 77 & 79,

HAMPSTEAD ROAD,

NEAR TOTTENHAM COURT ROAD, LONDON.

ORDERS PER POST RECEIVE PROMPT AND FAITHFUL ATTENTION.

Illustrated and Descriptive Catalogues Post Free.

ONE Dose rapidly relieves the terrible pains arising from NEURALGIA in the Head, FACEACHE and TOOTHACHE (even when proceeding from a decayed tooth, rendering extraction unnecessary).

Tikheel

Tikheel at once removes the Toothache to which Females are at times so peculiarly subject.

Do not be persuaded to "Try something ELSE." Price 2s. 6d. of all Chemists. Wholesale and Retail, BUTLER & CRIFFA, 4 Cheapside; Parcels Post Free for 2s. 6d. in Stamps or P.O.O. from CLARKE, BLEDSOITE, BELL, & CO., YORK.

JOSEPH GILLOTT'S STEEL PENS.

GOLD MEDAL.

PARIS, 1878.

REDUCTION IN PRICE OF CHAMPAGNE.

FOR CASH.

Cash Price per
doz. Bottles.

Mumm's G H Extra Dry...
Mumm's Jules Extra Dry...
Roederer's Carte Blanche...
Piper's Carte Blanche...
Heidsieck's Dry Monopol...
Tevye's Pommeroy and Fils...
Veue Clicquois, Rich...
Veue Clicquois, Dry...
Tropeg's Carte d'Or...
Bollinger's Dry Extra Quality...
Ayala's Extra Quality...

FOR CASH.

Cash Price per
doz. Bottles.

Mumm's G H Extra Dry...
Mumm's Jules Extra Dry...
Roederer's Carte Blanche...
Piper's Carte Blanche...
Heidsieck's Dry Monopol...
Tevye's Pommeroy and Fils...
Veue Clicquois, Rich...
Veue Clicquois, Dry...
Tropeg's Carte d'Or...
Bollinger's Dry Extra Quality...
Ayala's Extra Quality...

5s. extra per case of 21 Half-Bottles, except Clicquois, which is 6s. extra per 24 Half-Bottles.

DELIVERED TO RAILWAY STATION AT LIVERPOOL, MANCHESTER, AND BIRMINGHAM, ON RECEIPT OF REMITTANCE.

JAMES SMITH & CO., WINE MERCHANTS,

LIVERPOOL—9 LORD STREET.

Manchester—26 MARKET STREET; Birmingham—63 HIGH STREET.
The Nineteenth Century Advertiser, February 1884.

TRELOAR'S MATS,

LUDGATE HILL.

A Catalogue of Good FLOOR COVERINGS

POST FREE.

Ask for

Cadbury's

Refreshing

Genuine

Economical

Cocoa

Makers to the Queen

CAUTION. Imitations of Cadbury's Cocoa Essence are often pushed by Shopkeepers for the sake of extra profit. Be sure that you obtain the Original Article, which may be relied upon for excellence of quality, purity, and strength.

It can be borne and digested by the most delicate; is the only oil which does not repeat; and for these reasons the most efficacious kind in use.

In capsules Bottles only, at

1 4 2 6 4 9 9 1

SOLD EVERYWHERE.

TONGA

THE SPECIFIC FOR

NEURALGIA.

ALLEN & HANBURY'S,

Pears' Soap

Recommended (in the Journal of Cutaneous Medicine) by

Professor SIR ERASMUS WILSON, LL.D., F.R.S.,

President of the Royal College of Surgeons, Eng.
ON THE INSPIRATION OF SCRIPTURE.

1. It has lately been asked what answer do we Catholics give to the allegation urged against us by men of the day, to the effect that we demand of our converts an assent to views and interpretations of Scripture which modern science and historical research have utterly discredited.

As this alleged obligation is confidently maintained against us, and with an array of instances in support of it, I think it should be either denied or defended; and the best mode perhaps of doing whether the one or the other, will be, instead of merely dealing with the particular instances adduced in proof, to state what we really do hold as regards Holy Scripture, and what a Catholic is bound to believe. This I propose now to do, and in doing it, I beg it to be understood that my statements are simply my own, and involve no responsibility of any one besides myself.

2. A recent work of M. Renan's is one of those publications which have suggested or occasioned this adverse criticism upon our intellectual position. That author's abandonment of Catholicism seems, according to a late article in a journal of high reputation, in no small measure to have come about by his study of the Biblical text, especially that of the Old Testament. 'He explains,' says the article, 'that the Roman Catholic Church admits no compromise on questions of Biblical criticism and history' . . . though 'the Book of Judith is an historical impossibility. Hence the undoubted fact that the Roman Catholic Church . . . insists on its members believing . . . a great deal more in pure criticism and pure history than the strictest Protestants exact from their pupils or flocks.' Should, then, a doubt-
ing Anglican contemplate becoming Catholic by way of attaining intellectual peace, 'if his doubts turn on history and criticism, he will find the little finger of the Catholic Church thicker than the loins of Protestantism.'

3. The serious question, then, which this article calls on us to consider, is whether it is 'an undoubted fact,' as therein stated, that the Catholic Church does 'insist' on her children's acceptance of certain Scripture informations on matters of fact in defiance of criticism and history. And my first duty on setting out is to determine the meaning of that vague word 'insists,' which I shall use in the only sense in which a Catholic can consent to use it.

I allow, then, that the Church, certainly, does 'insist,' when she speaks dogmatically, nay or rather she more than insists, she obliges; she obliges us to an internal assent to that which she proposes to us. So far I admit, or rather maintain. And I admit that she obliges us in a most forcible and effective manner, that is, by the penalty of forfeiting communion with her, if we refuse our internal assent to her word. We cannot be real Catholics, if we do not from our heart accept the matters which she puts forward as divine and true. This is plain.

4. Next, to what does the Church oblige us? and what is her warrant for doing so? I answer, The matters which she can oblige us to accept with an internal assent are the matters contained in that Revelation of Truth, written or unwritten, which came to the world from our Lord and His Apostles; and this claim on our faith in her decisions as to the matter of that Revelation rests on her being the divinely appointed representative of the Apostles and the expounder of their words; so that whatever she categorically delivers about their formal acts or their writings or their teaching, is an Apostolic deliverance. I repeat, the only sense in which the Church 'insists' on any statement, Biblical or other, the only reason of her so insisting, is that that statement is part of the original Revelation, and therefore must be unconditionally accepted,—else, that Revelation is not, as a revelation, accepted at all.

The question then which I have to answer is, What, in matter of fact, has the Church (or the Pope), as the representative of God, said about Scripture, which, as being Apostolic, unerring Truth, is obligatory on our faith, that is, is de fide?

5. Many truths may be predicated about Scripture and its contents which are not obligatory on our faith, viz., such as are private conclusions from premisses, or are the dicta of theologians. Such as about the author of the Book of Job, or the dates of St. Paul's Epistles. These are not obligatory upon us, because they are not the subjects of ex cathedrâ utterances of the Church. Opinions of this sort may be true or not true, and lie open for acceptance or rejection, since no divine utterance has ever been granted to us about them, or
is likely to be granted. We are not bound to believe what St. Jerome said or inferred about Scripture; nor what St. Augustine, or St. Thomas, or Cardinal Cajetan or Fr. Perrone has said; but what the Church has enunciated, what the Councils, what the Pope, has determined. We are not bound to accept with an absolute faith what is not a dogma, or the equivalent of dogma (vide infra, section 17), what is not de fide; such judgments, however high their authority, we may without loss of communion doubt, we may refuse to accept. This is what we must especially bear in mind, when we handle such objections as M. Renan's. We must not confuse what is indisputable as well as true, with what may indeed be true, yet is disputable.

6. I must make one concession to him. In certain cases there may be a duty of silence, when there is no obligation of belief. Here no question of faith comes in. We will suppose that a novel opinion about Scripture or its contents is well grounded, and a received opinion open to doubt, in a case in which the Church has hitherto decided nothing, so that a new question needs a new answer: here, to profess the new opinion may be abstractedly permissible, but is not always permissible in practice. The novelty may be so startling as to require a full certainty that it is true; it may be so strange as to raise the question whether it will not unsettle ill-educated minds, that is, though the statement is not an offence against faith, still it may be an offence against charity. It need not be heretical, yet at a particular time or place it may be so contrary to the prevalent opinion in the Catholic body, as in Galileo's case, that zeal for the supremacy of the Divine Word, deference to existing authorities, charity towards the weak and ignorant, and distrust of self, should keep a man from being impetuous or careless in circulating what nevertheless he holds to be true, and what, if indeed asked about, he cannot deny. The household of God has claims upon our tenderness in such matters, which criticism and history have not.

7. For myself, I have no call or wish at all to write in behalf of such persons as think it a love of truth to have no 'love of the brethren.' I am indeed desirous of investigating for its own sake the limit of free thought consistently with the claims upon us of Holy Scripture; still my especial interest in the inquiry is from my desire to assist those religious sons of the Church who are engaged in biblical criticism and its attendant studies, and have a conscientious fear of transgressing the rule of faith; men who wish to ascertain how far their religion puts them under obligations and restrictions in their reasonings and inferences on such subjects, what conclusions may and what may not be held without interfering with that internal assent which they are bound to give, if they would be Catholics, to the written Word of God. I do but contemplate the inward peace of religious Catholics in their own persons. Of course those who begin without belief in the religious aspect of the universe, are not
likely to be brought to such belief by studying it merely on its secular side.

8. Now then, the main question before us being what it is that a Catholic is free to hold about Scripture in general, or about its separate portions or its statements, without compromising his firm inward assent to the dogmas of the Church, that is, to the de fide enunciations of Pope and Councils, we have first of all to inquire how many and what those dogmas are.

I answer that there are two such dogmas; one relates to the authority of Scripture, the other to its interpretation. As to the authority of Scripture, we hold it to be, in all matters of faith and morals, divinely inspired throughout; as to its interpretation, we hold that the Church is, in faith and morals, the one infallible expounder of that inspired text.

I begin with the question of its inspiration.

9. The books which constitute the canon of Scripture, or the Canonical books, are enumerated by the Tridentine Council, as we find them in the first page of our Catholic Bibles, and are in that Ecumenical Council's decree spoken of by implication as the work of inspired men. The Vatican Council speaks more distinctly, saying that the entire books with all their parts, are divinely inspired, and adding an anathema upon impugners of this its definition.

There is another dogmatic phrase used by the Councils of Florence and Trent to denote the inspiration of Scripture, viz., 'Deus unus et idem utriusque Testamenti Auctor.' Since this left room for holding that by the word 'Testamentum' was meant 'Dispensation,' as it seems to have meant in former Councils from the date of Irenæus, and as St. Paul uses the word, in his Epistle to the Hebrews, the Vatican Council has expressly defined that the concrete libri themselves of the Old and New Testament 'Deum habent Auctorem.'

10. There is a further question, which is still left in some ambiguity, the meaning of the word 'Auctor.' 'Auctor' is not identical with the English word 'Author.' Allowing that there are instances to be found in classical Latin in which 'auctores' may be translated 'authors,' instances in which it even seems to mean 'writers,' it more naturally means 'authorities.' Its proper sense is 'originator,' 'inventor,' 'founder,' 'primary cause';' (thus St. Paul speaks of our Lord as 'Auctor salutis,' 'Auctor fidei';) on the other hand, that it was the inspired penmen who were the 'writers' of their works seems asserted by St. John and St. Luke and, I may say, in every paragraph of St. Paul's Epistles. In St. John we read 'This is the disciple who testifies of these things, and has written these things,' and St. Luke says 'I have thought it good to write to thee' &c. However, if any one prefers to construe 'auctor' as 'author,' or writer, let it be so—only, then there will be two writers of the Scriptures, the divine and the human.
11. And now comes the important question, in what respect are the Canonical books inspired? It cannot be in every respect, unless we are bound de fide to believe that 'terra in aeternum stat,' and that heaven is above us, and that there are no antipodes. And it seems unworthy of Divine Greatness, that the Almighty should in His revelation of Himself to us undertake mere secular duties, and assume the office of a narrator, as such, or an historian, or geographer, except so far as the secular matters bear directly upon the revealed truth. The Councils of Trent and the Vatican fulfil this anticipation; they tell us distinctly the object and the promise of Scripture inspiration. They specify 'faith and moral conduct' as the drift of that teaching which has the guarantee of inspiration. What we need and what is given us is not how to educate ourselves for this life; we have abundant natural gifts for human society, and for the advantages which it secures; but our great want is how to demean ourselves in thought and deed towards our Maker, and how to gain reliable information on this urgent necessity.

12. Accordingly four times does the Tridentine Council insist upon 'faith and morality' as the scope of inspired teaching. It declares that the 'Gospel' is 'the Fount of all saving truth and all instruction in morals,' that in the written books and in the unwritten traditions, the Holy Spirit dictating, this truth and instruction are contained. Then it speaks of the books and traditions, 'relating whether to faith or to morals,' and afterwards of 'the confirmation of dogmas and establishment of morals.' Lastly, it warns the Christian people, 'in matters of faith and morals,' against distorting Scripture into a sense of their own.

In like manner the Vatican Council pronounces that Supernatural Revelation consists 'in rebus divinis, and is contained 'in libris scriptis et sine scripto traditionibus;' and it also speaks of 'petulantia ingenia' advancing wrong interpretations of Scripture 'in rebus fidei et morum ad edificationem doctrinar Christianae pertinentium.'

13. But while the Councils, as has been shown, lay down so emphatically the inspiration of Scripture in respect to 'faith and morals,' it is remarkable that they do not say a word directly as to its inspiration in matters of fact. Yet are we therefore to conclude that the record of facts in Scripture does not come under the guarantee of its inspiration? we are not so to conclude, and for this plain reason:—the sacred narrative, carried on through so many ages, what is it but the very matter for our faith and rule of our obedience? what but that narrative itself is the supernatural teaching, in order to which inspiration is given? What is the whole history, traced out in Scripture from Genesis to Esdras and thence on to the end of the Acts of the Apostles, but a manifestation of Divine Providence, on the one hand interpretative, on a large scale and with
analological applications, of universal history, and on the other preparatory, typical and predictive, of the Evangelical Dispensation? Its pages breathe of providence and grace, of our Lord, and of His work and teaching, from beginning to end. It views facts in those relations in which neither ancients, such as the Greek and Latin classical historians, nor moderns, such as Niebuhr, Grote, Ewald, or Michelet, can view them. In this point of view it has God for its author, even though the finger of God traced no words but the Decalogue. Such is the claim of Bible history in its substantial fulness to be accepted de fide as true. In this point of view, Scripture is inspired, not only in faith and morals, but in all its parts which bear on faith, including matters of fact.

14. But what has been said leads to another serious question. It is easy to imagine a Code of Laws inspired, or a formal prophecy, or a Hymn, or a Creed, or a collection of Proverbs. Such works may be short, precise, and homogeneous; but inspiration on the one hand, and on the other a document, multiform and copious in its contents, as the Bible is, are at first sight incompatible ideas, and destructive of each other. How are we practically to combine the indubitable fact of a divine superintendence with the indubitable fact of a collection of such various writings?

15. Surely then if the revelations and lessons in Scripture are addressed to us personally and practically, the presence among us of a formal judge and standing expositor of its words, is imperative. It is antecedently unreasonable to suppose that a book so complex, so unsystematic, in parts so obscure, the outcome of so many minds, times, and places, should be given us from above without the safeguard of some authority; as if it could possibly, from the nature of the case, interpret itself. Its inspiration does but guarantee its truth, not its interpretation. How are private readers satisfactorily to distinguish what is didactic and what is historical, what is fact and what is vision, what is allegorical and what is literal, what is idiomatic and what is grammatical, what is enunciated formally and what occurs obiter, what is only of temporary and what is of lasting obligation? Such is our natural anticipation, and it is only too exactly justified in the events of the last three centuries, in the many countries where private judgment on the text of Scripture has prevailed. The gift of inspiration requires as its complement the gift of infallibility.

Where then is this gift lodged, which is so necessary for the due use of the written word of God? Thus we are introduced to the second dogma in respect to Holy Scripture taught by the Catholic religion. The first is that Scripture is inspired, the second that the Church is the infallible interpreter of that inspiration.

16. That the Church, and therefore the Pope, is that Interpreter is defined in the following words:—
First by the Council of Trent: 'Nemo suâ prudential innixus, in rebus fidei et morum ad edificationem doctrine Christianae pertinens, Sacram Scripturam ad suos sensus contorquens, contra eum sensum quem tenuit et tenet Sancta Mater Ecclesia, cujus est judicarum de vero sensu et interpretatione Scripturarum Sanctarum, aut etiam contra unanimum consensum Patrum, ipsam Scripturam Sacram interpretari audent.'

Secondly by the Council of the Vatican: 'Nos, idem Decretum [Tridentinum] renovantes, hanc illius mentem esse declaramus, ut in rebus fidei et morum ad edificationem doctrine Christianae pertinens, is pro vero sensu Sacrae Scripture habendus sit, quem tenuit et tenet Sancta Mater Ecclesia, cujus est judicare de vero sensu et interpretatione Scripturarum Sanctarum,' &c.

17. Since then there is in the Church an authority, divinely appointed and plenary, for judgment and for appeal in questions of Scripture interpretation, in matters of faith and morals, therefore, by the very force of the words, there is one such authority, and only one.

Again, it follows hence, that, when the legitimate authority has spoken, to resist its interpretation is a sin against the faith and an act of heresy.

And from this again it follows, that, till the Infallible Authority formally interprets a passage of Scripture, there is nothing heretical in advocating a contrary interpretation, provided of course there is nothing in the act intrinsically inconsistent with the faith, or the pietas fidei, nothing of contempt or rebellion, nothing temerarious, nothing offensive or scandalous, in the manner of acting or the circumstances of the case. I repeat, I am all along inquiring what Scripture, by reason of its literal text, obliges us to believe. An original view about Scripture or its parts may be as little contrary to the mind of the Church about it, as it need be an offence against its inspiration.

The proviso, however, or condition, which I have just made, must carefully be kept in mind. Doubtless, a certain interpretation of a doctrinal text may be so strongly supported by the Fathers, so continuous and universal, and so cognate and connatural with the Church's teaching, that it is virtually or practically as dogmatic as if it were a formal judgment delivered on appeal by the Holy See, and cannot be disputed except as the Church or Holy See opens its wording or its conditions. Hence the Vatican Council says, 'Fide divinâ et Catholicae ea omnia credenda sunt, que in verbo Dei scripto vel tradito continentur, vel ab Ecclesiâ sive solenni judicio, sive ordinario et universali magisterio, tanquam divinitus revelata, credenda proponuntur.' And I repeat, that, though the Fathers were not inspired, yet their united testimony is of supreme authority; at the same time, since no Canon or List has been determined of the
Fathers, the practical rule of duty is obedience to the voice of the Church.

18. Such then is the answer which I make to the main question which has led to my writing. I asked what obligation of duty lay upon the Catholic scholar or man of science as regards his critical treatment of the text and the matter of Holy Scripture. And now I say that it is his duty, first, never to forget that what he is handling is the Word of God, which, by reason of the difficulty of always drawing the line between what is human and what is divine, cannot be put on the level of other books, as it is now the fashion to do, but has the nature of a Sacrament, which is outward and inward, and a channel of supernatural grace; and secondly, that, in what he writes upon it or its separate books, he is bound to submit himself internally, and to profess to submit himself, in all that relates to faith and morals, to the definite teaching of Holy Church.

This being laid down, let me go on to consider some of the critical distinctions and conclusions which are consistent with a faithful observance of these obligations.

19. Are the books or are the writers inspired? I answer, Both. The Council of Trent says the writers (‘ab ipsis Apostolis, Spiritu Sancto dictante); the Vatican says the books (‘si quis libros integros &c. divinitus inspiratos esse negaverit, anathema sit’). Of course the Vatican decision is de fide, but it cannot annul the Tridentine. Both decrees are dogmatic truths. The Tridentine teaches us that the Divine Inspirer, inasmuch as He acted on the writer, acted, not immediately on the books themselves, but through the men who wrote them. The books are inspired, because the writers were inspired to write them. They are not inspired books, unless they came from inspired men.

There is one instance in Scripture of Divine Inspiration without a human medium; the Decalogue was written by the very finger of God. He wrote the law upon the stone tables Himself. It has been thought that the Urim and Thummim was another instance of the immediate inspiration of a material substance; but anyhow such instances are exceptional; certainly, as regards Scripture, which alone concerns us here, there always have been two minds in the process of inspiration, a Divine Auctor, and a human Scriptor; and various important consequences follow from this appointment.

20. If there be at once a divine and a human mind co-operating in the formation of the sacred text, it is not surprising if there often be a double sense in that text, and, with obvious exceptions, never certain that there is not.

Thus Sara had her human and literal meaning in her words, ‘Cast out the bondwoman and her son,’ &c.; but we know from St. Paul that those words were inspired by the Holy Ghost to convey a spiritual meaning. Abraham, too, on the Mount, when his son asked
him whence was to come the victim for the sacrifice which his father was about to offer, answered 'God will provide;' and he showed his own sense of his words afterwards, when he took the ram which was caught in the briers, and offered it as a holocaust. Yet those words were a solemn prophecy.

And is it extravagant to say, that, even in the case of men who have no pretension to be prophets or servants of God, He may by their means give us great maxims and lessons, which the speakers little thought they were delivering? as in the case of the Architriclinus in the marriage feast, who spoke of the bridegroom as having 'kept the good wine until now;' words which it was needless for St. John to record, unless they had a mystical meaning.

Such instances raise the question whether the Scripture saints and prophets always understood the higher and divine sense of their words. As to Abraham, this will be answered in the affirmative; but I do not see reason for thinking that Sara was equally favoured. Nor is her case solitary; Caiphas, as high priest, spoke a divine truth by virtue of his office, little thinking of it, when he said that 'one man must die for the people;' and St. Peter at Joppa at first did not see beyond a literal sense in his vision, though he knew that there was a higher sense, which in God's good time would be revealed to him.

And hence there is no difficulty in supposing that the Prophet Osee, though inspired, only knew his own literal sense of the words which he transmitted to posterity, 'I have called my Son out of Egypt,' the further prophetic meaning of them being declared by St. Matthew in his gospel. And such a divine sense would be both concurrent with and confirmed by that antecedent belief which prevailed among the Jews in St. Matthew's time, that their sacred books were in great measure typical, with an evangelical bearing, though as yet they might not know what those books contained in prospect.

21. Nor is it de fide (for that alone with a view to Catholic Biblicists I am considering) that inspired men, at the time when they speak from inspiration, should always know that the Divine Spirit is visiting them.

The Psalms are inspired; but, when David, in the outpouring of his deep contrition, disburdened himself before his God in the words of the Miserere, could he, possibly, while uttering them, have been directly conscious that every word he uttered was not simply his, but another's? Did he not think that he was personally asking forgiveness and spiritual help?

Doubt again seems incompatible with a consciousness of being inspired. But Father Patrizi, while reconciling two Evangelists in a passage of their narratives, says, if I understand him rightly (ii. p. 405), that though we admit that there were some things about which inspired writers doubted, this does not imply that inspiration allowed
them to state what is doubtful as certain, but only it did not hinder them from stating things with a doubt on their minds about them; but how can the All-knowing Spirit doubt? or how can an inspired man doubt, if he is conscious of his inspiration?

And again, how can a man whose hand is guided by the Holy Spirit, and who knows it, make apologies for his style of writing, as if deficient in literary exactness and finish? If then the writer of Ecclesiasticus, at the very time that he wrote his Prologue, was not only inspired but conscious of his inspiration, how could he have entreated his readers to 'come with benevolence,' and to make excuse for his 'coming short in the composition of words'? Surely, if at the very time he wrote he had known it, he would, like other inspired men, have said, 'Thus saith the Lord,' or what was equivalent to it.

The same remark applies to the writer of the second book of Machabees, who ends his narrative by saying, 'If I have done well, it is what I desired, but if not so perfectly, it must be pardoned me.' What a contrast to St. Paul, who, speaking of his inspiration (1 Cor. vii. 40) and of his 'weakness and fear' (ibid. ii. 4), does so in order to boast that his 'speech was, not in the persuasive words of human wisdom, but in the showing of the Spirit and of power.' The historian of the Machabees would have surely adopted a like tone of 'glorying;' had he had at the time a like consciousness of his divine gift.

22. Again, it follows from there being two agencies, divine grace and human intelligence, co-operating in the production of the Scriptures, that, whereas, if they were written, as in the Decalogue, by the immediate finger of God, every word of them must be His and His only, on the contrary, if they are man's writing, informed and quickened by the presence of the Holy Ghost, they admit, should it so happen, of being composed of outlying materials, which have passed through the minds and from the fingers of inspired penmen, and are known to be inspired on the ground that those who were the immediate editors, as they may be called, were inspired.

For an example of this we are supplied by the writer of the second book of Machabees, to which reference has already been made. 'All such things,' says the writer, 'as have been comprised in five books by Jason of Cyrene, we have attempted to abridge in one book.' Here we have the human aspect of an inspired work. Jason need not, the writer of the second book of Machabees must, have been inspired.

Again; St. Luke's gospel is inspired, as having gone through and come forth from an inspired mind; but the extrinsic sources of his narrative were not necessarily all inspired any more than was Jason of Cyrene; yet such sources there were, for, in contrast with the testimony of the actual eye-witnesses of the events which he records, he says of himself that he wrote after a careful inquiry, 'according as
they delivered them to us, who from the beginning were eye-witnesses and ministers of the word;' as to himself, he had but 'diligently attained to all things from the beginning.' Here it was not the original statements, but his edition of them, which needed to be inspired.

23. Hence we have no reason to be surprised, nor is it against the faith to hold, that a canonical book may be composed, not only from, but even of, pre-existing documents, it being always borne in mind, as a necessary condition, that an inspired mind has exercised a supreme and an ultimate judgment on the work, determining what was to be selected and embodied in it, in order to its truth in all " matters of faith and morals pertaining to the edification of Christian doctrine," and its unadulterated truth.

Thus Moses may have incorporated in his manuscript as much from foreign documents as is commonly maintained by the critical school; yet the existing Pentateuch, with the miracles which it contains, may still (from that personal inspiration which belongs to a prophet) have flowed from his mind and hand on to his composition. He new-made and authenticated what till then was no matter of faith.

This being considered, it follows that a book may be, and may be accepted as, inspired, though not a word of it is an original document. Such is almost the case with the first book of Esdras. A learned writer in a publication of the day

1 says: 'It consists of the contemporary historical journals, kept from time to time by the prophets or other authorised persons, who were eye-witnesses for the most part of what they record, and whose several narratives were afterwards strung together, and either abridged or added to, as the case required, by a later hand, of course an inspired hand.'

And in like manner the Chaldee and Greek portions of the book of Daniel, even though not written by Daniel, may be, and we believe are, written by penmen inspired in matters of faith and morals; and so much, and nothing beyond, does the Church 'oblige' us to believe.

24. I have said that the Chaldee, as well as the Hebrew portion of Daniel, requires, in order to its inspiration, not that it should be Daniel's writing, but that its writer, whoever he was, should be inspired. This leads me to the question whether inspiration requires and implies that the book inspired should in its form and matter be homogeneous, and all its parts belong to each other. Certainly not. The Book of Psalms is the obvious instance destructive of any such idea. What it really requires is an inspired Editor; that is, an

1 Smith's Dictionary.
2 This representation must not be confused with either of the two views of canonicity which are pronounced insufficient by the Vatican Council—viz. 1, that in order to be sacred and canonical, it is enough for a book to be a work of mere
inspired mind, authoritative in faith and morals, from whose fingers the sacred text passed. I believe it is allowed generally, that at the date of the captivity and under the persecution of Antiochus, the books of Scripture and the sacred text suffered much loss and injury. Originally the Psalms seem to have consisted of five books; of which, only a portion, perhaps the first and second, were David's. That arrangement is now broken up, and the Council of Trent was so impressed with the difficulty of their authorship, that, in its formal decree respecting the Canon, instead of calling the collection 'David's Psalms,' as was usual, they called it the 'Psalterium Davidicum,' thereby meaning to imply, that, although canonical and inspired and in spiritual fellowship and relationship with those of 'the choice Psalmist of Israel,' the whole collection is not therefore necessarily the writing of David.

And as the name of David, though not really applicable to every Psalm, nevertheless protected and sanctioned them all, so the appendices which conclude the book of Daniel, Susanna and Bel, though not belonging to the main history, come under the shadow of that Divine Presence, which primarily rests on what goes before.

And so again, whether or not the last verses of St. Mark's, and two portions of St. John's Gospel, belong to those Evangelists respectively, matters not as regards their inspiration; for the Church has recognised them as portions of that sacred narrative which precedes or embraces them.

Nor does it matter, whether one or two Isaiah's wrote the book which bears that Prophet's name; the Church, without settling this point, pronounces it inspired in respect of faith and morals, both Isaiah's being inspired; and, if this be assured to us, all other questions are irrelevant and unnecessary.

Nor do the Councils forbid our holding that there are interpolations or additions in the sacred text, say, the last chapter of the Pentateuch, provided they are held to come from an inspired penman, such as Esdras, and are thereby authoritative in faith and morals.

25. From what has been last said it follows, that the titles of the Canonical books, and their ascription to definite authors, either do not come under their inspiration, or need not be accepted literally.

For instance: the Epistle to the Hebrews is said in our Bibles to be the writing of St. Paul, and so virtually it is, and to deny that it is so in any sense might be temerarious; but its authorship is not a matter of faith as its inspiration is, but an acceptance of received opinion, and because to no other writer can it be so well assigned.

Again, the 89th Psalm has for its title 'A Prayer of Moses;' yet human industry, provided it be afterwards approved by the authority of the Church; and 2, that it is enough if it contains revealed teaching without error. Neither of these views supposes the presence of inspiration, whether in the writer or the writing; what is contemplated above is an inspired writer in the exercise of his inspiration, and a work inspired from first to last under the action of that inspiration.
that has not hindered a succession of Catholic writers, from Athanasius to Bellarmine, from denying it to be his.

Again, the Book of Wisdom professes (e.g., chs. vii. and ix.) to be written by Solomon; yet our Bibles say, 'It is written in the person of Solomon,' and 'it is uncertain who was the writer;' and St. Augustine, whose authority had so much influence in the settlement of the Canon, speaking of Wisdom and Ecclesiasticus, says: 'The two books by reason of a certain similarity of style are usually called Solomon's, though the more learned have no doubt they do not belong to him.' (Martin. Pref. to Wisdom and Eccl.; Aug. Opp. t. iii. p. 733.)

If these instances hold, they are precedents for saying that it is no sin against the faith (for of such I have all along been speaking), nor indeed, if done conscientiously and on reasonable grounds, any sin, to hold that Ecclesiastes is not the writing of Solomon, in spite of its opening with a profession of being his; and that first, because that profession is a heading, not a portion of the book; secondly, because, even though it be part of the book, a like profession is made in the Book of Wisdom, without its being a proof that 'Wisdom' is Solomon's; and thirdly, because such a profession may well be considered a prosopopoeia not so difficult to understand as that of the Angel Raphael, when he called himself 'the Son of the great Ananias.'

On this subject Melchior Canus says: 'It does not much matter to the Catholic Faith, that a book was written by this or that writer, so long as the Spirit of God is believed to be the author of it; which Gregory delivers and explains, in his Preface to Job, "It matters not with what pen the King has written his letter, if it be true that He has written it."' (Loc. Th. p. 44.)

I say then of the Book of Ecclesiastes, its authorship is one of those questions which still lie in the hands of the Church. If the Church formally declared that it was written by Solomon, I consider that, in accordance with its heading (and, as implied in what follows, as in 'Wisdom,') we should be bound, recollecting that she has the gift of judging 'de vero sensu et interpretatione Scripturarum Sanctorum,' to accept such a decree as a matter of faith; and in like manner, in spite of its heading, we should be bound to accept a contrary decree, if made to the effect that the book was not Solomon's. At present as the Church (or Pope) has not pronounced on one side or on the other, I conceive that, till a decision comes from Rome, either opinion is open to the Catholic without any impeachment of his faith.

26. And here I am led on to inquire whether obiter dicta are conceivable in an inspired document. We know that they are held to exist and even required in treating of the dogmatic utterances of Popes, but are they compatible with inspiration? The common
opinion is that they are not. Professor Lamy thus writes about them, in the form of an objection: 'Many minute matters occur in the sacred writers which have regard only to human feebleness and the natural necessities of life, and by no means require inspiration, since they can otherwise be perfectly well known, and seem scarcely worthy of the Holy Spirit, as for instance what is said of the dog of Tobias, St. Paul's penula, and the salutations at the end of the Epistles.' Neither he nor Fr. Patrizi allow of these exceptions; but Fr. Patrizi, as Lamy quotes him, 'damnare non audet eos qui haec tenerent,' viz., exceptions, and he himself, by keeping silence, seems unable to condemn them either.

By obiter dicta in Scripture I also mean such statements as we find in the Book of Judith, that Nabuchodonosor was king of Nineve. Now it is in favour of there being such unauthoritative obiter dicta, that unlike those which occur in dogmatic utterances of Popes and Councils, they are, in Scripture, not doctrinal, but mere unimportant statements of fact; whereas those of Popes and Councils may relate to faith and morals, and are said to be uttered obiter, because they are not contained within the scope of the formal definition, and imply no intention of binding the consciences of the faithful. There does not then seem any serious difficulty in admitting their existence in Scripture. Let it be observed, its miracles are doctrinal facts, and in no sense of the phrase can be considered obiter dicta.

27. It may be questioned, too, whether the absence of chronological sequence might not be represented as an infringement of plenary inspiration, more serious than the obiter dicta of which I have been speaking. Yet St. Matthew is admitted by approved commentators to be unsolicitous as to order of time. So says Fr. Patrizi (De Evang. lib. ii. p. 1), viz., 'Matthæum de observando temporis ordine minime sollicitum esse.' He gives instances, and then repeats 'Matthew did not observe order of time.' If such absence of order is compatible with inspiration in St. Matthew, as it is, it might be consistent with inspiration in parts of the Old Testament, supposing they are open to re-arrangement in chronology. Does not this teach us to fall back upon the decision of the Councils that 'faith and morals pertaining to the edification of Christian doctrine' are the scope, the true scope, of inspiration? And is not the Holy See the judge given us for determining what is for edification and what is not?

There is another practical exception to the ideal continuity of Scripture inspiration in mere matters of fact, and that is the multitude of various manuscript readings which surround the sacred text. Unless we have the text as inspired men wrote it, we have not the divine gift in its fulness, and as far as we have no certainty which out of many is the true reading, so far, wherever the sense is affected, we are in the same difficulty as may be the consequence of an obiter
dictum. Yet, in spite of this danger, even cautious theologians do not hesitate to apply the gratuitous hypothesis of errors in transcription as a means of accounting for such statements of fact as they feel to need an explanation. Thus Fr. Patrizi, not favouring the order of our Lord's three temptations in the desert, as given by St. Luke, attributes it to the mistake of the transcribers. 'I have no doubt at all,' he says, 'that it is to be attributed, not to Luke himself, but to his transcribers' (ibid. p. 5); and again, he says that it is owing 'vitio librarium' (p. 394). If I recollect rightly, Melchior Canus has recourse to the 'fault of transcribers' also. Indeed it is commonly urged in controversy (vide Lamy, i. p. 31).

28. I do not here go on to treat of the special instance urged against us by M. Renan, drawn from the Book of Judith, because I have wished to lay down principles, and next because his charge can neither be proved nor refuted just now, while the strange discoveries are in progress about Assyrian and Persian history by means of the cuneiform inscriptions. When the need comes, the Church, or the Holy See, will interpret the sacred book for us.

I conclude by reminding the reader that in these remarks I have been concerned only with the question—what have Catholics to hold and profess de fide about Scripture? that is, what it is the Church 'insists' on their holding; and next, by unreservedly submitting what I have written to the judgment of the Holy See, being more desirous that the question should be satisfactorily answered, than that my own answer should prove to be in every respect the right one.

JOHN H. CARDINAL NEWMAN.
**THE HOUSE OF LORDS.**

**I.**

**ITS REFORM.**

My object in this paper is to suggest certain alterations and modifications in the constitution of the Upper House, with a view to maintaining and enhancing the social influence and value of the Peerage as a class, and to enabling the peers in their legislative capacity to perform the functions of a Second Chamber more beneficially to the State, with more dignity and self-respect, and in a manner more consonant at once with the general spirit of the age and with the original objects of the institution.

Whether the establishment of an aristocratic class is advantageous or detrimental to a nation is a matter about which various opinions have been held, from the days of Aristotle to our time. I may be permitted to say that formerly I inclined to the belief that it is not beneficial; but larger experience, gained especially in frequent visits to the United States, has led me to modify my views. An aristocratic class of some kind, defined or undefined by law, exists as a matter of fact in all organised societies; and experience shows that aristocracy of rank, limited and prescribed by law and usage, is preferable to a plutocracy influencing social and political affairs by extra-legal methods. It cannot but be advantageous to a nation that great devotion to the State, distinguished services by sea and land, eminence arrived at in the various arts, sciences, and pursuits in which men engage, should be rewarded. It is well that men should have a definite goal for their ambition, and that the self-sacrifice and devotion of citizens to their country should be publicly and formally recognised. 'Westminster Abbey or a peerage,' the words of England's greatest admiral, sum up the value of the peerage from that point of view. Merging as it does gradually into the commonalty, absorbing into itself members of all other classes who have risen to fame, possessing few special and personal privileges, the peerage as a class excites less jealousy and exercises more influence in the United Kingdom than does any similar class in any other nation.
The influence is also of a more salutary character. The question of the relative merits and demerits of an aristocratic class is, however, much too large to be even touched upon here. For the purposes of this article I shall assume the existence of an aristocratic class to be beneficial.

But the potential value of the peerage as a reward for merit is limited by the fact that legislative functions are inseparable from it. It does not follow that a man is fit to make laws for his country because he has fought her battles or obtained prominence in art, science, literature, or kindred pursuits, or even because he has devoted his life to the State and achieved distinction in the Civil Service. The Crown would no doubt exercise its right to recognise great personal merit by the gift of a peerage more largely if the legislative character of the peerage had not in every case to be considered. To make a peerage socially valuable amongst us, it must contain and be mainly based upon the hereditary principle, for the desire to found a family and perpetuate title and honours, and the ambition so to live as not to disgrace an honourable name, are among the strongest instincts of the English race. But when we come to consider the peerage in its legislative capacity, an obvious and taking argument against the principle is drawn from the fact that of necessity some peers will be found in each generation either indisposed or badly qualified to fulfil the duties of a legislator. However, discussion on that point would be out of place now; for my present purposes I assume that the hereditary principle is to be maintained, and I confine myself to seeking how it may best be harmonised with a judicious development of the elective principle.

It requires something more than the hereditary principle to make a peerage valuable. As the highest honour at the disposition of the Crown, a mere empty title, even with the right of transmission to one's heirs, will not suffice for the ultimate goal of ambition. Some great privilege and positive function must be attached to the peerage. It possesses the greatest of all privileges in the right of peers to assist in the councils of the nation. This right, I assume, must be maintained. To discuss as a vexed question the value of a Second Chamber in Parliamentary government would carry me too far beyond the limits of this article. I base my remarks on the assumption that such a Chamber is necessary. I believe that a vigorous and authoritative Second Chamber is essential to good government, essential both to wise and continuous progress in home affairs, and to the efficient management of the external affairs of a country like Great Britain, having great and complicated interests in all quarters of the globe. I believe a Second Chamber is a necessary feature of democratic government, or, at any rate, of such a form of democratic government as that which obtains, and is likely to obtain, among us. It is argued that, under a representative system of government, a Second Chamber is an

Vol. XV.—No. 84. P
anomaly, and not only unnecessary but mischievous, provided that all shades of opinion are fairly represented in the single Chamber. That is as may be. It is the view of the old-fashioned independent English Radical, and it is worthy of consideration. Minorities, however, are not fairly represented in the House of Commons, and we have to deal with things as they are. The tendency is in the opposite direction. The aim of modern, foreign-grown, machine-made Radicalism is to practically disfranchise the people altogether; to persuade them to delegate their authority to Standing Committees, whose duty merely is to obey the will of the individual party chief who 'runs the machine.' Minorities are to be ignored. A majority, however small, secured by no matter what mechanical means, is to conduct all the affairs of the Empire without check, and without consideration for the opinions of a minority, however large. The only duty and privilege of a minority under this theory is to turn itself into a majority as quickly as it can. Under such a state of things stability in legislation and continuity of policy would be impossible. Government at home would consist of a series of violent actions and reactions; all trade, industry, and commerce would be harassed, and great detriment would ensue to the State. The difficulty of maintaining friendly relations with foreign Powers would be immeasurably increased; sudden and frequent changes of policy would lead to complications resulting in war; the position of our colonies, tied to such an unstable, unreliable guide, would become intolerable, and the permanence of our relationship to our Colonial Empire, which is absolutely essential to our existence as a first-rate trading nation, would be seriously imperilled. Under these circumstances, I believe that the more democratic the form of government is, the more necessary must a Second Chamber become, and the more advisable is it that such a Chamber should be strong. The Upper House of the British Parliament should be composed of men whose debates and decisions would carry great weight in the country. It should not be a numerous body, for discussion is better carried on, and business details are more fairly considered, in a small assembly. Colonial interests, as intimately bound up with Imperial interests, should also be represented in it. How are all these desiderata to be best secured? Assuming the hereditary principle to be of the essence of the peerage, I should still allow persons selected for it the option of accepting the honour for their own lives only, and I would affirm the right of the Crown to create life-peerages. While leaving all peers eligible to a seat in the Upper House as a legislative body, I would reconstitute that House on the elective principle. In other words, let it be made a senate composed of a limited number of peers selected from the whole body of the peerage, the self-governing colonies being represented by peers elected by those colonies to represent them.
I make no excuse for bringing this question of the House of Lords before the public, for it is one of vast importance, not only to ourselves but to the whole civilised world, and especially to men of our race beyond the seas. The opinion of England, the mother of Parliaments, on the relative merits of a single or of a double Chamber system, and of the functions, constitution, and powers of a Second Chamber, cannot fail to be interesting to European nations, and more than interesting to our colonies and to the great Republic of the West. Believing as I do in the necessity of a strong Second Chamber under a parliamentary and democratic form of government, it appears to me that the fitness of the House of Lords to exercise the functions of a Second Chamber is a question second to none in national importance.

Reform, if possible, should be evolved from within our existing system, and not forced upon it from without. Unfortunately this question does not commend itself especially to any political party. Conservatives are foolishly afraid of change, and Radicals who aim at a single Chamber naturally object to any reformation of a salutary character. They prefer the House of Lords as it is; that is to say, as weak and as open to attack as possible.

Independently of the respect which is entertained for the House of Lords throughout the country, a factor in politics which is probably underrated by many who discuss the subject, its chief safety lies in the fact that Radicals are divided in opinion on the point. Some Radicals hold that a Second Chamber is unnecessary and mischievous, provided that due representation is given to minorities in the House of Representatives. Others object to a Second Chamber under any circumstances, but deprecate the abolition of the House of Lords on the ground that as many of its members would find seats in the House of Commons, that assembly would in consequence be completely swamped by the Conservative element. This is a most ignoble objection. Those who entertain it fear to abolish the House of Lords lest the result should be inimical to their views. They dislike a Second Chamber because it checks and regulates the formulation of their opinions in Acts of Parliament. Their object, therefore, is to maintain the House of Lords, but to make it as impotent as they possibly can.

It is on this ground they should be fought. If a Second Chamber is desirable, it should be strong. If it is unnecessary or injurious, it should be swept away. The House of Lords, if imperfect, ought either to be strengthened or abolished. There is a strange reluctance on the part of Conservatives to touch the venerable fabric of the House of Lords. They forget that no assembly has ever gone through so many changes or has been so much benefited by them. It is the most ancient institution in the land. Developing gradually from the great Council of Freeholders of former days, it has, by constantly changing to suit changing circumstances, braved all the vicissitudes of time, and be-
come what it now is, an essential and useful portion of the Constitution. It can maintain its usefulness and its existence only by the same process of reasonable and timely change.

The objections to reform appear to group themselves under two heads. Some imagine that the fabric is so shaky that the slightest touch will precipitate its fall. Others hold that we have the best possible Second Chamber in the existing House of Lords. The first argument is a most foolish one. The House of Lords is by no means in so decrepit and moribund a condition. It has plenty of vitality, it does good work in a business-like way, and, in spite of what Radicals may say, its decisions are still looked upon with much respect; but it is undoubtedly weakening, and this is due to disadvantages which can be removed. If it is so shaky as to be incapable of reform, the sooner it falls the better. If your house is so unsafe as not to bear the smallest repairs, why it is better to pull it down and make what use you can of the materials, than to suffer it to fall about your ears unexpectedly, in some sudden gust, without giving time to the inmates and neighbours to cry 'Stand from under!' The House of Lords works fairly well, too well for the Radicals, though not well enough for the country. It is better to meet the Radical one-Chamber men now on the issue of improving and strengthening the House than on the question of its total abolition at some time of great popular excitement.

As to the House of Lords being the best possible Second Chamber, that is a proposition hard to prove. It certainly is difficult to see how a better Chamber could be formed in the place of the House of Lords if that institution were abolished, but it does not follow that the existing House cannot be greatly improved. It is not my business to enter upon a defence of the House of Lords, or to vindicate its action from the charges of selfishness and devotion to class interests. Its merits do not concern me now. It is of its demerits I wish to speak, and I shall content myself with commenting on those weak points which appear to be capable of improvement.

I am considering the peerage now as a legislative assembly, as constituting the Second Chamber in our parliamentary system, and as a necessary portion of the Constitution. The functions of a Second Chamber are to insist upon the due consideration of weighty matters; to prevent violent organic changes in obedience to sudden manifestations of popular feeling which are liable to be as suddenly reversed; to so check and balance the expression of opinion in the other House as to insure stability in legislation and continuous progress; to address itself to the consideration of grave matters of foreign and colonial policy; and to carefully and impartially examine the details of Bills. To enable it to perform these duties well, it must be composed of men possessed of aptitude for business details, of men of administrative experience in the colonies and dependencies, of men representing various interests at home, of men representing colonial interest,
of men understanding the resources of the Empire by sea and land, and of men of such proved general experience and capacity that their opinions must command respect.

The chief, the most glaring, and most obvious evil in the House of Lords as at present constituted consists in the fact that questions of vast importance are frequently decided by majorities composed of men who take little interest in public affairs, and who rarely attend the House; of men, in fact, who have not time, health, or inclination to devote themselves to the public service, and who would never dream of seeking a seat in Parliament, but who exercise the privilege of their birthright in obedience to the command of a political chief. Even granting, for the sake of argument, that decisions so arrived at are just, it is evident they must lack the weight, authority, and convincing power over popular opinion which they would possess if given by men of tried experience and proved capacity, or by men who had evinced an ambition to make themselves acquainted with the requirements of the nation and the relative merits of political and social questions.

Secondly, the permanent predominance of one political party in the Upper House is not an unmixed blessing, for there is always some danger that a party which is in a majority in the Upper House, and in a minority in the House of Commons, might use its power in the Lords for party purposes and for mere obstruction. It is true that the House has not condescended to allow itself to be applied to such base uses; and well it is for it that it has not done so. But the possibility of such obstruction for party purposes is an evil which, if it cannot be obliterated altogether, can at least be lessened by the elevation to the peerage of eminent men of independent views and free from party ties.

Again, there is no way in which a peer can now be relieved of his legislative duties. He cannot abdicate, neither can he be deposed. If the House finds itself in a conflict with the House of Commons, or tied to a decision contrary to the will of the people, as expressed in a general election, the individual members of the House must either maintain their conscientious views at all hazards, or reverse their former votes, or partially, and very partially, relieve themselves of responsibility by abstaining from voting altogether. For a man to change his views, and acquiesce to-day in what he objected to yesterday, is justifiable if the conversion be honest; and to abstain from expressing any opinion at all on a question is unobjectionable, for it is not given to every man to have definitely formed ideas on every matter under the sun. It is also perfectly natural and right that a man should be at liberty to refuse to occupy a position that entails on him a great responsibility. But it is not just that great responsibility, which he has not fitted himself to discharge, and which he is not anxious to assume, should be placed upon the shoulders of any man, and that he should find himself, without possibility of escape, in the
THE NINETEENTH CENTURY.

Feb.

dilemma of having either to vote contrary to his deliberately formed convictions, or to invite a serious quarrel between the two branches of the Legislature, reduce Parliamentary government to a deadlock, and bring about grave dangers to the Constitution. Every legislator in either House should have the power of resigning his position, and the privilege of submitting his actions to the endorsement of some body of his countrymen.

Our Empire is the largest and the most sensitive the world has ever seen. So diversified are our interests, that they are constantly in danger of clashing with each other, or of coming into collision with those of some other Power. Our colonies and settlements are necessary to us. We have to rely more and more upon them as markets. We have to thank them also for our control of the seas and for the advantages we possess over all the other European Powers put together in dealing with foreign nations and trading in neutral markets. Our existence as a great trading nation and a first-rate Power depends upon them. Their prosperity, in turn, as growing States, depends upon the mother-country. But, if they derive inestimable blessings from their connection with us, they suffer also from every danger that affects us. If we receive incalculable benefits from them, so also do we incur risk and responsibility from every difficulty or danger that menaces them. The Queen's dominions, though scattered over the whole surface of the globe, are yet so closely connected by natural ties and responsibilities, that no one portion can be affected without a corresponding effect being produced throughout the Empire. Yet there is scarcely an echo of colonial opinion heard in the Imperial Parliament. This is not as it should be. The great colonies should be represented; and for many and obvious reasons the Upper House is the body in which their voices should be heard.

All the evils and defects inherent in the present Second Chamber could be remedied, or at least diminished, by allowing the creation of life peerages, by a reduction in the number of legislating peers, by the creation of colonial peers representing the colonies in the Imperial Parliament, and by recognising a distinction between the peerage as a class and the peerage as a legislative assembly, between a peerage as a distinction and reward for merit, and a peerage as conferring of necessity the right to legislate. The elective principle, as it now exists in the case of representative peers for Scotland and Ireland, should be extended to the whole body. The Crown should be empowered to create life peerages; the Crown should be authorised to create a certain number of life or of hereditary peers for each colony which enjoys legislative independence, selecting those peers from men recommended by the Legislatures of the colony.

For legislative purposes the existing peerage is too numerous. Numbers do not insure efficiency. It may be true that "in a multi-
tude of councillors there is wisdom; but if so, the wisdom frequently remains concealed in them, and does not come to the surface for the benefit of the country. The strongest, most efficient, and most capable legislative assembly in the world is to be found in the Senate of the United States, which consists of seventy-six members only. Our Upper House should not consist of more than about one hundred members.

What would be the practical working of these reforms? The first great difficulty arises as to the constitution of an electoral body. On this point the example of other nations affords us no assistance whatever, for there is nothing analogous in our circumstances to those affecting any other European Power. The illustration afforded by our colonies cannot be made to apply to us; neither can that of the United States, where the Senate represents the rights of the several sovereign independent States. We have not even among us any system of county government that could be used as a basis for the election of members to the Upper House as representing the territorial divisions of the country. If our system comprised small local parliaments, they would probably form the best electorate for the Second Chamber; but such institutions do not exist, and it is useless considering what might be. If the Upper House desired to return as nearly as possible to the earliest traditions of our history, it should be elected by the freeholders of the country; but such a system is, for many reasons, inapplicable at the present day, and it would give an undue importance to freeholders, who are already fully represented in the House of Commons. If the members of the Upper House are to be elected by the people, there can be no logical reason for insisting upon a higher franchise than that which entitles a man to vote for a member of the House of Commons; and though absolute uniformity of opinion between the two Houses could be avoided by electing the Upper House for a fixed period of, say, ten years, yet the idea of basing both Houses on one and the same constituency is open to vast objections, and would be a complete departure from the system embodied in the Constitution. The Upper House might be elected by the House of Commons; such a plan might perhaps work well, provided that the Upper House were elected for a fixed period, and divided, like the United States Senate, into classes, vacating their seats by rotation. Although it is possible that, if every new House of Commons elected a new House of Lords by ballot, some curious differences in expressed opinion would be manifested, yet it is obvious that, if members of the Lower House voted according to the principles they profess, parties would be always equally represented in both Houses, and that would be absurd. If the House of Lords were elected for a fixed term, any large shifting of the balance of parties could result only from the long continuance in office of one party; and it is doubtful whether the Upper House would adapt itself as easily as it now does to well-matured changes of
public opinion. Owing to this and many other objections, election of the peers by the House of Commons does not especially recommend itself.

Whenever it is found that, owing to altered circumstances, an existing institution fails to satisfy the duties it is intended to fulfil, it may be dealt with either by revolution or by reform. Revolution implies destruction and re-creation; reform means adaptation and development. My object is to proceed by the latter method; and I am therefore anxious, in dealing with the House of Lords, to depart as little as possible from constitutional law and usage, and to respect as much as possible all existing rights and privileges compatible with the general good. I suggest that the legislative House of Peers should be elected by the whole body of the peers, and I believe that by this means the most serious practical difficulties which at present oppress the House could be lessened or done away with.

There is nothing unconstitutional in the main points of my proposition—namely, the creation of life-peerages and the selection of a certain number of peers to form a legislative Chamber. It is incontestable, I believe, that the Crown has the power to create any number of peers and to confer on them any kind of peerage. That the Crown has exercised its right to create peers for life is certain. The creation of life-peerages is not an unconstitutional innovation. But the creation of a peerage by patent does not carry with it the right to sit and vote in the House of Peers. That privilege is conferred by the writ of summons to Parliament. A writ of summons may be granted or withheld at the option of the Crown, but for centuries the Crown has allowed its powers in this respect to be exercised by the House of Peers. What I propose is, that this right of issuing a writ of summons, inherent in the Crown, shall be delegated to the whole body of the peerage, and that the power of the peerage to summon all the peers should be limited to the right of summoning a certain number from among them. I desire to distinguish in effect between the peerage as a body and the peerage as a legislative assembly, and to separate more clearly a peerage as a personal dignity from a peerage as a functional appointment, imposing the duty to sit and vote in Parliament. Whether this proposal be wise or foolish, it cannot, at any rate, be said to be unconstitutional. Moreover, the practice I suggest already obtains in the case of the Irish and Scotch peerages. There is nothing anomalous in extending the principle of this practice to all peerages.

The Upper House should be elected for a term of, say, nine years, so as to overlap the Parliamentary term of life of the House of Commons; but in order that changes may be continuous, though gradual, it should be divided into three classes, each class going out in rotation. The first act of the House, on meeting after the first election, would be to divide itself by ballot into three classes. The peers com-
posing the first class would vacate their seats at the end of three years, and their places would be filled by members sitting for nine years; the second class would go out at the end of six years, and their places would be filled by members sitting for nine years; and the third class would go out at the end of nine years, and their places would be filled by members sitting for a similar term. By this means one-third of the House might be renewed every three years. The House would not be subjected, as a whole, to any sudden flaw of popular passion, but would be constantly sensitive to changes of national opinion.

If the Second Chamber is to be elected by the peerage, it is obvious that election by the ordinary method would result in the return of members of one political party only, and the House would be reduced to the position of a mere party organ. The evils of the present system of voting are sufficiently shown by the fact that no Scotch or Irish Liberal peer has ever been elected to sit in the House. It is essential that all opinions should be represented. In a new House, consisting of a limited number of peers, the political views entertained by the present House, comprising all the peers, must find proportional expression. Three methods present themselves whereby this necessary object can be gained. First, the House might be divided into three political parties—Conservatives, Liberals, and Independents. Previous to the first election the political opinions of the House would be ascertained. Every peer would be requested to state in writing whether he intended to vote for a Conservative, a Liberal, or an Independent candidate. The relative numbers of each party having been thus ascertained, a proportional number of seats would be allotted to each party in the new House. Thus, supposing the present House to consist of 298 Conservatives, 154 Liberals, and 14 Independents. In a new legislative House of say, for instance, 90 members, the three parties, fractions being disregarded, would be represented by 55 Conservatives, 32 Liberals, and 3 Independents. Every peer would vote for 90 candidates, and out of the total number of votes cast the 55 Conservatives having the highest number of votes, the 32 Liberals having the highest number of votes, and the 3 Independents having the highest number of votes would be elected to the Upper House. At the end of three years thirty members would vacate their seats. The number of members which each party was entitled to would be again ascertained, and the election of the new members would be conducted by the method already described. A fair representation of minorities would thus be secured.

Or, to try another scheme. The peerage numbers, we will say, 506 members. For the sake of argument let it be supposed that the new Upper House is to consist of 84 members, being as nearly as possible one-sixth of the whole. Six votes, disregarding fractions, would, therefore, be necessary for the election of one repre-
sentative peer. Each peer would be furnished with a voting-paper, which he would fill in with the name of the peer he desired to return written first on the list, and then with the names of any number of peers he chose to put down in consecutive order, according to preference. All peers having the requisite number of votes would be returned. In the event of any peer having more than the requisite number of votes, the excess would be used to complete the requisite number in the case of those not having sufficient votes. If, for instance, peer A. had ten instead of six votes, four of those would be available for other peers. Each vote would be transferred to the second name upon each of the four voting-papers not used in the election of A. Such as were not required for the second name would be handed over to the third, and so on until eighty-four peers had received six votes each. This process would be repeated at the election held every third year, on the occasion of one-third of the representatives vacating their seats, with this difference, that the quota or number of votes necessary to return a peer would be arrived at by dividing the then total number of the peerage by one-third of the number of representatives sitting in the House, that is, by twenty-eight. This is the principle embodied in Mr. Hare's suggestions for the election of members to the House of Commons. Though impracticable if applied to the 3,149,695 electors of the United Kingdom, it would work well enough in the case of an electoral body consisting of 506 members of the peerage. It would insure a perfect representation of all shades of political opinion.

The third plan that recommends itself is founded on the suggestions of Mr. Mill. The Upper House should consist of, say, one-sixth of the total number of the peerage, or, in round numbers, of eighty-four members. Each peer would have one vote, and every six peers would return one member. For the purpose of voting the peers would divide themselves into groups of six by private arrangement and party 'caucus,' each section of six fixing upon their candidate, so as not to interfere with the choice of the other groups of six in their own party. In the event of a residuum, if four or five votes remained over, they should return a member; if three or less than three remained, they should be lost. There is nothing particular to be urged against this system, but the second plan—that of Mr. Hare—appears to me the least objectionable and the most complete.

The distinction between British, Scotch, and Irish peerages might be maintained if the principle of election adopted in the case of British peers were applied to Irish and Scotch peers also; but it would be far better to do away with a useless and somewhat invidious distinction, and merge the Scotch and Irish peers in the British peerage by elevating the two former to the dignity of the latter. Since the Act of Union with Scotland, more than half the Scotch peerages have merged into British peerages, and the date cannot be very far distant
when the latter body will have absorbed the former, with the exception of the sixteen peers provided for by the Act of Union. In the case of Ireland the process has been slower; but since the Act of Union many Irish peers also have become British peers, and in time the Irish peerage will be reduced to the limit of 160, imposed by the terms of the Act of Union. It is very desirable that the Upper House should contain a fair proportion of members especially conversant with Irish and Scotch affairs; but the wisdom of the Crown in creating peers, and the good sense of the peers in electing members of that body to sit in the Upper House, may be safely relied upon to see that representation is fairly conducted in this respect. As far as locality goes the peerage is fairly enough distributed over the various counties in the United Kingdom and Ireland, but as far as opinion is concerned the distribution is most unfair. In Ireland and Scotland, although they send twenty-eight and sixteen peers respectively to the House of Lords, one political party only is represented. This is manifestly unjust. If the Union between Great Britain and Ireland is to be maintained and strengthened in the spirit of it, with or without a more extended system of local self-government in the sister island, it is surely desirable that all unnecessary differences and anomalies should be swept away.

The arguments for and against life-peerages are pretty well known. The practical objection to them is that the Crown could swamp the Upper House and domineer over it, without adding largely and permanently to the number of peers. But the Crown already possesses the power of changing the opinion of the House by the creation of hereditary peers; and though a reluctance to add greatly to the peerage might have some deterrent effect, the effect would not be large, for the evil can be minimised by calling up the eldest sons of peers and men not likely to transmit hereditary rights. Moreover, it is not likely that in a crisis so grave as to call for the creation of a great number of peers, a Minister would hesitate to advise that course, out of deference to the possible bad results upon the peerage. But, granting that the power of the Crown over the House of Lords would be increased by the creation of life-peerages, it would be decreased under the system here sketched out, and a fair balance would be struck. The Crown could no longer influence directly the opinion of the Upper House by the creation of peers. It could only do so indirectly, by modifying or changing the views of the whole peerage, that is, of the electoral body of the House. It may be urged that it is objectionable thus to limit the power of the Crown, and that the Sovereign should have the right to call into the councils of the nation any man who is especially fitted to perform the duties of a legislator. But it is in the last degree improbable that any man raised to the peerage on account of pre-eminence in the special qualities advisable in a legislator would be rejected by the peers at an election. The
Crown could still influence opinion in the House by the creation of peerages; but the change would be made more gradually, and would have no evil effect upon the character of the House as a legislative assembly, or upon the peerage as a class. The privileges of Ministers would not be interfered with, for the recipients of peerages as a reward for public, parliamentary, or party service would have their fair chance of obtaining a seat in the Upper House under a system of minority representation. The advantages of life-peerages, briefly stated, are that they would be accepted by many persons eminently calculated to adorn the peerage and to legislate with advantage to the State, but who are unwilling for various causes to accept an hereditary peerage. The Crown would thereby be enabled to reward merit, and to introduce talent of all kinds into the peerage, without unduly increasing the numerical size of that body, a fact which would be prejudicial to the interests of the peerage, to the Constitution, and to the nation.

The introduction of the colonial element into the House of Lords is a matter concerning which I speak with much hesitation. That the colonies should have some means of making their opinions and requirements known in Parliament would, I have no doubt, prove a great benefit both to them and to the mother-country. All Englishmen should have some voice in the settlement of great Imperial questions vitally affecting the interests of all, such as peace, war, and neutrality, the maintenance of great trade routes, and many other matters of a similar nature. The impossibility of allowing representatives of the colonies to sit in the House of Commons, and vote on money bills and matters affecting taxation, is obvious. The Upper House, therefore, is the only existing institution in which the voice of our great colonies could be heard. There is no valid objection to it from our point of view. But whether representation in the House of Lords would be acceptable to the colonies is another matter, and one concerning which I am not competent to form an opinion. It is obvious that many objections may be raised, from a colonial point of view, which might overbalance the advantages to be gained. My proposition is that the Crown should create colonial life or hereditary peerages, and that the Legislatures of every colony or province should elect, by whatever means they thought fit, one or two out of the number to sit in the Upper House of the Imperial Parliament for such a time as the Colonial Legislatures should determine.

A peer on creation or succession would not be entitled to a seat in the Upper House; he would be eligible for election to that body only.

Opinion is much divided as to whether it is advantageous to the State, and to the cause of religion, that spiritual peers should sit and vote in the Upper House. Without going into the controversy, I assume that their status is not to be altered in this respect. Spiritual peers originally sat in virtue of their baronies. It may now be said
that they sit in virtue of their dioceses, and that any limitation to their numbers would leave certain dioceses unrepresented. But, though it is desirable that all interests should be represented in the Upper House, it is not the least necessary, in modern times, that every territorial or ecclesiastical district should return a special representative. No injustice would be done by reducing the number of sitting spiritual peers in due proportion to the reduction made in the number of lay peers having seats in the House. Either the spiritual peers should select a proper proportion of their number to represent them in Parliament, in which case they would have no right to vote for lay peers, or the whole body of the peerage, lay and spiritual together, should elect a certain number of lay and spiritual peers to form the Upper House of Parliament.

The political status of those peers who would be excluded from the Upper House must be considered. They should be eligible for election to the House of Commons. It would be manifestly most unjust to deprive any individual of the dearest right of a free man, that of taking part in the councils of his country. It would be an equal infringement of the right of the people collectively to interfere with and limit their freedom of choice in electing any man they thought fit to represent them in Parliament. The Crown would have the right to elevate any commoner to the peerage; the peerage would have the right to elect any peer to the House of Lords. The people would have the right to send to the House of Commons any man not already sitting in Parliament. Another advantage would ensue upon making peers eligible to the House of Commons. It would grant to individual peers an opportunity of vindicating their action in the Upper House by a direct appeal to their countrymen, and it would in those cases enable the people to express in a constitutional manner, instead of by agitation, their disapproval or approval of the conduct of individual peers in the House of Lords.

Peers would have the right of resigning their seats in the Upper or Lower House at any time; but, in order that no unfair advantage could be taken of this right for mere party purposes, it is advisable that peers resigning their seats in the House of Lords should not be eligible for the House of Commons until the expiration of their term in the Upper House, and that peers resigning their seats in the House of Commons should not be able to take their seats in the Upper House until after the next dissolution of Parliament.

Two other alternations are advisable. The quorum should be largely increased; and the authority of the House to decide on points of order, and to call upon a member rising in his place to speak, should be delegated to the Chancellor, the Chairman of Committees, or a deputy appointed for the purpose.

Such are the reforms which may be made, with benefit as it appears to me, to the Crown, the State, the Upper House of Parliament,
and the Peerage. The power of the Crown, the 'fountain of honour,' to reward merit would be increased. It could honour with a peerage men versed in social questions, and eminent not only in politics, but in the field of art, literature, and science—men who have rendered good service to their country, not as administrators only, but as seamen and soldiers; and it could do so without being deterred by the thought that, though famous in these various fields, they might not prove useful in Parliament, or by the fear of creating a 'numerous nobility.' The advantages to the Upper House are that it would be reduced in number to a body of convenient size; that as decisions on great political questions could no longer be arrived at by majorities composed principally or altogether of members who ordinarily take no part in the deliberations of the House, and who do not interest themselves in social or political matters, the House would be relieved of a great evil and one that does much to undermine its authority as a body, and to weaken the legitimate influence of individual members of it; that, being composed of men of eminence, of proved ability in administration, and of great experience, of men who have devoted themselves to the service of the State, or who have distinguished themselves above their fellows in the legal and other professions, and of men possessed of business qualities and industry, and who evince a desire to apply themselves to political and social questions, its debates, opinions, and decisions would carry more weight than they do at present; and lastly that the House, though oscillating slowly, would move more readily and with less friction in conformity with the mature and expressed will of the people. Without losing an atom of the respect accorded to position and to ancient lineage, the peerage as a class would be strengthened by the admission into its ranks of men famous in the various professions, pursuits, and walks of life, and would run no risk of suffering in dignity on account of large additions to its numbers. The peerage would be freed from the injurious accusation of stultifying itself by reversing former decisions in obedience to agitation. The advantages to each individual peer would be that he could appeal to the body of the peerage in support of his opinions, or even to a constituency; that he could relieve himself from the responsibility attaching to legislative duties; and that he could by resignation avoid the painful dilemma of having either to produce a deadlock in the machinery of government or to vote contrary to his views. The introduction of colonial peers would, I believe, prove beneficial to the peerage, the Upper House, the colonies, the mother-country individually, and to the Empire as a whole.

The advantages to the State are included in those accruing to the various members of the body politic. The great benefit to be hoped for lies in the acquisition of a Second Chamber capable of performing with as little friction as possible the revising, modifying, controlling functions which such an institution is intended to fulfil.
An appreciation of the value of a strong and efficient Second Chamber does not involve distrust of the people, or dislike to democratic government. On the contrary, it may be the outcome of a true affection for such a form of government; for, without a Second Chamber, government by a democracy appears to be impossible. Large bodies of men are usually warlike, always emotional, and subject to sudden gusts of passion or prejudice. I do not mean to say that individuals of any class are free from these weaknesses; but the danger resulting from them is reduced to the lowest degree in an assembly of moderate size, composed of individuals whose experience and training have taught them fully to appreciate that danger. It is impossible for the majority of men to devote their lives to the study of intercolonial and international questions. History proves that, in times of great difficulty and danger, the people are compelled either to delegate their authority in practice, if not in theory also, to some individual, or to more or less willingly suffer it to be usurped from them. Ruin can be averted, in such cases, by temporary despotism only. Owing to the fact that two-thirds of our food supply and most of the raw material of our manufactures are imported from abroad, and in consequence of the sensitiveness of our Empire and the complicated nature of our foreign relationships, our position is one of chronic, though not of acute danger. By trade we live. Our trade depends upon our power to protect it. Our power to protect it depends upon our strength, upon the advantages we possess over all other nations in our colonies and dependencies, and upon a firm and consistent foreign policy, based upon non-intervention, and devoted to safeguarding the proper interests of the Empire. If the affairs of the nation are to be administered satisfactorily by means of a Parliamentary and representative form of government, a smoothly-working and strong Second Chamber is essential. It is worse than folly to hamper our Upper House with any evils, disadvantages, causes of friction or complaint that can possibly be removed. I am very far from claiming to have devised the best possible means of improving the constitution of our existing Second Chamber. Neither do I wish it to be understood that I bind myself to the proposals here made. I have merely set forth and endeavoured to explain the suggestions that present themselves to me, and I shall be well satisfied if by so doing I succeed in drawing the attention of others to the question of reform in the Upper House. One class of politicians and one section of the press are never wearied of inveighing against the House of Lords; yet they formulate no programme of reform. However useful it may be, for party purposes, to inflame class prejudices and cause unnecessary friction in the working of our Constitution, there is no sense, from a national point of view, in railing against an institution without suggesting its abolition or improvement. I believe most politicians will agree that the present state of things is not altogether satis-
factory, yet they seem strangely reluctant to undertake any project of reform. Reform ought to be desired by all Conservatives and Constitutional Liberals. Radicals who are in favour of a one-Chamber system, coupled with the essential quality of minority representation, should approve of it. Those Radicals only are naturally opposed to it who, while advocating a single Chamber in theory, object to reducing theory to practice by the abolition of the House of Lords, through fear of the consequent accession of strength to the Conservative party in the House of Commons. Their objections are based on party, not on national considerations, and constitute one of the strongest arguments in favour of reform.

DUNRAVEN.
II.

ON ITS ABOLITION.

It is now nearly eleven years since the late leader of the Tory party forewarned his supporters that, the cycle of fiscal, social, and economic legislation having nearly run its course, they would do well to be prepared for the advent of a new era, in which those great questions should again be revived which political philosophy has never been weary of discussing since the days of Aristotle, and on which mankind at large are as far from unanimity as ever. The age of Reform would be followed by the age of Revolution.

We are now emerging from the fiscal period in which almost all the public men of this generation have been brought up. All the questions of trade and navigation, of the incidence of taxation and of public economy, are settled. But there are other questions not less important and of deeper and higher reach and range which must soon engage the attention of the country. The attributes of a Constitutional Monarchy—whether the aristocratic principle should be recognised in our Constitution, and, if so, in what form? whether the Commons of England shall remain an estate of the realm, numerous, but privileged and qualified, or whether they should degenerate into an indiscriminate multitude? whether a National Church shall be maintained, and, if so, what shall be its rights and duties? the functions of corporations, the sacredness of endowments, the tenure of landed property, the free disposal and even the existence of any kind of property—all those institutions and all those principles which have made this country free and famous, and conspicuous for its union of order with liberty, are now impugned, and in due time will become great and 'burning' questions.

Men not deficient in political sagacity or political confidence saw the same cloud on the horizon fifty years ago; and there are plenty to assure us that as it passed away then so it will pass away now, and that the institutions of the country are too securely rooted in the soil to be uptnorn by any tempest which is likely to sweep over Great Britain. It may be so: I trust that it is so. But it is possible to account for the non-fulfilment of such prophecies down to the present time without supposing them to be false, or assuming that the page of the future which they profess to unfold to us is the offspring of political nightmare. Causes have intervened to retard the progress of ideas hostile to the established system, and to divert the public interest into other channels: and similar causes no doubt may intervene
hereafter to produce similar effects. Immediately after the Reform Bill of 1832 the thirst for that very kind of legislation to which Lord Beaconsfield refers became the master passion of the country, and swallowed up for a time all thoughts of further innovation. Her Majesty's most happy marriage restored the popularity of the Crown, and raised the general tone of society. A generation of material prosperity such as England has not enjoyed since the beginning of the reign of George the Third combined to lull to rest whatever revolutionary tendencies survived the Chartist insurrection, which only showed its teeth again in 1848 to prove that their poison had been drawn. In our own time we have seen foreign affairs play the same part in turning aside the progress of Radicalism as was played by political economy between the first Reform Bill and the second. And even as I write, and while men are already speculating on the great domestic changes to be effected in the coming session, news reaches this country from abroad which may be the harbinger of momentous embarrassments, leaving England little thought to spare for the reconstruction of her political system, and little heart for the struggles of domestic revolution. Yet we know, too, that the men who are most anxious to embark on these enterprises are the men who think least of our Imperial interests, and who, in the alleged necessity for radical reforms at home, would hail only an additional reason for renouncing our responsibilities abroad. Although, therefore, no open and deliberate attack on the English aristocracy may at this moment be impending, and though the House of Lords may be destined for a long time to enjoy the proverbial immunities of threatened men, yet bearing in mind what within the last two months has been the language of eminent persons concerning both the Upper House of Parliament and the aristocratic element in the lower, and at the same time the known aims and aspirations of an influential and energetic political party which exercises considerable authority over the policy of Her Majesty's Government, it may not be inopportune to recall to the world the conditions on which alone any scheme for the destruction of the hereditary chamber can answer the purpose of its authors, and what the consequences must be of only attempting it by halves.

In favour of abolishing the Parliamentary privileges of the Second Estate one reason only is assigned, supposed to be sufficient by itself to prevail against the numerous considerations which suggest the wisdom of retaining them, and that is that the House of Lords is a standing obstruction to all Liberal Ministries and all popular legislation, and that from every measure of reform sent up to it by the House of Commons it does its best to expunge whatever is either useful or essential. Now it will be observed in passing that this argument has no abstract or à priori value; it depends entirely on accidental and transitory conditions, and on assumptions which beg the whole question. The ascendancy of Liberalism in this country, supposing it to exist, may have its hour and pass away, and in that
case it may appear that the House of Lords has been instrumental
in preserving what the people are glad to have retained; and even
on the counter supposition it would still remain to be proved that all
Liberal measures are conceived in the true interests of the country.
But it is unnecessary to say much on this head, because it has been
shown over and over again that the House of Lords can be no per-
manent obstruction to any measure on which the people have really
set their hearts, and that the most it can do is to give them time
to know their own minds. Nearly two years ago, when the House of
Lords was inveighed against so bitterly for insisting on the Committee
of Inquiry into the working of the Irish Land Act, I pointed out that
when questions arise on which the opinion of the country has not
been taken, the House of Lords is performing not only a constitu-
tional but a beneficial and highly popular function in reserving
them for the final Court of Appeal, and that in this manner it may be
said to effect the same object as triennial Parliaments without any of
their inconveniences; and on more than one occasion since then I
have been encouraged by seeing Lord Salisbury himself giving ut-
terance to the same opinion with all the precision and emphasis in
which the matured convictions of a great orator naturally find expres-
sion. Speaking at Liverpool on the 13th of April, 1882, he said:—

But the existence of a second chamber is justified by the fact that unless you
have it, you will be driven to that system, full of inconvenience, full of difficulty,
which will tend to disgust men with politics—I mean the system of triennial or of
annual Parliaments. A triennial or annual Parliament is the only substitute for a
second chamber which in the true interests of the people can be safely adopted.
It is the business of the House of Lords to watch over and to see that no per-
manent and irrevocable change is made in the institutions of this ancient country
until the people have had a thorough opportunity of informing themselves of the
proposals which it is sought to carry into effect and of giving a mature and solemn
decision on the subject.

And again only the other day at Reading:—

But these are mere transitory difficulties. I believe that the dominant position
of one party in the House of Commons is a mere transitory phenomenon.
Though no one will maintain more strongly than I do that it is the duty of the
House of Lords to watch and to adapt itself to the permanent and deliberate
judgment of the people of this country, yet our history warns us that you must
not always take the decision of the House of Commons as being the absolute and
final declaration of the will of the people of this country.—(October 30, 1883.)

The House of Lords, indeed, so far from obstructing the popular
will, in reality secures it from obstruction, and, by taking care that
such measures as do not meet with unanimous approval shall be
suspended long enough to test the permanence of the feeling on which
their advocates rely, insures eventual acquiescence in a settlement
which is then recognised as final, and prevents the mischievous effects
of continual efforts at reaction. The more we reflect on so obvious and
palpable a truth, the more shall we wonder at the language in which
the Upper House of Parliament was recently described by Mr. Shaw Lefevre. Not contented with accusing that assembly of perpetual and deliberate attempts to defeat the wishes of the nation, he went on to proclaim that it was utterly and hopelessly devoid of all political capacity. Wild and intemperate abuse of this kind requires no answer. Even the worst enemies of the House of Lords in their rational moments do homage to the eloquence and the statesmanship which distinguish its debates, and the capacity for business which it displays in dealing with affairs. These alone are sufficient to justify its existence in the absence of proof that it prevents necessary legislation. And no such proof as I have endeavoured to show can by any possibility be adduced; while, on the other hand, it remains to be seen whether the resisting force possessed by the aristocracy in general, supposing them desirous of exerting it, would not be a good deal stronger without the House of Lords than with it.

Thus much of the particular cry against the House of Lords which has been raised from time to time by the Radical party ever since the reconstruction of the House of Commons. In a debate in the Upper House on some ecclesiastical appointment a few years ago it was objected by a Liberal peer that the clergyman selected was a person of extreme opinions. 'Which simply means,' said Lord Salisbury in reply, 'that he doesn't agree with the noble lord.' So with the House of Lords and its critics. The Radicals complain that it is an obstacle in the way of good government, which 'simply means' that it does not generally agree with the Radicals. The fallacy which pervades such accusations is by this time, we hope, tolerably clear. We have next to consider the influence of the House of Lords on the aristocracy itself, and the part which it plays in bringing them into harmony with public opinion.

I do not anticipate much difference of opinion on this head. The value of the political education afforded by Parliamentary institutions is universally recognised; and the political aptitude exhibited by the English aristocracy, which has so often served both themselves and their country at a crisis, is the natural fruit of that participation in public affairs which is secured to them by means of the House of Lords. Their education very often commences in the House of Commons, and the untitled aristocracy have no other than what is afforded by that assembly. But for reasons which I am about to mention it is pre-eminently important that all the heads of those great territorial families which constitute the Peerage should receive this education, which all cannot do in the House of Commons, and that all should remain subject to its effects as long as possible, instead of being excluded from its benefits as soon as they succeed to their titles. Γνώσιμος διδασκόμενος, as Johnson says, should be the wish of every man. It should be the nightly prayer of every man in the position of an English peer.
By being entrusted with the work of legislation a man is brought face to face with practical realities and possibilities; by being confronted with political antagonists he is made to understand that all who differ from him are not necessarily knaves and fools; by being compelled to defer to others, and by being obliged to conceal his mortification, he acquires what in politics answers to good breeding in society, that consideration for the feelings and opinions of all with whom we come in contact, more useful very often than far more brilliant qualifications, and that power of self-control and self-possession which help us at once to bear success with moderation, and defeat with dignity. We may say in fine that participation in political affairs, as it teaches a man to understand his own country, to comprehend his own position, and to appreciate the difficulties with which the art of government is surrounded, is a safeguard against most of those terrible mistakes on the part of privileged orders which efface in a moment the traditions and associations of centuries, and precipitate revolutions which but yesterday were ridiculed as impossible.

The above positions will, I should conceive, be admitted to be truisms. If it is important that every man in a free country should receive some kind of political education, it is more important than all that those should receive it who are possessed of the enormous wealth and influence of the English aristocracy. Yet I am inclined to doubt whether by the great majority of men who ever think about the matter the inferences which flow directly from the above premises, obvious as one would suppose them to be, are often taken into account. Let us consider for a moment what the English aristocracy would be without the advantages conferred on them by the possession of an hereditary House of Parliament. They do not abide much in towns. They live less among their equals than professional and commercial men. As their station links them to the past, they are indisposed to change, exhibiting a perpetual conflict between the natural antipathy which recoils from democratic progress and the acquired sagacity which warns them when it is necessary to acknowledge it. None of these qualities or circumstances are bad in themselves. Rural life, exempt from all the bustle and excitement of crowded cities; the position of a great proprietor, responsible for the welfare and happiness of many hundreds of dependents, and charged with the fulfilment of numerous important public duties; reverence for the past, dislike of innovation, the pride of birth, the habit of authority—may all combine to form characters of the noblest type, and of a kind to do the State great service, if secured from the extremes to which they are severally liable. A member of the House of Lords, living always in the public eye, engaged constantly in political struggles in which he is often doomed to be worsted, and under the necessity of listening to what his opponents have to urge upon him, contracts the habit
of consulting public opinion; is obliged to recognise the existence of outside forces as strong as, often stronger than, himself; and is compelled to acquire something more than a superficial acquaintance with all the leading questions of the day. More than this, whatever he has to say against the policy or the measures of the Government, he says openly before all men, in a place where he must weigh his words, where he is sure to be contradicted, and where, however indignant, he must express himself with civility and discretion. The wholesome effects of this consciousness of supervision, of this self-imposed restraint, of the modesty inspired by constant contact with his equals, and the enlargement of mind which comes of intercourse with his superiors, he carries back with him to his paternal halls, and exhibits, as may be expected, in every relation of life. Immense possessions and immense power, both direct and indirect, in the hands of such a man as this, are no curse, but a blessing, to the community. It is not by men so trained that those rash and hasty acts of violence which beget revolutions are committed. The mere fact that he is a member of a Parliamentary assembly in which he can be called to account for every word spoken or every action done in public outside its walls teaches him caution and circumspection, and prevents him very often from using all the power he possesses even to promote his own principles. In other words, the existence of the House of Lords is a guarantee for the moderation of the aristocracy, for which, were it once to be abolished, no substitute could be found. The natural impulses of the territorial class are rather curbed than quickened by it. And from the strictly party point of view it is rather a source of weakness than of strength to the Conservative party.

But now let us suppose all these conditions reversed: the House of Lords abolished, the Peers deprived of the privilege which they now enjoy of discussing public questions in common, and each individual thrown back upon the influence which he possesses in his own immediate neighbourhood for the promotion of his political opinions; how will matters stand then? Shall we not find that, while uncheckèd by that sense of responsibility which attaches to the exercise of a public and constitutional function, he has at the same time lost the benefit of that political education which the discipline of Parliament supplies; that, with more freedom of action, he is less qualified to use it; that, withdrawn from a position in which the weight of public opinion was constantly forced on his attention, he is under greater temptation to exaggerate his own; and that in the absence of free discussion he has become both impatient of compromise and incredulous of failure? For is not this the kind of man who is sure to be produced by the union of strong political interests with imperfect opportunities or none at all of hearing them questioned or examined: in a station of life to which unpleasant truths which depend on oral communication seldom penetrate; surrounded by inferiors
who like him all the better for his prejudices; and with no such safety-valve for his zeal as is provided by a seat in Parliament?

We have then to conceive of such a man as this set at liberty to use all his vast wealth and influence in the furtherance of his own views, relieved from all those restrictions which fetter him at the present day, and with the same right to take a part in the election of a member of Parliament as any other man in the kingdom—for it is not to be supposed that he could be deprived of the privileges of a Peer without acquiring those of a Commoner. It might and probably would become necessary to allow noblemen to sit in the House of Commons. But it would be impossible at all events to prevent them from having a voice in the composition of that assembly at least as powerful as any which they exercised before 1832, and what would follow? With the whole weight of the Conservative aristocracy poured into one channel, and brought to bear on one House of Parliament, the result must inevitably be a vast accession of strength to the Conservative party in the House of Commons. At present the Lords are weak just because they are the Lords, supposed to represent exclusively the anti-popular tendencies of society, frequently in opposition to the Commons, who in turn represent 'the people,' and to whom, however long they may resist, it is known that they must ultimately yield. But if, instead of being separated from the Commons, they spoke through the mouth of the Commons; if, instead of being brought to a head, as it were, and allotted a separate position, exposed to the full glare of publicity, and affording a conspicuous mark to all assailants, the aristocratic element were dispersed through, and amalgamated with, the popular chamber, clothed with the popular livery, and with as good a claim to represent the popular will as any other element in the House, is it not certain that it could exercise a far more effective control over the conduct of affairs than it can possibly exercise at present; that it would become more powerful in proportion as it grew less palpable, and would double its present substance by throwing off its present form?

For my part, I cannot conceive the possibility of this question being answered in the negative; and there is more than this to be considered. It is to be considered that many a man who shrinks from rising in his place in the House of Lords and making open recantation of his Liberalism, who is too much under the influence of old associations to set them at naught in the face of his assembled party, and who is restrained by a sense of honour from assisting in private the political interest with which he cannot ally himself in public, would find half his fetters struck off by the abolition of the House of Lords. Released from the party obligations which bind him in Parliament, he would be much less troubled by their pressure in the provinces. Having got one hand free, he would soon set free the other; nor is it unreasonable to believe that there are a good many members
of the present House of Lords who, if this opportunity were presented to them, would be only too glad to embrace it. And this consideration leads immediately to another. What, it may be asked, is the key to the existence of any Liberal 'party' at all in the higher aristocracy? The answer is plain—our Parliamentary system. When the House of Lords assembles at Westminster, it is inevitable that its members should fall into two divisions. The love of place and power, the more honourable ambition of finding a field for the exercise of great talents in the public service, a sincere conviction that for the purpose of averting revolution more is to be done by shaping reforms in office than by resisting them in Opposition—these and other motives will, as long as the Peers possess a Parliament, insure the existence among them of a party in alliance with Liberalism. But let that Parliament be abolished, let the natural tendencies of an aristocracy be no longer counteracted by the attractions of official life, and they will speedily overflow the party line which now bisects them, and the whole weight of the Estate be flung into a single scale. But another question, and perhaps the most pertinent of all, has to be asked yet.

What is it which restrains the House of Lords from fighting out their differences with the Commons as often as any question of principle is at stake between them? What is it which makes them afraid of coming to extremities, letting 'I dare not wait upon I would' as often as the representative assembly sounds the note of battle? What is it which makes it so difficult for the Conservative minority in the House of Commons to rely on being supported by the Lords in any long political struggle? What but that the Peers are afraid of what we are here assuming to have happened—the abolition of their own House of Parliament? When the blow had once fallen, that particular inducement to moderate counsels and a conciliatory attitude would have ceased to exist, while a new and powerful inducement to the exact contrary would at once have been created in the thirst for vengeance which the injury sustained would have engendered.

We may be told of course that the country, alias the Liberal party, can protect itself against anything the Peers can do; and we might be reminded of Caleb Balderston and the Fears of Wolf's Hope, when that faithful servant threatened them with the displeasure of his lord. It is, of course, perfectly true that there are means by which the aristocracy could be rendered impotent, and this brings us at once to the central point of our inquiry. The question is, whether, the consequences of abolishing the House of Lords without the adoption of any further measures to weaken the power of the nobility being so obvious and so serious, those who contemplate the one must not be held to have contemplated the other. To use language now familiar to us all, though not perhaps rigidly exact, is it possible to dis-
establish the English peerage without also disendowing it? Can we relieve it from the restraints and responsibilities, both moral and constitutional, which balance its Parliamentary privileges, yet leave it in possession of the property which without these restrictions would be doubly and trebly influential? When I say 'can we,' I mean, is it credible that the Radical party can contemplate anything so injurious to themselves? Is it conceivable that they have not so far thought out this question as to understand what would happen if the entire English aristocracy, no longer divided against itself, as it more or less must be under existing arrangements, and no longer subject to those checks which its Parliamentary functions impose on it, were free to use its whole strength and wealth on the Conservative side, and concentrate its whole energies on securing a Conservative majority in the House of Commons? If a Conservative majority is not even now an impossibility, would it not then become a certainty? Is it not absurd to suppose that this inevitable consummation can have been overlooked by the acute and thoughtful politicians who say that the House of Lords must perish?

As I cannot suppose anything of the kind, I am constrained to believe that behind the cry for the abolition of the House of Lords lurks a deliberate design for the spoliation of the English aristocracy. This indeed would be an equally necessary step in the interests of Radicalism, whether the Peers were admitted to seats in the House of Commons or not. The difficulty with regard to the House of Lords is much the same as the difficulty with regard to the Church of England.

We are constantly reminded, and with perfect truth, that the country would never be willing to see the Church of England emancipated from State control, and yet secured in the possession of her property. A Church of England with complete independence and undiminished wealth would, they say, be too powerful a body for the State to tolerate. Disestablishment and disendowment must go hand in hand. Now, mutatis mutandis, this seems to me to be the truth about the House of Lords.

I have dealt in the above pages only with that scheme of simple abolition with which the House of Lords is regularly threatened as often as it does anything unpleasing to the Radical party. It is time, I think, that this threat should be looked in the face, and that the conditions on which alone it can ever take a practical form should be clearly understood. If I am asked why I, who am a Conservative, should object to a change which would so greatly strengthen Conservatism, I must have written to very little purpose if the answer is not to be found in the foregoing pages. I do not believe for a moment that the English aristocracy would be allowed to occupy the ground which the abolition of the House of Lords would open to them without a violent struggle, of which the issue would be doubtful, and might be disas-
trous. And I say this with the more confidence that no longer ago than last summer Mr. Chamberlain, speaking of the minority in the House of Commons, the Conservative country gentlemen, declared that even these must be swept away if ever good government was to flourish. What then would be the feelings of the party which he represents towards a much more powerful infusion of the same element, and one which was too strong to be defeated by the ordinary constitutional machinery of Parliamentary government? It is because I see that the abolition of the House of Lords must be only the first step to a political agitation in this country more fierce in its character, more sweeping in its objects, more deplorable in its consequences, if successful, than anything which has ever been witnessed in Great Britain, that I heartily depurate a change which might for a time have just the opposite effect.

Of this or that change, be it reform or revolution, we are often told that we are not 'within measurable distance.' The phrase is a convenient one, and touches the imagination by seeming to interpose between ourselves and the dreaded evil some infinite extension of space. Yet all that it practically means is that the event has not yet happened from which our calculation is to start. But who can tell when this will happen, or what will be deemed such an event by those who have the power to decide? When we speak of measurable distance, who is to be the measurer—the general public, or a particular party, or individual statesmen? Long-sustained abuse and invective, which those who are assailed by it treat only with silent contempt, make their way by degrees, and, as they sap the popularity, so they undermine the strength, of institutions which, to all outward appearance, are as vigorous as ever. Then it is that some unforeseen event, some sudden crisis or emergency, may prove their death-knell. The saying that threatened men live long has, like most other proverbs, its use and its abuse. Between foolish panics and false security there is not, if we look to consequences, so very much to choose. There are men who, confident in their personal resources, or fearful of the ridicule of their neighbours, have neglected warnings which, if followed, might have saved their lives.

I hardly think that in an age like the present either the English Church or the English aristocracy can afford to indulge in the theory of immeasurable distances. There is a political fatalism, I know, as well as personal, according to which no institution perishes till its hour has come, which can neither be accelerated nor retarded by human exertions or precautions. When I say there is such a thing, I rather mean that a great deal of what is written at the present day has either that meaning or none at all—more probably, perhaps, the latter. But no man who is placed in a great public position, or to whom any number of his countrymen look up for the preservation of established order, will allow himself to yield to such weakness.
Lord Salisbury reminds us that before the House of Lords can be abolished its own consent must be obtained, and that therefore it is exceedingly improbable that such a change will ever be effected by the ordinary constitutional means. This of course is quite true. Nobody supposes that Mr. Chamberlain has only to signify the wish and that it will forthwith rip itself up like a Japanese grandee to avoid destruction from without. We shall have, as Lord Salisbury himself says, to wait for a period of revolution before we see any such attempt. But that is presupposed in the terms of our argument. The unpopularity of the House of Lords, based on such charges as I have here endeavoured to refute, would be one of the elements and causes of this revolution.

It is for this reason that I think the fallacy which runs through the whole Radical charge against the House of Lords cannot be exposed too often, or the real nature of the change, with both its immediate and ulterior consequences, too often insisted on. Does anybody suppose that the revolution which destroys the House of Lords will spare the nobility, or that the revolution which attacks the nobility will spare the rest of the aristocracy? I wish, therefore, to prove to the satisfaction of those moderate Liberals with whom the Conservative party must soon come to an understanding, that the House of Lords as now existing can be defended on rational and practical grounds, and that it is much less likely to provoke a collision between classes than either a second chamber composed of select geniuses or a House of Commons more largely reinforced from the aristocracy. All that the House of Lords can now do is to gain time for consideration and reflection; and what harm can arise from the temporary postponement of a good measure compared with what must necessarily follow from the hasty adoption of a bad one? What is the evil of delay in the one case compared with the danger of precipitancy in the other? The balance of practical advantage is immensely in favour of retaining the House of Lords as it is. The good which it effects is out of all proportion to the evil, and it is the best guarantee we are ever likely to possess against the schemes of interested factions being adopted by mistake for the deliberate policy of the people.

T. E. KEBBEL.
At intervals during the last quarter of a century, Committees of the Houses of the Legislature and specially appointed Commissions have occupied themselves with the affairs of the medical profession. Much evidence has been taken, much wrangling has gone on over the reports of these bodies; and sometimes much trouble has been taken to get measures based upon all this work through Parliament, but very little has been achieved.

The Bill introduced last session was not more fortunate than sundry predecessors. I suppose that it is not right to rejoice in the misfortunes of anything, even a Bill; but I confess that this event afforded me lively satisfaction, for I was a member of the Royal Commission on the report of which the Bill was founded, and I did my best to oppose and nullify the most important proposal of that report.

That the question must be taken up again and finally dealt with by the Legislature before long cannot be doubted; but, in the meanwhile, there is time for reflection, and I think that the non-medical public would be wise if they paid a little attention to a subject which is really of considerable importance to them.

The first question which a plain man is disposed to ask himself is, Why should the State interfere with the profession of medicine any more than it does, say, with the profession of engineering? Anybody who pleases may call himself an engineer, and may practise as such. The State confers no title upon engineers, and does not profess to tell the public that one man is a qualified engineer and that another is not so.

The answers which are given to the question are various, and most of them, I think, are bad. A large number of persons seem to be of opinion that the State is bound to take care of the general public, no less than to see that it is protected against incompetent persons, quacks and medical impostors in general. I do not take that view of the case. I think it is very much wholesomer for the public to take care of itself in this as in most other matters; and, although I am not such a fanatic for the liberty of the subject as to plead that in-
terfering with the way in which a man may choose to be killed or cured is a violation of that liberty, yet I do think that it is far better to let everybody do as he likes. Whether that be so or not, I am perfectly certain that, as a matter of practice, it is impossible to prohibit the practice of medicine by people who have no special qualification for it. Consider the terrible consequences of attempting to prohibit practice by a very large class of persons who are certainly not technically qualified—I am far from saying a word as to whether they are otherwise qualified or not. The number of Ladies Bountiful—grandmothers, aunts, and mothers-in-law—whose chief delight lies in the administration of the subordinate provinces of domestic medicine, is past computation, and one shudders to think of what might happen if their energies were turned from this innocuous, if not beneficent channel, by the strong arm of the law. But the thing is impracticable.

Another reason for intervention is propounded, I am sorry to say, by some, though not many, members of the medical profession, and is simply an expression of that trades-unionism which tends to infest professions no less than trades.

The general practitioner whose medical training has cost him a good deal of time and money, trying to make both ends meet on a poor practice, finds that many potential patients, whose small fees would be welcome, as the little that helps, prefer to go and get their shilling's worth of 'doctor's stuff' and advice from the chemist and druggist round the corner, who has not paid sixpence for his medical training, because he has never had any. The general practitioner thinks this is very hard upon him and ought to be stopped. It is perhaps natural that he should think so, though it would be very difficult for him to justify his opinion on any ground of public policy. But the question is really not worth discussion, as it is obvious that it would be utterly impracticable to stop such practice 'over the counter' even if it were desirable to do so.

Is a man who has a sudden attack of pain in tooth or stomach not to be permitted to go to the nearest druggist's shop and ask for something that will relieve him? The notion is preposterous. But if this is to be legal, the whole principle of the permissibility of counter practice is granted.

In my judgment, the intervention of the State in the affairs of the medical profession is to be justified, not upon any pretence of protecting the public, and still less upon that of protecting the medical profession, but simply and solely upon the ground that the State employs medical men for certain purposes, and, as employers, has a right to define the conditions on which it will accept service. It is for the interest of the community that no person shall die without there being some official recognition of the cause of his death. It is a matter of the highest importance to the community that, in civil and criminal cases, the law shall be able to have recourse to persons
whose evidence may be taken as that of experts; and it will not be doubted that the State has a right to dictate the conditions under which it will appoint persons to the vast number of naval, military, and civil medical offices held directly or indirectly under the Government. Here, and here only, it appears to me, lies the justification for the intervention of the State in medical affairs. It says, or should say, in my judgment, to the public, 'Practise medicine if you like—go to be practised upon by anybody;' and to the medical practitioner, 'Have a qualification, or do not have a qualification if people don't mind it; but if the State is to receive your certificate of death, if the State is to take your evidence as that of an expert; if the State is to give you any kind of civil, or military, or naval appointment, then we call upon you to comply with our conditions, and to produce evidence that you are, in our sense of the word, qualified. Without that we will not place you in that position.' As a matter of fact, that is the relation of the State to the medical profession in this country. For my part, I think it an extremely healthy relation; and it is one that I should be very sorry to see altered, except in so far that it would certainly be better if greater facilities were given for the swift and sharp punishment of those who profess to have the State qualification when, in fact, they do not possess it. They are simply cheats and swindlers, like other people who profess to be what they are not, and should be punished as such.

But supposing we are agreed about the justification of State intervention in medical affairs, new questions arise as to the manner in which that intervention should take place and the extent to which it should go, on which the divergence of opinion is even greater than it is on the general question of intervention.

It is now, I am sorry to say, something over forty years since I began my medical studies, and, at that time, the state of affairs was extremely singular. I should think it hardly possible that it could have obtained anywhere but in such a country as England, which cherishes a fine old crusted abuse as much as it does its port wine. At that time, there were twenty-one licensing bodies—that is to say, bodies whose certificate was received by the State as evidence that the persons who possessed that certificate were medical experts. How these bodies came to possess these powers is a very curious chapter in history, on which it would be out of place to enlarge. They were partly universities, partly medical guilds and corporations, partly the Archbishop of Canterbury. There was no central authority; there was nothing to prevent any one of those licensing authorities from granting a license to any one upon any conditions it thought fit. The examination might be a sham, the curriculum might be a sham, the certificate might be bought and sold like anything in a shop; or, on the other hand, the examination might be
fairly good and the diploma correspondingly valuable; but there was not the smallest guarantee, except the personal character of the people who composed the administration of each of these licensing bodies, as to what might happen. It was possible for a young man to come to London and to spend two years and six months of the time of his compulsory three years 'walking the hospitals' in idleness or worse; he could then, by putting himself in the hands of a judicious 'grinder' for the remaining six months, pass triumphantly through the ordeal of one hour's *vivâ voce* examination, which was all that was absolutely necessary, to enable him to be turned loose upon the public, like Death on the pale horse, 'conquering and to conquer,' with the full sanction of the law, as a 'qualified practitioner.'

It is difficult to imagine, at present, such a state of things, still more difficult to depict the consequences of it, because they would appear like a gross and malignant caricature; but it may be said that there was never a system, or want of system, which was better calculated to ruin the students who came under it, or to degrade the profession as a whole. My memory goes back to a time when models from whom the Bob Sawyer of the *Pickwick Papers* might have been drawn were anything but rare.

Shortly before my student days, however, the dawn of a better state of things in England began to be visible, largely in consequence of the establishment of the University of London, and the comparatively very high standard which that body placed before its medical graduates. I say comparatively high standard, for the requirements of the University in those days, and even during the twelve years, at a later period, when I was one of the examiners of the medical faculty, were such as would not now be thought more than respectable, and indeed were in many respects very imperfect. But, relating to the means of learning, the standard was high, and none but the more able and ambitious students dreamed of attempting to obtain the degrees of the University of London. Nevertheless, the fact that many men of this stamp did succeed in obtaining their degrees, led others to follow in their steps, and slowly but surely reacted upon the standard of teaching in the better medical schools.

Then came the Medical Act of 1858. That Act introduced two great improvements: one of them was the institution of what is called the 'Medical Register;' upon which the names of all persons recognised by the State as medical practitioners are entered; and the other was the establishment of the Medical Council, which is a kind of Medical Parliament, composed of representatives of the licensing bodies and of leading men in the medical profession nominated by the Crown. The powers given by the Legislature to the Medical Council were found, practically, to be very limited; but I think that no fair observer of its work will doubt that this much attacked body has exerted no small influence in bringing about the
great change for the better which has been effected in the training of men for the medical profession in recent years.

Another source of improvement must be recognised in the Scottish Universities, and especially in the medical faculty of the University of Edinburgh. The medical education and examinations of this body were for many years the best of their kind in these islands, and I doubt if, at the present moment, the three kingdoms can show a better school of medicine than that of Edinburgh. The vast number of medical students who frequent that University is sufficient evidence of the opinion of those most interested on this subject.

Owing to these and some other influences, and to the revolution which has taken place, in the course of the last twenty years, in our conceptions of the proper method of teaching physical science, the training of the medical student in a good school, and the examination test applied by the great majority of the present licensing bodies (reduced now to nineteen in consequence of the retirement of the Archbishop and the fusion of one of the other licensing bodies with another) are totally different from what they were even at a comparatively recent period.

I was agreeably astonished, upon one of my sons commencing his medical career the other day, when I contrasted the carefully-watched courses of theoretical and practical instruction which he is expected to follow with regularity and industry, and the number and nature of the examinations which he will have to pass before he can receive his license, not only with the monstrous laxity of my own student days, but even with the state of things which obtained when my term of office as examiner in the University of London expired some sixteen years ago.

I have no hesitation in expressing the opinion, which is fully borne out by the evidence taken before the late Royal Commission, that a large proportion of the existing licensing bodies grant their license on conditions which insure quite as high a standard as it is practicable or advisable to exact under present circumstances, and that they show every desire to keep pace with the improvements of the times. And I think there can be no doubt that the great majority have so much improved their ways, that their standard is far above that of the ordinary qualification of the best licensing bodies thirty years ago, and I cannot see what excuse there would be for meddling with them if it were not for two other defects which have to be remedied.

Unfortunately there remain two or three black sheep—licensing bodies which simply trade upon their privilege, and sell the cheapest wares they can for shame's sake supply to the bidder. Another defect in the existing system, even where the examination has been so greatly improved as to be good of its kind, is that there are certain licensing bodies which give a qualification for an acquaintance with either medicine or surgery alone, and which more or less ignore
obstetrics. This is a survival of the archaic condition of the profession when surgical operations were mostly left to the barbers and obstetrics to the midwives, and of that more modern epoch when the physicians thought themselves, and were considered by the world, the 'superior persons' of the profession. I remember a story was current in my young days of a great court physician who was travelling with a friend, like himself, bound on a visit to a country house. The friend fell down in an apoplectic fit, and the story ran that the physician refused to bleed him because it was contrary to professional etiquette for a physician to perform that operation. Whether the friend died or whether he got better because he was not bled I do not remember, but the moral of the story is the same. On the other hand, when a famous surgeon, irritated by the pretensions of the physicians, was asked whether he meant to bring up his son to his own calling, 'No,' he said, 'he is such a fool, I mean to make a physician of him.'

Nowadays, it is happily recognised that medicine is one and indivisible, and that no one can properly practice one branch who is not familiar with, at any rate, the principles of all. Thus the two great things that are wanted now are, in the first place, some means of enforcing such a degree of uniformity upon all the examining bodies that none shall permit a disgracefully low minimum or pass examination; and, in the second place, that some body or other shall have the power of enforcing upon every candidate for the licence to practice the study of the three branches, or what is called the tripartite qualification. All the members of the late Commission were agreed that these were the main points to be attended to in any proposals for the further improvement of medical training and qualification.

But, such being the ends in view, our views as to the best way of attaining them were singularly divergent, so that it came about that eleven commissioners made seven reports. There was one main majority report, and six minor reports, which differed more or less from it, chiefly as to the best method of attaining these two objects.

The majority report recommended the adoption of what is known as the conjoint scheme. According to this plan, the power of granting a licence to practice is to be taken away from all the existing licensing bodies, whether they have done well or ill, and to be placed in the hands of a body of delegates (divisional boards), one for each of the three kingdoms. The licence to practice is to be conferred by passing the delegate examination. The licensee may afterwards, if he pleases, go before any of the existing licensing bodies and indulge in the luxury of another examination and the payment of another fee, in order to obtain a title, which does not legally place him in any better position than that which he would occupy without it.

Under these circumstances, of course, the only motive for obtaining the degree of a University or the licence of a medical corporation would be the prestige of those bodies. Hence the 'black sheep'
would certainly be deserted, while those bodies which have acquired a reputation by doing their duty would suffer less.

Hence, as the majority report proposes that the existing bodies shall be compensated for any loss they may suffer, out of the fees of the examination for the State licence, the curious result would be brought about, that the profession of the future would be taxed, for all time, for the purpose of handing over to wholly irresponsible bodies a sum, the amount of which would be large for those who had failed in their duty and small for those who had done it.

The scheme in fact involves a perpetual endowment of the 'black sheep,' calculated on the ratio of their ill-gained profits. I confess that I found myself unable to assent to a plan which, in addition to the rewarding the evil doers, proposed to take away the privileges of a number of examining bodies which confessedly were doing their duty well, for the sake of getting rid of a few who had failed. It was too much like the Chinaman's device of burning down his house to obtain a poor dish of roast pig—uncertain whether, in the end, he might not find a mere mass of cinders. What we do know is that the great majority of the existing licensing bodies have marvellously improved in the course of the last twenty years, and are improving. What we do not know is that the cumbersome and complicated scheme of the divisional boards will ever be got to work at all.

My own belief is that every necessary reform may be effected, without any interference with vested interests, without any unjust depreciation of the prestige of institutions which have been, and still are, extremely valuable, without any question of compensation arising, and by an extremely simple operation. It is only necessary, in fact, to add a couple of clauses to the Medical Act to this effect:

1. That from and after such a date no person shall be placed upon the Medical Register unless he possesses the threefold qualification.
2. That from and after the same date no examination shall be accepted as satisfactory from any licensing body except such as has been carried on in part by examiners appointed by the licensing body, and in part by coadjutor-examiners of equal authority, appointed by the Medical Council and acting under their instructions.

In laying down a rule of this kind the State confiscates nothing, and meddles with nobody, but simply acts within its undoubted right of laying down the conditions under which it will confer certain privileges upon medical practitioners. No one can say that the State has not the right to do this; no one can say that the

1 'The fees to be paid by candidates for admission to the examinations of the Divisional Board should be of such an amount as will be sufficient to cover the cost of the examinations and the other expenses of the Divisional Board, and also to provide the sum required to compensate the medical authorities, or such of them as may be entitled to compensation, for any pecuniary losses they may hereafter sustain by reason of the abolition of their privilege of conferring a licence to practice.' Report 50, p. xii.
State unduly interferes with any private enterprise or corporate interest unjustly, in laying down its own conditions for its own service. The plan would have the further advantage that all those corporate bodies which have obtained (as many of them have) a great and deserved renown by the admirable way in which they have done their work, would reap their just reward in the thronging of students, thenceforward as formerly, to obtain their qualifications; while those who have neglected their duties, who have in some one or two cases, I am sorry to say, absolutely disgraced themselves, by a happy and natural euthanasia, would sink into oblivion.

Two of my colleagues, Professor Turner and Mr. Bryce, M.P., whose practical familiarity with examinations gave great weight to their opinions, expressed their substantial approval of this scheme, and I am unable to see the force of the objections taken into it. It is, indeed, urged (Report II. p. vii.) that the difficulty and expense of adequately inspecting so many examinations and of guaranteeing their efficiency would be great, and that the difficulty in the way of a fair adjustment of the representation of existing interests and of the representation of new interests upon the General Medical Council would be almost insuperable.

The latter objection is unintelligible to me. I am not aware that any proposal for such adjustment has been fairly discussed, or even made, and until that has been done, it may be well not to talk about insuperable difficulties. As to the notion that there is any difficulty in getting the coadjutor-examiners, or that the expense will be overwhelming, we have the experience of Scotland, in which every University does, at the present time, appoint its coadjutor-examiners, who do their work just in the way proposed.

Whether in the way I have suggested, or by the Conjoint Scheme, however, this is perfectly certain: the two things I refer to have to be done: the threefold qualification must be required; the limit of the minimum qualification must be fixed; and any scheme for the improvement of the relations of the State to medicine which does not fulfil these two requirements thoroughly has no chance of finality.

But when these reforms are effected, when there is a medical council armed with a more real authority than it at present possesses; when a licence to practice cannot be obtained without the threefold qualification; and when an even minimum of qualification is exacted for every licence, is there anything else that remains that any one seriously interested in the welfare of the medical profession, as I may most conscientiously declare myself to be, would like to see done? I think there are three things.

In the first place, even now, when a four years' curriculum is required, the time allotted for medical education is too brief. A young man coming at eighteen to study medicine is probably abso-
lutely ignorant of the existence of such a thing as anatomy, or physiology, or indeed of any branch of physical science. He comes into an entirely new world; he addresses himself to a kind of work of which he has not the smallest experience. Up to that time his work has been with books; he rushes suddenly into work with things, which is as different from work with books as anything can well be. I am quite sure that a very considerable number of young men spend a very large portion of their first session in simply learning how to learn subjects which are entirely new to them. And yet it is to be remembered that, in this period of four years, they have to acquire a knowledge of all the branches of a great and responsible practical calling; of medicine, surgery, obstetrics, general pathology, medical jurisprudence, and so forth. Anybody who knows what these things are, and who knows what is the kind of work which is necessary to give a man the confidence which will enable him to stand at the bedside and say to the satisfaction of his own conscience what shall be done, and what shall not be done, must be aware that if a man has only four years to do all this in, he will not have much time to spare. But that is not all. As I have said, the young man comes up, probably ignorant of the existence of science; he has never heard a word of chemistry, he has never heard a word of physics, he has not the smallest conception of the outlines of biological science; and all these things have to be learned as well and crammed into the time which, in itself, is barely sufficient for the acquirement of a fair amount of that knowledge which is requisite for the satisfactory discharge of his professional duties.

Therefore it is quite clear to me that, somehow or other, the curriculum must be lightened. It is not that any of the subjects which I have mentioned need not to be studied, and may be eliminated. The only alternative therefore is to lengthen the time given to study. Everybody will admit that the practical necessities of life in this country are such that, for the average medical practitioner at any rate, it is hopeless to think of extending the period of professional study beyond the age of twenty-two. So that as the period of study cannot be extended forwards, the only thing to be done is to extend it backwards.

The question is how this can be done. My own belief is that if the Medical Council, instead of insisting upon that examination in general education which I am sorry to say I believe to be entirely futile, were to insist upon a knowledge of elementary physics, chemistry, and biology, they would be taking one of the greatest steps which at present can be made for the improvement of medical education. The great majority of the young men who are going into the profession have practically completed their general education—or they might very well have done so—by the age of sixteen or seventeen. If the interval between this age and that at which they commence their purely medical studies were employed in obtaining a practical acquaintance with elementary physics, chemistry, and biology, in my judgment it would be as good as
two years added to the course of medical study. And for two reasons: in the first place, because the subject-matter of that which they would learn is germane to their future studies, and is so much gained; in the second place, because a great deal might be cleared out of the course of their professional studies which at present occupies time and attention; and last, but not least—probably most—they would then come to their medical studies prepared for that learning from Nature which is what they have to do in the course of becoming skilful medical men, and for which, at present, they are not in the slightest degree prepared by their previous education.

The second wish I have to express concerns London especially, and I may speak of it briefly as a more economical employment of the teaching power in the medical schools. At this present time, every great hospital in London—and there are ten or eleven of them—has its complete medical school, in which not only are the branches of practical medicine taught, but also those studies in general science, such as chemistry, elementary physics, general anatomy, and a variety of other topics which are what used to be called (and the term was an extremely useful one) the institutes of medicine. That was all very well half a century ago; it is all very ill now, simply because those general branches of science, such as anatomy, physiology, chemistry, physiological chemistry, physiological physics, and so forth, have now become so large, and the mode of teaching them is so completely altered, that it is absolutely impossible for any man to be a thoroughly competent teacher of them, or for any student to be effectually taught, without the devotion of the whole time of the persons who are engaged in teaching. I undertake to say that it is hopelessly impossible for any man at the present time to keep abreast with the progress of physiology unless he gives his whole mind to it; and the bigger the mind is, the more scope he will find for its employment. Again, teaching has become, and must become still more, practical, and that also involves a large expenditure of time. But if a man is to give his whole time to any business he must live by it, and the resources of the schools do not permit them to maintain ten or eleven sets of physiological and other specialists.

If the students, in their first one or two years, were taught the institutes of medicine, in two or three central institutions it would be easy to have those subjects taught thoroughly and effectually by persons who gave their whole mind and attention to the subject; while, at the same time, the medical schools of the hospitals would remain what they ought to be—great institutions in which the largest possible opportunities are afforded for acquiring practical acquaintance with the phenomena of disease. So that the preliminary or earlier half of medical education would take place in the central institutions, and the final half would be devoted altogether to practical studies in the hospitals.

I happen to know that this conception has been entertained, not
only by myself, but by a great many of those persons who are most interested in the improvement of medical study, for a considerable number of years. I do not know whether anything will come of it this half-century or not; but the thing has to be done. It is not a speculative notion; it lies patent to everybody who is accustomed to teaching, and knows what the necessities of teaching are; and I should very much like to see the first step taken by those who are concerned making up their minds that it has to be done somehow or other.

The last point to which I may advert is one which concerns the action of the profession itself more than anything else. We have arrangements for teaching, we have arrangements for the testing of qualifications, we have marvellous aids and appliances for the treatment of disease in all sorts of ways; but I do not find in London at the present time, in this little place of four or five million inhabitants which supports so many things, any organisation or any arrangement for advancing the science of medicine, considered as a pure science. I am quite aware that there are medical societies of various kinds; I am not ignorant of the lectureships at the College of Physicians and the College of Surgeons; there is the Brown Institute; and there is the Society for the Advancement of Medicine by Research, but there is no means, so far as I know, by which any person who has the inborn gifts of the investigator and discoverer of new truth, and who desires to devote them to the improvement of medical science, can carry out his intention. In Paris, there is the University of Paris, which gives degrees; but there are also the Sorbonne and the Collège de France, places in which professoriates are established for the express purpose of enabling men who have the power of investigation, the power of advancing knowledge and thereby reacting on practice, to do that which it is their special mission to do. I do not know of anything of the kind in London; and if it should so happen that a Claude Bernard or a Ludwig should turn up in London, I really have not the slightest notion of what we could do with him. We could not turn him to account, and I think we should have to export him to Germany or France. I doubt whether that is a good or a wise condition of things. I do not think it is a condition of things which can exist for any great length of time, now that people are every day becoming more and more awake to the importance of scientific investigation and to the astounding and unexpected manner in which it everywhere reacts upon practical pursuits. I should look upon the establishment of some institution of that kind as a recognition on the part of the medical profession in general, that if their great and beneficent work is to be carried on, they must, like other people who have such work to do, contribute to the advancement of knowledge in the only way in which experience shows that it can be advanced.

T. H. Huxley.
As one stands on the bare sandy shores of a tropical country, under a sweltering sun, and views the distant dark and shady forest, there is an almost irresistible inclination to rush into it and hide away from the powerful penetrating rays that almost bear one down, as well as from the bright glare of sea and sparkling sand, so trying to the optics of Europeans.

Nor is it less tempting to flee from the noisy tumult of a surf-bound shore, lashed to fury by great Atlantic rollers; for, though pleasing enough at first to watch the snowy wreaths of spray curling up the beach, the great sound becomes alternately monotonous, unpleasant, and detestable, in proportion as the coast malaria and its remedies work upon the nerves and lower the system.

On reaching the summit of any of the several eminences around Cape Coast Castle—one of the chief towns of the Gold Coast Colony—a noble forest is displayed to view, the horizon being occasionally broken by clusters of monster trees topping patches of rising ground, whilst, greeting the eye for many a long mile northward is an unbroken wall of green, softened, and eventually shrouded, by hanging grey mists.

On an afternoon towards the end of October, between the sets of a game of lawn tennis on Connor's Hill—the military sanitarium—I got a first view of the dense forest, then wrapped in mist, shaded by sombre hazy clouds, through which the sun was making vain efforts of a setting show, but only succeeded in diffusing a sallow complexion around, until, on reaching the horizon, it burst into a brilliant red for a brief space before abruptly retiring for the night. Inland to the east and north long dark lines radiating downwards showed that heavy rain was falling, and ominous features here and there in the landscape made it more or less apparent where tornadoes raged. The aspect, so dark and dreary, was not so enchanting at first sight as an intending traveller might wish; yet, with all its imaginary drawbacks, there is a certain charm in penetrating the great primeval forest full of so many quaint ways and customs not to be met with on the beaten tracks of civilisation.

It was at the period of the 'latter rains' and rather warm—4° N.
lat.—that with a few unarmed Fantee and Crepi carriers and interpreters I started for a walk through the Ashantee country to Coomassie, taking a few necessary tinned stores, a hammock in case of illness, a fox terrier, materials for collecting specimens, animal and vegetable, together with some loads of presents for kings and chiefs; the latter an absolute necessity—the passport, in fact.

On emerging from Cape Coast the road immediately narrows to a footpath, winding through stunted bush over undulating ground, crested by clumps of large trees, the lower levels being wet, with a covering of tall, sedgy grass, through which many long-tailed humming birds of rich plumage are constantly to be seen flitting, and dragon flies, amongst numerous worthy representatives of their order (Neuroptera) are seen to immense advantage as they hover round the variegated wild flowers that grow there in rich profusion. Native villages are numerous. About every half hour their presence is betokened by groves of palm and cocoa-nut trees under which thrive plantain and banana, which constitute the food and wealth of those living in proximity to the coast. As a matter of course, these villages are vastly superior to those further north, many houses being constructed on regular lines, with an upper floor, doors that lock, and framed pictures on the walls. This is in a great measure due to the fact that the boys who travel to the coast towns often remain there as servants, whence they merge into the artisan and skilled labourer, returning after a while to renovate their old villages with plumb-line and square.

Four hours from Cape Coast is the village of Brofu-yedo, the first of a series so named by the Ashantees in the war of 1873–4, meaning 'the English are heavy.' Time after time, when the Ashantees recoiled before the invincible advance of Sir Garnet Wolseley's force, they were constrained to use that expression to denote where they were worsted or overwhelmed. North-west from Assayboo branches a small path to Abrakrampa, where the enemy made a prolonged and vigorous attack upon a British garrison. Though unsuccessful, it tended to show the pluck and determination of the Ashantees, who had wandered thus far from their country to beard the white man in his den.

N.N.E. of Assayboo stands Acroful, a large village prettily situated, now as salient a point as a Wesleyan (native) mission station as it was a strategical one during the war. The missionary, who speaks a little English, has a large mission house, and, in addition to his own services, is continually making a circuit of the outlying villages, in conjunction with a brother missionary stationed at Dunquah, a day's march north.

These native gentlemen are hospitable, and delighted to see a white man. They are keen for news, and love to get a newspaper. I gave an old copy of the Times to one of them, who, with great difficulty and much pleasure spelled half through the front advertisement sheet during the evening; he would probably finish the paper in the
course of a week or two, and then he would have not only a feast of conversation on circuit, but a covering for the bare walls and literature for the children, until the ants devoured it. On my asking him how he amused himself generally, he replied that he read sermons, of which his collection was old and odd. Around his bush mansion were some very fine cocoa-nut trees, of which he 'dashed' me some of the fruit; refreshing it is, too, after a tramp to have a draught of the milk, always cool and sweet.

On leaving Acroful the scene changes from low bush to the great primeval forest in all its glory; gigantic trees, from two to three hundred feet in height, with branchless boles, hold perpetual sway, each one with outstretched arms appearing a very forest in itself. The path threads its way through everlasting shade, which gives the trellised green foliage a sombre hue, ever and anon brightened and intensified by gleams of sunshine peeping through the verdant labyrinth.

Frequent villages are seen on the way to Dunquah and Yankoomassie, both of which are large, the former possessing a missionary and the latter a king, who was the first to relieve me of some of my presents and lighten the carriers' loads.

Native carriers are a terrible nuisance, but they are a necessary evil, for it is the only means of transport in this country. Draught animals won't live; there are no roads for wheeled traffic, neither are there vehicles, so the traveller must perforce pack his goods in small bundles and see them mounted on the heads of native grumblers. First they complain of the weight, then of weather, distance, and 'chop,' as all food on the coast is designated, and very often refuse to budge. But the sight of a whip acts like spurs to a horse—they are often effective as persuaders without being used.

A few hours further on lies the pleasant and somewhat populous village of Incran, where resides a genial and autocratic chief. By repute he is wealthy and well-to-do, possessing, amongst other treasures, two looking-glasses, eight umbrellas, a hammock, a real bed, crockery, an armory of ancient firelocks, two framed pictures of the Prince and Princess of Wales, and a coloured group of Her Majesty the Queen and Royal Family, of which he is very proud. The latter were purchased at a coast town years ago, probably in exchange for a valuable tusk of ivory or parcel of gold dust.

The 'latter rains' which prevail in the forest at this time of year are by no means pleasant, being cold and heavy, though fortunately of short duration. Generally speaking, a sudden and brilliant flash or two of lightning, accompanied by loud peals of thunder, usher in the storm that breaks immediately overhead; a whip or two of cold wind scudding up the path precede the roaring tornado and terminal deluge which are in full swing before there is scarce time to don the oilskin. Forest tornadoes are unique. The most powerful current of
wind, having absorbed the counter currents, gravitates downwards, and thence by wild vagaries through the bush, snatching up an occasional cloud of dead leaves, which are again left to meander back again; saplings sway to each other for support; the strong bend and recover, the weak succumb and are laid at rest, as it were, in the arms of some monster parent. Finally, there is a great gathering of strength, and the mighty current hurls itself with irresistible fury at some worthy monarch, which, with a mighty crash, is borne to its eternal rest in the soft forest bed, there to lie in state, shrouded by lichens, under Nature's green mantle, until a generation's leaves have raised their monument over fallen majesty. Lying across the track such sights are frequently to be seen, rather favouring the theory that the vacuum of a path cut in the bush, small though it be, induces the motive power that does its direful work.

It is remarkable to observe, too, the effect of multitudinous footmarks which the natives have planted in crossing these fallen trees, in many cases the indentations being clearly defined, as if a model foot had been moulded into the trunk.

Half an hour from Incran the welcome and somewhat unusual sound of running water greets the ear—unusual, because there is nothing but stagnant water along the coast and a paucity of springs inland. The little river Wanquah, here trending east and south, is typical of all the Ashantee rivers, in which stony reaches, tiny cascades, and deep shady pools alternate. Here the natives ply their nets successfully, obtaining an ample supply of fish, which, with plantains, constitute their daily food. Isaac Walton is unknown to them; when they saw me trying a venture with an improvised hook and bamboo cane they expressed their thoughts in unmistakable looks—'a fool at one end and worm at the other;' nor were they very far wrong, for my sport was nil, though possibly the bait—parrot's leg—had something to do with it.

En route to Mansue the scene presents a striking picture of woodland hills and ravines, threaded by innumerable small streams nestling in huge groves of bamboo, so huge and dark, indeed, that it is like entering a tunnel as the path courses through them. The rains soon find their level in this region; consequently the path is, as a rule, clear. Its edges are lined with such a fringe of wild flora as would gladden the heart of a professional botanist, to whom a large field for investigation is open. Bluebells predominate; but tulips, lilies, convolvuluses, hyacinths, and forget-me-nots are continually to be seen. Orchids and ferns pursue an unchecked career, the sight of them becoming almost monotonous by reason of their luxuriant growth. Altogether, the solid wall of green foliage on either side of the wayfarer imparts a prison-like aspect—a prison of leaves instead of stone, though not less irksome. Not less striking are the entrances to many of the villages in this district; regular groves of wild laurel and
croton oil trees line the winding way, and the whole scene so resembles a big English park that the traveller is in momentary expectation of seeing a keeper's lodge round the corner, or hearing the inevitable black dog strike up a warning note of 'Who goes there?'

Mansue is a large clearing, with huts in the centre for a detachment of Houssas stationed there. It was a prominent place during the war, and contains a Fantee king, who paid me the usual complimentary visit, bringing yams and palm wine by way of 'dash,' for which I gave him, in return, umbrellas, cloth, and gin. He was very anxious to let me see the ancient skull of an Ashantee acquired by some of his people in war—a great achievement, as the Ashantees are essentially warriors, and have rarely been known to let their dead be captured by Fantees.

Topping a picturesque little valley a few miles on, I observed for the first time some flat sandstone rocks, slightly exposed only, apparently part of an inclined stratum; but even here it was impossible to find a loose stone, the absence of which throughout the forest is remarkable. These rocks were worn almost smooth by continual effusion of rain-water over them, and must have been walked over for many years, to judge by the well-defined footmarks thereon. The natives have a habit of marching along in single file, stepping almost in the same identical spots, so that in time series of ruts are formed and maintained by pedestrians until heavy rains render them impracticable.

Hereabouts and elsewhere in patches grow what the natives call Ton-ton trees, small and of a sort of cactus growth, resembling in shape a large umbrella half shut down. The leaves are long—about six feet—having sharp-pointed blades, barbed sides, and resupinate bark, that scales readily. From these trees mats of every size, colour, and description are ingeniously made, and taken to the coast for sale.

One of the most extraordinary features of the forest is to see, or, rather, to hear it wake. Till about an hour prior to dawn a most perfect stillness reigns; then Nature's existence is manifested by faint pulsations, which grow in strength until, with a rush, light extinguishes the darkness.

It seemed difficult to credit a sound that came stealing through the bush one early morning, viz., the sound of a saw. With some little difficulty and scrambling I traced the origin, and there found in all reality two natives plying a double-handed weapon through an immense beam of ironwood, which seemed to defy all their efforts. They had ruled lines to work upon, wedges and grindstone, rough though they were, and were not inclined to hurry themselves; probably a week would see them through it, and six months' indolence follow the sale of it on the coast. Their wives, who had just brought them some 'chop,' promptly decamped into the bush, nor could any assurance induce them to leave their hiding places. Possibly they had never seen a white man before. I was anxious to get some wood
specimens, and offered to wait an hour or two if the sawyers
would supply me with blocks; but, as with all these tribes, it was the
old story—manana (to-morrow), and so on my return homewards.

The discoloured river Akkie—about 50 feet from bank to bank—
was much swollen by late rains, and seemed in a great hurry to get
down to the sea. A tree that had fallen across in some bygone
tornado was too slippery to scale, so there was nothing left but to wade.
Hammock men are both excellent fellows and most sure-footed animals,
and they are always willing to carry their master aloft through the
water; but there is something inglorious in being pitchforked head-
first into it, which the slightest faux pas may cause. A little extra
liquid is no great hardship when one is more or less soaked by dew-
drippings and wet grass in the morning, thunder-storms in the after-
noon, and dew damp at night, added to continual ploughing through
swamps and sloughs; the latter infuse a little colour into the picture.
Yet, with all this liquid, there is an almost entire lack of decent
drinking water, for, after both filtering and boiling, it retains a sedi-
ment and has a soapy flavour, which combine to make it unpalatable
otherwise than in the dark.

Resting on the banks of the Akkie was a corporal's guard of
some native chief carrying, mirabile dictu, a coffin of curious darkey
workmanship, studded with brass-headed nails, having a thong-
hinged cover wrought with various devices and fastened by a
thole pin; over all lay an unblemished mat by way of pall. After
much palavering, the officer in charge permitted me a view of the
interior of this rough-hewn cavern, which contained, to my surprise,
monkey skins, plantains, tobacco, and the usual bottle of trade gin.
It is the fashion for those potentates who can afford it to be consigned
to their rest in such manner, and not unusual to send many leagues
in order to obtain the necessary sacred wood.

From Mansue to Prahsu is about twenty-four hours actual going,
though with less mud and slush it might be reduced. Prominent in
this region are monster trees feathered with fern from base to summit,
laced and interlaced with leafless creepers whose adventitious roots,
after subterranean wanderings, shoot up again in weird forms and
angular lines like the rigging of a full-masted ship. How the ferns
attain unassisted to such altitude, though at first a mystery, is soon
discovered by watching the forest ants, whose history well deserves
the study of some enthusiastic entomologist keen enough to pursue
his labours long enough in the midst of a poisonous malaria that
pervades the atmosphere and insinuates itself into the human system.

These insects are generally to be seen in regular marshalled armies
of two lines—going and returning—on paths obscured from view by
flanking walls of their own kin; officers, sentries, vedettes, advance
and rear guards, columns and corps are visible to the most casual
observer, and woe be to the unfortunate traveller whose fate it is to
be invaded at night. Nothing will turn them; you may break but cannot bend them, and *lex talionis* is their motto. They may constantly be seen on the march with loads from one point to another, often enough their termini being the apex of some lofty bole where, after depositing their cargo, it is welded together in crusted clumps by skilled labourers in waiting. In course of time various seeds and articles of root capable of germination are transported and matured, and then the tree presents more the appearance of a huge overgrown tower. On my drawing with the butt end of a gun a line through the armies, an immediate halt took place, files of skirmishers were sent out, and the casualties carried away as if by organised Ambulance Corps. The lines were then reformed and proceeded as before.

Prahsu, formerly the boundary of the British Protectorate, and memorable in the annals of the war, is now, as it then was, the key to Ashantee.

It may be described as a fine large clearing on the banks of the great river Prah—great, for this part of Africa—which, when full of water, affords an imposing appearance as it rolls muddily along a serpent's course through the forest. On the south bank are a few huts for the Houssa constabulary, and an officer's bungalow *vis à vis* to a native village. An apology for a punt does duty as ferry in charge of an old Methuselah, who plies a sort of fishing-rod pole in a feeble manner, so that by dint of luck the craft is navigated more perforce of current than of strength or skill. The currents are most irregular and deceptive, due in great measure to the backwaters caused by windings, and in lesser measure to the obstruction offered to natural flow by accumulations around submerged trees that either through tornadoes or shelving banks have fallen across the river. This, of course, renders navigation, especially up stream, a difficult matter. It was only after the greatest labour that in a rough but light canoe paddled by three natives, we were able to head the races that spun out from submerged trees, and then when once above, there was still greater labour to avoid being drawn into the line of draught and locked in the network of exposed branches.

Both up and down stream are innumerable creeks capable of admitting a small craft; but progress is tedious, and the smell from putrid slime water and loathsome swamps intensely disagreeable, though not less so than the continual switching across one's face of what the Dutch Boers in South Africa call 'Wait-a-bit' brambles. These are the undisturbed haunts of the crocodile and other amphibiae which are readily seen when once in motion, but hard to distinguish otherwise by reason of their sympathetic colouring. They are scarcely ever molested by the natives, whose sole ideas seem centred in fishing and growing plantains. Fish, both in the river and creeks, are plentiful—barbel, eels, shrimps, crabs, flat fish, and some species of the carp family falling freely to the native net and tice-basket.
The Prah is, perhaps, best seen to advantage at sunset, when it is possible to catch a glimpse of glorious mellow tints—a rare sight in this country of perpetual green. As a rule, the banks bear down in gradual slopes that are wooded to the water's edge by large trees whose massive branches cast an everlasting shade, under which a boat might creep unsunned, but for recumbent trees imbedded in the deep. Above the bends are grand sweeping reaches and rich woodland scenery of the finest description, a fine field for the artist.

N.N.W. by compass from Prahsu to Foomusu¹ is a good hard day's tramp from dawn to dusk, passing Essiaman midway and a few hunting villages here and there. North of the Prah the path deteriorates, becoming overgrown and little less than a quagmire, slippery and treacherous. Trudging carelessly along in front on one occasion, looking for specimens, I had the misfortune to flounce unsuspectedly into a mud hole mantled by a green flowerless plant whose chief functions may have been to delude the unwary traveller with an idea that he was going to get a sure foothold. It was a trivial enough circumstance, only resulting in my gun and self getting well primed with a black turbid mixture, but there was a lesson to be learnt from it. I proceeded to scrape away diligently on the far side until the native carriers came up, in order to watch their discomfiture; to my infinite surprise, however, as each approached, without apparently scanning the foreground even, they were warned by pure instinct, and deviated accordingly amidst much quiet merriment at my plight.

Foomusu is pleasantly situated on the banks of the Foom, a rippling stony river 'born,' as the natives naively express it, in Akim, and draped throughout its course in foliage.

The chief informed me that he was much frightened of the English; that he and his people hid from our army of 1874, and that his son was being educated by the Wesleyan missionaries with a view to being gathered to their flock. Still the old man continued steadfast in the faith of his forefathers, on the subject of which he was good enough to discourse as we sat in dim twilight under 'the village tree' surrounded by his people. He stated amongst other things that he had only to ask his fetische for good health or gold, and would get it, provided the spirit was not ' vexed.' Upon my asking if the fetische would also supply me with gold, he said 'Yes, if you give me some more present, and some "chop" for fetische, when you go live for Cape Coast one time more you shall get Queen gold.'

These people have all a great idea of Her Most Gracious Majesty, to whom they assign the powers and position of a supernaturalist. In the same way the Magwamba tribes north of the Drakensburg, in South Africa, entertaining the same views, manufactured a long aristocratic name for Her Majesty, meaning in their figurative language, 'The woman with the long ears because she hears everything.'

¹'Su' means top, hence Prah-su, top of Prah, top of Foom, &c.
I told the chief that it would be impossible for me to wait so long; my anxiety was to make the acquaintance of Monsieur l’etische at once; would he be so good as to relieve me of a wearying attack of neuralgia? If so, my present was ready, together with ‘chop,’ for monsieur. The chief agreed readily to accept the present; and, further, undertook to afford me relief, for which purpose he placed a hen’s egg on the far side of the river, in conjunction with a pot of plantain and palm oil. It is needless to say that they remained untouched by the spirit,—and so did the neuralgia.

Having been unable to obtain any itineraries beyond Prahsu, it now became a rather difficult matter to gauge the distance of favourable halting places ahead, more especially as one’s own servants invariably throw obstacles in the way of moving on, and interpret ‘intelligence’ replies as best suits their inclinations. I had nevertheless an excellent interpreter, whose intentions, however, were far better than his idea of time or distance; in fact, it seems almost impossible for a native to become a judge of either. For instance, it nearly always happened that his ‘mile and a bit’ meant that the ‘bit’ was three times as long as the mile; nor shall I forget his memorable answer to me later on approaching Coomassie, that it was about two hours or twenty minutes’ walk. So, when they informed me that Fomannah, the capital of Adansi, whose king had sent to say he would be ready to receive at 5 p.m. on November 9, was only ‘just over the hill,’ I took a leisurely view of the matter, and jogged quietly along from Foomusu until a sudden view of the mountain dispelled the happy illusion.

It was late in the afternoon when, tired, wet, and hungry, we started to scale the precipitous Moinsi Hill, rising from a picturesque valley coursed by a crystal stream—the first—near which nestled a hunting village built upon the lines of store huts erected there by the army of ’74.

On the amphitheatre is another village of larger dimensions—a sort of fashionable suburb, whose aristocracy are said to speak disparagingly of the folks ‘over there’ (pointing to the hill). From this point to a parallel one of the amphitheatre on the far side it entailed three hours’ incessant climbing of an arduous nature, the descent being the most trying ordeal, as the narrow path was thorny, wet, and slippery, and twilight had sped away, leaving us to circle and dip in the dark with Fomannah sighted, lost and resighted, like a ‘will-o’-the-wisp’ in the distance. The night was well advanced ere I struggled into the town after fourteen hours’ tramp, footsore and feverish. Nothing produces fever so much as over-fatigue and wet, both of which had fallen to my lot this day in consequence of wrong information. However, the worst had to come, for the king had issued his ‘At Home,’ and there was no alternative but to accept. His Majesty was all courtesy and benignity as he sat by torchlight under mighty umbrellas, proffering the hand of friendship, nor was he
satisfied until I had sat me down six yards distant, and received his return call in all solemnity. As many as liked of his followers wrung my hand held out in feverish despair, and then, dragging my steps to the Traveller's hut, I sank upon a hard, chilly bench to revel for the night in wild, sleepless dreams. These trivialities are mentioned, not by way of illustrating hardships, but simply to show what is entailed upon travel in this country.

The next day happened to be Yam Customs—a harvest festival to celebrate the maturity of young fruits. Fomannah was en fête from dawn to midnight, nor did the young bloods lose an opportunity of letting the stranger know that there was an abundance of tomatoms and lusty arms to beat them. In quiet nooks on the outskirts lay consecrated calibashes of palm oil, mashed yams, and plantains deposited upon altars to propitiate the fetishes, whose appetites must certainly have failed, to judge from the length of time the food remained untouched. In time it disappeared, probably through the medium of birds and wild animals, for I do not believe the most famished native—a believer in the woodland sprites—would touch one morsel dedicated to the Deities.

The festival is a signal for all work to be laid aside in substitution for the following entertainments:—furious beating of drums, tin pots, and oil cans, bell ringing, singing, dancing, and drinking for so long a time as the liquor lasts.

The king regales his chiefs and headmen with rum or gin, and each chief supplies his adherents so far as lies in his power, the women and even children taking their nip as opportunity offers. The drums are quaint and effective, varying as much in size as they do in sound; they are generally made of buckskin strained across elongated wooden or knitted bark tubes, and are played with a stick cut in the form of the letter L. The band is superintended by one fetische-man, whose particular province it is to ensure that no drum shall burst on Customs day; he also has charge of the orchestral refreshment, which he turns to good account on his own behalf.

During the evening His Majesty sat umbrella'd under a large reception tree, surrounded by his retainers and a body-guard of twenty soldiers, armed with somewhat obsolete muskets; his grateful people then presented him with palm wine, after spilling some on the ground as libations to the fetishes; they then danced out the evening, the queen (Victoria, as my interpreter expressed it) leading off with a walk round, remarkable alike for contortions of body and face, which her dutiful subjects most successfully emulated. On retirement of the Royal party the people formed into knots and broke out into boisterous mirth, suspended only when some popular chorus was struck, and they united in one strong voice to fill the forest with strange mysterious chants—weird in sound and rhythm—harmonious though they contrived it not.

As night wore on, a fierce tornado broke over the great Adansi hill;
peals of crackling thunder followed quick on the bright tropical lightning, which lingered amongst the trees like a fixed illumination whence imaginary glades and avenues were revealed, lacking only the remnant of a grey ruin cresting the eminence to complete a thrilling picture.

Fomannah is damp to a degree in consequence of deep prevailing swamps, caused by the accumulation of rain water from the surrounding hills. It is quite a large town in its way, long and straggling in appearance, with fair buildings of the usual bamboo and mud. The king is kind and his people are happy; Quatucoe—the Prime Minister—is a most hearty old gentleman, beaming with smiles and good nature, to whom I was indebted for good advice and useful information, as well as for a duck and some yams, with which he supplemented the king's presents to me.

From Fomannah north the path is intersected by many small streams, which overflow after heavy rains, and convert the country into a morass—at times almost impassable. Captain Barrow and Mr. Kirby, who were unfortunate enough to be travelling there in the rainy season, experienced throughout their journey frightful difficulties, and were often delayed days together until some river had fallen or the morasses hardened. It is useless to calculate upon bridges, though many there are, constructed neatly out of bamboo poles transversely crossed upon joists planted in the river beds, and oftentimes bound together by old telegraph wire, left behind by the Royal Engineers after the war. When a heavy flood comes down, away goes everything, even the stone culverts constructed south of the Prah by practical surveyors. In these floods great fallen trees are even forced along until they become tightly wedged or blocked by some immovable objects. The height of these floods may be traced months afterwards by observing the deposit of water refuse upon the branches of trees, and a most unaccountable height it is sometimes.

Many uprooted trees lie across the path to Amoaful, a clear open village selected by the Ashantees for their most determined stand against our army. The neighbouring villages show a great falling off in style and finish, the paths leading to them being overgrown and neglected, rendering passage a matter of labour and difficulty.

The chief of Amoaful is a fine handsome young man about 6 feet 3 inches in height. In puris naturalibus he was as fine a specimen as one could wish to see, and a sound sportsman in the bargain, though sadly incommoded by that curse of the country, guinea-worm. This is an insect supposed by some people to be acquired by contact with impure water, as it is not infrequently found in the shoulders, where water carried on the head in bowls has been allowed to drip. It is generally to be found, however, established by burrowing in the feet and legs, which contract so soon as the painful inflammation sets in; the skin then gets tense and shiny, and when an abscess-like head is revealed the native doctors make a rough
crucial incision with an ordinary 'chop' knife, sharpened upon the nearest stone, through which one end of the worm is drawn, fastened to a stick and wound up till completely extracted. The young chief informed me with a grave face that the fetische had sent him the worm. On my asking, Why? he replied, 'I tink fetische no live for like me, so he send me guinea-worm to harm. What I can do? I no can make palaver with fetische. I "dash" him chop, but he no like, so I must pain.'

One cannot help being struck, too, at the sight of so many toeless people, suffering from the ravages of jiggers, also burrowing insects, which generally insinuate themselves through the thickened epidermis at the sides of the nails or on the sole of the foot. Their presence is detected by the feeling as of a thorn; if the part affected is not at once pricked and thoroughly squeezed, there follows a deposit of ova, which, upon maturity, cause the infected limb to wither and drop off.

The popular food in Ashanteeland is the plantain, on which they can not only subsist but thrive and work hard; native carriers, for instance, fed upon them can easily cover from twenty to thirty miles a day, carrying loads of fifty pounds weight. It can be baked, boiled, stewed, or eaten raw, the skins serving as food for sheep, the leaves as thatch, and an essential oil obtained from the stem is not only marketable, but valuable to the ladies as a shiny cosmetic for physiognomy and coiffure. The latter is made quite a scientific study; groups of girls may often be seen of an afternoon squatting on a village green having their wool trimmed and trained in all the fantastic devices of bunch, tuft, knobs and horns, to each of which lead a maze of white partings like the arcs of a circle.

Besides plantains the country produces in various parts bananas, paw-paws, limes, oranges, water-melons, grenadillas, maize, sweet potatoes, cocoa-nuts, cocoa plant, cola nuts, yams, cassava, beans, pepper, okero, ground-nut, palm kernels wine and oil, croton and castor oil. When industrious enough the people trade in monkey and other skins, sandals, mats, indigo blue, ochre, and cloths made from cotton of the country. The latter are manufactured by the men with remarkable looms of their own invention; they are dyed all manner of colours, and when completed are excellent specimens of workmanship.

A day's march from Amoaful, situate on a rise between two small valleys, is the cozy little village of Adwabim, of which my interpreter innocently informed me the headman was a woman.

The little queen, as they called her, was of prepossessing appearance, and claimed to be a near relative of the royal family, her husband being a nonentity. She and her people were in a most rueful condition in consequence of raids by the Coomassie chiefs, who were said to have robbed, slain, and devastated in the hamlet. 'Therefore,' said the chiefess, with tears in her eyes, 'I want to come for English Government. Coomassie people too much spoil me; my
young men, they all kill! my old men, they all kill! What I must
 do? I live for vex.'

I could only tell her what I had already told many others who
had appealed to me in distress, that my mission was not a political
one.

In her poverty she brought me a fowl and some yams, in return
for which she received a handsome piece of cloth intended for some
exalted potentate. My admiration for the brave little woman was
increased from the fact that she had just personally stopped a hand-
to-hand fight between two of her men subjects, and had ordered an
arbitration of the quarrel, at which she invited me to preside. I
decided. Curiosity, however, tempted me to watch the proceedings,
which were carried out in the most orderly manner until announce-
ment of the decision, whereupon the friends of both parties fell to
cudgelling each other vigorously, in which the arbitrator freely joined.

Shortly after leaving Adwabim we were met by gold cane-bearers,
whom the king had despatched from Coomassie with a message of
welcome, in reply to mine apprising him of the visit. The king's
message ran: 'The Englishman must come one time (at once) in
charge of guides waiting at Akassie.' On reaching Akassie the guides
presented themselves, and we started at 3 P.M. for the great city.
An hour later the path bifurcated, one fork looking cleared, the other
uncleared, our steps being directed to the latter by the guides, who,
in spite of all remonstrances, signified their inability to take the
direct and open course. Their action was governed by various con-
siderations: First, orders from the king; second, the rule never to
introduce strangers by the direct route; third, the medicine men
had made fetische along the road I was to travel, evidence of which
was visible from time to time in the deposit of certain phylacteries
calculated to ensure the discomfiture of any evil spirit.

We were therefore led through a perfect maze, requiring in many
cases to be cut through, and eventually reached the south-eastern
corner of the town just as the sun was sinking in all its tropical glory
through the forest on the far side. For a few moments, whilst news
of our arrival was travelling to the palace, I had leisure to scan the
aspect from this point of view, and a most disappointing one it was
Instead of a great city of streets, containing the palatial residences
of the great Ashantee nobility, it appeared little more than an ordi-
nary native town—a conglomeration of insignificant bamboo huts;
not one striking object was apparent, except it were a certain dark-
looking cluster of trees hovered over by a cloud of vultures, that may
have been routed from their foul mortuary or were airing themselves
after being satiated with carrion.

In half an hour messengers returned with the king's permission
to move on, guns were fired, drums beat, horns blown, and a number
of people lined the so-called streets leading to the one where a hut
set apart for my use was situated. Chief Bussumburu, the owner, a
genial and kind old man, was deputed to be my guardian, and
received me with all the dignified urbanity characteristic of a true
Ashantee noble. Though no warm bath or cup of tea awaited me,
there was the old man’s warm welcome and a refreshing smile upon
his face as he said, ‘Thank you, thank you’ (How are you?).
Furthermore, the clay floor was clean stained, a new straw mat lay
on the threshold, and hanging on the walls were the remains of a
looking-glass streaked through by some wondering ‘Alice’ curious to
know what mystery lay behind the mercury. This, with the addition
of an illustrated advertisement page of the Field newspaper, and a
half-used bottle of Pain-killer, constituted the furniture.

Almost before there was time to change my torn and stained
accoutrements, intelligence arrived that the king was ready to
‘receive.’ It was then dark, but torches had been provided, and,
preceded by a file of the guard, we started for the royal trysting-
place, with Bussumburu as chief of the staff.

On emerging from the so-called street into an open plot a blaze
of torchlight was revealed upon an eminence hard by the centre of
the town, to which we were guided with slow and cautious steps, in
order to avoid stumbling into the ruts and ravines—ravages of rain—
grown to an alarming extent since the senators of Coomassie have
neglected their city and centred all their energies in civil strife.

Upon the illumined eminence, under a canopy of huge umbrellas,
begirt by his retainers, sat His Majesty Quacoe Duah, a fledgling
king, who but a few days before had been invested with the sceptre 2
of Ashantee, vice his deposed uncle, Osai Mensah. His hands were
loaded with rings, his feet cased in gold-decked sandals, and a rich
green and gold-spangled toga enveloped his body. Of medium
height, well built, with a large head, open forehead, close beard, and
placid, meaningless countenance, he bore an almost striking resem-
blance in face to the present Tewfik Pasha, quasi-Khедive of Egypt.
Around him in tiers sat his nobles and chiefs, each invested in his
own state, and a vast concourse of people whom curiosity had be-
guiled to come and see the White Man. Preceded by Bussumburu,
I walked around the amphitheatre, shaking hands with the king and
others whom he indicated, and was greeted throughout by the same
simple expression, ‘Thank you.’ This ended the reception. We
then retired to an apposite eminence at some distance, and there
awaited the return visit, in conformity with Ashantee etiquette.
In the course of some minutes a dozen elephant-horns heralded forth
that the royal party were in motion, just as the moon dallied upwards
in silver streaks through the trees, whose lower leafless branches
stood out in bold relief like demons with outstretched arms. Amidst
all the revelry of all their barbarous music, the waving of torches
and umbrellas (a curious custom), came the king in full pageant,

2 The emblem of kingship in Ashantee is the Golden Stool.
preceded by his courtiers, and followed only by Owusu Kokor—the Bismarck of Ashantee—a fine, intelligent-looking man, full of characteristic feature, the whole company of magnates, from prime minister to chief executioner and king's eunuch, shaking my hand until it was well nigh paralysed.

The same night, at 11 p.m., when I had scarce lain down to rest, tired and feverish, the king was suddenly announced, and, with a portion of his retinue, including a slave child of ex-King Koffee Kalkalli, crowded the little room almost to suffocation. He had come on a private visit, to ask what 'palaver' had brought me to Ashantee, without escort or ostentation. In a few simple words I informed him that my mission was actuated purely by a desire to see the Ashantee people and their country, and was in no way whatever connected with Government. The only question his majesty put was, 'When is Captain Barrow coming to settle our palaver?'

Early next morning the horns sounded the assembly, and a summons arrived for me to attend the council. On arriving at the council courtyard, a large umbrella was sent for my benefit, and after the usual formalities I was called upon to make an explanatory 'palaver' to the king, chiefs, and people assembled. My standing up to do so was the signal for loud applause, subdued eventually by officers of the court loudly shouting 'Tjéa,' resembling in English the sound of 'Cha-ir.' When silence was restored I reiterated the statement made overnight to the king, which my interpreter addressed to the royal interpreter, and he again to his majesty and the people. A bevy of chiefs, who sat next the king's interpreter, expressed their approval of his rendering by the word 'Yeouw,' meaning 'Yes,' continually repeated. Such was the procedure. They then said, 'How is this? no white man comes here except for Queen's palaver.' On being pressed for some proof of my words, I could only think of one thing, viz., the production of my collections, ornithological, entomological, and botanical; so round they went, from hand to hand, plants and ferns, butterflies, beetles, and birds. They certainly caused much diversion, but did not clear me, for I was marched back to my quarters, and there maintained in captivity for five days—though it mattered little, for I was down with fever the whole time and callous to everything.

Meanwhile died the sister of Osoo Ansah, a Prince of the blood, now under pension at Cape Coast. After the usual protracted ceremonies of dancing, gun firing, rum drinking, and mourning, she was laid to her rest within the precincts of the palace.

On the sixth day the king and his mother, i.e., the queen (in Ashantee the royal descent runs in the female line), called to see me, bringing presents, together with an announcement of the royal pleasure that I was free again to roam—a generous offer that was generously accepted. After six days' additional residence with the freedom of the city, I started homewards, visiting en route the Kings
of Kokufu and Becquoi, who were good enough to institute special carnivals.

Being but an amateur in natural history, I can offer no professional opinions upon the characteristics of the country in that respect. The Lepidoptera are, however, a distinguishing feature; crowds of brilliant butterflies jostled each other for supremacy everywhere, in many instances tilting against me and flying straight into my bright green net, settling there as if pleased with the novelty. Prominent in the insect world are Orthoptera, especially Mantidae and Hymenoptera; but Coleoptera are, as far as I could judge, but feebly represented. But few wild animals are to be seen or heard, except at night, and then only small ones: jackals, leopards, antelopes, wild pigs, wild cats, foxes, armadilloes, monkeys, and a small animal (name unknown) that makes night hideous with its screechings, are numerous. A specimen of the Perodictitus potto, presented by me to the Zoological Society, was pronounced a rare animal (now dead). The birds of this region are considerably inferior, both in plumage and number, to those generally found in the tropics.

Coomassie of to-day needs little description: a large, ill-built, ill-regulated town, overgrown with weeds and grass. A dejected, demoralised people, scattered amongst a mass of almost tenantless houses, the homes once of a large population, now sadly reduced by war, the knife, and desertion. A perpetual terror pervades the population, a terror in marked contrast to the calm of their brethren in the Protectorate, who, untaught, untaxed, and protected, wallow through life in peaceful contentment.

The government, if such it is, may be described as imperium in imperio. What was formerly the great Ashantee monarchy is now a host of tributary states, united in one common bond to resist oppression and cast off the yoke that the king and chiefs of Coomassie are vainly trying to reimpose. Yet, though so bonded, and bound by ties of similar kindred, there is a vein of tribal animosity pervading their whole system—king against king, and chief against chief. Bloodshed and retaliation, strife and misery, are hidden from the world in that deep dark forest, which, for all we know, owns not a worthy deed nor a noble action. Its denizens are alike indifferent to death and glory; a wife is valued at six shillings, which her mother receives as the price of her wedding to slavery.

Bantama, the royal mausoleum and executioner's retreat, stands in the distance, reeking of murders—sacrifices to the gods, fiends, and policy. Nearer at hand, in their very midst, but hidden from public gaze, is a hideous noisome den, which receives what is left of Bantama's victims. But each day leads to a brighter future; each germ of civilisation infused into the country must bear its good fruit, and tend to propagate the sentiment that human life is sacred.

GODFREY Y. LAGDEN.
THE UNIVERSITIES AND THE POOR.

Once more, as happens in crises of history, rich and poor have met. 'Scientific charity,' or the system which aims at creating respectability by methods of relief, has come to the judgment, and has been found wanting. Societies which helped the poor by gifts made paupers, churches which would have saved them by preaching made hypocrites, and the crowning work of scientific charity is the working man too thrifty to pet his children and too respectable to be happy. Those who have worked hardest at planning relief and bringing to a focus the forces of charity, those who have sacrificed themselves to stop the demoralising out-relief and restore to the people the spirit of self-reliance, will be the first to confess dissatisfaction if they are told that the earthly paradise of the majority of the people must be to belong to a club, to pay for a doctor through a provident dispensary, and to keep themselves unspotted from charity or pauperism. There is not enough in this hope to call out efforts of sacrifice, and a steady look into such an earthly paradise discloses that the life of the thrifty is a sad life, limited both by the pressure of continuous toil and by the fear lest this pressure should cease and starvation ensue.

The poor need more than food: they need the knowledge, the character, the happiness which is the gift of God to this age. The age has received His best gifts, but their blessings have fallen mostly to the side of the rich.

It is a moment of Peace. To-day there are no battles, but the returns of the dead and wounded from accidents with machinery and from diseases connected with trade show that there are countless homes in which there must still be daily uncertainty about the father's return, and many who are made orphans and widows for their country's good.

It is an age of Knowledge. But if returns were made either of the increased health due to the skill of doctors and sanitarians, or of the pleasures due to the greater knowledge of the thoughts and acts of other men in other times and countries, it would be shown that neither length of days nor pleasure falls to the lot of the poor. Few are the poor families where the mother will not say, 'I have buried many of mine.' Few are the homes where the talk has any subject beyond the day's doings and the morrow's fears.
It is an age of Travel, but the mass of the poor know little beyond the radius of their own homes. It is no unusual thing to find people within ten miles of a famous sight which they have never seen, and it is the usual thing to find complete ignorance of other modes of life, a thorough contempt for the foreigner and all his ways. The improved means of communication, which is the boast of the age, and which has done so much to widen thought, tends to the enjoyment of the rich more than of the poor.

It is an age of the Higher Life. Higher conceptions of virtue, a higher ideal of what is possible for man, is the best gift to our day, but it is received only by those who have time and power to study. 'They who want the necessaries of life want also a virtuous and an equal mind,' says the Chinese sage, and so the poor, being without those things necessary to the growth of mind and feeling, lose also Salvation, the possession of a life at one with the Good and the True.

Thus it is that the poor miss the best things, and those who have cared for them are not content with the hope offered by 'scientific charity.' They see that the best things might be common, and they cannot stand aside and do nothing. 'The cruellest man living,' it has been said, 'could not sit at his feast unless he sat blindfold,' and those who see must do something. They may be weary of revolutionary schemes, which turn the world upside down to produce after anarchy another unequal division; they may be weary, too, of philanthropic schemes which touch but the edge of the question. They may hear of dynamite, and they may watch the failure of an Education Act, as the prophets watched the failure of teachers without knowledge. They may criticise all that Philanthropists and Governments do, but still they themselves would do something. No theory of progress, no proof that many individuals among the poor have become rich, will satisfy them; they simply face the fact that in the richest country of the world the great mass of their countrymen live without the knowledge, the character, and the fulness of life which is the best gift to this age, and that some thousands either beg for their daily bread or live in anxious misery about a wretched existence. What can they do which revolutions, which missions, and which money have not done?

It is in answer to this question I make the suggestion of this paper. I make it especially as a development of the idea which underlies a College Mission. These Missions, if I understand them rightly, are generally inaugurated by a visit to a college from some well-known clergyman working in the East End of London or in some such working-class quarter. He speaks to the undergraduates of the condition of the poor, and he rouses their sympathy. A committee is appointed, subscriptions are promised, and after some negotiations a young clergyman, a former member of the school or college, is appointed as a Mission curate of a district.
He at once sets in motion the usual parochial machinery of district visiting, mothers' meetings, clubs, &c. He invites the assistance of those of his old mates who will help; at regular intervals he makes a report of his progress, and if all goes well he is at last able to tell how the district has become a parish.

The Mission, good as its influence may be, is not, it seems to me, an adequate expression of the idea which moved the promoters. The hope in the College was that all should join in good work, and the Mission is necessarily a Churchman's effort. The desire was, that as University men they should themselves bear the burdens of the poor — and the Mission requires of them little more than an annual guinea subscription. The grand idea which moved the college, the idea which, like a new creative spirit, is brooding over the face of Society, and is making men conscious of their brotherhood, finds no adequate expression in the district church machinery with which, in East London, I am familiar. There is little in that machinery which helps the people to conceive of religion apart from sectarianism, of a Church which is 'the nation bent on righteousness.' There is little, too, in the ordinary parochial mechanism which will carry to the homes of the poor a share of the best gifts now enjoyed in the University.

Imagine a man's visit to the Mission District of his college. He has thought of the needs of the poor, and of the way in which those needs might be met. He has formed in his mind a picture of a district where loving supervision has made impossible the wretchedness of 'horrible London;' he expects to find well-ordered houses, people interested in the thoughts of the day, gathering round their pastor to learn of men and of God. He finds instead an Ireland in England, people paying 3s. or 4s. a week for rooms smaller than Irish cabins, without the pure air of the Irish hillside, and with vice which adds depth to squalor. He finds a population dwarfed in stature, smugly content with their own existence, ignorant of their high vocation to be partners of the highest, and even the children are not joyful. He measures the force which the Mission curate is bringing to bear against all this evil. He finds a church which is used only for a few hours in the week, and which is supported at a cost of 150l. a year. He finds the clergyman absorbed in holding together his congregation by means of meetings and treats, and almost broken down by the strain put upon him to keep his parochial organisation going. The clergyman is alone, and his church work dissipates his power and attracts little outside help. What can he do to improve the dwellings and widen the lives of 4,000 persons? What can he do to spread knowledge and culture? What can he do to teach the religion which is more than church-going? What wonder if, when he is asked what help he needs, he answers, 'Money for my Church;' 'Teachers for my Sunday school;' 'Managers for my
clothing club.' What wonder, too, if the visitor, seeing such things and hearing such demands, goes away somewhat discontented, somewhat inclined to give up faith in the Mission, and, what is worse, ready to believe that there is no way by which the best can be given to the poor. It is to members of the Universities anxious to unite in a common purpose of bettering the lives of the people, that I make the suggestion that University Settlements will better express their idea. College Missions have done some of the work on which they have been sent, but in their very nature their field is limited. It is in no opposition to these missions, but rather with a view to more fully cover their idea, that I propose the new scheme. The details of the plan may be shortly stated.

The place of settlement must of course first be fixed. It will be in some such poor quarter as that of East London, where a house can be taken in which there shall be both habitable chambers and large reception rooms. A man must be chosen to be the chief of the Settlement; he must receive a salary which, like that of the Mission curate, will be guaranteed by the college, and he must make his home in the house. He must have taken a good degree, be qualified to teach, and be endowed with the enthusiasm of humanity. Such men are not hard to find; men who under a wiser Church government would be clergymen, and serve the people as the nation's ministers; but who, under a Church government which in an age of reform has remained unreformed, are kept outside, and fret in other service. One of these, qualified by training to teach, qualified by character to organise and command, qualified by disposition to make friends with all sorts of men, would gladly accept a position in which he could both earn a livelihood and fulfil his calling. He would be the centre of the University Settlement. Men fresh from college or old University men would come to occupy the chambers. Lecturers in connection with the University Extension Society would be his fellow-lecturers in the reception rooms. As the head of such a Settlement he would be welcomed by all such classes in his new neighbourhood.

The old Universities exercise a strange charm, and the Oxford or Cambridge man is still held to possess some peculiar knowledge; the fact that three of the most democratic boroughs are represented by University professors has its explanation. 'He speaks beautiful German, but of course those University gentlemen ought to,' was a man's reflection to me after a talk with a Cambridge professor. Those, too, who may be supposed to know what draws in an advertising poster, are always glad to print after the name of a speaker his degree and college. Thus it would be that the head of the Settlement would find himself as closely related to his new surroundings as to his old. The same reputation, which would draw to him fellow-scholars or old pupils, would put him in a position to discover
the work and thought going on around him. He would become familiar with the teachers in the elementary and middle-class schools, he would measure the work done by clergy and missionaries, he would be in touch with the details of local politics; and more than all, he would come into sympathy with the hope, the unnamed hope, which is moving in the masses.

The Settlement would be common ground for all classes. In the lecture room the knowledge gathered at the highest sources would, night after night, be freely given. In the conversation rooms the students would exchange ideas and form friendships. At the weekly receptions of all sorts and conditions of men the settlers would mingle freely in the crowd.

The internal arrangements would be simple enough. The Head would undertake the domestic details and fix the price which settlers would pay for board and lodging. He would admit new members and judge if the intentions of those who offered were honest. Some would come for their vacations; others occupied during the daytime would come to live there. University men, barristers, Government clerks, curates, medical students, or business men, each would have opportunity both for solitary and for associated life, and the expense would be various to suit their various means. The one uniting bond would be the common purpose, 'not without action to die fruitless,' but to do something to improve the condition of the people. It would be the duty of the Head to keep alive among his fellows the freshness of their purpose, 'to recall the stragglers, refresh the outworn, praise and reinspire the brave.' He would have, therefore, to judge of the powers of each to fill places to which he could introduce them. To some he would recommend official positions, to some teaching, to some the organisation of relief, to some the visiting of the sick, and thus infuse new life into existing churches, chapels, and institutions. Others he would introduce as members of Co-operative Societies, Friendly Societies, or Political Clubs. He would so arrange that all should occupy positions in which they would become friends of his neighbours, and discover, perhaps as none have yet discovered, how to meet their needs.

To such an institution it is easy to see how development might be immeasurable. A born leader of men surrounded by a group of intelligent and earnest friends, pledged not 'to go round in an eddy of purposeless dust,' and placed face to face with the misery and apathy they know to be wrong, would of necessity discover means beyond our present vision. They would bind themselves by sympathy and service to the lives of the people; they would bring the light and strength of intelligence to bear on their government, and they would give a voice both to their needs and their wrongs. It is easy to imagine what such settlers in a great town might do, but it will be more to the point to consider how they may express the idea which
underlies the College Mission, the interest of centres of education in the centres of industry, and the will of University men to improve the condition of the people.

If it be that the Missionary's account of his Mission district fails at last to rouse the interest of his hearers, and if his work seems to be absorbed in the effort to keep going his parochial machinery, amid a host of like machines, the same cannot be the fate of the Settlement.

Some of the settlers will settle themselves for longer periods, and those who are occupied during the daytime will find it as possible to live among the poor as among the rich; but there must also be room for those who can spend only a few weeks or months in the Settlement, so that men may come, as some already have come, to spend part of a vacation in serving the people. This interchange of life between the University and the Settlement will keep up between the two a living tie. Each term will bring, not a set speech about the work of the Mission, but the many chats on the wonders of human life. The condition of the English people will come to be a fact more familiar than that of the Grecian or Roman, and the history of the College Settlement will be better known than that of the boat or the eleven. Thoughts, too, and feelings now too often spent in vain talks at debating societies, will go up to refresh those who are spent by labour, or find an outlet in action. There is no fear that the College Settlement will fail to rouse interest. Its life will be the life of the College. As long as both draw their strength from the common source, from the same body of members, the sympathy of the College will be with the people. Nor is there any fear lest the work of the settlers become stereotyped, as is often the case with the work of Missions and Societies. Each year, each term, would alter the constitution of the Settlement as other settlers brought in other characters and the results of other knowledge, or as their ideas became modified by common work with the various religious and secular organisations of the neighbourhood. The danger, indeed, would not be from uniformity of method or narrowness of aim; rather would it be the endeavour of the Head to limit the diversity which many minds would introduce, and restrain a liberality willing to see good in every form of earnestness. The variety of work which would embrace the most varied effort, and enlist its members in every movement for the common good, would keep about the Settlement the beauty of a perpetual promise.

If we go further and ask how this plan reaches deeper than others which have gone before, the question is not so easily answered, because it is impossible to prophesy that a University Settlement will make the poor rich or give them the necessaries of true life. Inasmuch, though, as poverty—poverty in its large sense including poverty of the knowledge of God and man—is largely due to the division of classes, a University Settlement does provide a remedy
which goes deeper than that provided by popular philanthropy. The poor man of modern days has to live in a quarter of the town where he cannot even try to live with those superior to himself. Around him are thousands educated as he has been educated, with taste and with knowledge on a level with his own. The demand for low things has created a supply of low satisfactions. Thus it is that the amusements are unrecreative, the lectures uninstructive, and the religion uninspiring. It is not possible for the inhabitant of the poor quarter to come into casual intercourse with the higher manners of life and thought except at a cost which would constitute a large percentage of his income.

I am afraid that it is long before we can expect the rich and poor again to live as neighbours: for good or evil they have been divided, and other means must, for the present, be found for making common the property of knowledge. One such means is the University Settlement. Men who have the knowledge may become friends of the poor; they may share that knowledge and its fruit as, day by day, they meet in their common rooms for talk or for instruction, for music or for play. The settlers may join in all that is done by other societies, but they, as members of no other society, may share all their best with the poor, and in the highest sense make their property common. They may be the best charity agents, for they will have an experience out of the reach of others, which they will have accumulated through their different agencies. Members of various secular and religious organisations, they may be able to compare notes after the day’s work, and offer evidence as to how the poor live which, in days to come, will be invaluable. They may be the best educators, for bringing ever-fresh stores of thought, they will see the weak spots in a routine which daily tires a child because it does so little to teach him, and they will have an opinion on national education better worth considering than the grumbles of those wearied with most things, or the congratulations of officials who judge by examinations. They may be the best Church reformers, for they will make more and more manifest how it is not institutions but righteousness which exalts a nation; how, one after another, all reforms fail because men lie and love self; and how, therefore, the first of all reforms is the reform of the Church, whose mission for the nation is that it create righteousness.

There is, then, for the settler of a University Settlement an ideal worthy of his sacrifice. He looks not to a Church buttressed by party spirit, nor to a community founded on self-helped respectability. He looks rather to a community where the best is most common, where there is no more hunger and misery, because there is no more ignorance and sin—a community in which the poor have all that gives value to wealth, in which beauty, knowledge, and righteousness are nationalised.

Samuel A. Barnett.
'CRAMMING' IN ELEMENTARY SCHOOLS.

The justly called 'Revised Code' of the Committee of Council on Education, which has never, from its birth in 1862, ceased from annual revision, seems at length to have thrown out, by the mere force of nature, a symptom of a simpler method, which has lain hidden under the mass of mistaken experiments. Let us see if it may be capable of further development.

As Vice-President in 1859 I collected together, and arranged in order, all the Minutes of Council by which the Office had made its first attempts to meet the new desire of the country to aid with public money the voluntary efforts of societies to educate the poorer and neglected classes. Lord Sherbrooke, then Mr. Robert Lowe, succeeded to the office, and in 1862 introduced the 'Revised Code,' which was a body of regulations on a new principle, namely, the payment of aid to national schools by a series of little grants on results of the instruction of each individual child, ascertained by annual examinations of inspectors. The original system had been chiefly by an augmentation of the salaries of teachers given by voluntary societies.

The general principle of the public aid was admitted to remain unaltered by Mr. Lowe in his speech introducing his revision of the mode. He stated, February 13, 1862, the object to be to promote education among the labouring poor by means of giving public assistance to voluntary efforts in schools connected with some recognised religious denominations, in which, besides secular instruction, the Scriptures are read daily from the Authorised Version.

He added:—'The religious element underlies the whole system of Privy Council education.'

I do not quote this language here by way of raising any question as to the subsequent departure from this principle both as to the class of children dealt with, and the religious instruction required; but only that, in discussing the new mode of payment for education by numerous little instalments on individual results of secular instruction, it may be borne in mind that this novelty has grown up with a departure from the original principle.

Mr. Lowe gave as the reason for his change in the mode of payment, that
he found a system tentative, provisional, and preliminary, and he desired to make it definite and final—a system in which the education of this country could ultimately repose and find peace after so many stormy epochs. He thought 'the only possible condition under which, without a reckless expenditure of public money, teachers of an inferior class could be employed in the national schools would be on the understanding that there should be some collateral and independent proof that such teachers do their duty; and that could only be in a system of individual examination.'

The chief faults he found with the old system, besides this want of check against reckless expenditure, were the partiality of its action, giving most to the wealthiest places; and its complexity, owing to the number of persons it had to deal with, making the correspondence and payments exceedingly complicated, especially as carried on with charitable volunteers. Such a system, he thought, was destructive of the proper control of the House of Commons. I need scarcely stop to ask whether the 'payment on results' was likely, or in practice has been found, to remedy any one of these faults of expensiveness, partiality, or complexity. The remedy has on all points been far worse than the disease. But Mr. Lowe comprehensively condemned the old mode of payment as having failed to obtain good education, and he came to the conclusion that the kind of inspection incidental to it 'was not calculated to test in a crucial manner the merits of a school.' He laid down as a general proposition 'that inspection, as opposed to examination, is not, and never can be, a test of the efficiency of a system of national education.' He found the Reports full of such phrases as 'the average proficiency of the children'—nothing relating to a particular child—'the moral atmosphere,' 'the tone,' the 'mental condition,' not of the children, but, as an abstract idea, of the school. The inspection, he thought, failed to ascertain the actual results of the teaching on each individual child; it vainly supposed that the mechanical results must follow religious and moral training, on which supposition Diogenes might have saved himself his lantern in search of an honest man. He concluded that till a closer examination was introduced into our schools good elementary teaching would never be given to half the children who attended them. But what we have now to consider, by the light of a quarter of a century of experience, is whether the system of paying for education by individual results of examination has led to all the children being equally well taught, or has not rather led to the reverse; also, whether the two systems of payment are fairly compared as in contrast between processes of vague inspection and crucial examination—examination being also incidental to the former process, and the latter being vitally deficient if not accompanied with general inspection.

Mr. Lowe endorsed an opinion of one of his Inspectors, Mr. Watkins, that too many results of instruction could not be expected

---

in the early and short training of such young children. He already began to think the system was overshooting its mark, and therefore missing it; and, so far from wishing to keep workmen's children away from work in order to get fragments of knowledge by heart, he agreed with the Commissioners:—

Independence is of more importance than school education; if the wages of the child's labour are necessary to keep the parents from the poor-rates or to relieve the pressure of severe and bitter poverty, it is far better that their child should go to work at the earliest age after its first training at which it can bear the physical exertion than that it should remain at school.

Bishop Wilberforce altogether controverted the assumptions on which the 'Revised Code' was based. He thought the test of education by sole examination and production of apparent results of individual instruction utterly fallacious, and likely to lead to a mischievous system of cramming. He considered that the very high stamp of men whom we had appointed to inspect our schools indicated an intention of a higher kind of test than by mere examination of mechanical results—"a gauge of the moral, intellectual, and religious training of the school." He said:—

The result of such an examination honestly and truly reported, could only be gathered from innumerable little incidents which the practised eye of the inspector easily deciphered—the look of the children, the brightness of their countenances, the cleanliness of face and hands, the tidiness, the mutual bearing of child to child and of the children to the pupil-teachers and masters—all these, besides, and coupled with, the examination of school learning, enabled a highly educated and intelligent inspector to say whether the school deserved the Government support and recognition. Under the process of the Revised Code the examination would be only how far each child is up to the officially prescribed mark in the most mechanical part of its training, and each child would get an infinitesimal portion of the inspector's time, and the least benefit of his large judgment.

But, whatever the faults of the original system of public aid to national schools, and whatever the merits of the revised system, we have assuredly much practical experience of the faults of the latter.

By announcing as our scheme of national education a public subvention to primary schools of so many shillings apiece on specified samples of individual instruction, we omit from our entire estimate of education all its principal objects—discipline, moral influence, formation of character, even improvement of intellectual faculties; requiring, only, the production, by hook or by crook, on an advertised exhibition-day, of some apparent fruits of study.

The payment of teachers for show results, no matter the process or incidental culture, might be paralleled by the payment of gardeners for planting, in or out of season, a shrubbery of evergreens for show on a special occasion, no matter its dying off immediately after, or for hanging artificial fruit on barren trees for a gala display.

The minute specification of results to which payment is to be

attached, guarded by innumerable securities against trickery and imposture, has ended in involving teacher and taught in a Government labyrinth of syllabus, the puzzling effect of which is, perhaps, its highest exercise of intellect. As for the teachers, they must be absorbed in perpetual anxiety by the consequent precariouslyness of their income. What is worse, their attention must be naturally concentrated on securing the highest prizes; and children who in any way cease to be the means of winning them attract the less attention—the phrase is, 'are no good to them.' The teacher's interest in his work, and command of any special talent he may naturally possess for it, is narrowed within the Government groove of minute specification.

The very text-books in use are advertised as composed 'to meet the Code.' *Hic meret ara liber Sosiis.*

Mr. Matthew Arnold, in a report made after five years' experience, went so far as to say, 'A decline of intellectual life is distinctly due to the mechanical work of examination which the Revised Code has introduced.'

The unlimited strain for results of the least valuable kind has actually led to the nervous prostration of the teachers themselves, of which we have heard many complaints lately. This forms a prominent feature of lamentation in the Boston Reports of last year, though in the primary schools of the United States there is no such high pressure for show as in ours.

Mr. Lowe complained of 'partiality' in the action of the old system of Government grants—a fault obviously attaching much more to his substitute of payment on results. The larger the school the easier the production of such results, and the grants made upon them must disproportionately enrich the urban and wealthier districts least needing any aid at all. It is, moreover, as absurd to expect the same results of teaching to be got from children of town artisans and of country labourers as it is to take the same figures to indicate the electoral franchise likely to be made independent use of in town and country; or to assert that equality of right demands an identity of institutions in countries of widely different stages of civilisation and of opposite appreciation of law.

Another evil tendency of payment for education on results of teachings is to exaggerate, in mere vanity and ostentation, the definition of the results intended, both in terms and in the prescribed undertaking. Popularly elected school boards are always urging the Government to magnify their office. Not an annual revision of the Code takes place but the Council Office is pressed to add some new subject to their catalogue. I once heard a Lord President admitting to a deputation so pressing him, that there were many subjects under

---

3 *Education Reports*, 1867.
4 See an admirable article in the January number of the *London Quarterly Review*.
heaven worth studying, but deprecating the addition of all of them to the official programme for elementary schools. A fresh 'specific subject' is regarded, says Mr. Alderson, by the teachers as 'a possible streamlet from the Parliamentary milk cow towards which they are guided by an intelligent forecast of its grant-yielding capacity.' But it is more from the ambition of managers than the hunger of teachers that the Code gets developed in grandeur. Members of Public Boards become lavish of expenditure which they had grudged from their private pockets; and they gain popularity by great professions in the people's name, neither the nature nor the cost of which they know much about, nor whether the results can be anything but a show; though the expenditure is the same, be the subjects really taught or not. Not a few of the declaimers in the House of Commons for advanced elementary education are the same men as shout the louder applause of any Latin or Greek quotation in debate, the less their glimmer of its meaning. The American Education Reports are full of complaints of a like declamation from 'doctrinaire politicians.' They lament the 'ambitious and impracticable programme of study;' and plead that 'knowledge even is a useless thing as an end.'

The programme of subjects for grants in the 'Code' is as grand in its terms as misleading in its proposed treatment of them.

Inceptis gravibus plerunque et magna professis
Purpureus, late qui splendest, unus et alter
Assuitur pannus.

For examples of grand terms, 'God save the Queen' is called English literature; quadratic equations, mathematics; cooking a mutton chop, domestic economy.

On the other hand, what might well be popularly taught in the early practice of the art of reading is attempted more showily as incipient scientific study, which is in very rare instances followed up, and the nomenclature of which is an unintelligible jargon committed to temporary memory, wasting the little and precious time due to elementary instruction. For instance, grammar is attempted in the way of scientific analysis of sentences. Botany has no such 'Field-book' as is used in the Boston primary schools, but is presented to boys going to work at thirteen as a study of vegetable anatomy and physiology, applied to the classification of plants as monocotyleda, dicotyleda, &c. It was lately officially asserted that there was no difference between primary and secondary instruction except in the ages of the pupils; and, considering that the highest age at our national schools is fourteen, and very few can remain away from work beyond thirteen, the Office could hardly have better exposed its error. More wise is the language of the Massachusetts Report:

---

5 Massachusetts Board, 43rd Annual Report, 1880; and Boston School Document, No. 30, 1879.
The relation elementary holds to secondary education is the one preparing the mind for the other. A knowledge of plants prepares the mind for the science of botany; a general knowledge of language, for the study of grammar; familiarity with the facts of any science, for the scientific study.

It is this indiscriminate and ambitious advertisement of national education by a priced catalogue of show articles that has caused the public provision to be laid hold of by a higher class than that intended to be provided for, and the deprivation of the latter class of their due.

This is the way in which elementary education is being attempted to be stretched over secondary, to the grievous injury of both; the first being neglected, and the second offered as a cheap makeshift to the middle and most important class of the nation's children, who could, and would, otherwise get much sounder education. The very pseudonym is sneaking into use of 'higher elementary' schools, and tradesmen are getting their children a so-called middle-class education at the aristocratic-blemismary price of ninepence a week. At the same time, many of the children intended to be educated by public aid may be seen, in spite of compulsory-attendance enactments, turning as wheels at railway stations for a copper from the passengers, or screaming halfpenny papers about the streets. The middle-class say they have a right to use what they pay for; not seeing that what they pay rates for is elementary education, such as they may take, if they like, in company with those too poor to get it for themselves; but that the secondary education which they hope to make it serve their children for must be a very imperfect secondary education, not at all what they are paying rates for, nor what their children properly want. Independent middle-class schools alone can give them in this country what their children really need beyond elementary education. It is remarkable that in the last Boston Reports the same tendency to lean on substitutes for self-help is thus noted: 'The State supplying text-books to parents who plead poverty has revealed an unexpected condition of poverty. We are, in fact, being led into vainly giving advanced education to numbers who ought not to be in these schools at all.'

The last mischief I will note among the vices of our annual catalogue of grants on results is the perpetual and intricate changes it entails. Every new Minister, of course, adds a mark or two of his own spécialité. Every year has its crop of higher advertisement. Vain, indeed, was Mr. Lowe's hope of arriving at finality by his 'Revised Code.' Finality has been the special recommendation of every annual revision since. The last revision was expressly devoted to the extinction of all possible alteration. So grave was the announcement that a year of grace was allowed to prepare men's minds for the acceptance of such an ultimatum. The year of grace, however, was spent in making some of the most important changes yet
introduced, and one of them an apparently unconscious admission of the true principle which, properly applied, would supersede all the rest, namely, the 'merit grant.'

Let us consider how this 'merit test' might be made comprehensive and complete. We may be fairly asked what better regulation of public aid to elementary national schools we propose to substitute for payment on results, by which we might avoid the mischief of the present system, while securing efficiency of work and a proper standard of instruction.

We might take a hint from our American cousins. Their educational system is always held up to us as a model; and the principle on which they provide education for the sovereign people is naturally a high one, stated by the Boston Board to be that 'general intelligence is necessary to the existence of a free State.' Our comparison, however, will be fairly made as between the provisions here and there intended for elementary schools. The education which the Americans legally require to be provided for by public funds is, after all, of a minimum standard, such as we should call primary. Such is their demand for hands as soon as available for work, that many of their schools are not kept open all the year round. As is observed in the London Quarterly above referred to, 'a very plain education is quite sufficient in America to open the way to more than competency.' The higher 'education of the States in all departments is not in tax-supported schools.' High schools are rare; only one exists in Philadelphia, with a million inhabitants, and the best correspond with our town middle-class schools.

A general tax is levied on all property in every State to provide a 'school-fund'—and, quoting from the Massachusetts General Statutes, chap. 36:—

One half of the annual income of the State school-fund is to be distributed to all the cities and towns of the commonwealth for the support of public schools, without a specific appropriation. Each city and town complying with all the laws in force relating to the same shall annually receive a share in proportion to its valuation of real and personal estate, in inverse ratio to the amount of its valuation; and the income so received shall be appropriated by the school committees. All money appropriated for other educational purposes shall be paid from the other half of the State school-fund.

Any deficiency on the local account is made up by the city or town from its own revenue, on a capitation rate for all children in the school district between the ages of 5 and 15. Any surplus income is put to the account for the ensuing year.

A general programme of subjects of instruction is laid down by the school committees, with specification of the books to be used. This official prescription of text-books, I may here observe, is made on a principle scarcely applicable to this country, and thus laid down by the Massachusetts Board:—
The children of the State grow up together in the same schools, and so gain that common sympathy which will lead them to labour together in the administration of a free government, and to secure for the people a common freedom. For these reasons the State holds in its own hands the power to determine the character and extent of that education which its own safety requires all its children to possess.

The effects are by no means praised by the Secretary in his report. He says: 'Assigning lessons from text-books is not teaching; our school system is deficient in the courses of studies.'

Here comes in the mainstay of their success—the system of supervision, parallel with our inspection. They say: 6—

While anything partaking of the nature of State interference with the local management is foreign to the spirit of our institutions, a system of superintendence is necessary to guide the schools to the most productive results. Knowledge sinks into insignificance in comparison with intellectual and moral training; but the teaching best adapted to increase useful knowledge produces the truest outline of mind and heart. The teacher makes the school, but the teacher is found or made by the supervisor. It is his business to seek the best teacher the market affords, assign him to his place, help him to plan and organise, and to remove obstacles without and within.

The supervisors are expected to ascertain, in examinations of classes from time to time, that a certain standard in each branch of the studies of each class is adequately reached; in reading, with reference to mechanical execution and expression; for writing, in its various aspects of penmanship, punctuation, spelling, composition, &c.; in arithmetic, both as to written and mental exercise. The time taken for the examination of a class is about an hour. There is no such individual report as was thought necessary by Mr. Lowe to insure a quid pro quo for school expenditure. They select the best teachers, trained in normal schools, for the primary schools, and pay them salaries in proportion to the difficult nature of their work, and consider that the office of teacher would be injured and degraded by any insecurity of remuneration disturbing their minds, and taking away their courage and freedom.

We may find a parallel in our system with the American in the double public support of schools, partly from State and partly from local revenues. In the case of our voluntary schools, subscriptions take the place of local rates. The school fees paid here may seem to contrast with the free-school system there. But the arguers for free schools here mean only that fees should be absorbed in rates, and that all should pay for what some only use. This is rather in opposition to free and fair principles in this country, which would suggest at least a small part of the cost of education being taken off the public at large by the limited number of actual recipients, to say nothing of the interest and independent feeling caused by personal contribution.

6 Boston Report, 1880, p. 171.
We might adopt the American mode of calculating the whole sum required for national schools throughout the kingdom, and, having settled the proportion of central and local contribution, with the least possible modification of our present plans, secure the full support of all our schools, and get rid of the uncertain and misleading payment of teachers on the production of various results in detail.

The whole sum annually required by any school or school district could be ascertained by multiplying a given average cost per child by the number of school age according to the census of population, deducting a percentage of those having independent education. The capitation cost would probably vary, between town and country districts, from 30s. to 40s. a year. The Treasury contribution would, as in the American plan, depend on the rateable value of the property in the school district, varying in inverse ratio with its amount. In the debate on the Act of 1870 the maximum local rate that would be required was put at 3d. in the pound. The extravagance of school boards, consequent on the present system, has gone much beyond this maximum, and is loudly calling for some check. Supposing, for illustration, a 6d. maximum, then, in a wealthy town, where the sum required would be raised by half such a rate, the Treasury contribution would bear a less proportion. In a poor village, or group of villages, in which to raise the sum it might require a levy of the maximum rate, the Treasury would contribute more. The payers of local rates and fees would have to make up any deficiency in the year's account, or take any surplus to their credit for the ensuing year. The merit of the Treasury contribution is its incidence on all property, and the object of sufficiently localising payment is to keep up interest, economy, and zeal in recruiting the attendance on which the capitation is calculated.

The plan so suggested would vary chiefly from our present plan in fixed salaries of teachers, their freedom in the course of teaching, and in the effect and manner of inspectors' reports.

It is thought by some that fixing salaries would destroy all incentive to the teachers' exertion, which would be worse than the diversion of their attention, caused by the present system, from general education to winning certain prizes, with the consequent precariousness of their livelihood, and overstraining of their strength. But the fixed salaries would be larger and smaller in amount, varying in value partly according to the certificate obtained from training colleges, and partly by the market demand. There might also be an elastic fringe, as it were, attached to the fixed minimum, as is the practice at Liverpool and other places, in the shape of bonuses from the managers for specially good conduct of their schools; or a sliding scale of salaries, as in many Scotch schools. In Birmingham the head masters, at their first coming, take the Treasury grants generally as part of their pay, but after proof of competency they receive
fixed salaries from the Board, with extra bonuses for specially good service.

The freedom with which good teachers would, on the proposed plan of payment, apply individual talent to the best effect in their whole conduct of their schools, liberated from the cramping machinery and groove of the Code, is a grand desideratum. 'We would say,' writes the Boston Secretary, 'to the teachers, Follow out the programme as far as you can, and if you cannot fill twelve pages well, content yourself with less. Above all things, avoid cramming.'

There are, however, qualifying considerations to be borne in mind in fixing salaries. It will not do to give young masters, at first starting, the full value of their certificates, so as to hold out no prospect of advance; nor that the older labourers in the vineyard should see them receiving the same penny with themselves. Fixed salaries should be graduated partly by time of service as well as by certificate; besides which the market would put higher value on continued good reports.

But why should not the highest promotion be held out in the way of appointments to the chief inspectorships? This is so in Germany and in Scotland. Our experience has already called for two grades of assistant-inspectors. It is probable that among the best masters practically better inspectors might be found than the highly-educated and high-standard university classmen, who, undertaking the office at earlier age and with less acquaintance with the sort of schools, incline rather to overshoot the mark as beneath them.

Some, no doubt, will say that the plan of payment proposed would fail to keep up the standard of teaching, but these are the very persons who hold up the American system as a model. If it maintains a higher standard of teaching there than ours, and combines with it a test of more important matters of education, as is asserted, why should an inferior result follow here? In America, certainly, the methods, the standards, and all the details of the education, are left to be determined locally by the authorities of the school district; whereas the alteration of the mode of paying teachers here proposed would leave the programmes of instruction mainly to the central Office, with only a limited choice of the specified subjects to the School Boards. But that difference does not affect the question whether the more general inspection, combined with casual examination, would be likely, as compared with testing individual results in detail, and paying the teachers accordingly, to lower the standard of teaching by its vagueness and inaccuracy.

At all events, any one of our present inspectors, men of such high position, intelligence, and independence, could, by frequent unexpected visits to schools, observing the conduct of them, and examining a class or two at each visit, satisfy himself, and faithfully
report to the central Office whether the school deserved recognition and support, or needed a change either of master or of other parts of its establishment.

It is said that inspectors might be shy of judging a school on the whole issue of its merits, as a condemnation might involve too serious consequences to those engaged in its conduct, whereas, on the present plan, they freely give judgments on details involving small consequences except in the unseen aggregate. But one of the most experienced inspectors, Mr. Alington, volunteers this observation in one of his reports:—

As to the immense proportion of passes, examiners, so far from finding judgments in detail easy, find their minds, from the very minuteness of the points, so balancing and hesitating that the results are not satisfactory.

An inspector's report of a school as in any respect unsatisfactory would lead to the Treasury grant being withheld if the defect were not in due time redressed. If the report were condemnatory of the master or mistress, warning should be given, and, the condemnation continuing, the unfit teacher would have to be displaced, which is no more than due for the sake of the school. It cannot be decently pleaded in favour of the present plan that it escapes from such a contingency. It might often happen that a master found incapable of conducting a large or urban school might be properly transferred to a smaller or rural school; and certificates might be lowered or suspended for a time, as is done in the case of shipmasters' certificates.

Can it be feared that the Education Department would not have enough occupation if stripped of its function of dispensing multifarious grants? Vice-presidents certainly could no longer indulge their own or their clients' fancies in endless varieties of new prescriptions; but the relief to managers and teachers would immensely facilitate and practically utilise the proper official functions of general supervision and account, and the work of aiding elementary education throughout the country would be likely to improve in quantity as it certainly would in quality.

But if the Education Department were to find the change of method give them any time to spare, there are crowds of children in industrial schools not only properly, but primarily, belonging to their educational care, who are now as mischievously as senselessly consigned for education to the Police Department—a stepmother to their interests, and an ill trainer of them for the public service.

The present anomalous ministry of public education by a Committee of the Council Office is instructively expressive of an undecided view of the work in hand. Whatever may be thought of an Education Minister, the responsibility of any executive department should rest with a distinct Minister.

It is symptomatic of confusion of ideas that the President should, besides presiding over the Council, and supervising cattle plague,
quarantine, and heterogeneous other matters, have been lately able to undertake the Viceroyalty of Ireland in rebellion while still theoretically, and even sensitively, responsible for his Vice-President's independent educational experiments in England, and that School Boards under him were largely borrowing public money for undertakings far outside his, or any parliamentary, authority.

In such a state of things it is that our Government aid to elementary education is attempting a flight into Continental bureaucracy over the general education of the nation, which, if Mr. Mundella's strongly avowed German preferences lead us vainly to imitate it, must fail against an antagonistic English spirit, however damaging to it the attempt may be.

The attempt has already led the Minister astray from aiding the elementary education of those most needing his help, in vain ambition of higher work, while the independent middle classes instinctively resent his hindrance of their providing far better education for themselves.

But, of all ideas, the most preposterous ever taken of a mode of public aid to national education—such as in this country could only be bred of official incubation on national spirit—is that of a Government Agency for buying individual results of special instruction from Managers of general education.

Norton.
INDIA, HER WHEAT AND HER RAILWAYS.

The real foundations of our power in India do not rest on the interested approval of the noisy few. They rest on justice, on the contentment of the millions who may not always be silent and quiescent, and on their feeling that, in spite of the selfish clamour of those who profess to be their guardians and representatives, they may place implicit trust in the equal justice of our Government, and in its watchful care of the interests of the masses of the people.—(Sir J. Strachey).

It will hardly be disputed by the most British of English officials that our greatest dependency ought to be so organised as to promote, as far as possible, the prosperity of her people, and not with a view to the advantage of English civil servants or merchants. Few will now dispute the statement that India has benefited by her connection with England, though there are many who doubt whether England has derived great good from that connection, regard being had to the wars and complications resulting from our Eastern possessions. But some ways of assisting India involve direct and important benefits to the mother country, and it is to one of these that I wish to draw attention.

India is said to be a land of puzzles and paradoxes. But perhaps there is no greater puzzle than the conduct of her public works. They are divided into 'non-productive,' the cost of which is defrayed out of revenue, and 'productive,' for which money can be borrowed. There is another set called 'protective,' as to which what are known as the 'famine taxes' may be applied. The idea of course is that, unless a work may be expected pretty soon to produce a revenue, it should be paid for out of current revenue. Here at home we adopt no such distinction. We do not tax the people to pay for a permanent work; we borrow and repay by instalments spread over a term of years. No one would dream of asking Parliament to impose an income tax to pay for any great work, however important. But in India there is no Parliament. The people are poor, but we tax their salt in order to pay for these non-productive works. ¹ In other words,

¹ See Life of Lord Lawrence, vol. ii. p. 525. 'India is really a poor country. The actual condition of the masses of the people is a bare, I might say, a miserable existence. We, its rulers, are at our wits' end to increase the amount of taxation
the cost of these works amounts to almost exactly the same sum as that of the revenue raised from salt. But for this mode of payment we might just about dispense with the salt tax. The excuses are that Government is afraid of borrowing, and that the best check on officers is the knowledge that such works must be paid for out of the yearly budget. I shall hope to show that India can well afford to pay for all works worth making by means of borrowed money, and it is surely the duty of Government to select the works necessary to be made, and to refuse any demand for what is not necessary. It is absurd to say that because our officers may be careless, we will tax our people, year by year, in order to put a check on their proceedings. Such an argument is all very well where there is no true representation, but it would not live for a day in the light of a free discussion in a real Parliament.²

Sir J. Strachey, in his recent work on *Public Works in India*, has denounced all these distinctions between one class of works and another, and he sums up the whole matter thus (p. 423):

> It may perhaps appear incredible, but it is true, that under the existing rules, strictly applied, the East Indian Railway would have been proscribed; and the construction of the Ganges Canal would have been impossible.

The distinction would not perhaps be so mischievous were the Government endowed with courage as to works which are admitted to be productive. In that case we should be moving on rapidly with such works. The fact is, however, far otherwise. A similar excess of caution afflicts them even as to works paid for out of borrowed money. The question is not merely whether the works are likely to be of great public utility and are urgently needed, but a hard and fast line has been adopted by reason of the decision of a Committee of the House in 1878, to the effect that no more than 2,500,000l. shall be borrowed on account of these works in any one year. It is not easy to conceive a more unreasonable resolution.³ Circumstances to devise new sources of revenue.' Cf. Lord Ripon in Council, Sept. 1, 1882, to Secretary of State (C. 3507, p. 11): 'The poverty of the people of India is a fact which is notorious, and, indeed, has been so frequently discussed, that it is unnecessary that we should on the present occasion dwell on it at any length.'

² The author of *Indian Wheat v. American Protection* (a paper quoted with approval by Sir E. Baring in his last Financial Statement), who has lived long in India and conducted a large business there, greatly doubts whether there is any true economy in Indian administration, even as regards works paid for out of revenue. 'The powers of all authorities,' he says, 'concerned to spend or to waste the ordinary revenues on non-productive works are complete.' . . . 'During my whole residence in India nothing has impressed me more than the needless waste of the public revenues. It is not so much that there are any large items on which the public expenditure is notably extravagant, as it is that there is a general leakage all round. Money is laid out on buildings that for the present might well be done without; 1,000,000l. goes yearly in unproductive military works alone; no one is found strong enough to deal with the exhaustive military charges, both in India and at home,' &c.

³ I am quite aware that more than 2,500,000l. is spent in one way or another
are constantly changing, but the rule does not change. No matter what the causes of the demand for such works may be; no matter how certain it may be that they will show a good return, the rule blocks the way, and important works must be delayed, not by reason of the condition of the money market, or of the credit of India, but by reason of a vague fear of over-borrowing which laid hold of a committee some five years ago. The figures given by Mr. Cross on the 22nd of August last show how little real cause there is for this fear. The uncovered debt of India is only 66,000,000l., and the public works pay a handsome interest, not merely on the amount of their cost, but on the amount of that cost when augmented by the loss incurred through the guarantee of interest on capital, before railways had so far developed as to pay their interest. Nor is this all, for it is notorious that the interest was at first guaranteed at a high rate, and that the railways first made were far too costly, so that the traffic has sufficed to pay interest, not merely on a heavy loss of interest, but also on the amount of a needless and extreme outlay. Railways or canals now made on economical principles may be expected very quickly to produce a profit so considerable as to relieve the Government from loss on any reasonable guarantee, and to remunerate shareholders for their risk.  

It is very satisfactory to find, from his recent remarks, that Mr. Cross desires further inquiry as to the Resolution of 1878, with a view, it would seem, to the removal of this obstacle from the path of the Government, and it is hardly conceivable that any committee would now recommend a policy so full of danger to the future of India. Much has happened since 1878, and it will be my first object to show from what has been done how much more may be expected to be done, when once the Government can act freely, and deal with the facts as they stand, unaffected by resolutions which were never sound in principle, and are now peculiarly absurd and reactionary.

The history of the trade in Indian wheat will afford an excellent illustration alike of the productive power of India, and of the influence of facilities for the transit of produce on the condition of the

yearly in the construction of railways. But the surplus is not paid for out of borrowed money. For instance, in the current year, 1883-84, 1,800,000l. is taken from the loan for productive works. This, with a balance of 590,000l. unspent from the previous year, gives about 2,390,000l. for this year from borrowed money. For ‘non-productive’ railways paid for out of revenue 510,000l. is allotted, and for ‘protective’ 1,000,000l. also paid for from revenue. (See Col. Stanton’s Report, 1883, p. 37.)

1 Cf. Sir John Strachey, as quoted in Life of Lord Lawrence, vol. ii. p. 545. 'The policy of constructing railways and irrigation canals on a vast scale through the direct agency of the State, and of raising for this purpose by loan whatever sums were required, and which could not be supplied from the ordinary revenues, was a policy which was first set in motion by Lord Lawrence. . . . This policy has already given to the people of India increased wealth, increased national prosperity, and increased protection against the calamities of famine, to an extent hardly possible to estimate or exaggerate, and it has already led to a very large reduction in the public burdens, and will, if wise counsels prevail, give us in the future the certain assurance of financial prosperity.' See also Mr. Cross’s Budget Speech.
people. Not that this is by any means the only illustration. In a remarkable passage of his budget speech, Mr. Cross alluded to the case of rice, and to the fact that in districts where carriage is difficult and dear the grain cannot be sold far from home, so that a great crop is of no benefit to the people. But the case of wheat is more striking and interesting to us Western people, as the conditions surrounding its production affect so many of our own agriculturists.

Soon after the annexation of the Punjab, and before even roads were general, a remarkable illustration occurred of the effect of great production without sufficient means of carriage. The country did not at first prosper as was expected, and the biographer of Lord Lawrence states the cause as follows:

There were three rich harvests after annexation. The soldiers of the Khalsa betook themselves to the plough or the spade; and agriculture, encouraged by the lowered land tax, and by the peace and security of the country, spread over tracts which had never before been broken up. There was thus a glut of agricultural produce in the markets, while there was as yet no ready means of disposing of it. The cultivators found difficulty in paying even the reduced land tax. A cry arose for further remissions. . . . and it was a cry not raised in vain.\(^5\)

Dr. Hunter also puts the case very strongly (Indian Empire, p. 466):

Within the last twenty years, the cultivators have learnt for the first time the real value of their produce. In the old days. . . . the slightest failure meant local distress; while a bumper harvest so depreciated the value of grain, that part of the crops was often left unreaped to rot in the fields. In 1780 and 1781 a suspension of revenue had to be granted to the district of Sylhet because the harvest was so bountiful that it would not pay the cost of carriage to market, and consequently farmers had no means of raising money.\(^6\)

A few years ago no one thought much of Indian wheat as an article of commerce. The trade may be said to have commenced in 1873, when the export duty ceased. Great reductions in freight have recently occurred; and railways, however gradually, have approached some of the great wheat-growing districts. The progress of the trade has been truly astonishing. The figures are as follows:—

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount (cwt.)</th>
<th>Value (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1873</td>
<td>394,010</td>
<td>167,600</td>
</tr>
<tr>
<td>1878</td>
<td>6,373,168</td>
<td>2,873,765</td>
</tr>
<tr>
<td>1879</td>
<td>1,056,720</td>
<td>520,138</td>
</tr>
<tr>
<td>1880</td>
<td>2,201,515</td>
<td>1,124,267</td>
</tr>
<tr>
<td>1881</td>
<td>7,444,375</td>
<td>3,277,042</td>
</tr>
<tr>
<td>1882</td>
<td>10,901,005</td>
<td>8,830,562</td>
</tr>
<tr>
<td>1883 (6 months)</td>
<td>15,714,982</td>
<td>6,613,432</td>
</tr>
</tbody>
</table>

\(^5\) Life of Lord Lawrence, vol. i, p. 304.
\(^6\) In the next page of this work we find the following statement in illustration of the progress of 'local trade':—Dongargarh now forms the principal market for grain on the fertile plateau of Chatisgarh, which is perhaps destined to become a regular
It is important to note how much of this wheat was exported to parts of Europe other than the United Kingdom. For instance, France took in

<table>
<thead>
<tr>
<th>Year</th>
<th>Cwts.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1878-9</td>
<td>11,012</td>
</tr>
<tr>
<td>1881-2</td>
<td>5,308,000</td>
</tr>
<tr>
<td>1882-3</td>
<td>3,567,712</td>
</tr>
</tbody>
</table>

Belgium also takes much Indian wheat, and the exports from India to that country have advanced from about 1,200l. in 1878, to 2,000,000l. in 1882–83. Nor must it be forgotten that an export of one article often leads to increased trade in other articles, as has been especially noted in this Belgian trade. Even to Gibraltar India sent last year 200,000l. worth of wheat. All these facts indicate an expansion to which it would be difficult to find a parallel in the history of our commerce. It is more like a transaction in the great West than in the stagnant East.

It is perfectly clear that the wheat is to be had in great quantities. The only question is, Can we get it cheap enough to pay for the carriage to the coast and the freight by sea, and also to leave a sufficient profit to the importer? The answer depends entirely on the condition of the internal charges. It is said that every twenty miles of carriage by bullock-cart adds one shilling a quarter to the cost of the wheat at the coast; and it is therefore clear that wheat cannot come from any great distance without the aid of cheap carriage by land or water. It is equally clear that the natives cannot provide this cheap carriage without our sanction and assistance. We do not allow the native princes to borrow money, even for public works, without our consent. The Nizam, for instance, cannot make a railway without our consent. He has ample revenues, but he must get leave from the Secretary of State before he can pledge them for this useful purpose. The machinery of government is entirely under our control, and the natives must look to us if any great work has to be accomplished. The poor cultivators may know that they require this assistance; but they are powerless. They have no representation and no effectual way of appealing to Parliament. Our Government is a despotism, and on Parliament rests the responsibility of appointing a capable Minister, and of insisting that his work shall be done with a due regard to the interests of a vast population.

There has recently been much discussion as to the actual first cost of growing wheat in India. The whole subject is ably handled

source of wheat supply to England. Twenty years ago it was a petty hamlet of about twenty houses. In 1862 the agent of a Nágar firm settled here and began to make purchases of grain. The number of houses has now (1877) risen to 2,000. In the busy season the total concourse daily present in the bázár is estimated at 100,000. All this has arisen in consequence of the appearance of the railway.

See Mr. O'Conor's Report on Seaborne Trade, 1883, p. 18.
in a letter, dated the 17th of October, 1883, from the Bombay Chamber of Commerce to the Secretary of the Great Indian Peninsula Railway Company. Reference is there made to the statement of the author of Indian Wheat v. American Protection to the effect that wheat can or could be grown at Bilaspur, in the Central Provinces, at from 6s. to 7s. a quarter. This is disputed by the Chief Commissioner of the Provinces in a letter to the Government, dated the 21st of July, 1883, where he points out that wheat is often sold below its real value at Bilaspur by reason of the want of carriage. 'Silver must be acquired somehow' by the ryot, and therefore he sells his crop very low. The Commissioner thinks we must put the first cost in districts 'near the railway' at 11s. 8d. a quarter, not much less than the first cost in the great North-West of America. The truth seems to be that the price in ordinary times depends on situation. Near the railway a man can get double what he can get further off, quite apart from the question of the labour bestowed on the cultivation. The result of that labour depends therefore, as I have said, on events not under the control of the poor ryot.

It seems to be impossible to say what the price of wheat would be where there abundant means of carriage, because the surplus in good years was enormous even as long ago as 1877. Writing in 1876–77, the Commissioner of the same Provinces says: 'A run of a few good seasons is as much dreaded by the agriculturist as a failure of the crops, for his produce is then a drug in the market, and he must sell at any price for money to pay the rent of his land.' This passage is quoted by the railway company in their letter of the 4th of June 1883 to the Secretary of State in illustration of the needs of India. It seems to show that all elaborate calculations as to cost and price are of little use so long as carriage remains so incomplete; but it brings out strongly the hardships imposed on the poor cultivator by the present state of things.

The Chamber and the railway company dispute as to how far the high cost of the wheat at the coast arises from the up-country charges before the wheat gets to the railway, and how far from the heavy railway rates. Probably the charges are too heavy in both directions, and will be reduced as the trade develops.

What I think is clear is that labour is far cheaper in India than in America, and that wheat can be raised in India at a prime cost so low that, given a moderate rate of carriage to the coast, the Indian cultivator will be able to compete in Europe with the farmer of America or Canada.

---

8 I have recently seen an estimate of first cost in the Great West much lower than 11s. 8d. But the distance thence to the coast is of course very great.

9 See Mr. O'Conor's Report on Seaborne Trade, p. 82. 'Prices have doubled with the construction of the railroad.'
It is now admitted that the quality of Indian wheat is excellent, apart from defects of handling, which are diminishing, and we have, therefore, only to deal with the element of cost. Even if the first cost be low, the trade may be stifled by excessive charges. As things now stand, even a slight fall of price in London seriously affects the trade in India. So the cost of carriage by sea and land becomes a question of vital consequence.

The tendency of freights by sea has recently been in favour of the trade both as regards India and America. Sir E. Baring (Financial Statement, 1883, p. 33) gives the charge from Karrachee to London as 1l. 18s. 9d. per ton, and from San Francisco to England as 3l. 3s. 11d. The present rates are about 1l. 10s. and 1l. 12s. 6d. respectively. So California and Western India are about on a par. Sir E. Baring thinks New York has an advantage of about 2s. a ton over Karrachee, 21s. over Bombay, and 28s. over Calcutta. The present rates give New York an advantage of about 14s. a ton over Karrachee, and the same over Bombay, and 1l. 1s. over Calcutta. Eastern India is, therefore, better off than when Sir E. Baring wrote a few months ago, and freights are declining.

Taken as a whole, we may expect further reductions in charges by sea, and we may trust to competition amongst shipowners to give us the smallest possible freight. But the outlook as to railway rates is not so satisfactory. There is here no proper competition for the most part, and the machinery for securing changes of rate or other reforms is very complicated. So it comes about that, even where railways now exist, the cost per ton per mile is shown by Sir E. Baring and others to be almost double in India what it is in America.11 Sir

---

10 See McDougall's Report to Secretary of State, dated Dec. 1882, p. 30. 'These wheats afford a larger margin of profit both to the miller and baker than any other.'
11 In Indian Wheat v. American Protection, p. 20, it is said: 'Summing up the whole fact, it appears that every 300 miles of railway carriage at the present high rates adds an extra charge of one shilling a quarter in excess of what the charge would be if the wheat were carried on an American line.'

As a contrast to the condition of things in India, the same writer gives the following extract from The Scientific American of Dec. 9, 1882:—'In 1878 the difference between the average price of wheat throughout Iowa and in New York is given by a Western writer as over sixty-five cents per bushel (21.72 shillings per quarter). By 1880 this difference had been reduced to a fraction under forty cents (13.37 shillings per quarter).

It is interesting here also to note the inequalities of rate in different parts of India according to the existence or absence of competition. For instance, from Jubbulpore goods can go either to Bombay or Calcutta. So the rate to Bombay is 5-70 pies per ton per mile, but from Khangaum (341 miles) the rate is 9-42 pies, and from Nagpore, on which at present the Central Provinces so much depend, the rate is 6-28 for 520 miles. Again, there are two routes from Delhi to the coast—the one by Rajpootana to Bombay, 888 miles, and the other by the Sind line to Karrachee, 1,169 miles. By the former the rate is 4-95 pies, and by the latter 4-68 per ton per mile. Railways can do wonders when compelled, but can quickly close their eyes if not so forced.

The reduction of rates made by the Sind Railway seems to have had important results, for while the exports of wheat from Calcutta fell 33 per cent. last year, and
E. Baring gives the following remarkable comparison in his recent Budget statement (p. 34):

Mr. Leyland told the Royal Commission on Agriculture that the custom is to take the wheat at Chicago and deliver at Liverpool at a through-rate including everything. This rate in 1881 averaged l. 11s. 1d. per ton. . . . Turning to India, we find that the rate charged in March 1883 by the East India Railway from Delhi to Howrah, a distance of 954 miles, is equal to l. 11s. 5d. per ton. From Lahore to Karrachee, a distance of 821 miles, the rate is equal to l. 13s. 11d. per ton. From Delhi to Bombay, a distance of 889 miles, the rate until very recently was equal to l. 17s. 5d. per ton. . . . It costs considerably more to carry a ton of wheat 616 miles over the Great Indian Peninsula Railway than it does to carry the same quantity 960 over the American lines.

It seems, therefore, to come to this, that the Indian grower has everything in his favour which nature can give him, and that he is only hindered by the absence of cheap carriage by rail where there is a railway, and by the entire absence of carriage where there is no railway or canal. The American has covered his country with railways which carry goods at rates which seem to our eyes absurdly low, but we allow the poor ryots of India to wait long while we make up our minds what shall be done.

America has 50,000,000 of people and 100,000 miles of railway. India has about 250,000,000 and about 10,000 miles of railway, of which only 862 are laid with a double line.

It is said that we cannot compare America and India. It may be so, but we can, at any rate, contrast them. The poorer the cultivator of India may be, the more important it is to him to find a ready market for his surplus produce. He cannot afford to throw away that surplus for want of carriage any more than can the American. The difference is that the latter takes care not to settle where there is not ample means of carriage; but the ryot cannot change his abode at will, and depends on the goodwill of an assembly sitting 6,000 miles away for the means of removing and disposing of his crops.

There is yet another difference. The American, confident in the future, pushes forward the railway into the wilderness, certain that the unoccupied land will be settled, and that he will get his reward in the increased value of this land as well as in traffic on his railway. We are not asked to do anything of the kind. We are only asked to place a railway in the midst of a teeming population, so as to enable the people to make the best of their soil and its products. It has been already proved to be a safe venture, and the demand for its extension seems, therefore, most reasonable.

from Bombay 38 per cent., the export from Karrachee increased 48 per cent. The figures are:—

<table>
<thead>
<tr>
<th></th>
<th>1850-51</th>
<th>1881-82</th>
<th>1882-83</th>
</tr>
</thead>
<tbody>
<tr>
<td>cwts.</td>
<td>169,000</td>
<td>1,592,000</td>
<td>2,739,000</td>
</tr>
</tbody>
</table>

Vol. XV.—No. 84.
But if encouragement be needed, it is well to consider what has been done on the other side of the Atlantic. Before the railway came to Illinois it was little more than a prairie. In a very few years its produce doubled, and now it stands as one of the first producing States of the Union, and can point to Chicago as an evidence of its progress. It is difficult to imagine what would have been its present condition had not the railway come to its aid. Missouri had much facility of water carriage, but its progress was very slow until railways traversed it. Nebraska, now a most flourishing young State, has been created by the railway. Its vast agricultural wealth must have been locked up indefinitely but for the locomotive. The same remark applies to Kansas, now advancing with rapid strides. Shareholders may grumble at competition in America, and bondholders may tremble, but the producer flourishes in low rates of carriage, and no economical facts are so wonderful as those presented by the progress of the United States since the development of the railway system. The experience of Canada is hardly less remarkable, for I am informed by Mr. Maepherson, of Ottawa, that during last year 25,000,000 acres of land will have been allotted by the Dominion Government to settlers or companies. The great temptation to those who settle in that severe climate is the excellence of the wheat lands, but it is obvious that without cheap carriage no such settlement would be possible, for the produce would be unsaleable.

And the American takes care to adapt his railway rates to the needs of the trade. He has not to ask the leave of the Secretary of State before making a reduction. Take the case of the New York Central Line. Mr. Poor tells us that the saving to the producer and consumer in a single year from the reductions of freight made between 1869 and 1879 amounted to 7,300,000£. He adds that, but for this change, every bushel of grain sent east from Chicago would have involved a loss to the producer. At the same time the railway

12 Yet another illustration from 'The Railroad and the Farmer' in the American Agricultural Review for August, 1882. Speaking of Oregon, the writer says: 'Our export of wheat to Europe had hardly begun ten years ago for lack of cheap transportation to the ship. . . . Before the advent of any railroads the nominal price of farm land was from $5 to $10 per acre, yet its average productiveness was from twenty-five to thirty bushels of wheat per acre. . . . When railroads were built, or since 1873, improved farm lands sell readily at from $10 to $100 per acre. Wheat has become the principal product. The export of wheat and flour, mostly to Europe, has risen from zero to about 5,000,000 bushels per annum, with regular yearly increase.' Writing in 1880, Mr. E. Atkinson of Boston says, in his paper on 'The Railroads of the United States and their Effects on Farming and Production': 'The only problem that now greatly affects the material welfare of humanity is the problem of distribution. Had one been asked only ten years since, "Can 150 million bushels of grain be moved from the prairies of the West 5,000 miles in a single season, to feed the suffering millions of Europe, and prevent almost a famine amongst the nations?" he who had answered, "Yes, it is only necessary to apply the inventions already made to accomplish that," would have been deemed a visionary. It has been accomplished.'
earned by freight in 1879 3,600,000l. against 2,800,000l. in 1869. But the charge per ton from Chicago to New York had been reduced more than 3$. Such facts ought to encourage even the directors of the Great Indian Peninsula, not to speak of the Secretary of State.  

Two main questions of fact have to be considered. (1) What is the area of the wheat-fields of India, and (2) How far are the existing railways sufficient to bring down the produce to the sea?  

(1) The amount of land capable of bearing fairly good crops of wheat is not known accurately. Much land is not used for this purpose for want of means of transport of the crop when grown. For instance, in the Punjab alone there are said to be 9,000,000 acres of land available, but not now devoted to the cultivation of wheat. In 1879 Dr. Forbes Watson estimated the total production of wheat in India at 40,000,000 quarters, which would imply an area of about 30,000,000 acres. More recently the Indian Government has estimated the area under wheat-cultivation at about 20,000,000 acres, which would yield at a low estimate 25 or 26 million quarters of wheat. Of course better cultivation would greatly increase this yield, and nothing would so directly encourage a better system as a regular market and higher prices. What is known amounts to this, that India has under wheat an area more than seven times as large as that which we possess at home, although many districts are as yet far from good markets.  

Probably India could supply all we need, had she due facilities of transport.  

To quote the letter of the Bombay Chamber of Commerce, already mentioned (p. 7)—  

The Chamber broadly asserts that India is capable of supplying not only the wants of the United Kingdom, but of producing an unlimited supply; that it is simply a question of finding a market for the producer, and that markets will be erected by making branches of railways into the producing districts, and by cheapening railway communication with the coast.  

One very important consideration is that wheat is grown largely for sale in India rather than for consumption. The people at large consume rice and millet rather than wheat, so that a great area may be available for wheat-growing when a market is found, which may not at present be devoted to that crop. Then the Bombay Chamber of Commerce confirm the estimate of the present yield of wheat in India as 6½ millions of tons, but they think that this might easily be doubled, and that of this a large part would be available for export, 'it being a well-known fact that the consumption of wheat in India is not large, the bulk of the inhabitants subsisting on cheaper staples' (p. 4). This statement is confirmed by Dr. Hunter,  

13 See Poor, as quoted by Mr. E. Atkinson in The Railroads of the U.S., p. 29.  

14 Indian Empire, p. 385.
says: 'Taking India as a whole, it may be broadly affirmed that the staple food-grain is neither rice nor wheat, but millet.' In the Punjab 54 per cent. of the food-grain area is under wheat, and in the North-West 57 per cent., but in the rest of India almost all is under millet or rice. In the Central Provinces there is a great district not now devoted to wheat which could be so used. Dr. Hunter gives 27 per cent. of the food-grain area there as being under wheat, but estimates made on high authority point to a possible growth in these provinces which to the English mind is overwhelming. It is estimated that the proposed direct line from Calcutta to Rajnandgaon will bring, within a few years' time, 5,000 tons a day on an average for export, or say 6,600,000 quarters a year, and a well-known M.P., largely interested in Indian commerce, writes me that he believes this district will bring at least 10,000,000 quarters a year to Europe.\(^1\) With such possibilities or probabilities before us, it is quite impossible to speak with precision as to the area available for wheat. But it is certain that this area is very large, and that it will receive an almost indefinite expansion, if we choose to provide means of carriage at moderate rates.\(^2\)

(2) A glance at the Railway Map of India will show how great are the gaps in the system.

It may be said generally that while Bengal, the North-West, the Punjab, and Bombay are fairly supplied with trunk lines, the east centre of the country, comprising some of the best parts of the Central Provinces, is miserably furnished even with these. A new line is proposed to run from Nagpur on the Great Indian Peninsula, by way of Bilaspur, to join the East Indian at Sitarampur;\(^3\) but very high authorities predict that any such line will increase the block on the East Indian, already often intolerable, and a direct line from Howrah to the great wheat district of the Mahanudy, already mentioned, seems to be imperatively required. This might be so made as to be one step towards a tolerably direct route from Calcutta to Madras. It is almost incredible that to go by land

\(^{15}\) Sir E. Baring confirms this opinion in general terms (p. 32): 'In the eastern districts of the Central Provinces the new lines of railway will now open out a very large tract of wheat-producing country, which up to the present time has been unable to find a market for its surplus produce, owing to defective means of communication.'

\(^{16}\) Mr. F. Prestage, in a letter to the Bombay Chamber of Commerce, dated Oct. 1, 1883, states that the Mahanudy valley, in the Central Provinces, can now produce 3,000 tons of wheat per day, and could easily produce 13,000 tons, and he goes on to state that by crossing the river below Sumbalpoor you would draw your traffic from an area of 27,000 square miles of wheat-cultivation. It is at first sight an astounding figure, but it must be remembered that the Provinces have an area of 84,900 square miles. I give my authority, and I have no reason for doubting his statement. A new wheat-field of more than 17,000,000 acres will create some astonishment in European and American markets.

\(^{17}\) Col. Stanton's Report, p. 12.
from one of these cities to the other, a traveller is compelled to cross India almost to Bombay, and thence to make a new departure.

We are so much accustomed to a small country that we forget that India contains 1,377,000 square miles of territory. We require at home more than 20,000 miles of railway. On the same scale India would need a mileage too great for consideration. The famine commissioners speak of 20,000 miles as necessary from their point of view. That would certainly be a very modest demand, but it has taken us thirty years to make 10,000 miles, and in 1882–83 we only opened 373 miles of new line. The official mind on this head seems to have become contracted and to have lost sight of social and commercial considerations by reason of the influence of political and strategic demands. No one will dispute the importance of these matters, but the time has come when we ought to take the needs of the people into account, as well as the convenience of those who govern. Some of the people have profited vastly by existing lines, but how many millions are far removed from any possible benefit from these trunk lines.

Even where the trunk lines have been made in fairly sufficient number, they run almost entirely from east to west, with large gaps of uncovered country; and there is great need of ‘feeders’ and of more lines from north to south joining the different systems. From the East Indian to the Madras line, say 900 miles, there is practically nothing. Another gap is to be seen between Nagpur and Hyderabad. Mysore is very deficient. So is the country from Bombay to Goa. Even more important is the great district from Gwalior south to the Great Indian Peninsula, and even when the proposed line is completed from Bhopal to Gwalior, there will be great tracts both west and east which will need help. As to some of these districts, new lines have been surveyed, but nothing of importance can be effected until more money is provided. To refer to the real needs of the country, would absorb far too much space. These cases are merely given as illustrations of what is required, but cannot be accomplished unless a change of policy is brought about. In his last report Col. Stanton refers to various extensions and new lines, either sanctioned or under survey; but for the most part they must wait until the judgment of Parliament has been reversed, and the Government set free to act on their own judgment on existing facts.18

It is important here to remark that Indian cultivators are not so immovable as is sometimes supposed. Large districts now under wheat hardly grew it fifteen years ago. An eye-witness informs me that the change in the appearance of the country near some parts of the Great Indian Peninsula must be seen to be understood. The railway has brought out a new industry, or revived one that had

18 It is only fair to say that Sir E. Baring appears to favour a far more rapid construction of new lines. (See Financial Statement, 1883, p. 36.)
decayed. The cotton has given way to the corn. But other districts just as important are only waiting for the like assistance to show the same activity. Of the whole 10,144 miles open on December 31, 1882, only about 150 (the Nagpur and Chattisgar) can be said really to enter the great wheat-lands of the Central Provinces, and this after thirty years of railway operations. It is said that the line from Gwalior to Bhopal would bring down 1,000,000 quarters every year.

Great complaints prevail as to the management of the great lines of railway by reason of the ‘dual control’ which exists. As it is well put—

The agent of the company can incur no expenditure and practically can do nothing without the concurrence of the consulting engineer, and the two are just as likely as not to differ. Should they not agree, or should the proposal be beyond the limited powers of either, it involves, on the one hand, a reference to the Board of Directors in London, and, on the other hand, to the Government of India, and frequently to the Secretary of State. I wonder what the manager of a metropolitan line would say if he were called upon to work his traffic properly, and, at the same time, were not allowed to draw up a new time-table, or to alter a rate without the concurrence of an officer of the Board of Trade, and the sanction of the Board of Trade sitting at Vienna, and without the approval of his own Board sitting in Calcutta. It was only the other day that a reduction of rates could not be carried out on one of the Indian lines, as nearly all the directors were away, and no quorum could be got together in London.

Even the State railways have their defects, and the whole question of management as well as extension demands the immediate consideration of Government.

In his speech last June to his shareholders the chairman of the Great Indian Peninsula Company admitted that his line was choked with grain. There is also a frequent block at certain seasons on the East Indian, and there can be no doubt that additional lines are needed on all the great lines as the coast is approached. Probably a great extension of double lines will be required throughout India. Nothing causes more irritation and loss than these delays of produce. It is not, however, the railway alone that is in fault. The state of the harbours is a very serious matter. Great improvements are called for at Bombay, and Colonel Stanton (p. 57) admits the ‘inadequacy’ of the accommodation at Karrachee. If we wish to compete with America we must provide all requisite facilities for a trade that seems likely to be enormous.

If we may assume that we have in India a vast area which can produce excellent wheat, but which is not developed by the existing

19 Indian Wheat v. American Protection, p. 32.
20 See Bombay Chamber in loc. cit., p. 16. Speaking of ‘forced stoppages’ of wheat at stations, they say, ‘It is impossible to adequately describe the indignation of the mercantile community at the culpable remissness and indifference to the interests of India of those who are responsible for such a state of things.’
railways, there seems to remain only the question whether the capital can be easily raised, and without serious risk to the Government.

It may, however, be interesting to insert a few words on the advantages to India and to England of further developing this great industry. To be able to sell surplus produce now unsaleable, and to procure a market for a greatly increased production, must be a direct and most important gain to India. The more she has to sell the more she can buy, and the more she sends to Europe the less will be her loss by exchange, because the greater will be the demand for the means of remittance from Europe to India.

The only conceivable injury to India which can be placed on the other side is that of incurring too heavy a debt, and especially a debt payable in sterling. Lord Lawrence, when Governor-General, was strongly impressed by this danger before the fall in silver in Europe had opened our eyes to the danger of borrowing in gold, when we receive our revenue in silver.\(^21\) Probably, however, had he seen our present balance-sheets, he would have felt differently. The interest on the uncovered debt of India is hardly more than 2,500,000\(l\). a year, and it seems absurd, as I have already said, to argue that such a charge can render the risk on guarantees, carefully selected, at all serious for such a country as British India. The loss by exchange raises other considerations, and I do not wish to propose that we should guarantee in sterling. I would merely suggest that a loss of interest must be incurred if loans are raised in silver, and that any important loss of interest in a long course of years might, and probably would, involve much more loss than even the loss by exchange. And it should be added that the more the trade of India is developed by the extension of markets for her products, the more easily will the loss by exchange be borne, to say nothing of the great probability that this development would tend to reduce that loss. Even since 1873 the total interest on the debt has fallen 1,000,000\(l\), and the Government, which then lost 2,000,000\(l\) by ‘productive’ Public Works, is now a gainer by them of more than a million. It would be well if our own public burdens showed the same tendency.\(^22\)

\(^21\) Life of Lord Lawrence, vol. ii. pp. 495, 497.

\(^22\) I append a few figures showing the progress of the country since 1873, spite of some very bad seasons.

<table>
<thead>
<tr>
<th>Table of Progress of India since 1873.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1873</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>Railways, miles opened</td>
</tr>
<tr>
<td>Passengers carried in millions</td>
</tr>
<tr>
<td>Tons moved in millions</td>
</tr>
<tr>
<td>Gross receipts in millions of pounds sterling</td>
</tr>
<tr>
<td>Imports into India in</td>
</tr>
<tr>
<td>Exports from India in</td>
</tr>
<tr>
<td>Revenue of India in</td>
</tr>
<tr>
<td>Interest of debt in</td>
</tr>
</tbody>
</table>
I am aware that there is a school of economists who assert that our government of India, so far as relates to public works, is an injury to the country. In fact they say that if we had left India alone, merely preventing internal strife, she would have been better off than she is at this moment. So at least I understand the argument of Mr. Connell, who thus sums up the matter: 23—

Is it not obvious that, taking the economic changes as a whole, the country has lost an enormous source of wealth? If the import of cotton to India and the export of grain from India ceased to-morrow, the Indian people would be the gainers, though the Indian Government would be at its wits' end.

And he proceeds to argue that the railways have encouraged exports of grain, and therefore discouraged the habit of storing food, and that they have taken away the employment from the owners of bullocks used for draught of the country carts. It is evident that writers of this school regard the introduction of any modern inventions into an old country with great suspicion. This writer prefers, for instance, payment of taxes in kind to payments in cash. He thinks that because improvements come from without, they do more harm than good. Great undertakings suited for England are not suited to India. In what he says as to the need of economy all will agree, but it is impossible to distinguish between his line of argument and that of those, not yet entirely forgotten, who prophesied untold financial and other troubles from the introduction of railways into England. Many thereby lost for a time their employments, and much capital was lost; but to argue that, therefore, the loss was greater than the gain to the whole country is surely too absurd to delay us much. It is, no doubt, true that India could have borne the absence of locomotion by steam much longer than England, because India could generally feed her own people without importation; but it does not thence follow that India will not gain by the substitution of cheap for expensive carriage over great distances, and we have seen vast numbers saved from starvation by these despised modes of carriage. It is said that by exporting grain you raise its price. That may be so, but you also greatly encourage production, and you also encourage economy of a product sometimes so cheap as to be hardly worth growing, and sometimes so scarce as to involve the population in all the miseries of irremediable famine.

Mr. Connell has set forth, as so many others have done, the great difficulties arising in the application of modern systems of irrigation; but he has, so far as I can see, utterly failed to show that cheap carriage by rail is an injury, even to an old country like India. It is quite possible that capital cannot change its use so easily in India as in England. Therefore the results of an economic change may be different, and not always so immediately beneficial. That is con-

23 Economic Revolution of India, p. 53.
ceivable; but it does not thence follow that a great saving of labour is of no use to the country, and that labour, formerly expended over most clumsy modes of carriage, can find no other application. Surely some principles of economics are applicable everywhere, though some changes are far more easily and quickly made in Britain than in Bengal.

It is quite certain that the people take kindly to the railways, and nowhere do the railways succeed so well as when they compete with a canal, or a river, or a road. The facility of transit creates a demand in India as in England; and you may see the river crowded with boats, and the railway close at hand busily occupied. The railway does that which the river or the road could not do. It may sometimes seriously interfere with their use, but, in fact, it opens up new demands which it alone could supply. What is true in this matter of the dense population of England, is found to be true of the denser, though poorer, population of India.\(^{24}\)

To England, also, the gain will be great. She will buy her grain from her own dependency with which she has free trade, so that the more she buys the more goods she will sell to the East. Such debts are chiefly settled by export of goods, not by bullion. The more India sends to us, the more of our goods she will take, and these will enter free of duty.

India will not send us wheat, and then by heavy duties discourage those who wish to take our goods in return, after the example of America.

Moreover, in the course of the construction of her railways, India must purchase largely our iron and our machinery—an operation which would give a welcome stimulus to industries not in recent years too prosperous. And to some it may be a consolation to reflect that, in buying from India, we buy from a country which is part of our empire, the supplies from which are not likely to be stopped by ordinary disputes or wars; and that such a new source of supply renders us more independent of other countries than we have now been for a long period.

But the question of raising the capital presents at first sight some difficulty. From the result in one instance, at any rate, it would not seem that the English public desire to take the securities of Indian Railways, unless some interest be guaranteed by the Government of India. It is not easy to say what is the smallest amount of guarantee which would suffice. Of course the Government desires to maintain the highest possible credit, and will be anxious not seriously

\(^{24}\) Dr. Hunter (Indian Empire, p. 46) points out that the railway sometimes even increases the traffic on the river. 'It seems probable that the actual amount of traffic on the Ganges in native craft has increased rather than diminished since the opening of the railways.' And, on the other hand, 'The Ganges is not merely a rival, but a feeder, of the railway.
to impair its power of borrowing for state purposes by a great increase of its liabilities on account of railways. But, if there be any force in the argument of this paper, it seems to follow that the Government will have to exercise some courage, or it will fail in its duty. It has shown abundant financial courage on many occasions when military demands have pressed upon it, and now we may fairly ask for a like course of conduct when we ask the Government,—not to run any serious risk,—but to use its influence for a wise and peaceful purpose. It is not asked to invest in that which cannot possibly give any direct return, nor even to raise any money directly, but merely to secure a minimum return in the event of any accident or mistake. And any possible loss will really be far less than the loss of leaving a great territory undeveloped, and its people impoverished by the want of sale for their productions.

As already hinted, the result of past operations has been very satisfactory. We have borrowed under very adverse circumstances, and yet a sufficient interest is received, so that Government now gains by railways, and is likely to gain largely. The only fear for the future is that some lines may be sanctioned without sufficient consideration, or may be made too expensively. This danger seems to be very slight, having regard to the experience now already in possession of the Government. Mistakes will be made, no doubt; but such is the inherent power of the soil and climate of India, and such the industry of her people, that we may confidently predict a great success, even should a large sum be yearly borrowed and expended.

For my own part I think it would be perfectly safe to give a guarantee on at least 10,000,000l. a year to companies agreeing to construct selected lines of railway, provided terms could be arranged which would satisfy investors, and give reasonable protection to Government. The guarantee must be liberal for a limited term, if on a silver basis, but reserving to Government the right to cancel the guarantee, and to make any line not completed within a certain time from the date of the contract; and reserving also a definite share in the annual net profits of the railway, and a reversion to Government in the whole undertaking on reasonable terms of purchase after a fixed period of possession by the undertakers. 25

Such an annual outlay would probably complete about 1,200 miles.

25 Sir J. Strachey objects to the system of guarantee, and leans towards construction by the State with, possibly, working agreements with companies. I do not propose to enter here on that question. It would take far too long, as involving large questions as to the proper limits of Government interference and the like. I will only say that, if we may judge from our experience so far, it would not seem that we can depend entirely on private enterprise. On Dec. 31, 1882, only ninety-six miles were open, even of the 'assisted lines.' Government must intervene either to make the lines or to guarantee interest to those who agree to make them. I do not myself follow Sir J. Strachey's argument, but I admit, of course, that his vast experience gives him a superior power of forming a right judgment.
miles of railway per annum; and no one will, I think, be found to suggest that this is doing too much when so vast a work remains to be done. In one year it might be prudent to do far more than in another, for many obvious reasons: as the state of credit, the cost of material, &c. The Government should, I think, be free. There are always plenty of critics who will attack it if it goes too far or holds back unduly. It is, as I have said before, a common boast of English writers that India is greatly assisted by our rule, that nothing could be so disastrous to her as a return to her old system of native government. I believe this to be true, great as have been our offences or mistakes at various times, through the avarice or ignorance of our officers; and nothing surely could so effectually prove our power and our disposition to assist these masses of helpless people as the establishment throughout India of a complete system of railways so constructed that we could carry both people and produce at moderate rates. We should thus increase their means of living, and possibly add something to the pleasure of lives too often marked by the monotony of a ceaseless and ill-rewarded toil.

The Americans make from 8,000 to 10,000 miles every year.\textsuperscript{26} We cannot emulate their activity. As much of the required capital must at present come from England, caution will, of course, be required lest we overload the market with this kind of security. India is not England, and many investors, even in these days, shrink from a foreign security. But, unless the current opinion as to the resources of English capital is grossly mistaken, we can do much more than we have ever yet done without difficulty, and without risk of any injury to our credit. We should not borrow to win warlike fame or increase our dominions, but in order to assist the people of India and of England, by enabling the one to sell what the other needs to buy, but which could never come to market without our aid. It is a noble use of capital. It may be said to bless the borrower and the lender. If England lends the money, she will gain not only by using her money safely, but by securing her supply of food; and if India should supply any of this capital, she will receive back not only a direct return, but also an indirect return in the great improvement in the condition of her people.

The more the matter is considered, the more important will the present juncture appear. We have a grand opportunity of assisting ourselves and our Indian subjects at the same time. Rarely, as it seems to me, does a more serious occasion arise in the history of the relations of an empire and its dependencies.

The usual course of things is that a dependency becomes independent, and the people of the country manage their own affairs, subject only to a mild superintendence on the part of the Colonial

\textsuperscript{26} It appers, as said above, from Col. Stanton's Report, p. 8, that we opened 373 miles of single railway in 1882, besides doubling 61 miles of the East Indian Railway.
Office. They negotiate loans, and they make great works without assistance, except from capitalists who prefer a colonial rate of interest. They are really self-contained and self-governed communities. The day seems to be far distant when India can arrive at this position; but this fact makes it imperative on England to assist her by all means at her disposal, by removing obstacles of every kind from her industry, and by bringing capital to bear on the development of her resources.

The history of the Orissa famine will ever stand out as an example of what is the result of neglect of its obvious duties by Government in India. In such a country Government has to do more than merely administer and superintend. It has to take care of those who are themselves helpless, to originate remedies for failure of crops, and the like, which are only possible to those who have at their command the resources of modern science; in a word, to act more as the head of a great family than as a Government in the English sense of the word. All India is not like Orissa, but throughout India there is a condition of things in some respects similar; and the Parliament of England has no duty more imperative, however often neglected, than that of securing to our Indian fellow-subjects all possible aids in the use of their great natural resources.

WILLIAM FOWLER.

POSTSCRIPT.

Since writing this article I have received from Mr. Cross the authorised report of his Budget speech. I extract some passages which strongly confirm my argument. Speaking of Indian railways, he says:

The total capital expenditure is nominally one hundred and forty-three millions sterling.

The receipts are . . . £15,231,261
The expenses are . . . 7,580,549
The net profits are . . . £7,650,712; or, 5·37 per cent.

on the total capital employed. If we add the accumulated payments of guaranteed interest, not covered by the receipts, to the capital account of the railways, raising that capital to one hundred and sixty-seven crores of rupees, the dividend now earned is about 4·6 per cent. . . .

There are still immense tracts of country, ten, twenty, thirty, sixty, and in one case one hundred and sixty thousand square miles in extent, containing nearly twenty millions of people, without a single railway through them—and this, too, some of the most fertile land of India, capable of great agricultural development. The Central Provinces and the neighbouring parts of Bengal might, I am assured, produce food for twenty millions more people than they contain. At present, at Bilaspur, wheat is about seven shillings the quarter, while salt is double the Bombay price. . . . Can any one doubt that the placing of a main railway in the Central Provinces—a country the size of France, and one, too, in which there is a steady and regular rainfall of forty to sixty inches a year, so that real famine has never been known—can be otherwise than an immense advantage, not merely to the district itself, but to those adjacent parts of India which are subject to scarcity?—W. F.
PROPORTIONAL REPRESENTATION.

Mr. Bright, in a recent speech at Keighley, professed that he did not know, and that Mr. Fawcett had not explained, what he meant when he talked of 'Proportional Representation.' Had Mr. Bright cared to ask Mr. Fawcett, he would doubtless have been told that proportional representation was not synonymous with Mr. Hare's plan, with which Mr. Bright proceeded to identify it, any more than an object to be attained is synonymous with one particular means of attaining it. A river may be crossed by a ford, but if my object is to cross the river, I am not compelled to use the ford unless there is no bridge or boat or other means of passage available.

If then proportional representation is an end and not a means of attaining an end, the present pause before the introduction of a special scheme of Reform seems a very fitting time for discussing its merits as an end, the degree of approximation to which that end has hitherto been attained, and what direction reform should take (apart from particular machinery) in order to secure a better approximation.

Mr. Cowen, in his fresh and vigorous speech at Newcastle, has seized this aspect of the question of reform, and well expressed it in the following words:—

'What is it we want? Is it not government of the people by the people for the people? Parliament should mirror the spirit, wisdom, and interest not of a section only, but of the entire nation. The elected should be an epitome of the electors. The majority must govern, but the minority should be heard. That is scarcely the case now, and every year it gets less so.'

This then is real representation—that Parliament should be an epitome of the nation in all its variety. And does not this imply, when expressed in more formal, though less picturesque, language, that every group of electors who have common interests and common political sympathies and sentiments, should be represented in Parliament in due proportion to its numerical strength in the country?

This is what is intended by the phrase 'Proportional Representation.' Strictly speaking, the word proportional is superfluous, for representation, so far as it is real and fair, must be proportional, and
if it deviates very widely from proportionality, it ceases to be in any true sense representation at all. But this word having been extended, or rather appropriated, to the existing system, which I shall take the liberty of distinguishing in this paper as majority representation, and the phrase minority representation having been misunderstood or misrepresented, by those who are the slaves of phrases and catchwords, as implying that the minority should rule and not merely that it should be heard, the phrase 'proportional representation' may be accepted as expressing the ideal representation which has been above described.

‘What is it we want?’ This is the question on which it is all-important that electoral reformers should come to clear views before the end is lost sight of, as it is only too likely to be, in wrangling over the details of a particular scheme. There can be no doubt that reformers generally are agreed in this, that the time has come when the existing inequalities in the qualification for the franchise must be abolished, and a practically uniform qualification, whether in county, borough, or other electoral division, adopted. But beyond this it is difficult to find in the utterances of our practical politicians any distinct expression of 'what it is we want.'

Mr. Bright appears to want nothing further. In words which have a real Tory ring, and would have brought down thunders of applause from a Tory audience—as they actually did from his Liberal audience at Keighley—he has declared: 'I am for the old lines of the Constitution. I am for simplicity in all these matters.' But must not every Liberal, and many a Conservative too, who fairly faces the question without prejudice, at least sympathise with the aspiration of Mr. Cowen, that 'the elected should be an epitome of the electors;' and, finding that 'this is scarcely the case now,' and that no mere equalisation of the franchise is likely to make it so, will he not be prompted to inquire further whether there may not be some sufficiently simple and practicable method of approximating to this desirable ideal?

The following facts and inferences, the result of a study of the question by an independent inquirer, not a professed politician, may perhaps be of some aid in the solution of the problem.

The existing system of representation, which we have agreed to term majority representation, regards each member of the House of Commons as representative of some aggregate of electors, the unity of that aggregate being determined by the rough and ready process of regarding the choice of the majority of the electors as the choice of the whole, whether that majority be a majority of one or of thousands. Such a system may be historical, may be 'on the old lines of the Constitution'—though surely those lines have been much rectified, and many of them effaced, by the Reform Bills both of 1832 and 1867—but assuredly it is not national or popular. Thus Birmingham
is regarded as an electoral unit by ignoring the existence of some fifteen thousand Conservative electors within its limits, and Middlesex by equally ignoring the existence of some nine thousand Liberals. It may be allowed to a member of this latter group to give expression to the feeling that it is no compensation to him for being unrepresented in Middlesex, that Mr. Bright and Mr. Chamberlain represent the Liberals of Birmingham, and that the Conservatives in that city are equally unrepresented with himself. The two grievances do not neutralise, rather they intensify, one another.

No representation can be regarded as truly national which starts from the constituency as a whole, and not from the individual elector, as the unit of the representative system. The variety in the nation does not consist in the variety of constituencies themselves homogeneous, but must, if it is to be fairly and justly represented, take account of the variety within the constituencies themselves. Majority representation expressly ignores this, while it is of the very essence of proportional representation to count the individual elector as the unit.

These principles may now be illustrated and enforced by instances drawn from the statistics of the elections of 1868, 1874, and 1880, the three general elections which have been held under the conditions of the Reform Act of 1867.

In the following short table are placed side by side the results for the whole United Kingdom of an exact proportional representation, and those actually yielded by majority representation, assuming the number of votes as those given in the Times of the 23rd of April, 1880. The votes are reckoned by thousands, and the Home Rule votes are reckoned as Liberal:

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of thousands of registered electors</th>
<th>Number of thousands of votes</th>
<th>No. of members by proportional representation</th>
<th>Actually returned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Conservatives</td>
<td>Liberals</td>
<td>Conservatives</td>
<td>Liberals</td>
</tr>
<tr>
<td>1874</td>
<td>2,749</td>
<td>1,222</td>
<td>1,436</td>
<td>300</td>
</tr>
<tr>
<td>1880</td>
<td>3,039</td>
<td>1,418</td>
<td>1,882</td>
<td>279</td>
</tr>
</tbody>
</table>

From this it appears that in 1874, while the Liberals of the United Kingdom in the aggregate had a majority of 214,000 votes, the Conservatives had a majority of 60 in the members elected, whereas on the principles of proportional representation the Liberals ought to have had a majority of 52. The direct consequences of

1 It would doubtless have been more satisfactory to have based the comparison on the number of electors voting, rather than on the number of votes; but it would be difficult to estimate the former with accuracy, and it is not probable that the proportions would have been materially altered.
this anomaly were a Beaconsfield administration, a Beaconsfield policy in the Eastern Question, an Afghan war, and an almost complete stagnation of domestic legislation for the six years from 1874 to 1880. With this startling result in view, the vital importance of modifying our electoral system in the direction of proportional representation scarcely needs further argument.

In 1880 the Liberals, with a majority of 464,000 votes, secured a majority of 178 members, when proportionately they were only entitled to 92. Thus the Conservative reaction of 1874 and the return to Liberal principles in 1880 were both exaggerated at these elections respectively, the Conservatives being over-represented at the former by 56 members, and the Liberals at the latter by 43. If Parliament then is at present in some sense a mirror of the body of electors, it is at any rate not a perfectly plane mirror, but one that largely magnifies and distorts the variations in political feeling in the country.

The circumstance of a majority of members in 1874 corresponding to a minority of votes is due to the fact that in majority representation majorities are counted and not weighed; so that, for instance, a majority in Birmingham of some 12,000 or 13,000 Liberals counted no more than that of 900 or 1,000 Conservatives in North Warwickshire, not to mention the tiny majorities of tens, twenties, or forties in such petty constituencies as Brecknock, Evesham, Marlow, Northallerton, Petersfield, or Thirsk. Other striking instances of the same kind occur in the election of 1880, where a majority of 2,740 for Sir Charles Dilke at Chelsea is balanced by a majority of 101 for Mr. Gorst at Chatham, and where a Liberal majority of just two at Colchester is balanced by a Conservative majority of 192 in East Essex.

It may be argued that by the abolition of the smaller constituencies or their absorption in larger ones many of these anomalies will be removed, and doubtless to some extent it will be so, for the smaller the constituencies the smaller on the average will be the majorities which turn the scale of the political balance. But even among enlarged constituencies there will be some where the predominance of one party is very large, and others where parties are pretty evenly balanced, and the large majorities of the former being counted as of no greater weight than the small majorities of the latter, large and uncertain deviations from proportional representation may be expected, if the system of majority representation remains unmodified. To cite but one instance in illustration: at the election of 1880 the Liberal majority of 1886 in South Durham exceeds the aggregate of the Conservative majorities, namely 1731, in all three of the divisions of Essex.

Descending from the aggregates for the whole United Kingdom, let us next examine the aggregates of a well-defined and fairly homogeneous group of constituencies, the counties of England and Wales, by the light of the following table:—
1884  PROPORTIONAL REPRESENTATION.  297

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of thousands of registered electors</th>
<th>Number of thousands of votes</th>
<th>Number of members by proportional representation</th>
<th>Number of members actually returned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Conservative Librals</td>
<td>Conservative Liberals</td>
<td>Conservative Librals</td>
<td>Conservative Librals</td>
</tr>
<tr>
<td>1868</td>
<td>823</td>
<td>434</td>
<td>304</td>
<td>110</td>
</tr>
<tr>
<td>1874</td>
<td>904</td>
<td>496</td>
<td>413</td>
<td>102</td>
</tr>
<tr>
<td>1880</td>
<td></td>
<td></td>
<td></td>
<td>135</td>
</tr>
<tr>
<td></td>
<td>155</td>
<td>32</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>124</td>
<td>63</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Upon this it is obvious to remark that, though we have here no instance of a majority of seats corresponding to a minority of votes, the Conservative majority of members elected has at each election been much larger than the respective strengths of the two parties justified; and that the Conservative reaction of 1874 enormously exaggerated this disproportion, giving the Conservatives an excess of forty-five seats, which, if they had been transferred to the rival party, to which of right they belonged, would have more than annihilated the Conservative majority of that Parliament.

Among the counties are included seven which are represented each by three members, and in these ‘three-cornered’ constituencies each elector can vote for two candidates only. The result is that they returned at the elections of 1868 and 1880 thirteen Conservatives and eight Liberals, and at that of 1874 fourteen Conservatives and seven Liberals, the Conservative reaction at the latter date being thus represented by the transfer of one seat only from the Liberal party to the Conservative. When we remember that these seven counties are Berkshire, Buckinghamshire, Cambridgeshire, Dorsetshire, Herefordshire, Hertfordshire, and Oxfordshire, all fairly typical agricultural counties without the disturbing influences of mining or manufacturing populations, it can hardly admit of a doubt that, had the rest of the counties been organised in like manner into three-cornered constituencies, the ratio of Conservatives returned to Liberals would have been something like the following:—

116 Conservatives to 71 Liberals, instead of 135 Conservatives to 52 Liberals in 1868.
125 " 62 " 155 " 32 " 1874.
116 " 71 " 124 " 63 " 1880.

Thus, though the Conservatives would still have been unduly represented at all three elections in proportion to their actual strength, the deviation from an equitable proportion would have been much less than was actually the case, while in the election of 1874 the Conservative majority for the counties of England and Wales would have been reduced from 123 to 63—a reduction almost enough in itself to have annihilated the Conservative majority in the whole Parliament.

Such is the result of the system which Mr. Bright is never tired of holding up to ridicule and scorn as ‘highly unconstitutional,’ the bantling of Lord Cairns, ‘supported by a small handful of sentimental
and fancy statesmen and legislators sitting on our side of the House.' Does it not afford the 'proof of its advantage to the country,' which Mr. Bright demands, after which only he will allow that 'we should permit any departure from the old lines of the Constitution, which, whatever its failings, we have a right to regard with some degree of reverence and affection'? Surely, if Mr. Bright had realised that adhering (in his sense) to the old lines of the Constitution meant a Beaconsfield administration for six years, while the proposed deviation from them meant merely a certain amount of difficulty and inconvenience in conducting the election at Birmingham so as to secure the return of three Liberal members for that city, he would have somewhat modified his essentially Tory attitude of reverence and affection for them. If 'everybody admits,' as Mr. Bright says, 'that the present system (of voting in three-cornered constituencies) is an injustice and a failure,' it can only be because their attention has been more directed to the defects and awkwardness of the machinery than to the character of the results. The moral is, to amend and improve the machinery, not to fall back on a system which by its very nature must yield unfair and uncertain results.

Descending further from the aggregate of the county representation, let us select for examination four contiguous constituencies, each returning two members, the four divisions of the county of Lancashire. The results of the three elections since 1867 are summarised as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of votes in thousands</th>
<th>Members elected</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Conservatives</td>
<td>Liberals</td>
</tr>
<tr>
<td>1868</td>
<td>26</td>
<td>23</td>
</tr>
<tr>
<td>1874</td>
<td>30</td>
<td>26</td>
</tr>
<tr>
<td>1880</td>
<td>35</td>
<td>31</td>
</tr>
</tbody>
</table>

Hence it appears that for twelve years from 1868 to 1880 the county of Lancashire had not a single Liberal representative, although 46 to 47 per cent. of the electors were Liberals, and that the small increase to about 49 1/4 per cent. in 1880 sufficed to divide the representation equally between the two parties. Had the county been divided into two constituencies returning four members each, with the limitation that no elector could vote for more than three candidates (as in the City of London), the Liberals would certainly have had at least two representatives in 1868 and 1874, while in 1880 perhaps the most probable result would have been three Liberals to five Conservatives. This latter result would perhaps be more satisfactory to the sticklers for the rights of majorities than the present equal division, which, according to the singular mode of arguing they often adopt, leaves Lancashire entirely unrepresented, while upon their principles a system which gives the entire monopoly of
the representation to one party for twelve years is as just and successful as that adopted from Lord Cairns is an injustice and a failure.'

As our last group for examination let us take together the metropolitan constituencies in Middlesex, including the county of Middlesex, the City of London, and the six boroughs, Chelsea, Finsbury, Hackney, Marylebone, Tower Hamlets, and Westminster, an aggregate of about 272,000 electors in 1880. In the following table, besides the proportional and actual distribution of members, the distribution which would have resulted if the City of London had not elected its members subject to Lord Cairns's clause is shown:

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of voters by thousands</th>
<th>Number of members by proportional representation</th>
<th>Number of members actually returned</th>
<th>Without Lord Cairns's clause in the City of London</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Conservatives</td>
<td>Liberals</td>
<td>Conservatives</td>
<td>Liberals</td>
</tr>
<tr>
<td>1868</td>
<td>49</td>
<td>74</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>1874</td>
<td>67</td>
<td>63</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>1880</td>
<td>89</td>
<td>93</td>
<td>9</td>
<td>9</td>
</tr>
</tbody>
</table>

Here the most striking feature is the over-representation of Liberals in 1868, converted by the return swing of the pendulum to a small over-representation of Conservatives in 1874, and again brought back to a small over-representation of Liberals in 1880. Thus the Conservative reaction of 1874, which under a system producing proportional representation would fairly have been measured by the transfer of two seats, actually resulted in the transfer of seven, and had not Lord Cairns's clause been in force in the City, would have resulted in a transfer of nine seats.

This invites our attention to a consequence of the existing system of majority representation, which is perhaps a still more serious evil than the anomalies hitherto shown to result from it, though it has been less frequently pointed out and less emphatically insisted on. This consequence is the instability of the representation caused by the shifting of small majorities in nearly balanced constituencies.

If the beam of a balance be supported at a point very near to its centre of gravity, the shifting of a small weight determines its inclination to this side or that. The system of majority voting has an analogous action: it balances those of the electors who have serious political convictions and hold them strongly—the steady Liberals against the staunch Conservatives; and then, if their weights are nearly equal, the inclination of the beam of the political balance is entirely at the mercy of a small body of electors, whose political views are determined at best by some ephemeral cry, some clever catchword, some panic fear, or some class interest, or in too many cases by those baser considerations which it may be hoped the Corrupt Practices Act of last Session will have done something to restrain.
This instability was largely exemplified in the election of 1874, when the current was temporarily in favour of the Conservatives, and perhaps to a nearly equal extent in that of 1880, when the set was in the opposite direction. At this latter election it was found that 37 seats were gained by the Liberals by a gross majority of 1,742 votes, an average of 47 each; and, not counting Irish seats, 47 constituencies changed sides with majorities of less than 100, six only of these being constituencies with less than 1,000 electors, where the deciding majority might perhaps be considered as a sensible fraction of the whole.

We may sum up the results of our examination of the working of the existing system of election since the Reform Act of 1867 in the following propositions:

1. Majority representation, merely counting majorities and not weighing them, does not secure that a majority of electors shall always command a majority of representatives. (Witness the election of 1874.)

2. The results of majority representation generally deviate widely from the ideal—proportional representation.

3. In large groups of generally like constituencies, majority representation gives an excessive preponderance in the representation to that party which has the majority. (Witness the counties of England and Wales.)

4. Majority representation is unstable. Small shifting majorities have an undue influence on the representation, enormously exaggerating the fluctuations of political opinion in the country at large.

The Conservative reaction of 1874 was expressed out of all proportion to its real strength by the transfer of 81 seats from the Liberal to the Conservative party; and the opposite reaction of 1880, which brought back 120 seats to the Liberal party, doubtless received therein an exaggerated expression.

Though these defects in the system of majority representation do and must exist, it may be, and has in fact been, contended that they are practically neutralised by the particular conditions under which it is actually exercised. The facts and figures we have cited show that this is not the case, though it may be admitted that the variety in the franchise, and the variety in the constituencies which are included within the 'old lines of the Constitution,' have had a considerable, though uncertain, mitigating effect. Much was done in 1832 and in 1867 to bring the franchise nearer to uniformity. The rights of suffrage of the scot-and-lot voters, the potwallopers, the freemen, the common-councilmen, the non-resident freeholders in boroughs, &c., have been taken away or merged in some wider qualification. The distinction between the qualifications in counties and boroughs survives, but it is doomed, and the coming Session will have
to decide whether the non-resident voters in counties, and the forty-
shilling freeholders, for whom Mr. Bright confesses to a very tender
feeling, shall not also lose their present privileges. The changes in
the constituencies have not been proportionally extensive, but many
of the smaller boroughs have disappeared, and it can hardly be
doubted but that in any new rearrangement of seats, very few, if any,
will survive. Such compensation, therefore, as grew up with our
growing Constitution, and which at best was quite haphazard and
accidental in its action, must be regarded as belonging to the past;
and thus some modification of our system of representation, so as to
make it approximate in some sensible degree, at least, to propor-
tional representation, becomes a necessity, unless we accept all the
demonstrated evil consequences of majority representation, without
such counteracting influences as have hitherto disguised to the ordi-
nary observer its unfair and anomalous character.

The plan of equal electoral districts has been spoken of with
favour by some prominent Liberal statesmen. This plan has certainly
the merit of simplicity. One elector one vote; each constituency to
consist approximately of the same number of electors, and to return
one member by a simple majority. Simple enough, indeed; but has
the plan any other merit? Will it give a fair representation? Is it
fair for the individual elector?

In the first place, this plan of necessity involves majority repre-
sentation pure and simple, with all the defects which we have just
noted, for the simple reason that a single member is a unit that can-
not be proportionally divided. If the whole body of electors in the
country were homogeneous, so that parties were divided in about the
same ratio in each constituency, the result would of course be that all
the members returned would be of one party. But, though there
would doubtless be left enough variety among the constituencies to
prevent such an extreme result as this, it is perhaps more than pro-
bable that what we have seen to be true now of the counties of
England and Wales—that they are represented by a number of mem-
bers of one party altogether out of proportion to the numerical
strength of the electors of that party—would then be true of the
whole aggregate of constituencies in the United Kingdom. In
that case the majority would indeed rule, but the minority would
not be heard. Surely this is a result which every reformer, who
places before himself any higher end than mere party ascendency,
could hardly contemplate without the gravest apprehension.

It is foreign to the purpose of this article to do more than allude
to other objections to equal electoral districts. Mr. Bright justly
condemns the plan as completely breaking loose from the old lines of
the Constitution, 'a change such as comes in a revolution;' and we
are reformers, not revolutionists. The division of a city or large dis-
trict into wards or electoral divisions would inevitably prove a fertile
source of contention and chicanery, whatever machinery were devised for effecting it; for the character of the representation might in many cases be altogether altered according as a line of division was drawn north and south or east and west; and the struggle would be renewed from time to time, as with a growing population the divisions would require periodic readjustments. Lastly, though the plan professes to give equal electoral right to all electors, it could not in reality do so, for the value of an elector's vote would depend on the district in which he happened to reside, his vote counting as nothing if his political views were opposed to those of the party dominant among his neighbours.

The exact opposite to the plan of equal electoral districts is Mr. Hare's plan of one single constituency, or perhaps two or three, corresponding to the great historic divisions of the United Kingdom—that plan which Mr. Bright has declared that he cannot understand, and which he does not scruple to assert that nobody has been able to understand. Although Mr. Bright, if he could divest himself of prejudice, and had the patience to study Mr. Hare's plan in detail, would perhaps find it less unintelligible than he supposes, it may freely be conceded that in its extreme form it is, however theoretically perfect, far too complicated for practical application—at least, until the average British elector has developed a degree of intelligence which is far beyond the horizon of the present or many generations to come. But the principle of Mr. Hare's plan is applicable to small groups as well as to large; and if it be found necessary, as it will be, to form constituencies to return more than one or two members, it may possibly be found sufficiently simple in working, and as effective as any other plan for securing the best and fairest representation of the constituency that can be attained.

Between these two extremes of single-membered constituencies and a single constituency embracing the whole electoral body and returning all the members, lie all the intermediate possibilities of dividing the electoral body into groups so as to secure a fair approximation to proportional representation, and at the same time not depart so widely from the old lines of the Constitution as to effect a revolution, rather than a development, of our electoral system.

The great mass of our existing constituencies return two members each, and this arrangement admits of only two alternatives—either one party absorbs the whole representation, or else it is equally divided between the two. The first result generally leaves a large fraction of the electors unrepresented, and the other violates the sentiment that the majority should appear as such in the representation. The objections we have pointed out to majority representation apply with their full force to these double-membered constituencies, as indeed the examples of its defects have been chiefly drawn from its working in such constituencies.
There are, however, twelve constituencies, seven counties and five cities, which return three members each, under the limitation of Lord Cairns's clause that no elector can vote for more than two candidates, while the City of London returns four members under the like limitation that no elector can vote for more than three candidates. This system has now been applied in the three elections of 1868, 1874, and 1880, and the following table, in which are placed side by side the actual return and what would have probably been the return by majority voting, shows with what results:—

<table>
<thead>
<tr>
<th></th>
<th>1868 Actual</th>
<th>1868 By majority</th>
<th>1874 Actual</th>
<th>1874 By majority</th>
<th>1880 Actual</th>
<th>1880 By majority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birmingham</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Glasgow</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Leeds</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Manchester</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Liverpool</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Total of 5 Cities</td>
<td>11</td>
<td>4</td>
<td>12</td>
<td>3</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>City of London</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>5 Counties</td>
<td>5</td>
<td>10</td>
<td>0</td>
<td>15</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Hertfordshire</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Herefordshire</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Total of Counties</td>
<td>8</td>
<td>13</td>
<td>3</td>
<td>18</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Grand Total</td>
<td>22</td>
<td>18</td>
<td>19</td>
<td>21</td>
<td>16</td>
<td>21</td>
</tr>
</tbody>
</table>

Hence, it appears that in the thirteen constituencies, returning forty members, to which Lord Cairns’s clause of the Act of 1867 applies, of seats which legitimately belonged to Liberals by the voting, there were saved by the action of that clause three seats in 1868, ten in 1874, and five in 1880, which would otherwise in all probability have been occupied by Conservatives. Further, the Conservative reaction, which would have been measured by the loss of thirteen seats, was actually attended with the loss of six; while the reaction in favour of the Liberals in 1880, which would have been measured by the gain of nine seats, was actually attended by a gain of four; the former, however, leaving the Liberals with a loss of four seats as compared with 1868 and the latter with a loss of two only. Here, again, is clear evidence of the steadying influence of an approximately proportional representation over mere majority representation. But the great value of this general result is that it shows distinctly that a better approximation to a really fair representation than by mere majority voting is practically attainable.

From all the foregoing facts and arguments it appears to follow
necessarily that, in the approaching rearrangement of constituencies, which must either accompany or immediately follow the equalisation of the franchise, all single- and double-membered constituencies should be merged in larger ones returning at least three members, while to many constituencies including large centres of population a much larger number should be assigned, the maximum number admissible being limited only by considerations of convenience and simplicity in the voting. Within the limits of each constituency the electors should be free to group themselves according to their political sympathies, instead of being carved out into sections determined by locality alone; for thus only would be secured to each elector the full privilege of the franchise, which otherwise would be liable to be neutralised by his finding himself an enforced member of a group in which he was one of a hopeless minority. The particular plan for voting, by which within each constituency the best approximation to proportional representation would be secured, whether Lord Cairns's limitation, or the method of cumulative voting, or some method involving the principle of Mr. Hare's plan, or some other plan which the ingenuity of practical politicians may devise, is beyond the scope of the present article to consider. If reformers are once thoroughly agreed as to the end to be attained, though the invention of the machinery for attaining it will demand much careful thought and discussion, there can be little doubt but that a practically satisfactory solution of the problem will soon be discovered.

Robert B. Hayward.
It may seem a romantic quest to be seeking for olive branches within the covers of a Blue Book. But I am hopeful about the report of the large, varied, and powerful collection of representative men who have been sitting for more than two years as a Commission to dissect the grievance connected with our ecclesiastical jurisdiction, and to propose some remedy. The work to which they have set their hands is honest, laborious, and thorough; and if it is cheerfully taken into consideration by the various parties in the Church, and candidly interpreted, it may be found to indicate, as its authors intended, a peace-making solution, and be the healing treatment of a distemper already grave, but quite within the compass of judicious remedies. Its authors show that their diagnosis of the disease is accurate, and so they propose a treatment which is at all events sure not to aggravate the malady. Ecclesiastical politics have become matters of such general interest, that I shall make no attempt to offer a history of the growth of the difficulties which have led to this Commission, nor of its own genesis, nor will I systematically analyse its contents, including appendices and evidence. I am, I assume, appealing to readers who are more or less acquainted with the document. It will be enough to review some salient features on which, in fact, its prospects of success must turn, although I shall be compelled at first to touch upon one or two collateral complexities which must be cleared up before the report itself can be profitably approached.

It only requires the most superficial acquaintance with the history of the Church revival of the past half-century to give assent to the proposition that the discontent which has gone on increasing during these last few years, till it has baffled so many clever people, is not a recent grievance. Twenty-three years ago, after the Gorham judgment, the debates on ecclesiastical judicature turned on just the same arguments; and Bishop Blomfield, of London, brought in a Bill to transfer the declaration of doctrine in ecclesiastical appeals to the Upper House of Convocation, which had the support of statesmen like the late Lord Derby and the present Lord Redesdale, but which foundered under the opposition of Lord John Russell's

1 The Ecclesiastical Courts Commission.
Government. For a short time the Judicial Committee, that great stumbling-block of so many Churchmen, ceased to be the Court of Ecclesiastical Appeal, by the present Lord Chancellor's Judicature Bill of 1873, though it was accidentally revived after three years by that measure, otherwise most admirable, which restored the appellate jurisdiction of the House of Lords. So the Judicial Committee can now claim in its ecclesiastical aspect a continuous authority of no more than seven years, while its condemnation involved in the suggestions of the present Report relieves me from the necessity of explaining why it is that the constitution of that body unfitts it for ecclesiastical functions. That which makes its actual judiciary system the disturbing element in the Church's otherwise prosperous progress is summed up in one word. It is an anachronism. Part of the system is too old, and part of it is too new; the old part much the worse for wear, the new so flimsy as not to have stood a very short term of wearing, and neither dovetailing into the other.

The reason of this exception to the increasing and elastic adaptability of the Church's resources to the wants of the day is not far to seek. The slumber of the Church in the days of our fathers and grandfathers procured peaceful times for the old ecclesiastical judicature, presented as it was in its best aspects by judges such as Lord Stowell. At last came the era of general effervescence and inevitable reform, and in this instance it came just a little too soon.

The creation of the Judicial Committee of the Privy Council as a body to fulfil the incongruous functions of Supreme Court of Appeal from India and the Colonies, and to take over the appellate jurisdiction, in Admiralty and ecclesiastical causes, of the Reformational Court of Delegates, was due to the erratic genius of Lord Brougham, and was brought into shape by him, while Chancellor, in two Acts of 1832 and 1833. It is said, on Lord Brougham's own authority, that the inclusion of ecclesiastical cases, which was an afterthought, was due to accident; but it would probably be more strictly accurate to say that it came of carelessness and the inability of grasping that 'the march of intellect' would in the coming time bestir itself about such matters. Those years 1832 and 1833 are memorable as the date of the rise of the great revival in the Church itself, which is now perforce admitted as a fact by those who dislike it most. So a change, which ought to have followed and taken colour from the revival, perversely fell upon days when the instinct of ecclesiastical wants and the knowledge of ecclesiastical law were at the lowest among our lawmakers. This meddling only affected the then very rare phenomena of second] appeals, below which the old courts of the Bishop and the Archbishop still existed in much decrepitude. In no long time, however, these courts were supplemented by the cumbrous and expensive, though well-meaning, proceedings created by the Church Discipline Act. That Act was passed in 1840 at a twilight
era, when public men had just learned enough to see dimly that the state ecclesiastical was, and was feeling itself to be, out of joint, but could not yet realise what they wanted nor how to keep clear of the pitfalls that lay in the road which they chose for themselves.

The final act of this comedy or tragedy of ambitious mismanage-
ment was the Public Worship Regulation Act of 1874, the fruit of panic at the manifestation of a wide outburst of miscellaneous activity in the Church—wise, healthful, and salutary in some things, unwise and fantastical in others, and all lumped together under the name 'Ritualism.' This measure, which began so badly, resulted in creating the judicature of partisanship—an enactment which, in pro-
fessing to deal indulgently with ritual irregularities, really left them under a harsher régime than moral offences; while the spiritual democracy, organised as the Church Association, to whose existence and powers of mischief the authors of the Act had perversely shut their eyes, made themselves masters of its machinery. However, there still existed, decrepit, as I have said, and much disfigured, and in ceremonial cases reduced to do the will of the Public Worship Act, the ancient and legitimate jurisdiction of the Church—the Episcopal and Archiepiscopal Courts. But what had happened during the last half-century affecting the quality of the men who composed them? Their jurisdiction and the profession which furnished their judges and advocates materially subsisted upon the possession of attributes some of which had better never have been saddled on the back of the Church. On the matrimonial jurisdic-
tion I do not speak, for it has emphatically its ecclesiastical, its very ecclesiastical, side. No excuse, however, could be found for continuing to burden the 'Courts Christian' with their testamentary jurisdiction. They were well rid of this millstone; but when Parlia-
ment had taken away this attribute, it had abolished most of the material inducements for men who had to work to live any longer to keep up the profession of the civilian and canonist. Yet the Ecclesiastical Courts were still there, reduced to atrophy, although the suits requiring special knowledge of the ecclesiastical law have been more numerous, more difficult, and more fierce than at any other date since the Reformation. Still no formal sentence has been passed upon the whole profession, while its formal existence may actually work as a deterrent from the independent study of canon law. Shorn though it be of its privileges, the name still exists, the shadow of its real self, but capable of a useful revival, just as the Report shows, in proposing to set up again the diocesan and pro-
vincial tribunals; and the most unfortunate and incomprehensible omission of the Report is that of any reference to the actual present and possible future of the profession of the ecclesiastical law. A scheme of courts, however ideally perfect, would be a failure if presided over and pleaded in by men ignorant of the law with which
they were professing to deal; and yet, so far as the Report goes, this is how it leaves the question. The oversight is more remarkable in proportion to the knowledge of those who drew the Report; for, if there is one man in England who knows better than another the difference between canon law and common law, it is Canon Stubbs. Still this is a fault of omission, and does not taint the spirit of the positive recommendations. It is in order to work them that I have emphatically to insist upon the revival in deed, and not merely in name, of the canon law as a living study, and of the canonist as a recognised and active profession. He has survived, and still exists in a fragmentary shape at our universities. Oxford, since Henry the Eighth forbade the study of canon law, only confers the degree of Doctor of Civil Law—D.C.L. But in practice graduates of this degree have been accepted as 'canonists' in the defunct fraternity of Doctors' Commons. But Cambridge has kept up, though under a veil, the degree in canon law. It may be merely nominally, but names are sometimes fructifying germs of realities. This university confers the degree of LL.D., though perhaps few people reflect what the reduplication of the L means: it is simply the plural abbreviation for Legum Doctor—Doctor of Laws—or, as it is expressed in some foreign universities, 'J.U.D.'—'Juris Utriusque Doctor,' or Doctor of Canon and Civil Law. Is it past anticipation that the Universities of Oxford and Cambridge, in their unwearied search after multitudinous professorships, might possibly be induced to look at home and restore the much-desired study of ecclesiastical law? But then, objectors will ask, who will study on the principle of measuring the value of studies by what they are likely to bring back? That may be a plausible objection, but really it does not hold water. The active professions available for men of culture are choked, and scholars with active minds are hungering and thirsting for fresh openings, be they as narrow as the eye of a needle. The smallest ray of light will guide a man of energy and patience to force his way through and create the new profession in which, as pioneer, he may be the most prosperous. Where does the canon law stand on the mappa mundi of human learning? It stands somewhere in the neighbourhood of dogmatic theology, international law, local law, and ritual regulation—all of them flourishing studies of the day. The studies which I have named indicate fields of investigation upon which there are many people, both clergymen and laymen, who have for these late years entered with exceptional enthusiasm and industry. Everyone who has written systematically on the Councils of the Church, on the dogmas of the universal Church, or of the Church of England as compared with those of the Church Catholic; everyone who has dealt with the conflict of laws, or who has entered into the popular ritual and ceremonial controversy; every squire or literary man living on his own resources, of whom there are so many, interested
in Church questions, and also endowed with legal tastes which he can only gratify at petty and quarter sessions and in the grand jury, is in virtue of his studies or his pursuits a budding and incomplete canonist. It will not be so difficult to concentrate this varied mass of material, more abundantly, perhaps, diffused than at any previous period, and turn the man of ecclesiastical learning into the man learned in ecclesiastical law. His exclusive work will no longer be with books and theories, but with the material interests of fellow-men, who lean on his advocacy or his decision; for with the responsibility the training will come.

The temptation to embark on this revived career will not be weak, although the anticipated remuneration may be but moderate, if it carries with itself an assured position, respect and fame. I seek my recruits among the large class of men of so-called learned leisure who are willing, for fame, or for more unselfish motives, thus to systematise their studies. Even as things at present stand there are among the diocesan chancellors gentlemen whose tenure of that office illustrates my position; and in more than one member of the Commission I see those who have to take a very short step to find themselves occupying a very high level among ecclesiastical lawyers.

Then, as the Inns of Court now provide that the call to the Bar shall not be a bare formality, so no doubt will the Universities recast, with a view to the new requirements, their examinations in the degree of 'LL.D.' or 'D.C.L.' and add appropriate distinctions. As an ecclesiastical profession, ecclesiastical law has so close a connection with spiritual concerns, that I see no objection to allowing the man who practises it to be a clerk in holy orders.

The restoration, I repeat with all the seriousness of which I am capable, of the ecclesiastical law as a study and as a profession lies at the root of any healthy pacification; as its abeyance is a main source of our present disorder. In the case of Liddell v. Westerton in 1857, when the word 'shrines' came before the Judicial Committee in reference to the Injunction commanding them to be taken away, it hardly raised the bystanders' respect to see these great and learned jurists puzzled by that word, until Sir William Maule, the most acute of men when he knew what he was talking about, helped the matter by quoting a sentimental line from some minor poet of the last century. Then the Committee came to 'trindles,' and that was a mystery of iniquity alike to Judges and Bar. It is almost cruel to revive the incident, but in this Liddell and Westerton judgment, satisfactory as it was in its practical results, there was one little slip, as it was originally given to the world, which was very judiciously corrected in the form in which it appears in the book—namely, the assertion by Her Majesty's Judicial Committee that in the Prayer Book of 1552 there was no Prayer of Consecration in the Communion
Service. So much for my first postulate—the restoration of the ecclesiastical law.

The next point turns on different considerations, and on it I must fairly confess at the outset that, at this stage of the inquiry, we may be met by a difficulty which it is not wise to overlook. We may be told that complaints against the jurisdiction generally arise from some judgment having been pronounced which runs counter to some party persuasions of an influential section of Churchmen. The answer is that there must be something wrong about Courts which are habitually so charged, and not from one side only. But it would be very unfortunate if the Courts were to be reformed, and then to incur the imputation, however unfounded, of having been manipulated so as to secure the triumph of a foregone conclusion. Now it happens that, although several of the earlier judgments of the Judicial Committee which provoked criticism turned upon doctrinal matters, latterly the burning controversies have been concerned with ritual; so it would be desirable as far as possible before we construct the new Courts to clear off the legacy of contention which attaches to ceremonialism. When the Public Worship Regulation Bill was in Committee in the House of Lords, the Bishop of Peterborough made a well-intentioned proposal to neutralise some things—notably, the position of the priest at the Lord’s Table. However, Lord Cairns proposed to include in the neutral zone the use of the Athanasian Creed, and naturally the suggestion collapsed. But it stands on record that men of distinction have entertained the idea of some such limitation as a legal possibility. When I was examined before the Ecclesiastical Courts Commission, I suggested that it would be a good thing if the Episcopate in private meeting, or the Convocations, could put out, not of course as claiming legal or parliamentary value for their conclusions, but with all the moral value of a joint determination from such a body, some concordat on ritual questions. The late Archbishop of Canterbury, who was examining me, asked me whether it would not be enough if every bishop in his own diocese were to put out his own declaration. I ventured to say that that would have been enough a few years ago, but not now; and the Archbishop inquired, ‘Why not?’ My answer was that people were more discontented, and that when they were more discontented they generally wanted more. To his further criticism that the appearance of collectively defying the law would wear a bad appearance, I replied in effect that I rather desired to focus how much the law actually allowed. I still think such a declaration would be a good thing; but I must say that the longer Churchmen keep the peace together, and the more things morally indifferent obtain practical permission, the less will it be needed. The position from which I am considering the question is that of a moderate High Churchman of rather old-fashioned opinions, who values ceremonial worship, but who depre-
cates pressing it upon worshippers to whom more simple forms are palatable, while at the same time he claims from them the liberty which he so heartily accords to their preferences.

Of all the ceremonial which is helpful to the devotions of this now numerous and rapidly increasing body, there is, I venture to say, only one feature which has not by this time been either formally declared legal or tacitly accepted, and I shall have something to say in favour of the constructive legality even of that feature. Into the inner zone of what is absurdly called 'Ritualism' I do not stray. Keeping to the more simple lines of the traditionary and aesthetic worship in churches which are now to be counted by the thousand rather than by the hundred, we find no one objecting to chancels with stately altars bearing the cross and candlesticks, choral worship, surpliced choirs, continuous services, frequent celebrations with the priest facing the altar and leading his flock at the most solemn rite. Some people may like this presentment of Prayer Book worship and some may dislike it; but the attempt to pull it down is now beyond the warmest aspirations of those who most object to the system. But there is one thing more—namely, the distinctive dress of the celebrant, the appreciation of which now extends far beyond the so-called ritualistic section. Yet the recognition of it in parish churches seems to be barred by the very judgment in Clifton and Ridsdale which confirms its legality by enforcing it in cathedral and collegiate churches. But the real scope of that judgment was the assertion that a certain document issued by Archbishop Parker and his colleagues in 1565, and known as the Advertisements, had been efficiently approved by Queen Elizabeth and was to be read into the Ornaments Rubric of 1662.

I do not pretend to understand this reasoning, but for my present purpose I accept the judgment so far in setting myself to the task of ascertaining what it really is which is said to be read in. Obviously, if it can be reduced to a nominal value, the controversy about reading or not reading in becomes one of words and reaches a vanishing point. Let us, then, go to the Advertisements and see what they really ordain. In the first place, and about this there is no cavil, they ordered the cathedrals and collegiate churches, which were maintained by their own estates, to provide special Eucharistic dresses, namely Copes, which were expensive articles. Then in parish churches, steeped in poverty as they were in Elizabeth's days, only a surplice was ordered to be provided at the charges of the parish, the only available source of income for any church object in an age before the invention of subscriptions. But the Advertisement does not say that the parson is not to wear his cope if he can procure it in some other way. There is nothing surely unnatural in this reading of the Advertisements, and in accepting them as simply reducing a compulsion which no one now contends for to a permission, the
concession of which would go so far to restore peace. But then it will be asked how we can obtain a hearing for it in face of the Ridsdale judgment. This is a question which I can best answer by asking in return how it has come to pass that the first Mackonochie judgment led every thinker to look upon it as a recognition of the eastward position, and how the Purchas judgment, professing the deepest respect for the Mackonochie decision, prohibited that position; and how, in a few more years, the Ridsdale judgment, with an equal respect for the Purchas judgment, virtually set up the eastward position? So much for the ritual question, which cannot be overlooked in connection with the grievance which the Commission sat to redress.

The scheme of ecclesiastical judicature which the Commissioners propose in their Report, both in criminal and in doctrinal and ritual cases, is, taken as a whole, decidedly satisfactory, founded as it is upon the principle of sweeping away the anomalous Church Discipline and Public Worship Acts, and of restoring to the Bishops' and Archbishops' Courts their ancient prerogatives, with powers to the prelates themselves, whose names they bear, of sitting with sufficient legal assistance; this recognition of a personal jurisdiction being in the Archbishops limited to cases of doctrine or ritual.

Proceeding to details, entire approbation should be accorded to the retention of the Bishop's power of stopping at his discretion vexatious suits. Then, again, the provision that only the judgment itself, and not the reasons leading up to it, should be valid would get rid of many of the difficulties which are now most vexatious. Equal praise must also be assigned to the recognition of the principle of giving separate judgments instead of a single collective one, and to the provision that the Archiepiscopal judge whom the Church recognises as its representative shall condescend to receive his appointment from the ecclesiastical authorities constituted for that purpose. It is also gratifying to note the opinion that the two Archbishops should not be bound, under pain of the appointment lapsing to the Crown, to agree upon some man whom very likely neither of the metropolitans would abstractedly have preferred.

I may now go on to the one element of the proposed system as to which my praise must be tempered with a criticism which I desire should be taken as constructive, and consider the Court of Appeal with which it is proposed to replace the Judicial Committee. It is to be a lay tribunal, consisting in each case of at least five members of a larger body, but taken in rotation to guard against favouritism. I have nothing to say against this Court when it has to deal with cases of moral discipline, and when I explain that my doubts are centred upon the occasions when it has to deal (not, as will be seen, in the same simple form) with alleged heresy and ceremonial delinquency, I only confess to feeling difficulties which by their own confession were not unfelt by the Commission itself.
But before going further I must, in justice to the Commission, epitomise its temperate and able reasons for recommending a lay Court of Appeal—reasons with which I entirely concur as far as they establish the character of the Court as one under the supremacy of the Crown, not to create or define dogma, but to ensure legal right between man and man; although I cannot quite say that the constitution actually does justice to its own justification. No ecclesiastical court, we are told, can so conclude a suit as to bar the subject’s right to approach the throne with a complaint of justice not done, and the claim for a full investigation. The full hearing of spiritual matters by spiritual judges has been provided in the earlier stages, otherwise a purely lay hearing would not have been recommended in the last resort. The function of such lay judges is not in any sense to determine what is the doctrine or ritual of the Church, but to decide whether the impugned opinions or practices are in conflict with its authoritative formularies so as to require correction. The legal interpretation of documents must often be widely different from the definition of doctrine; so they hold that the actual decree as dealing with the particular case only could be binding, and no reasonings or obiter dicta.

So far as these conclusions are general principles and not special provisions, I can most cordially embrace them; but I cannot agree that they compel me to close with the list of lay judges and its rota of five. If I had no other reason for my hesitation, it would be the manifest difficulty which men untrained in theology or canon law must, with the best intention, find, however well prompted by competent assessors, in treading the narrow and slippery path which lies between the interpretation of documents which embody doctrine and the definition of doctrine.

The most ingenious defence of the lay constitution of this Court was offered in a speech delivered at the Bath and Wells Diocesan Conference by a very competent cleric—just one of my inchoate ecclesiastical lawyers—Prebendary Ainslie, who was himself one of the Commissioners, and who may be assumed to reflect the conclusions of his colleagues. The argument was the more deserving of attention from the known quality of his churchmanship, when he addressed himself to the defence of the scheme against that which may be termed a charge of subordinating God to Caesar. These few short words sum up the complaint; but the controversy cannot be so briefly dismissed by those who believe, as I most heartily do, in the benefits of religious establishment, involving, as that does, give and take.

Mr. Ainslie started from the position that our monarchy was an Imperial State, with a reflected parallelism to the Holy Roman Empire, to which England never would own an inferiority. So the idea of imperialism vesting in the Crown led up, as he contended, to the idea that the sovereign was emphatically over all persons and in
all causes supreme, and therefore in all causes, ecclesiastical as well as civil, bound to see right between man and man. I have no wish to derogate from Prebendary Ainslie's theory of the duty of the sovereign power, though I cannot see that it is more incumbent on one that is imperial than upon that which only claims to be regal, or even upon a Grand Duke or a President. But, anyhow, the idea of an Imperial Court doing justice between all men would be much better carried out, where the persons and causes were ecclesiastical, through the attribution of the Imperial power of the right to call up, if it thinks fit, ecclesiastical persons, from their competency to see right done in ecclesiastical causes. To say, as Prebendary Ainslie in effect does, that the Imperial power has only the command of lay judges, is, in fact, to derogate from its imperial character, and to condition its supremacy. It is because I hold, as a Churchman, the supremacy of the Crown, that I protest against limitations which are neither wholesome for the Crown itself nor for the Church itself.

But I become even more doubtful of the practical working of the new Court when I consider the care which has been taken to fence it with precautions and to make it, while not being an ecclesiastical court, as much like one as possible. This, methinks, is too much protesting. The institution of spiritual assessors is a recognition of the necessity of theological learning in a court which deals with what were during a former period of similar agitation aptly called 'the temporal accidents of spiritual things.' But, granting the principle of assessors, it ought not to be left to the caprice of one or more judges to call them in; for it must follow in each case that either seeking their help or refraining from doing so must be equally suspicious, while the assessors called in by a minority or even a single judge are not likely to be favourably regarded by the remaining court. The spiritual element, if admitted at all, should be invariably consulted; while not even the venerable precedent of the House of Lords which seeks the advice of the judges without being bound reconciles me to the practice in a modern court where the respectful and protective traditions of that great tribunal will be absent. It is too possible that a judge might define his own position towards the assessors by a slight variation of Southey's words:—

Thou art a blessed Glendoveer;
'Tis thine to speak, mine not to hear.

I believe that the spirituality might be made an integral element of the Court, and that the tribunal could be recast without trenching on that royal supremacy which I am as desirous to preserve as the Commission itself. The court which I should sketch is possibly not one which would satisfy the highflyers who put forth claims which can hardly be conceded short of Disestablishment. But I have absolutely no sympathy with Disestablishment, and I desire to preserve the connection for the good alike of the Church and of the State.
But a few words in passing on the suggestion of a fixed rota of judges to prevent the suspicion of partiality. The idea is excellent, but it labours under an obvious difficulty. Either the list will be short, and then the judges will recur too frequently; or it will be a long one, and then there may be a difficulty in finding jurists sufficiently qualified for the delicate task which it is proposed to put upon them. Besides, for the first trial, which will probably be the crucial one, the names will in fact have been particularly selected. It is my conviction that the form of court which I shall suggest better carries out the Commissioners' own intentions than their own project does; for it is the court of the sovereign existing under the Imperial supremacy, and intended to set forth the character attaching to the jurisdiction of the State over all persons and in all causes, spiritual and temporal. I desire that the judges should take their delegation from the Crown; but, having granted that, I ask what magic is there in the fact that all who receive the Queen's delegation should be laymen? Does the person taking holy orders cease to be a subject? and if not, how can he cease to be eligible to sit in a court having at all events relations to spiritual things?

On the other hand—and here I am addressing a very different class of critics, namely, those who are most jealous of the prerogatives of the spirituality—how does a spiritual person who is, as such, a person holding office in a spiritual body connected with the State, act inconsistently with that office by accepting a responsibility from the State conferred upon him upon the assumption that the training of that office had fitted him for that responsibility? The court in which he sits may not be a spiritual court, but the fact of his sitting there tends to importing into it legitimate spiritual elements, and helps it in reaching sound conclusions in what are, as I define them, the temporal accidents of spiritual things. After all abatements may be made, the presence in the court of judges of the land will be the most desirable; for, unfamiliar as they may be with theology or canon law, they will bring to it the eminently valuable qualities of a judicial training, the capacity of marshalling facts, and the science of discriminating evidence from hearsay and appraising its trustworthiness. The constitution, accordingly, which I propose for the Court of Appeal would be that the Crown should appoint seven judges, divided into three classes. The first class should be two judges or ex-judges of the land, and the second two doctors of laws of ten years' standing, or chancellors of dioceses not immediately connected with the actual suit. The third class should be three theologians, of whom two must be bishops, the third possibly a professor of divinity at one of the two universities. Surely a court so composed ought to work well. In the first place, the two judges and the two doctors of laws would give a majority to the legal element, and so guarantee legal accuracy, while the two canonists and the three spiritual persons would give a
majority to special training in a double aspect as to ecclesiastical questions. If the theological element seem too strong, I would be content with two theologians and give the casting vote to the president, who would always be a judge; but I should press for equal numbers of judges and doctors—doctors, of course, who were really learned in ecclesiastical law. Such a court so constituted would be a modification and not a contradiction of the one suggested in the Commissioners' Report. It would be a more full, complete, and satisfactory carrying out of their own intentions than their own embodiment of them.

It will not be in the present Parliament, I fear, that any legislation can follow. It is now the breathing time to canvass the details of the Report. But I should do so with great moderation, and swallow a great deal to get the ecclesiastical judicature reformed in the direction which the Commission points out. Its Report has been received in a very satisfactory way by the decided majority of both parties in the Church in their various periodicals, as well as by the great mass of moderate public opinion; while such blatant hostility as the shriek of the Liberation Society over the provision that the members in the various courts must profess adhesion to the Church in whose causes they are judging is a strong testimonial to the equity of the scheme in the eyes of peaceable and sensible bystanders. Perhaps the truest expression would be that the Blue Books as a whole, reports, historical appendices, and evidence, all taken together make up a decided literary success, which is the utmost that could in the present aspect of politics be expected for the publication. It has also produced another most valuable effect in clearing the stormy air and smoothing angry brows. Ever since the revival of energy and devotion in our Church, numbers of our most devoted Churchmen have with more or less justice felt that they have not met with the sympathy which their self-sacrifice merited. No doubt the authorities of whom they may complain are the first to disclaim the reasonableness of the complaint. But the condition of dignity has up till now, though of course in an ever-diminishing ratio, been a survival of the pre-1833 days. The older generation has now practically passed away, and the revival itself is now to a great degree in its second generation. The Church, as a whole, has become the Church of the revival among Low as well as among High Churchmen; but something tangible was needed to prove this fact, and the missing evidence stands out clear in the present Report. This is why I venture to call it an olive branch, and I very confidently leave it to work its gradual but sure work of conciliation in the ever-spreading, ever-deepening Anglican Communion.

A. J. B. BERESFORD-HOPE.
THE GERM-THEORY of ZYMOTIC DISEASES.

Considered from the Natural History point of view.

In a former article (November 1881) I set forth the 'germ-theory' of Zymotic diseases, as recently built up by micro-pathological study, on the basis of the admirable researches of Pasteur on fermentation and putrefaction. I now propose to show that the evidence in its favour afforded by the natural history of those diseases is scarcely less cogent. And I shall further inquire what light is thrown on a question hitherto regarded as insoluble—that of the origination of the specific types of those diseases—by the application of that method of inquiry which, in Mr. Darwin's hands, has revolutionised the views of Naturalists in regard to the 'origin of species.'

The idea that such diseases as Small-pox, which spread by human communication, and of which the virus multiplies itself in the human body, are generated by a contagium vivum of some kind, is by no means a new one; having been suggested by the resemblance of the definite course followed by these diseases to the development, maturation, and decline of living organisms, and by the analogy between the regeneration of the contagium within the body in greatly increased amount, and the production of seeds or eggs. These general relations were brought out with great force more than forty years ago, by one of our most philosophic physicians, the late Sir Henry Holland, in a thoughtful chapter of his 'Medical Notes and Reflections;' but it is only now that their true meaning is becoming apparent in the clear light of the doctrine of disease-germs. On the other hand, the idea of a process analogous to 'fermentation' in the blood, produced by the chemical action of some materies morbi introduced into it by the breath, seemed most applicable to the case of those 'specific' fevers which originate in malarious or miasmatic emanations; and this was the doctrine embodied in the term 'zymotic,' which, first introduced by the late Dr. W. Farr, has since come into general acceptance.

Now that we can certainly trace every form of fermentation and putrefaction to the development of 'saprophytes,' or minute plants vegetating on decomposable organic matter, all the facts which supported the doctrine of 'zymosis' go to strengthen the doctrine of 'organic germs,' and vice versa; so that here, as in many other cases,
ideas which formed the bases of rival systems are themselves found to be but different forms of expression of one and the same fundamental truth.

The importance of these 'saprophytes,' alike in the economy of Nature and in service to Man, can scarcely be over-estimated. As Dr. William Roberts well expressed it,

Without saprophytes there could be no putrefaction; and without putrefaction the waste materials thrown off by the animal and vegetable kingdoms could not be consumed. Instead of being 'broken up, as they now are, and restored to the earth and air in a fit state to nourish new generations of plants, they would remain as an intolerable incubus on the inorganic world. Plants would languish for want of nutriment, and animals would be hampered by their own excreta and by the dead bodies of their mates and predecessors—in short, the circle of life would be wanting in an essential link.

Again, he points out,—

A large proportion of our food is prepared by the agency of saprophytes. We are indebted to certain bacteria for our butter, cheese, and vinegar. Our daily bread is made with yeast. To the yeast plant we owe all our wines, beer, and spirituous liquors. As the generator of alcohol, this tiny cell plays a larger part in the life of civilised man than any other tree or plant.

Thus, while among the most minute in size, and the simplest in form, of all living beings, these saprophytes derive from their peculiar endowments an unequalled potency for good. Unfortunately for us, however, they have a terrible potency for evil also; and it is the noble aim of Science to be able, by the thorough study of the conditions under which that potency is acquired and exerted, to keep it under efficient control. That study is as yet only in its infancy; but the progress it has already made affords ground for the confident expectation that the Science of Preventive Medicine will ere long furnish us with the means (should we be wise and firm enough to use them) of exterminating all the grievous 'pests' to which flesh is heir.

I commence my survey with a class of diseases of which we have fortunately little experience in this country, but which over large areas of the land-surface of the globe are more wide-spread and destructive than any others—those, namely, which are traceable to emanations from the soil designated as *malarious*. There are many localities, especially between the tropics, in which malarious fevers are not only the principal forms of disease, but where they give rise to two-thirds of the total mortality. In fact, as Dr. Parkes concisely put it, when a warm climate is called 'unhealthy,' it is simply meant that it is 'malarious.' There are even some into which, at certain seasons of the year, it is almost certain death for an unacclimatised person to remain for only a few hours; many more in which a longer stay is almost certain to induce a more or less severe form of periodic fever; and large tracts whose inhabitants are the subject of that slow

---

1 Address in Medicine to the annual meeting of the British Medical Association at Manchester, 1877.
general blight of the constitutional powers, chiefly manifested in the diminution of the red corpuscles of the blood with increase of the colourless, which is recognised as the 'malarial cachexia.' Of the fearful potency of the malarious poison in its worst forms we have had conspicuous examples in the Walcheren Expedition of 1809, in which 10,000 men were struck down by it; more recently, in the terrible visitation by which Mauritius was ravaged a few years ago; and (on a smaller scale) in the two ill-fated Niger Expeditions, the first conducted by Macgregor Laird in 1832, and the second fitted out by the British Government in 1851. But those only who are specially conversant with India are aware that, in its less malignant form, the malarious poison is every year causing a far greater destruction of life among the inhabitants of that vast peninsula than it has done in the worst of the occasional outbreaks of cholera, small-pox, &c.; the average annual mortality from malarial fevers being twice as great as from all other forms of zymotic disease put together.

The less violent but often more persistent forms of malarious disease are familiar to us through the evil reputation of the Roman Campagna, the poisonous atmosphere of which affects its inhabitants with periodic fevers, and often permanently debilitates them by disordering the blood-making process.

It is in the milder 'intermittent' fevers that we recognise the most characteristic action of malaria; their regular periodicity being an indication of alternating conditions of dormancy and activity in the operation of the poison, which strongly suggest successional phases in the history of a living organism. The malarial fever of tropical regions is generally of the 'remittent' type; there being a periodical abatement of the symptoms, without any distinct intermission of them. And while an intermittent fever has no definite termination — so that the person who has been once the subject of it seldom gets entirely rid of the tendency to its recurrence — remittent fevers usually run a definite course, terminating after a few weeks in either death or recovery. There can be no reasonable doubt that the poison is of essentially the same character in both cases; and it is a fact of no small significance, that intermittent and remittent fevers (save the worst forms of the latter) are alike controlled by the judicious administration of quinine.

Now the prevalent idea is, that malaria is essentially a product of marshes; and it is popularly believed to be generated by the action of heat on decomposing vegetable matter in the presence of air and moisture. This idea, however, is by no means consistent with facts; for (as we are assured by one of our best authorities, Dr. Maclean,² of Netley Hospital), 'although malaria indisputably infests low, moist, and warm localities, yet marshes are not as a rule dangerous when abundantly covered with water; it is when the water's level is lowered, and the saturated soil is exposed to the

² Article 'Malaria,' in Dr. Quain's Dictionary of Medicine.
drying influence of a high temperature and the direct rays of the sun, that the poison is evolved in abundance.'

When the British army under Wellington, during the Peninsular War, was operating in Estremadura, it was assailed by a remittent fever of such destructive malignity, that the enemy and all Europe believed the force to be annihilated; yet the country was so arid and dry for want of rain, that the rivers and small streams were reduced to mere lines of widely detached pools. The same army was scourged by a fever of like malignity in the bare open country by which Ciudad Rodrigo is approached from the side of Portugal, at a time when the vegetation was so burned up that the whole country resembled a brick-ground. Both these districts are flooded with rain water during the rainy season, and are then healthy; only becoming malarious when the drying process begins under the action of a powerful sun.

So, again, it is not during the rainy months of winter and spring that the Roman farmer dreads the low-lying parts of the Campagna, which are then occupied by vast herds of sheep, cattle, and horses, while the arable lands are cultivated by large gangs of labourers. But with the approach of summer, the sheep and oxen are driven away to the Apennines; all the labourers that can be spared go off to the hills; and when recalled at harvest time, they reap all day under a scorching sun, and sleep at night on the ground shrouded with heavy pestilent vapour, which prostrates even the hardiest of them, filling the hospitals of Rome in autumn with fever-stricken patients. This malarious condition has been persistent from very ancient times; and as it prevails over large tracts on which no stagnant water lies, it is obvious that the popular notion of its origin is incorrect. Professor Léon Colin (of the Val-de-Grace Military Medical School), who some time ago carefully investigated the condition of the Campagna, came to the conclusion that a 'telluric poison' is generated in it by the energy of the soil, when that energy is not utilised by its natural consumers—cultivated plants; and if we substitute for Dr. Colin's 'unknown quantity' the definite term 'saprophytic vegetation,' we shall find that all the facts of the case are brought into harmony.

In the first place, the microscopic researches of Professor Tommasi Crudeli of Rome, and Klebs of Prague, based on Pasteur's doctrine of disease-germs, have shown that the lower strata of the atmosphere of the Agro Romano, its surface-soil, and its stagnant waters, contain micro-organisms of the Bacillus type, which they have 'cultivated' in various kinds of soil, and then introduced by inoculation into the blood of healthy dogs. All the animals thus experimented on became the subjects of malarial fever, which ran its regular course, producing the same enlargement of the spleen as is seen in the human subject naturally affected by the disease; and the spleens of these animals were found to contain a great quantity of the bacilli. Not only Professor Crudeli, but two other physicians in Rome, have detected
this *Bacillus malariae* in the blood of human patients during the period of the invasion of the disease; the rod-shaped cells disappearing, and being replaced by micro-spores, as the fever reaches its acme. It would be premature to assert that the case is fully made out; since it can only be by researches carried on in other malarious districts, that it can be determined whether the presence of *Bacillus malariae* is the essential factor in the production of malarial diseases. But when all the circumstances of the case are considered, there is found to be a convergence of independent probabilities which gives great cogency to this conclusion.

The propagation of the *Bacillus malariae* in a productive vegetable soil whose energies are not turned to good account, will, of course, saturate that soil with its germs; and the surface-waters which percolate through it, becoming charged with these, will convey them into the bodies of those who drink them. It is now coming to be generally recognised that the use of such waters is fraught with danger, and that a large proportion of the attacks of fever and dysentery which occur in malarious countries is traceable to it. When, on the other hand, the poisoned soils have been desiccated by solar heat, the dried micro-spores will be raised as 'floating matter in the air, and may be wafted by atmospheric currents to considerable distances, sometimes rising (where circumstances favour such ascent) to considerable elevations; and these sporules, received into the human body by the lungs, will exert the same morbific agency as when they are taken into the alimentary canal. All sanitarians know that while malaria will drift along plains under the influence of winds sufficiently strong to propel but not to dispel it, the interposition of a belt of forest, or even a screen of trees, affords a considerable protective power; and this is just what might be expected in regard to the movement of a 'bacillus cloud.' It has been lately affirmed that the *Eucalyptus globulus*, or Blue Gum tree of Australia, has a special power of antagonising the spread of malaria; and on this account it is being very extensively planted in the malarious parts of Italy and Algeria, already (it is stated) with good result in rendering large areas healthy which were previously uninhabitable. It may be doubted, however, whether its efficacy depends upon anything else than its peculiarly rapid growth, whereby the energies of the soil are turned to account, and at the same time a mechanical obstacle is raised to the diffusion of the malaria.

Again, it is well known that where, as in many parts of our own islands, districts previously malarious have been rendered healthy by cultivation, the discontinuance of culture restores their old unhealthfulness. This happened on a large scale in the reign of Queen Mary; large tracts of country, owing to the political disquiet, falling out of cereal cultivation; and its abandonment being followed by an epidemic prevalence of malarial fevers, which added greatly to the mortality. *Bacillus* germs, like the seeds of higher plants, remain
dormant in the soil so long as a superior vegetation has hold of it, but are ready to crop up, like rank weeds, so soon as it is left to itself.

And this affords the rationale of another class of occurrences which have from time to time excited considerable surprise; namely, the revival of malarious disease, not only in hot but also in temperate climates, where an old soil has been extensively disturbed. Of this examples were afforded by the prevalence of intermittent fever in Paris during the construction of the Canal St. Martin, as well as subsequently during the excavations made for the fortifications erected by Louis Philippe; and by similar outbreaks in various parts of France during the construction of the great railway-trunks. So, when the island of Hong Kong came into our possession, and excavations were being carried on for the foundations of the town of Victoria, a fatal form of remittent fever appeared, which caused a great mortality among both the civil and the military population. In these cases, it may be presumed, old deep-buried malarial germs had remained dormant until again brought to the surface; and then finding their way, either by the water drunk or the air inhaled, into human bodies, exerted upon them their baleful influence.

Thus, then, while the characteristic forms taken by malarious diseases indicate to the sagacious physician the dependence of these diseases upon the development of organic germs within the bodies of those who have imbibed or inhaled them, the natural history study of the conditions of their propagation and diffusion affords very striking corroborative evidence to the same effect.

But, it may be properly asked, if malarial fevers are caused by the introduction of saprophytic germs into the human body and their development within it, why are not these fevers communicable by the passage of disease-germs from one individual to another? No one thinks of an ague being 'caught' like measles or scarlatina; and even the most 'pernicious' forms of remittent fever are believed, by those who have had large opportunities for observation, to be absolutely non-infectious. The reason seems to me to lie in this, that the home of the saprophyte which gives rise to malarious disease is the earth, in which it breeds and multiplies; whilst in the human body it is a parasite, which does not ordinarily find in it the conditions of its full development, and produces no crop, though it may keep up a feeble vegetative action for an unlimited time. Moreover, whilst the poisons of small-pox, measles, scarlatina, &c., have (so far as we know) no other home than the human body, and there mature full crops of infective disease-germs which are given off through the skin, an ague patient has no such vent, so that his system has no means of ridding itself of its parasitic intruders. And though such ripening would seem more likely to take place in the case of remittent fevers, yet it may well be that, under ordinary circumstances, there is something wanting either to complete the maturation of the germs, or to effect their elimination from the body in an infective form. This
something' appears, however, to be supplied by overcrowding of the patients thus affected; for I hold it to be a well-established fact that fevers of malarious origin may change their type under such circumstances, and thus become personally communicable. And this does not seem difficult to explain. For overcrowding means deficient air-supply, and deficient air-supply means deficient oxygenation of the blood, producing an accumulation in the circulating current of those 'waste' products, which are normally eliminated as fast as they are poured into it. And I shall presently show what an important factor this accumulation is, in furnishing the *pabulum* for the development of cholera-germs.

There is no zymotic disease as to the causation and spread of which there has been a greater antagonism of opinion than in respect to Asiatic Cholera; and there is none whose natural history study is more instructive,—facts which at first sight appeared directly antagonistic, and opposing doctrines based upon them, being all brought into harmony when looked at from this point of view. The first invasion of Europe by this disease, which had been endemic in India from a very remote period, occurred within my own time; and I well remember the excited discussions which took place in medical societies and in the public prints, as to the question of its contagiousness. The prevalent opinion among Indian practitioners had been, that it was a form of malarious disease infesting particular localities; that it was liable to spread beyond these under certain unknown conditions of temperature, moisture, &c.; but that it did not diffuse itself by contact or personal emanation from one individual to another. Still, the manner in which the first epidemic of cholera made its way from India to Europe in 1830, and thence to America, always in the lines of human intercourse, would have seemed conclusive as to its communicability by one human being to another, if it had not been that against this doctrine could be adduced a large body of experience, which seemed to show that the closest relations might exist between the sick and the healthy, without any special risk to the latter. And the hypothesis that then seemed least free from difficulty, was that moving bodies of men might carry with them a cholera-atmosphere, which had the power of augmenting itself by a process akin to fermentation, wherever it encountered the material on which it could thus act: for in every locality ravaged by the epidemic, it was amongst the dwellers in filth and squalor that it first showed itself and was chiefly fatal; and it seemed obvious that its searching-out of the 'plague-spots' of our great cities was more certainly attributable to

Footnote:
1. The evidence to this effect, that was furnished nearly a century and a half ago by Sir John Pringle's experience in regard to the conversion of the mild autumnal remittent of the Netherlands into malignant typhus, was fully confirmed by the investigations of Dr. McWilliam in regard to the case of the *Relier*; on board of which vessel the severe bilious remittent of the African coast changed into an infective continued fever, that spread from its sick among the inhabitants of Boa Vista, on which island they were landed.
their insanitary condition, than to any such propagation of a *contagium* from individual to individual, as can be always traced (if our inquiries be pushed far enough) in the case of small-pox or scarlatina. Hence this epidemic left upon the profession and the public (as I can personally testify) the conviction that, whatever might be the share of contagion in the propagation of the disease, no conditions were so efficacious in determining its prevalence in particular localities, as bad or deficient sewerage, overcrowding, and accumulations of filth.

This was the doctrine of the able sanitary authorities who constituted our Board of Health, when the second epidemic of 1847–8 made its appearance in this country. And the experience of that epidemic, while it furnished many cases that strengthened the belief of the occasional and exceptional propagation of the disease from the sick to the healthy, was most decidedly in favour of the influence of local insanitary conditions as determining its prevalence and fatality. Notwithstanding the urgent recommendations of the Board of Health, the old ‘plague-spots’ of many of our great towns had been little ameliorated, while in many cases the increase of population had increased overcrowding with all its attendant mischiefs. And the terrible fatality of the disease in many of these localities only too completely justified the warnings which had been neglected, and seemed to furnish a sufficient account of its epidemic spread.

But even at that period, the discoveries which had been made in regard to the nature of yeast, and the dependence of alcoholic fermentation on microphytal growth, had suggested to Dr. William Budd and to Dr. Brittain, both of them physicians in Bristol, the idea that the cholera-poison might have the like character; and the former was led by his previous experiences of the spread of typhoid fever, to suspect that the cholera-germs contained in the matter voided from the bowels of the patients might be spread by diffusion through the sources of the water-supply. They failed, however, to discover by microscopic examination anything that could be fixed on as a *contagium vivum*; the extreme minuteness of the *bacilli*, which are now recognised as the most potent of such evil agencies, not being then known to microscopists. And while there were local peculiarities in the distribution of this epidemic, alike in the Metropolis and elsewhere, which suggested an impure water-supply as the determining condition, our sanitary authorities seem to have regarded such supply rather as rendering the bodies of the recipients of it specially liable to be invaded by the cholera poison, than as itself the vehicle of that poison; placing water tainted with putrescent matter in the same category with foul air or unwholesome food.

The attention then drawn to this subject finally led, as will be recolected, to a great Metropolitan improvement, alike in the sewerage and in the water-supply; an effective drainage being provided even for the lowest levels, and the water-companies being required to draw their supplies from a part of the Thames above that which
receives the sewage of London. These measures were in progress when the next visitation of cholera took place—that of 1854. This epidemic, although extremely severe in particular spots, did not produce by any means so widespread a mortality as either of the two preceding; and while there was generally no difficulty in accounting for some of its worst outbreaks (as that at Luton) by the general unsanitary conditions of the localities, there were several cases which pointed more or less distinctly to water-contamination as the determining condition of the mischief; the one which attracted the most attention being known as that of the Broad Street (Golden Square) pump, investigated by Dr. Snow.

Although the results of Dr. Snow's inquiries are now continually cited as having there proved the origin of more than two hundred Cholera cases in the transmission of the cholera-poison furnished by the intestinal canal of the child first attacked, into the bodies of those who had drunk of the poisoned pump-water, this was not the view taken of it by the principal sanitary authorities of the time; for, finding the water to be considerably charged with organic impurity, they interpreted the facts as simply confirming their previous conclusion, that if there be some epidemic agent operating in the air, which converts putrefiable impurities into a specific poison, the water of the locality, in proportion as it contains such impurities, would probably be liable to similar poisonous conversion.'

A case occurred in Bristol, however, about the same date, which scarcely admitted of this explanation. An outbreak of cholera there took place, not in the old plague-spots which it had twice previously infested, but in a locality which seemed as little likely as any, save the higher parts of the town, to be attacked by the disease. It ran, so to speak, along one side of College Street into College Green, where it limited itself to the houses of one side, finishing off at the Grammar School, the head master of which died of it. Struck by the peculiarity of its distribution, Dr. William Budd inquired into the water-supply, and found that there was an exact correspondence between the two; the line of cholera being precisely that of the pipe distribution of the water of a spring called 'Jacob's Well,' which issues at the foot of Brandon Hill. Having gained access to the reservoir, which was hollowed in the side of a rock, he noticed a trickling of sewage-matter into it from above; and further search disclosed the fact that this proceeded from the privy of a house overhead, and that in that house there had been a cholera-case just before the general outbreak. Now, as the water thus distributed was not, like that of the Broad Street pump, derived from surface-drainage, but was—except from its contamination by choleraic _dejecta_—the pure outflow of a rock-spring, it is a scarcely disputable inference that its poisonous character was entirely derived from those _dejecta_, and that to their passage into the alimentary canals of the unfortunate partakers of the Jacob's Well water, was to be attributed this
severe and (at first sight) anomalous outbreak. And this view is confirmed by the following case related by Mr. Maenamara, as having occurred to him when serving in India in 1861.

A small quantity of the 'rice-water' defeca of a cholera patient was accidentally washed into a vessel containing four or five gallons of water, and the mixture exposed to the rays of a tropical sun for twelve hours. Early in the following morning, nineteen persons each swallowed about an ounce of this contaminated water (they only partook of it once), and within thirty-six hours five out of the nineteen were seized with cholera.

Looking to the large dilution of the material, and the small quantity of the poisoned water swallowed by each individual, there can be no doubt that it was the introduction of a contagium vivum, proceeding from the intestine of the original patient into the stomachs of the five persons attacked with cholera, that gave them the disease. But why only five out of the nineteen took it, is a point which raises another most important consideration. In the case of an ordinary poison, we should expect that the violence of the effect would be proportioned to the dose; and the complete escape of fourteen, whilst five suffered severely, all having taken about the same amount, would be difficult to explain. But in regard to most kinds of 'infections', it has long been clear to Pathologists, that their potency in regard to individuals is greatly dependent on the 'predisposition' of each—that is, on some condition of his own body, which may, on the one hand, render him proof against its effects, or, on the other, make him specially susceptible to its agency. Just thirty years ago, I showed that all the known 'predisposing causes' of epidemic diseases might be generalised under one expression—namely, the accumulation of decomposing nitrogenous matter in the blood, either through its introduction from without (in foul air, impure water, or putrescent food), or through its excessive generation within the body (as by unusual 'waste' of tissue), or by an obstructed elimination of the normal waste (such as results from bad ventilation, or the misuse of alcoholic liquors). And I showed that zymotic poisons which have no action upon pure blood, will, by seizing upon this appropriate pabulum, increase and multiply in it; thus setting up a 'zymosis' in pure blood, just as the growth and multiplication of yeast-cells at the expense of the nitrogenous matter of a wort effects the transformation of the sugar into alcohol. How perfectly this doctrine fits-in with the natural history conception of cholera-germs, needs no elucidation; and I shall content myself with illustrating it by two examples.

The cholera-epidemic which ravaged this country in 1847–8, had been previously very severe in India; and it showed itself most fearfully in a body of troops stationed at Kurrachee near the mouth of the Indus, carrying off no fewer than 464 out of a total of 3,746. But the attacks of the disease had a most remarkable distribution. While the officers and their ladies enjoyed an almost entire immunity from

it, there were three regiments among the rank and file of which it was especially fatal. One of these \((a)\) had recently come off a long and fatiguing march, but was well accommodated in airy barracks, and its loss was at the rate of 96·6 per thousand. In another regiment \((b)\), which had not been on the march, but which was overcrowded in small ill-ventilated tents, the death-rate was 108·6 per thousand. And in a third \((c)\), which had made the same march as \(a\), and was overcrowded like \(b\), the mortality was at the rate of 218 per thousand, absolutely exceeding the sum of their high death-rates. Thus the accumulation of ‘waste’ matter in the blood, produced by the exertion of a long march, prepared in \(a\) a \textit{pabulum} for the cholera-germs, which the normal exercise of the respiratory process would have progressively eliminated; in \(b\), the like \textit{pabulum} was prepared by the non-elimination of the ordinary waste; while in \(c\) it had accumulated in double quantity, under the combined agency of augmented production and deficient elimination.

The experience of cholera-epidemics has presented numerous examples which testify to the evil results of Intemperance; but I know of no case in which the benefits of extreme temperance, in keeping at bay the operation of a zymotic poison, were more remarkable, than in the contrast between the march of the 84th Regiment (of which Dr. E. Parkes was at that time assistant-surgeon) from Madras to Secunderabad, in 1847, and the concurrent march of the 63rd Regiment from Secunderabad to Madras. The former had been previously quartered for several months in healthy barracks; a large number of men were total abstainers, while the rest were very temperate; and their death-rate had been no more than 12·1 in 1,000 per annum. The latter had been overcrowded in the barracks at Secunderabad; though not specially intemperate, they habitually indulged in alcohols; and their death-rate had been 78·8. The two marches were made at the same time, in opposite directions, in a very wet and unhealthy season, through a country infested with cholera and fever; and while the 84th was almost entirely free from these diseases, the 63rd had so many sick when the two regiments crossed on the road, as to be obliged to borrow the 84th’s sick-palanquins.

Now since, in both these cases, the infecting cause must have operated alike on all, it is clear that in whatever way the cholera-germs are received into the human body, it is on the previous condition of each individual that their potency depends, and that this condition is induced by any causes which engender in this circulating fluid a suitable \textit{pabulum} for their growth and multiplication. True it is that some authorities have held cholera to be an essentially local disease, having its seat in the alimentary canal; and have supposed that being there set up in the first instance as a consequence of the reception of the poison into the stomach, its effect upon the system generally is only secondary to the affection of the lining membrane of the intestine. And assuming further that the breeding of the
cholera-germs takes place nowhere but in the human intestine, they have asserted that in the disinfection of the intestinal discharges, and in a rigid supervision of the purity of the water-supply, will be found all that is essential to keep the disease in check. Against this doctrine I feel called upon to enter my earnest protest, as based on an unscientific pathology, and as inconsistent with much that may now be regarded as best established in regard to the natural history of the class of saprophytes; and I shall endeavour to set forth the whole truth of the matter, as deduced from the study of the entire case—not of one set of facts alone.

Putting aside for the present the question of the primal source of cholera-germs, we may take it as a fact that they have for many centuries inhabited surface-waters in some part or other of India; that by their passage into the bodies of those who have imbibed those waters, they have kept up the disease 'endemically;' whilst from time to time, when circumstances have occasioned their more extensive dissemination, the disease has become 'epidemic.' That we do not hear more of the fatality of the disease in India, is simply (it would seem) because it is reckoned a thing 'of course.' In the most favourable years, the number of deaths from cholera seldom falls lower than a hundred thousand; while in bad years it rises to considerably above half a million. That it should specially infest native towns and villages cannot surprise anyone who is conversant with their unsanitary condition, their water-supply being habitually fouled by their intestinal dejecta. The wonder seems to be, not that cholera should spread among the inhabitants of such villages when the infection has been conveyed to them, but that any of them should escape its attacks. Such conveyance has been frequently the result of the dispersion of great congregations of people at fairs or pilgrim-shrines, among whom cholera has broken out, as it did in January 1882 at Allahabad, at the junction of the Ganges and Jumna.

That the disease has established itself endemically in Egypt, its germs having been probably left behind by the epidemic last imported from India, is the conviction of Dr. Hunter and his coadjutors who have officially investigated its recent outbreak in that country. And there can be no difficulty in accounting for this exceptional persistence; the important concomitance of high temperature, and contamination of the water-supply by putrescent matters, concurring with the essential condition of the diffusion of the cholera-germs through that supply in consequence of the unsanitary habits of the people. And Dr. Hunter's valuable report strengthens the conviction previously entertained by many practitioners of large experience, that there is a form of endemic diarrhoea which is traceable to the milder operation of the same poison.

The conveyance of cholera-germs by bodies of men moving along the lines of human communication, without necessarily affecting the individuals who transport them, is now easy to understand; for it is
well established that clothes or linen soiled by cholera *dejecta* may 
not only impart the germs with which they are contaminated to those 
who handle them when fresh, but that, after having been dried and 
packed, they may infect persons at any distance who incautiously 
unfold them. Thus, while the nurses of cholera-patients may, with 
proper precautions, enjoy an absolute immunity from attack, the 
disease-germs may be introduced into new localities without any 
ostensible indication of their presence. It is obvious that the only 
security against such introduction consists in the destruction or 
thorough disinfection of every scrap of clothing or linen which has 
been about the person of a cholera-patient.

But the natural history study of cholera-germs obviously teaches 
that they may enter the body in an æriform as well as in a solid or 
liquid vehicle, and through another channel than the mouth. To 
deny that they can be taken up and carried by the air, and that they 
can be drawn into the body with the breath, is to run counter to all 
analogy. No one who has studied the phenomena of Small-pox pro-
pagation doubts that a susceptible subject may be infected without 
personal contact, by being in the same room or in the same carriage 
with a small-pox patient; and there is strong ground to believe that 
when the infection is concentrated by congregation, small-pox germs 
may be atmospherically conveyed to a greater distance. Those who 
have had largest experience of cholera hold the same view. ‘In badly 
ventilated rooms,’ says Mr. Macnamara, ‘the atmosphere may become 
so fully charged with the exhalations (emanations?) from patients 
suffering from cholera, as to poison persons engaged in nursing the 
sick.’ And the International Sanitary Conference which discussed 
this subject at Vienna in 1874, while recording its unanimous con-
viction that the spread of the disease from country to country mainly 
depends on human communication, distinctly admitted the transpor-
tation of the infection by the atmosphere within a limited range from 
its focus of emission.

If, as Pasteur and Tyndall have shown us, the microphytes which 
cause the putrefaction of organic infusions, are wafted about as bac-
terial clouds, and if the same be true (as there seems no reason to 
doubt) of malarial disease-germs, there is not only no *à priori* reason 
to deny that the atmosphere may become a vehicle for the diffusion 
of cholera-germs, but there is every probability that it can be—the 
*onus probandi*, in fact, lying with those who deny its possibility.

When a sudden attack of a large number of individuals in the same 
locality distinctly points to a community of infection, we have now 
no hesitation in accusing the water-supply, where it can be shown 
that they have all partaken of water from a common source, and that 
this source had been (or might have been) contaminated by the 
*dejecta* of a cholera-patient, while the remaining population of the 
same area, supplied with water from purer sources, has remained 
unaffected. But several such simultaneous outbreaks have occurred
under circumstances that forbid the notion of their dependence on the water-supply, whilst the evidence is no less cogent of their origin in the atmospheric conveyance of the disease-germs. The epidemic which prevailed in the United States in 1849 afforded a particularly well-marked example of this kind, which seems to me to have put the matter beyond dispute. It occurred in the city Poor-house of Baltimore, which was situated out of the town on a level platform on the slope of a hill; the site having been originally selected by a merchant as a peculiarly salubrious one for building himself a country house. This house, having been afterwards purchased by the city authorities, was made the centre of the frontage of the Poor-house, which was extended into a long wing on either side, one for males and the other for females. Other wings ran backwards from these; and the area thus bounded, containing the offices of the establishment, was enclosed at the back by a wall. The entire building contained about 800 inmates; it was not at all overcrowded; the wards had been carefully cleansed and whitewashed; and the drainage was believed to be quite effective. Yet without any previous warning, a most appalling outbreak suddenly occurred in this Poor-house, the deaths being at the rate of thirty a day. The Board was hastily summoned, and was considering the question of evacuating the building and placing its inmates under canvas; when one of the medical officers, determining to ascertain what became of the drainage, found that instead of being carried into a ravine not far from the back of the premises, down which a stream ran, it terminated just beyond the enclosing wall, in an intervening piece of marshy ground covered with rank grass. It was then first noted that all the first attacks had taken place in the apartments at the back of the house, whose windows looked towards the marsh; and that the outbreak had followed immediately upon a change of wind, which made it set directly from the marsh towards those windows. Again, the male wing suffered much more severely than the female wing; and this corresponded with the fact that the latter was partly protected by a screen of trees. Further, on the male side, a wing containing lunatics ran back nearly as far as the enclosing wall, and had an end-window which looked over that wall directly on to the marsh; all the nineteen inmates of that ward were attacked, and all but one died. Satisfied that in that marshy plot lay the source of the whole mischief, the authorities took immediate steps to disinfect it. Trenches were cut to drain it into the ravine, a fire-engine was made to play upon it, and quicklime was copiously strewn over its surface. Immediately the plague was stayed, and in a few days the establishment was free from the disease.

Now while everything points to the marsh as the focus of the infection, and to the atmosphere as the bearer of the disease-germs, the hypothesis of water-conveyance is clearly inadmissible. For it is inconceivable that water so poisoned should have been drunk only by the occupants of the back rooms among whom all the first attacks
occurred; and the immediate efficacy of the remedial measures is utterly inexplicable on the hypothesis that the disease-germs were brought from any other source than the marsh. That having found their way into it, they had grown and fructified in its congenial soil so as to produce an abundant crop, by which, rising in germ-clouds and wafted by air-currents, the inmates of the Poor-house who first received it were destructively infected, seems, in the light of our present knowledge, the obvious rationale of this most instructive case. And if accepted in one case, this rationale is applicable to many others in which the same phenomenon presented itself, of a sudden outbreak immediately following a change of wind, which caused an air-current to set from a focus of infection towards the seat of the malady.

The only difficulty in the Baltimore case is to account for the introduction of the cholera-germs into the marsh. The municipal authorities of the city had taken very active and (as the event proved) very efficient means for warding off the pestilence; and although it was very severe at New York, Philadelphia, and Washington, only a few imported cases occurred in Baltimore itself. It is, of course, quite possible that clothing or bedding soiled by the dejecta of these patients might have been sent away to the Poor-house to be washed; and on the whole I think it more probable that some human communication of this kind took place, than that the cholera-germs were brought from a remote distance by the atmosphere. But that a marsh sodden with the excreta of a large population was as prolific a breeding ground as they could meet with, accords with the experience of all who have had the largest opportunities of studying the disease in India, or during the recent outbreak of it in Egypt.

The conditions of the spread of Typhoid or Enteric fever are closely analogous to those of the diffusion of cholera; and the doctrine of disease-germs proves as satisfactorily applicable to the one case as to the other.

But because typhoid germs, when introduced into the human system, breed and multiply within it, and, when voided from the intestine, may be conveyed by the water into which they have found their way into the bodies of other persons, who then become the subjects of the disease, it by no means follows that the human body is their only breeding-ground, or that water is their only vehicle. On the contrary, those who have most carefully studied the subject are now generally agreed, that when typhoid germs have been discharged into sewers, they not only infect their contents, but so develop themselves under favouring conditions (especially warmth, stagnation, and seclusion from the air) as to give rise to an enormous increase of the contagium. And in the case of the wide diffusion of typhoid poison by milk (of which the recent epidemic in Camden Town has afforded an illustrative example), it seems far more probable that the germs introduced by the contaminated water used in washing
the milk-vessels have multiplied by self-development in the milk put into them, than that they should have originally been abundant enough to communicate the disease to so large a number of individuals as are in some instances attacked by it.

Further, that sewer-gas may be the vehicle of typhoid germs, and that they may be drawn into the body by its inhalation, is not only what all analogy would suggest as probable, but accords alike with the judgment of our ablest pathologists in regard to the essential nature of the disease, and with the experience of our best sanitary authorities as to the mode of its propagation. That the primal seat of Enteric fever is in the blood, and that the various local affections which occur in the course of it are the results of changes set up in the circulating current, is just as clear as it is in small-pox or scarlatina, the worst forms of which may terminate fatally before any cutaneous eruption appears. And when disease-germs are inhaled into the air-cells of the lungs, they have a far more ready access to the blood spread out in the closest capillary network on their walls, than when introduced with food or drink into the alimentary canal.

I have recently had the opportunity of learning, on the spot, the full particulars of a case in which four members of one household were last year attacked with Typhoid fever—one of them narrowly escaping with her life—under circumstances which left no doubt in the mind of the very accomplished physician who had charge of the patients, that the malady originated in the opening of an old cesspool belonging to a neighbouring house, then in course of demolition. The house in which the outbreak took place is large and airy, and stands by itself in a most salubrious situation. The most careful examination failed to disclose any defect either in its drainage or its water supply; there was no typhoid in the neighbourhood; and the milk supply was unexceptionable. But the neighbouring house being old, and having been occupied by a school, its removal had been determined on to make way for a house of higher class; and as the offensive odour emanating from the uncovered cesspool was at once perceived in the next garden, and the outbreak of typhoid followed at the usual interval, the case seems one which admits of no reasonable question.

On the whole, then, the conclusion seems clear, that while the breeding ground of ordinary Malarious germs is the earth alone, and the breeding ground of the germs of the ordinary Exanthemata is the human body alone, there is an intermediate class of pestilential diseases—including cholera, typhoid, and probably yellow fever—in which (as Mr. Simon tersely expressed it) "certain microphytes are capable of thriving equally, though perhaps in different forms, either within or without the animal body; now fructifying in soil or waters of appropriate quality, and now the self-multiplying contagium of a bodily disease."

The doctrine that the disease-germs of cholera and typhus breed

² Article 'Contagion' in Quain’s Dictionary of Medicine.
in the human intestine only, and that they are introduced into it by water alone, obviously sets at naught a large proportion of those precautionary measures on which those who are most practically conversant with the subject lay great stress. Everything ought unquestionably to be done to preserve our domestic water-supply from contamination, as well as to secure the purity of its sources; and to disinfect, not only the intestinal dejecta of patients affected with cholera or typhoid, but everything contaminated by them. But we ought not, in doing these things, to leave others undone; and all experience justifies the emphatic warning of the Local Government Board, as to 'the danger of breathing air which is foul with effluvia from the same sorts of impurity'—a danger whose source obviously lies in the atmospheric transportation of disease-germs.

I have left myself but little space for the discussion of the second part of my subject—the bearing of the natural history view of Zymotic diseases upon the question of their origin and mutual relations. It is, doubtless, needful for the purposes of Pathological study, that these diseases should be defined as 'specific types,' just as the Naturalist defines 'species' of plants or animals; and as, in our pre-evolution days, it was held that every true species was separated from every other by constant characters genetically transmitted from parent to offspring, so has it been generally believed that the poisons, not only of small-pox, scarlatina, and measles, but of a large number of different forms of fever, as well as of other maladies propagated by contagia, are to be ranked as specifically different.

The species-making Naturalists of the past generation laid greater stress on points of minute difference than on those of general agreement, disregarded the modifying influence of 'environments,' and selected the strongly-characterised examples for description, neglecting the intermediate forms by which these are often gradationally connected.

But in the light of the modern doctrine of Evolution, the scientific Naturalist makes it his aim to ascertain how the different races of plants and animals have come to divaricate from each other; and studies their respective 'variations,' as affording the best clue to the origin of their larger and more constant 'specific' differences. And those who have most carefully studied the tribe of 'saprophytes' to which disease-germs belong, have long since come to the conclusion that there are no forms of vegetation whose 'range of variation' under differences of 'environment' is so wide; it being yet uncertain, indeed, that we know the entire life-history of any one of them.

Now, it has been too much the habit of Pathologists, in scientifically defining specific types of disease, to follow exactly the same course as the species-makers among Naturalists—insisting on minute differences rather than on points of agreement, and assuming that these differences are constant. Every Practitioner of medicine, on
the other hand, who has had opportunities of observing the same diseases in different localities, at different seasons, and in different epidemics, well knows how greatly their characters vary; 'hybrid forms' and 'sub-varieties' presenting themselves from time to time, which receive passing notice and then die out. Thus, although no eruptive fevers are more clearly differentiated, when occurring in their characteristic forms, than Measles and Scarlatina, yet cases every now and then occur, in which their symptoms are so mingled as to puzzle the most experienced doctors. I even remember such a hybrid disease to have been epidemic some thirty years ago in the East of London; and as Sydenham, one of the most sagacious medical observers that ever lived, did not separate the two, I cannot but think it probable that this 'hybrid' was the disease prevalent in his time. Again, the Small-pox epidemic of 1871 and subsequent years has been characterised by the re-appearance of the 'malignant,' type of that disease, which had not previously shown itself in Europe, except in a few isolated cases, during the present century. The whole course of that 'haemorrhagic' type, when presented in its most characteristic form (in which death occurs before the appearance of the eruption), is so entirely different from that of ordinary small-pox, whether 'confluent' or 'discrete,' that the two diseases might be well accounted specifically different, if it were not certain that they originate in the same contagium. So, again, some of those who have had largest experience of the severest forms of Malarious disease, are satisfied of the unity of causation that underlies variety of manifestation. Thus, says Dr. Haspel, the author of a very able work on the 'Diseases of Algeria' (Paris, 1850), 'fevers, dysentery, and diseases of the liver constitute an indivisible whole under the dominion of a single cause; and those who deny this truth are either misled by theoretical prejudices, or will not make use of their eyes.' It is a significant fact, rightly insisted on by Dr. Maclean, that exactly in proportion as we have banished malaria from the soil of the British islands, so have we got rid not only of ague, but of dysentery and of suppurative inflammation of the liver, as endemic diseases. I have already adverted to changes in the type of fever from 'non-infective' to 'infective,' of which there seems to me adequate evidence; and I might adduce a number of other instances—such as the difficulty that often occurs in India in discriminating between Cholera and Enteric fever—in support of my position, that even the best-marked types of Zymotic disease are not distinguishable by constant and invariable characters, but that, just as higher plants are modified by cultivation, so may the germs of these diseases develop themselves in a great variety of modes, giving rise to very different maladies, according to the conditions, whether local or individual, under which their development takes place.9

9 A very curious example of this kind, which came under the observation of Professor Huxley, when serving as assistant-surgeon in H.M.S. 'Rattlesnake,' was
But the same analogy carries us further, and suggests that the peculiar morbid activity possessed by each specific type of disease-germ may be derived from the operation of particular 'environments' on ordinary saprophytes through a long succession of generations, just as among plants of higher types. And this view is borne out by the remarkable influence of artificial 'culture' upon some of those which have been most carefully studied in this manner. It is a fact of great significance, that the malignant Bacillus anthracis of 'charbon' does not differ morphologically in any important character from the innocent Bacillus subtilis of hay infusions; and although it has not yet been certainly shown that any method of treatment can give to the latter the potency of the former, yet it seems not improbable that such will prove to be the case. With Dr. William Roberts, 'I see no more difficulty in believing that the Bacillus anthracis is a "sport" from the Bacillus subtilis, than in believing, as all botanists tell us, that the bitter almond is a "sport" from the sweet almond—the one a bland, innocuous fruit, and the other containing the elements of a deadly poison.'

So, as it seems to me, there is nothing inconsistent with our recognition of Cholera and Typhoid as specific types of disease, in the admission that under some possible conditions they may originate de novo from saprophytic germs not ordinarily capable of engendering such maladies in the human system.

Among my earliest professional recollections, going back to the year 1829, is that of the occurrence of a very remarkable outbreak of a severe malady in a school at Clapham, of a type then quite unknown to practitioners in this country, but which an old Indian doctor, who was asked to see the patients, declared to have the characters of the cholera of India, which was then (as subsequently appeared) on its way towards us, but whose advent no one at that time regarded as probable. Having lately referred to the Medical Gazette of August 22 in that year, I have found this recollection fully confirmed by the record of the 'Fatal Cholera at Clapham' published at the time; and cannot hesitate in the belief that if the outbreak (affecting twenty out of twenty-two boys at the school, and the two children of the master, of whom one died after only eleven hours' illness) had occurred during a cholera epidemic, the patients would have been regarded as suffering under that disease. A few days previously, a cesspool had been opened to let off from the playground stagnant water accumulated by the recent heavy rains, and its contents had been distributed over the garden adjoining the boys' playground. Whether true Asiatic cholera or not, this sudden simultaneous outbreak can scarcely be regarded as a mere result of putrescent emanations; it had every character of a specific disease implanted by germs; and the probability seems strong that these related by Sir James Paget in his lecture on 'Specific Diseases,' at the end of the first volume of his Surgical Pathology.
germs were those either of some other type of zymotic disease, or of ordinary saprophytes, to which some special conditions had imparted a choleraic potency.

Although, from the time when Sir William Jenner pointed out the marked distinctions between Typhus and Typhoid (or Enteric) fevers, their distinctness has been generally recognised, and any difficulty in diagnosing a case has been commonly set down to ignorance or imperfect observation, yet I have the high authority of the late Sir Robert Christison for stating that these diseases are not at all times, or in all places, so definitely distinguishable. Not long before his death, the Nestor of the medical profession in Scotland emphatically assured me, that 'looking at this class of diseases from the natural history point of view, he had been led by an experience of half a century to regard them, not as uniformly marked out, one from another, by well-defined boundaries, but as shading off gradationally one into another.'

Being specially anxious that those who are labouring to build up the noble Science of Preventive Medicine should work no unsound material into the fabric they are constructing, I would earnestly press upon them to avoid all exclusive theories, and to take Nature alone as their guide. The broader and deeper the foundation they lay, the more solid and durable will be the edifice that rests upon it.

W. B. CARPENTER.

ADDENDUM.

[Since the above was in type, the French Commission which was sent to Egypt to investigate the recent epidemic of Cholera has reported, as the result of its inquiries, that this epidemic was not imported, but was born as well as bred in the country itself; especial stress being laid on the recent prevalence of a cattle-plague, and on the practice of throwing into the rivers and canals the bodies of animals that had died of it. It was, moreover, the opinion of the Commission that the disease was not pure Indian Cholera; but that in some of its symptoms it rather resembled Plague. These conclusions are entirely in harmony with the views advocated in the latter part of this paper.

A small treatise has been recently published, on the Evolution of Morbid Germs, by Mr. Kenneth M. Millican, which contains a body of additional evidence, derived from clinical experience, of the variability in the types of Zymotic diseases propagated by the same contagia; that of the intercommunicability of Scarlatina and Diphtheria (under certain conditions) being peculiarly cogent.—W. B. C.]
CHRISTIAN AGNOSTICISM.

The title at the head of this article may appear to some a contradiction in terms. But it is not really so. And no religious man need shrink from saying, 'I am a Christian Agnostic. I hold firmly by the doctrine of St. Paul, who exclaims, in sheer despair of fathoming the unfathomable, "O the depth of God! How unsearchable are His judgments, and inscrutable His ways!" I say, with Job and all the great prophets of the Old Testament, "Canst thou by searching find out God?" And I bow to the authority of Christ, who tells me "No man hath seen God at any time;" "God is a Spirit;" "Blessed are they that have not seen and yet have believed." And in so holding, I am in full accord with the Church. I say with her, "We know Thee now by faith;" "The Father is incomprehensible (immensus);" "There is but one God, eternal, incorporeal, indivisible, beyond reach of suffering, infinite"—in short, a profound and inscrutable Being. Nor do I find that Catholic theology, for 1800 years, has ever swerved from a clear and outspoken confession of this Agnosticism. So early as the second century, we read in Justin Martyr, "Can a man know God, as he knows arithmetic or astronomy? Assuredly not." 1 Irenæus, in the same century, repeatedly speaks of God as "indefinable, incomprehensible, invisible." 2 That bold thinker in the third century, Clement of Alexandria, declares (with Mr. Spencer) that the process of theology is, with regard to its doctrine of God, negative and agnostic, always "setting forth what God is not, rather than what He is." 3 All the great Fathers of the fourth century echo the same statement. St. Augustine is strong on the point. John of Damascus, the greatest theologian of the East, says bluntly, "It is impossible for the lower nature to know the higher." 4 Indeed, it would be a mere waste of time to adduce any more of the great Catholic theologians by name. They are all "agnostics" to a man. And M. Emile Burnouf is quite right when he says: "Les docteurs chrétiens sont unanimes à déclarer que leur dieu est caché et incompréhensible, qu'il est plein de mystères, qu'il est l'objet de la foi et non pas de la raison." 5

1 Trypha, § 3.  2 iv. 34. 6, &c.  3 Strom. v. 11.  4 De fide, i. 12.  5 Science des Religions, p. 15.
Thus there is nothing new under the sun, not even in the highest flights of modern philosophy; and no man, with all the Fathers of the Church at his back, need hesitate to say ‘I am a Christian Agnostic.’ Yet all who concur in this will, I am sure, warmly welcome a powerful auxiliary like Mr. Herbert Spencer, if only he remain true to the principles so lucidly set forth in the last number of this Review. For although he might not himself care to qualify his philosophy by the adjective ‘Christian,’ fearing thereby to limit—as a philosopher is bound not to do—his perfect freedom of speculation, still his guidance is none the less valuable to those who are approaching the same subject from a different side. The Christian, indeed, is, of all men, the most absolutely bound-over to be truthful. When, therefore, any great leader of thought arises, whether in the higher or the lower departments of human inquiry, the liegeman of a ‘God of truth’ must needs feel such reverence as Dante expressed for Aristotle, ‘the great master of them that know;’ and will borrow from the other twin luminary of the Mediaeval Church, St. Augustine, that most apt of all mottoes for a really ‘Catholic’ philosopher: ‘The Christian claims as his Master’s own possession every broken fragment of truth, wherever it may be found.’ In the firm conviction, then, that in Mr. Spencer’s works much truth—not in detached fragments merely, but in large coherent masses—is to be found, the present writer hopes to show how little there is to repudiate, how much to accept and to be sincerely grateful for, in his masterly speculations.

1. First of all, Mr. Spencer led us in his interesting article last month to take a retrospective view of religion, in its origin and history. Naturally, he does not approach the question in the old-fashioned way. His purpose is not dogmatic, but analytic. That lovely Hagada, therefore, or religious story whereby, for babes and philosophers alike, the wonderful genius which constructed the Jewish Scriptures has projected, once for all, upon a plane surface (as it were) a picture of the origin of all things—this our man of science properly passes by; and he proceeds to inquire how precisely the beginnings of things, and especially of religion, may be conceived. And since, in these days, we have all of us ‘evolution’ upon the brain, it was not to be expected that any other line of thought should be attempted. Indeed, it may be fairly conceded that, amid our modern scientific environment, no other method of inquiry is just at present possible. We belong to our own age. And while other ages have taken grand truths en bloc and have deftly hammered them out into finer shapes for practical use, the special delight and the crowning glory of our own age consist rather in a power of tracking things backward. Hence a hundred books of (so called) ‘origins’ issue annually from the press. Of course, no origin is ever really described; simply because there is no such thing in nature as ‘an origin.’ If there were, at that point all hunt upon the traces of
evolution would abruptly come to an end; whereas, by the usual scientific hypothesis, evolution knows neither beginning nor end. By 'origins,' therefore, can only be meant arbitrary points a little way back, marked (as children or jockeys set up a starting-post) for commencing the inquiry. Indeed, it is very easy to imagine some imperturbable savage—say, a Zulu of Natal or an English schoolboy—asking the most reprehensible questions as to what happened before the 'origin' began. Such a critic would be sure to express a languid wonder, for instance, as to how the primeval star-mist got there; or he would casually inquire whence the antediluvian thunderbolt, which introduced vegetable life upon this globe, procured its vegetation; or he would ask why Mr. Spencer's aboriginal divine, roused from his post-prandial nightmare, should have selected a 'ghost,' out of the confused kaleidoscope of his dreams, as the recipient of divine honours. Nay, as was long ago suggested by a much more serious thinker in reply to a similar theory: 'To stop there is to see but the surface of things; for it still remains to ask how mankind have effected this transformation of a metaphor (or a dream) into a god, and what mysterious force has pushed them into making the transition... In order to change any sensuous impression into a god, there must have previously existed the idea of a god.'

Yes; clearly the latent idea must have been, in some way, already ingrained in human nature, so that it only needed (as Plato would say) an awakening from its hybernation; else why should human dreams produce a 'religion' and bestial dreams produce none? The question, therefore, is not fully answered by Mr. Spencer's entertaining speculation, any more than the miracle (as Dr. Büchner all but calls it) of 'hereditary gout' is explained by the jubilant pean of the materialist, 'Give me but matter and force, and all obscurities instantly vanish away!' For no reasonable man, who accepts the modern doctrine of the eternity and identity of energy, can entertain a doubt that religion—the most powerful human stimulant we know of—must have pre-existed somehow in the bosom of the unknown, though it only revealed itself at a certain fitting stage in the development of the world. And when we have reached this confession, have we not simply found our way back to that general truth which the Church has couched in every sort of parable and symbol, viz. that (the 'how' and the 'when' being left for history to unravel) religious ideas, especially in their most fruitful and catholic form, are a gift, an unfolding, a revelation from the bosom of the unknown God?

2. There are, however, far more serious and more practical subjects for reflection suggested by Mr. Spencer's paper, than any which relate to the past. Let bygones be bygones! Our contemporaries are an impatient generation, and are very apt to consign to their mental wastepaper-basket anything which they are pleased to

---

*Barnouf, p. 29.*

* Büchner, *Vie et lumière* (French trans.) *p. 315.*
condemn as 'ancient history.' What, then, has Mr. Spencer to tell us about the present state of religion? and what hopes does he unfold to us as we gaze, under his direction, into the future?

It is truly disappointing to be obliged to say of so devoted a student and so patient a thinker, (1) that he has failed to work his subject out, and (2) that he has fallen into a passion. It would be well worth while to make these two not unfriendly charges, if only they should succeed in inducing this able writer to give to the world some further product of his thinking on the strangely fascinating subject of Religion. For the truth is that, when Mr. Bradlaugh and others proclaim 'I know not what you mean by God; I am without idea of God,' they almost put themselves out of court at once by parading their inherent defect of sympathy with ordinary mental conditions. And when in higher social grades, Dr. Congreve and the Positivists openly 'substitute Humanity for God,' and refuse the transforming adoration of the heart to any conception which is not level to the bare positive understanding, they also—with all their eloquence and persuasive amiability—'charm' their contemporaries utterly in vain. As modern England will never again become Papal and Mediæval, so (it may be safely predicted) modern England will never become Atheist or Positivist. Our countrymen are in too healthy and vigorous a mental condition to impale themselves on either horn of this uncongenial dilemma. But they may, and it is to be hoped they will, surrender themselves to the far higher and more scientific teaching of men like Mr. Spencer; and will learn from them to think out to just and practical conclusions the deeply interesting—and to some minds the quite absorbing—question of Religion.

But then—with all respect be it said—Mr. Spencer must really help us to think further on than he has yet done; or he will find the Christian clergy (whom he is under temptation to despise) will be beforehand with him. He has most ably 'purified' for us our idea of God; he has pruned away all kinds of anthropomorphic accretions; he has dressed up and ridiculed afresh the Guy Fawkes crudities of bygone times, which he apparently 'sees no reason should ever be forgot;' he has reminded the country parsons of a good many scientific facts, which they read, it is true, in every book and review from Monday till Saturday and then so provokingly forget on Sundays; and he has schooled them into the reflection that a Power present in innumerable worlds hardly needs our flattery, or indeed any kind of service from us at all. But then all this is abundantly done already by the steady reading, from every lectern throughout the land, of those grand old Prophets and Apostles of the higher religious thought, who perpetually harp upon this same string. 'God,' they reiterate, 'is not a man,' that He should lie or repent: 'Bring no more vain oblations:' 'The sacrifices of God are a troubled spirit:' 'Thou thoughtest

wickedly that I am such a one as thyself:’ ‘God dwelleth not in temples made with hands, neither is worshipped with men’s hands, as though He needed anything.’ Nay, the present writer—who probably sits under a great many more sermons in the course of the year than Mr. Spencer does—is firmly persuaded that every curate in the Church of England, and every Nonconformist minister, are perfectly aware of these great truths and on suitable occasions preach them; and that what they want to be taught is something beyond all this ABC and all this negation—viz. what are the fundamental conceptions on which they may securely build up, not their philosophical negations, but their popular assertions about religion. For a religion of mere negations is as good as no religion at all. It seems hardly worth while to go down Sunday after Sunday to St. George’s Hall, or to any other Hall, simply to be told that Heaven has nothing whatever to say to us. We cannot believe that we are physically so well cared for as we are—naturally selected, evolved, provided with every possible adaptation to our material environment, and given the prize at last as ‘the fittest of all possible beings to survive’—and then are left utterly in the lurch as regards all our higher wants. No, our instinct revolts against such a supposition; and we crave to know on what grounds something can be said, as well as on what grounds almost everything can be denied.

3. Now, Mr. Spencer could help us in this quest, if he would. His analysis, in First Principles, of our religious conceptions shows what he could do. He there—while carefully warning us that all our knowledge is merely relative, and that our reasoning faculties do not present to us truth as it is, but only as it is reflected on the mirror of our mind—places nevertheless such confidence in those faculties that he allows them, in Buddhist fashion, to strip away feature after feature, as it were, from our religious conception of God, and to reduce it to a grim skeleton labelled ‘Everlasting Force.’ But why ‘Force’ only? To begin with, surely this also is a ‘conception.’ It is engendered by a multitude of observations blending into a higher unity and taking at last a definite shape. And the only sanction it has to rest upon is, not (ex hypothesi) any certainty or absolute truth in human logic, but simply an ineradicable faith that, to us at any rate, the notions of ‘permanence’ and ‘force’ sufficiently represent, though they may not actually be, the truth. We seem, then, already to have made the grand transition from reasoning to conceiving, from destruction to construction, from restless analysis to quiet synthesis, and from logic to belief that the great Unknown is, in one word, Power—‘an infinite and eternal energy.’

4. But just as we draw from the stores of our own consciousness this idea of ‘Power,’ of force, of muscular or mental energy, precisely in the same way we are justified in drawing the idea of ‘purpose’ in the direction of that energy. In fact, we cannot anyhow conceive
of force without 'direction' of some kind; and our instincts imperatively demand of us, when we think of force in the highest and sublimest way we can, that we impregnate that idea with another product of our plastic imagination, and conceive it as efficiently directed to some worthy end—in short, as power and wisdom combined. This may be, and undoubtedly is, quite as human and relative and provisional a conception as that of a pure blind unguided Force would be. But while the mind shrinks with unmitigated horror from the notion of 'an infinite and eternal Energy,' loose as it were in the universe, without any rational purpose or aim, but yielding portentous cosmic forces at haphazard, as a madman or a rogue-elephant might do, the mind rests and is satisfied when it can once feel assured that all is guided and has perfect efficiency for (what we can only call) some worthy 'design.' The word is, of course, utterly inadequate when things of such a scale are in question. But can Mr. Spencer or anyone else deny that, whatever sanction the human and relative conception of 'power' draws from the inner certainties of our own sensations, that same, or a still higher, sanction can also be claimed for the conception of an infinite and eternal 'Wisdom'? And if so, it appears that if the Agnostic lines which had reached the one conception were prolonged a little further, they would also reach the other; and that so the magnificent idea would be recovered for mankind of an Intelligent Being, with whom our infinitesimal yet kindred minds can enter into relations, and the wonder of whose works we can—as surely men of science above all others do—appreciate and assimilate as a kind of nutriment to ourselves.

5. But even then the imperative instinct which demanded the integration of nature's observed forces into a conception of Infinite Power, and which was irresistibly borne on to add wisdom also to that Power—even then it is not pacified. It clamours for one more quality; and then it will be still. Relative, human, provisional—call it what you will—nevertheless this third and complementary conception will no more take a denial, will no more obey a frown and waive its right to rush into the inevitable combination, than matter will politely waive its chemical affinities. As the human mind is stupefied with terror at the bare idea of swift and gigantic energy abroad in the universe without purpose or intelligence (as we inadequately say) to guide it, so assuredly the human heart stands still in palsied horror at the frightful thought of 'an infinite and eternal force,' guided indeed by an infinite cunning, but checked by no sort of goodness, mercy, or love. In short, no authority on earth—not even that of all the philosophers and scientists and theologians that have ever lived—could impose upon any man, who thought Mr. Herbert Spencer's First Principles out to their ultimate conclusion, the portentous belief in an eternal, almighty and omniscient Devil. And therefore to add goodness to the other two factors of power and
wisdom, which we are compelled by the constitution of our nature to attribute to the Great Unknown, is pardonable because inevitable. But if so, it seems that Agnosticism—if allowed to develop freely on its own lines, without artificial hindrance—must needs become a Christian Agnosticism.' And it only remains to ask, why in the world should not such an Agnostic 'go to Church,' fall in with the religious symbolism in ordinary use, and contribute his moral aid to those who have taken service under the Christian name on purpose to purify gross and carnal eyes, till they become aware of the Great Unknown behind the veil, and so come to relatively know what absolutely passes knowledge?}

6. There is only one obstacle in the way; and that is of so unworthy a character, that it passes comprehension how men of cultivation can allow it a moment's influence upon their conduct. The objection referred to has never been more clearly expressed than by one whom we all delight to honour and to listen to, Professor Tyndall. He wrote as follows in the pages of this Review a few years ago (November 1878): 'It is against the mythologic scenery, if I may use the term, rather than against the life and substance of religion, that Science enters her protest.' But how, in the name of common sense and charity, is religion—that special provision for bringing strength to the feeble-minded, elevation to the lowly, and wisdom to the ignorant—to be brought home to all mankind, without the use of even coarse symbolism, which is as 'relative' to the masses for whom it is intended as scientific conceptions are to philosophers? In both cases the realities behind are most imperfectly represented; and a higher intelligence, if it were not loving as well as intelligent, would certainly display impatience with Professor Tyndall's own kindly effort a few pages further on, where he says 'How are we to figure this molecular motion? Suppose the leaves to be shaken from a birch-tree; and, to fix the idea, suppose each leaf to repel and attract; and so on. Is it not clear that the Professor is here doing the very same thing, in order to bring science home (all honour to him!) to the unlearned, which he refuses to the ministers of religion when they try to bring home the Gospel to the poor? How can such subtle ideas, such far-reaching thoughts, as those of theology be brought home to the mass of mankind without the boldest use of symbol and of figured speech? How can that most precious result of Christianity, a unity of general conceptions about mankind and about the Great Unknown, be secured without a symbolism of the very broadest and most striking kind? Panoramas cannot be painted with stippling brushes. Nor, indeed, does any sort of painter aim to compete with the bald truthfulness of photography. He does not imitate: he merely hints. He throws out things φονάντα συνετοίκω. He summons the imagination of the spectators themselves to his aid and awakens their finer susceptibilities. And by
this means a 'picture,' which is in itself the most unreal of all unrealities, becomes in skilful hands a fruitful reality for good, perhaps to a hundred generations.

If, then, any scientific man does not for himself need rituals and symbols, still let him remember how invaluable an aid these things are to the mass of mankind. Let him reflect how the purest and loftiest ideas of the Eternal lie enshrined within every form of Christian adoration, and how the most touching memories speak in every Christian Sacrament. Is it nothing, too, to be brought in contact with the boundless gentleness and tolerance of Christ; to hear such words as 'He that is able to receive it, let him receive it,' and 'He that is not against us is on our side'? Is it nothing to feel the sympathy of such a devoted benefactor of Europe as St. Paul, and to accept his judgment that 'He who regardeth the day, regardeth it unto the Lord; and he that regardeth not the day, to the Lord he doth not regard it'? Nay, is it nothing to bow the knee in acknowledged brotherhood beside the simple and the lowly; to submit to learn from them, as we all learn from our children in the nursery; and to feel ourselves, in spite of our divergent views and notions, in the attitude of common adoration before the Great Unknown? Better this, surely, by far than to cover with philosophic scorn ministrants whose days are given to soothing every form of human distress, amid whose simplest teaching can always be detected in undertone the deep thoughts of Hebrew prophets and apostles, and to despise whom is to crown once more, with paper or with thorns, the meek head of Christ.

H. G. Curteis.
ON RAINBOWS.

The oldest historic reference to the rainbow is known to all: 'I do set my bow in the cloud, and it shall be for a token of a covenant between me and the earth. . . . And the bow shall be in the cloud; and I shall look upon it, that I may remember the everlasting covenant between God and every living creature of all flesh that is upon the earth.' To the sublime conceptions of the theologian succeeded the desire for exact knowledge characteristic of the man of science. Whatever its ultimate cause might have been, the proximate cause of the rainbow was physical, and the aim of science was to account for the bow on physical principles. Progress towards this consummation was very slow. Slowly the ancients mastered the principles of reflection. Still more slowly were the laws of refraction dug from the quarries in which nature had embedded them. I use this language, because the laws were incorporate in nature before they were discovered by man. Until the time of Alhazan, an Arabian mathematician, who lived at the beginning of the twelfth century, the views entertained regarding refraction were utterly vague and incorrect. After Alhazan came Roger Bacon and Vitellio,1 who made and recorded many observations and measurements on the subject of refraction. To them succeeded Kepler, who, taking the results tabulated by his predecessors, applied his amazing industry to extract from them their meaning—that is to say, to discover the physical principles which lay at their root. In this attempt he was less successful than in his astronomical labours. In 1604, Kepler published his Supplement to Vitellio in which he virtually acknowledged his defeat, by enunciating an approximate rule, instead of an all-satisfying natural law. The discovery of such a law, which constitutes one of the chief corner-stones of optical science, was made by Willebrord Snell, about 1621.2

A ray of light may, for our purposes, be presented to the mind as a luminous straight line. Let such a ray be supposed to fall vertically upon a perfectly calm water surface. The incidence, as it

1 Whewell (History of the Inductive Sciences, vol. i. p. 345) describes Vitellio as a Pole. His mother was a Pole; but Poggendorff (Handwörterbuch d. exakten Wissenschaften) claims Vitellio himself as a German, born in Thüringen. 'Vitellio' is described as a corruption of Witelo.

2 Born at Leydon 1501; died 1626.
is called, is then perpendicular, and the ray goes through the water
without deviation to the right or left. In other words, the ray in the
air and the ray in the water form one continuous straight line. But
the least deviation from the perpendicular causes the ray to be broken,
or 'refracted,' at the point of incidence. What, then, is the law of
refraction discovered by Snell? It is this, that no matter how the
angle of incidence, and with it the angle of refraction, may vary, the
relative magnitude of two lines, dependent on these angles, and called
their sines, remains, for the same medium, perfectly unchanged.
Measure, in other words, for various angles, each of these two lines
with a scale, and divide the length of the longer one by that of the
shorter; then, however the lines individually vary in length, the
quotient yielded by this division remains absolutely the same. It is,
in fact, what is called the index of refraction of the medium.

Science is an organic growth, and accurate measurements give
coherence to the scientific organism. Were it not for the ante-
cedent discovery of the law of sines, founded as it was on exact
measurements, the rainbow could not have been explained. Again
and again, moreover, the angular distance of the rainbow from the sun
had been determined and found constant. In this divine remem-
brancer there was no variableness. A line drawn from the sun to the
rainbow, and another drawn from the rainbow to the observer's eye,
always enclosed an angle of 41°. Whence this steadfastness of position
—this inflexible adherence to a particular angle? Newton gave to
De Dominis the credit of the answer; but we really owe it to the
genius of Descartes. He followed with his mind's eye the rays of
light impinging on a raindrop. He saw them in part reflected from
the outside surface of the drop. He saw them refracted on entering
the drop, reflected from its back, and again refracted on their
emergence. Descartes was acquainted with the law of Snell, and
taking up his pen he calculated, by means of that law, the whole
course of the rays. He proved that the vast majority of them escaped
from the drop as divergent rays, and, on this account, soon became so
enfeebled as to produce no sensible effect upon the eye of an observer.
At one particular angle, however,—namely, the angle 41° aforesaid—
they emerged in a practically parallel sheaf. In their union was
strength, for it was this particular sheaf which carried the light of the
'primary' rainbow to the eye.

There is a certain form of emotion called intellectual pleasure,
which may be excited by poetry, literature, nature, or art. But I
doubt whether among the pleasures of the intellect there is any more
pure and concentrated than that experienced by the scientific man

3 Archbishop of Spalatro, and Primate of Dalmatia. Fled to England about 1616;
became a Protestant, and was made Dean of Windsor. Returned to Italy and re-
sumed his Catholicism; but was handed over to the Inquisition, and died in prison
(Poggendorff's Biographical Dictionary.)
when a difficulty which has challenged the human mind for ages melts before his eyes, and recrystallises as an illustration of natural law. This pleasure was doubtless experienced by Descartes when he succeeded in placing upon its true physical basis the most splendid meteor of our atmosphere. Descartes showed, moreover, that the 'secondary bow' was produced when the rays of light underwent two reflections within the drop, and two refractions at the points of incidence and emergence.

It is said that Descartes behaved ungenerously to Snell—that, though acquainted with the unpublished papers of the learned Dutchman, he failed to acknowledge his indebtedness. On this I will not dwell, for I notice on the part of the public a tendency, at all events in some cases, to emphasise such shortcomings. The temporary weakness of a great man is often taken as a sample of his whole character. The spot upon the sun usurps the place of his 'surpassing glory.' This is not unfrequent, but it is nevertheless unfair.

Descartes proved that according to the principles of refraction, a circular band of light must appear in the heavens exactly where the rainbow is seen. But how are the colours of the bow to be accounted for? Here his penetrative mind came to the very verge of the solution, but the limits of knowledge at the time barred his further progress. He connected the colours of the rainbow with those produced by a prism; but then these latter needed explanation just as much as the colours of the bow itself. The solution, indeed, was not possible until the composite nature of white light had been demonstrated by Newton. Applying the law of Snell to the different colours of the spectrum, Newton proved that the primary bow must consist of a series of concentric circular bands, the largest of which is red, and the smallest violet; while in the secondary bow these colours must be reversed. The main secret of the rainbow, if I may use such language, was thus revealed.

I have said that each colour of the rainbow is carried to the eye by a sheaf of approximately parallel rays. But what determines this parallelism? Here our real difficulties begin, but they are to be surmounted by attention. Let us endeavour to follow the course of the solar rays before and after they impinge upon a spherical drop of water. Take first of all the ray that passes through the centre of the drop. This particular ray strikes the back of the drop as a perpendicular, its reflected portion returning along its own course. Take another ray close to this central one and parallel to it—for the sun's rays when they reach the earth are parallel. When this second ray enters the drop it is refracted; on reaching the back of the drop it is there reflected, being a second time refracted on its emergence from the drop. Here the incident and the emergent rays enclose a small angle with each other. Take again a third ray a little further from the central one than the last. The drop will act upon it as it acted upon its neighbour, the incident
and emergent rays enclosing in this instance a larger angle than before. As we retreat further from the central ray the enlargement of this angle continues up to a certain point, where it reaches a maximum, after which further retreat from the central ray diminishes the angle. Now, a maximum resembles the ridge of a hill, or a watershed, from which the land falls in a slope at each side. In the case before us the divergence of the rays when they quit the raindrop would be represented by the steepness of the slope. On the top of the watershed—that is to say, in the neighbourhood of our maximum—is a kind of summit level, where the slope for some distance almost disappears. But the disappearance of the slope indicates, in the case of our raindrop, the absence of divergence. Hence we find that at our maximum, and close to it, there issues from the drop a sheaf of rays which are nearly, if not quite, parallel to each other. These are the so-called 'effective rays' of the rainbow. Let me here point to a series of measurements which will illustrate the gradual augmentation of the deflection just referred to until it reaches its maximum, and its gradual diminution at the other side of the maximum. The measures correspond to a series of angles of incidence which augment by steps of ten degrees.

<table>
<thead>
<tr>
<th>( \theta )</th>
<th>( d )</th>
<th>( \theta )</th>
<th>( d )</th>
</tr>
</thead>
<tbody>
<tr>
<td>10°</td>
<td>10°</td>
<td>60°</td>
<td>42° 28'</td>
</tr>
<tr>
<td>20°</td>
<td>19° 30'</td>
<td>70°</td>
<td>39° 48'</td>
</tr>
<tr>
<td>30°</td>
<td>28° 20'</td>
<td>80°</td>
<td>31° 4'</td>
</tr>
<tr>
<td>40°</td>
<td>35° 30'</td>
<td>90°</td>
<td>15</td>
</tr>
<tr>
<td>50°</td>
<td>40° 40'</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The figures in the column \( i \) express these angles, while under \( d \) we have in each case the accompanying deviation, or the angle enclosed by the incident and emergent rays. It will be seen that as the angle \( \theta \) increases, the deviation also increases up to 42° 28', after which, although the angle of incidence goes on augmenting, the deviation becomes less. The maximum 42° 28' corresponds to an incidence of 60°, but in reality at this point we have already passed, by a small quantity, the exact maximum, which occurs between 58° and 59°. Its amount is 42° 30'. This deviation corresponds to the red band of the rainbow. In a precisely similar manner the other colours rise to their maximum, and fall on passing beyond it; the maximum for the violet band being 40° 30'. The entire width of

* There is, in fact, a bundle of rays near the maximum, which, when they enter the drop, are converged by refraction almost exactly to the same point at its back. If the convergence were quite exact, then the symmetry of the liquid sphere would cause the rays to quit the drop as they entered it—that is to say, perfectly parallel. But inasmuch as the convergence is not quite exact, the parallelism after emergence is only approximate. The emergent rays cut each other at extremely sharp angles, thus forming a 'caustic' which has for its asymptote the ray of maximum deviation. In the secondary bow we have to deal with a minimum, instead of a maximum, the crossing of the incident and emergent rays producing the observed reversal of the colours. (See Engel and Schellbach's diagrams of the rainbow at the end of this article.)
the primary rainbow is therefore 2°, part of this width being due to the angular magnitude of the sun.

We have thus revealed to us the geometric construction of the rainbow. But though the step here taken by Descartes and Newton was a great one, it left the theory of the bow incomplete. Within the rainbow proper, in certain conditions of the atmosphere, are seen a series of richly-coloured zones, which were not explained by either Descartes or Newton. They are said to have been first described by Mariotte, and they long challenged explanation. At this point our difficulties thicken, but, as before, they are to be overcome by attention. It belongs to the very essence of a maximum, approached continuously on both sides, that on the two sides of it pairs of equal value may be found. The maximum density of water, for example, is 39° Fahrenheit. Its density when 5° colder, and when 5° warmer, than this maximum is the same. So also with regard to the slopes of our watershed. A series of pairs of points of the same elevation can be found upon the two sides of the ridge; and, in the case of the rainbow, on the two sides of the maximum deviation we have a succession of pairs of rays having the same deflection. Such rays travel along the same line, and add their forces together after they quit the drop. But light, thus reinforced by the coalescence of non-divergent rays, ought to reach the eye. It does so; and were light what it was once supposed to be—a flight of minute particles sent by luminous bodies through space—then these pairs of equally deflected rays would diffuse brightness over a large portion of the area within the primary bow. But inasmuch as light consists of waves and not of particles, the principle of interference comes into play, in virtue of which waves can alternately reinforce and destroy each other. Were the distance passed over, by the two corresponding rays within the drop, the same, they would emerge as they entered. But in no case are the distances the same. The consequence is that when the rays emerge from the drop they are in a condition either to support or to destroy each other. By such alternate reinforcement and destruction, which occur at different places for different colours, the coloured zones are produced within the primary bow. They are called 'super-numerary bows,' and are seen, not only within the primary but sometimes also outside the secondary bow. The condition requisite for their production is, that the drops which constitute the shower shall all be of nearly the same size. When the drops are of different sizes, we have a confused superposition of the different colours, an approximation to white light being the consequence. This second step in the explanation of the rainbow was taken by a man the quality of whose genius resembled that of Descartes or Newton, and who eighty-two years ago was appointed Professor of Natural Philosophy in the Royal

Institution of Great Britain. I refer, of course, to the illustrious Thomas Young.

But our task is not, even now, complete. The finishing touch to the explanation of the rainbow was given by our last, eminent, Astronomer Royal, Sir George Airy. Bringing the knowledge possessed by the founders of the undulatory theory, and that gained by subsequent workers, to bear upon the question, Sir George Airy showed that, though Young’s general principles were unassailable, his calculations were sometimes wide of the mark. It was proved by Airy that the curve of maximum illumination in the rainbow does not quite coincide with the geometric curve of Descartes and Newton. He also extended our knowledge of the supernumerary bows, and corrected the positions which Young had assigned to them. Finally, Professor Miller, of Cambridge, and Dr. Galle, of Berlin, illustrated by careful measurements with the theodolite the agreement which exists between the theory of Airy and the facts of observation. Thus, from Descartes to Airy, the intellectual force expended in the elucidation of the rainbow, though broken up into distinct personalities, might be regarded as that of an individual artist, engaged throughout this time in lovingly contemplating, revising, and perfecting his work.

We have thus cleared the ground for the series of experiments which constitute the subject of this discourse. During our brief residence in the Alps this year, we were favoured with some weather of matchless perfection; but we had also our share of foggy and drizzly weather. On the night of the 22nd of September, the atmosphere was especially dark and thick. At 9 p.m. I opened a door at the end of a passage and looked out into the gloom. Behind me hung a small lamp, by which the shadow of my body was cast upon the fog. Such a shadow I had often seen, but in the present case it was accompanied by an appearance which I had not previously seen. Swept through the darkness round the shadow, and far beyond, not only its boundary, but also beyond that of the illuminated fog, was a pale, white, luminous circle, complete except at the point where it was cut through by the shadow. As I walked out into the fog, this curious halo went in advance of me. Had not my demerits been so well known to me, I might have accepted the phenomenon as an evidence of canonisation. Benvenuto Cellini saw something of the kind surrounding his shadow, and ascribed it forthwith to supernatural favour. I varied the position and intensity of the lamp, and found even a candle sufficient to render the luminous band visible. With two crossed laths I roughly measured the angle subtended by the radius of the circle, and found it to be practically the angle which had riveted the attention of Descartes—namely, 41°. This and other

6 Young’s Works, edited by Peacock, vol. i. pp. 185, 293, 357.
facts led me to suspect that the halo was a circular rainbow. A week subsequently, the air being in a similar misty condition, the luminous circle was well seen from another door, the lamp which produced it standing on a table behind me.

It is not, however, necessary to go to the Alps to witness this singular phenomenon. Amid the heather of Hind Head I have had erected a hut, to which I escape when my brain needs rest or my muscles lack vigour. The hut has two doors, one opening to the north and the other to the south, and in it we have been able to occupy ourselves pleasantly and profitably during the recent misty weather. Removing the shade from a small petroleum lamp, and placing the lamp behind me, as I stood in either doorway, the luminous circles surrounding my shadow on different nights were very remarkable. Sometimes they were best to the north, and sometimes the reverse, the difference depending for the most part on the direction of the wind. On Christmas night the atmosphere was particularly good-natured. It was filled with true fog, through which, however, descended palpably an extremely fine rain. Both to the north and to the south of the hut the luminous circles were on this occasion specially bright and well-defined. They were, as I have said, swept through the fog far beyond its illuminated area, and it was the darkness against which they were projected which enabled them to shed so much apparent light. The 'effective rays,' therefore, which entered the eye in this observation gave direction, but not distance, so that the circles appeared to come from a portion of the atmosphere which had nothing to do with their production. When the lamp was taken out into the fog, the illumination of the medium almost obliterated the halo. Once educated, the eye could trace it, but it was toned down almost to vanishing. There is some advantage, therefore, in possessing a hut on a moor or on a mountain, having doors which limit the area of fog illuminated.

I have now to refer to another phenomenon which is but rarely seen, and which I had an opportunity of witnessing on Christmas Day. The mist and drizzle in the early morning had been very dense; a walk before breakfast caused my somewhat fluffy pilot dress to be covered with minute water-globules, which, against the dark background underneath, suggested the bloom of a plum. As the day advanced, the south-eastern heaven became more luminous; and the pale disk of the sun was at length seen struggling through drifting clouds. At ten o'clock the sun had become fairly victorious, the heather was adorned by pendent drops, while certain branching grasses, laden with liquid pearls, presented, in the sunlight, an appearance of exquisite beauty. Walking across the common to the Portsmouth road, my wife and I, on reaching it, turned our faces sunwards. The smoke-like fog had vanished, but its disappearance was accompanied, or perhaps caused, by the coalescence of its minuter particles into
little globules, visible where they caught the light at a proper angle, but not otherwise. They followed every eddy of the air, upwards, downwards, and from side to side. Their extreme mobility was well calculated to suggest a notion prevalent on the Continent, that the particles of a fog, instead of being full droplets, are really little bladders or vesicles. Clouds are supposed to owe their power of floatation to this cause. This vesicular theory never struck root in England; nor has it, I apprehend, any foundation in fact.

As I stood in the midst of these eddying specks, so visible to the eye, yet so small and light as to be perfectly impalpable to the skin both of hands and face, I remarked, 'These particles must surely yield a bow of some kind.' Turning my back to the sun, I stooped down so as to keep well within the layer of particles, which I supposed to be a shallow one, and, looking towards the 'Devil's Punch Bowl,' saw the anticipated phenomenon. A bow without colour spanned the Punch Bowl, and, though white and pale, was well defined, and exhibited an aspect of weird grandeur. Once or twice I fancied a faint ruddiness could be discerned on its outer boundary. The stooping was not necessary, and as we walked along the new Portsmouth road, with the Punch Bowl to our left, the white arch marched along with us. At a certain point we ascended to the old Portsmouth road, whence with a flat space of very dark heather in the foreground, we watched the bow. The sun had then become strong, and the sky above us blue, nothing which could in any proper sense be called rain existing at the time in the atmosphere. Suddenly my companion exclaimed, 'I see the whole circle meeting at my feet!' At the same moment the circle became visible to me also. It was the darkness of our immediate foreground that enabled us to see the lower half of the pale luminous band projected against it. We walked round Hind Head Common with the bow almost always in view. Its crown sometimes disappeared, showing that the minute globules which produced it did not extend to any great height in the atmosphere. In such cases, two shining buttresses were left behind, which, had not the bow been previously seen, would have lacked all significance. In some of the combes, or valleys, where the floating particles had collected in greater numbers, the end of the bow plunging into the combe emitted a light of more than the usual brightness. During our walk, the bow was broken and re-formed several times; and, had it not been for our previous experience, both in the Alps and at Hind Head, it might well have escaped attention. What this white bow lost in beauty and intensity, as compared with the ordinary coloured bow, was more than atoned for by its weirdness and its novelty to both observers.

The white rainbow (l'arce-en-ciel blanc) was first described by the Spaniard Don Antonio de Ulloa, Lieutenant of the Company of Gentleman Guards of the Marine. By order of the King of Spain,
Don Jorge Juan and Ulloa made an expedition to South America, an account of which is given in two amply-illustrated quarto volumes to be found in the library of the Royal Institution. The bow was observed from the summit of the mountain Pambamarea, in Peru. The angle subtended by its radius was 33° 30', which is considerably less than the angle subtended by the radius of the ordinary bow. Between the phenomenon observed by us on Christmas Day, and that described by Ulloa, there are some points of difference. In his case fog of sufficient density existed to enable the shadows of him and his six companions to be seen, each, however, only by the person whose body cast the shadow, while around the head of each were observed those zones of colour which characterise the 'spectre of the Brocken.' In our case no shadows were to be seen, for there was no fog-screen on which they could be cast. This implies also the absence of the zones of colour observed by Ulloa.

The white rainbow has been explained in various ways. A learned Frenchman, M. Bravais, who has written much on the optical phenomena of the atmosphere, and who can claim the additional recommendation of being a distinguished mountaineer, has sought to connect the bow with the vesicular theory to which I have just referred. This theory, however, is more than doubtful, and it is not necessary.7 The genius of Thomas Young throws light upon this subject as upon so many others. He showed that the whiteness of the bow was a direct consequence of the smallness of the drops which produce it. In fact, the wafted water-specks seen by us upon Hind Head8 were the very kind needed for the production of the phenomenon. But the observations of Ulloa place his white bow distinctly within the arc that would be occupied by the ordinary rainbow—that is to say, in the region of supernumeraries; and by the action of the supernumeraries upon each other Ulloa's bow was accounted for by Thomas Young. The smaller the drops the broader are the zones of the supernumerary bows, and Young proved by calculation that when the drops have a diameter of $\frac{1}{3000}$th or $\frac{1}{4000}$th of an inch, the bands overlap each other, and produce white light by their mixture. Unlike the geometric bow, the radius of the white bow varies within certain limits, which M. Bravais shows to be 33° 30' and 41° 46' respectively. In the latter case the white bow is the ordinary bow deprived of its colour by the smallness of the drops. In all the other cases it is produced by the action of the supernumeraries.

7 The vesicular theory was combated very ably in France by the Abbé Raillard, who has also given an interesting analysis of the rainbow at the end of his translation of my Notes on Light.

8 Had our refuge in the Alp been built on the southern side of the valley of the Rhone, so as to enable us to look with the sun behind us into the valley and across it, we should, I think, have frequently seen the white bow; whereas on the opposite mountain slope, which faces the sun, we have never seen it.
The physical investigator desires not only to observe natural phenomena but to re-create them—to bring them, that is, under the dominion of experiment. From observation we learn what nature is willing to reveal. In experimenting we place her in the witness-box, cross-examine her, and extract from her knowledge in excess of that which would, or could, be spontaneously given. Accordingly, on my return from Switzerland last October, I sought to reproduce in the laboratory the effects observed among the mountains. My first object, therefore, was to obtain artificially a mixture of fog and drizzle like that observed from the door of our cottage. A strong cylindrical copper boiler, sixteen inches high, and twelve inches in diameter, was nearly filled with water, and heated by gas flames until steam of twenty pounds pressure was produced. A valve at the top of the boiler was then opened, when the steam issued violently into the atmosphere, carrying droplets of water mechanically along with it, and condensing above to droplets of a similar kind. A fair imitation of the Alpine atmosphere was thus produced. After a few tentative experiments, the luminous circle was brought into view, and having once got hold of it, the next step was to enhance its intensity. Oil lamps, the lime-light, and the naked electric light were tried in succession, the source of rays being placed in one room, the boiler in another, while the observer stood, with his back to the light, between them. It is not, however, necessary to dwell upon these first experiments, surpassed as they were by the arrangements subsequently adopted. My mode of proceeding was this. The electric light being placed in a camera with a condensing lens in front, the position of the lens was so fixed as to produce a beam sufficiently broad to clasp the whole of my head, and leave an aureole of light around it. It being desirable to lessen as much as possible the foreign light entering the eye, the beam was received upon a distant black surface, and it was easy to move the head until its shadow occupied the centre of the illuminated area. To secure the best effect it was found necessary to stand close to the boiler, so as to be immersed in the fog and drizzle. The fog, however, was soon discovered to be a mere nuisance. Instead of enhancing, it blurred the effect, and I therefore sought to abolish it. Allowing the steam to issue for a few seconds from the boiler, on closing the valve, the cloud rapidly melted away, leaving behind it a host of minute liquid spherules floating in the beam. A beautiful circular rainbow was instantly swept through the air in front of the observer. The primary bow was duly attended by its secondary, with the colours, as usual, reversed. The opening of the valve for a single second causes the bows to flash forth. Thus, twenty times in succession, puffs can be allowed to issue from the boiler, every puff being followed by this beautiful meteor. The bows produced by single puffs are evanescent, because the little globules rapidly disappear. Greater permanence
is secured when the valve is left open for an interval sufficient to discharge a copious amount of drizzle into the air.  

Many other appliances for producing a fine rain have been tried, but a reference to two of them will suffice. The rose of a watering-pot naturally suggests a means of producing a shower; and on the principle of the rose I had some spray-producers constructed. In each case the outer surface was convex, the thin convex metal plate being pierced by orifices too small to be seen by the naked eye. Small as they are, fillets of very sensible magnitude issue from the orifices, but at some distance below the spray-producer the fillets shake themselves asunder and form a fine rain. The small orifices are very liable to get clogged by the particles suspended in London water. In experiments with the rose, filtered water was therefore resorted to. A large vessel was mounted on the roof of the Royal Institution, from the bottom of which descended vertically a piece of compo-tubing, an inch in diameter and about twenty feet long. By means of proper screw fittings, a single rose, or, when it is desired to increase the magnitude or density of the shower, a group of two, three, or four roses, is attached to the end of the compo-tube. From these, on the turning on of a cock, the rain descends. The circular bows produced by such rain are far richer in colour than those produced by the smaller globules of the condensed steam. To see the effect in all its beauty and completeness, it is necessary to stand well within the shower, not outside of it. A waterproof coat and cap are therefore needed, to which a pair of goloshes may be added with advantage. A person standing outside the beam may see bits of both primary and secondary in the places fixed by their respective angles; but the colours are washy and unimpressive, while within the shower, with the shadow of the head occupying its proper position on the screen, the brilliancy of the effect is extraordinary. The primary clothes itself in the richest tints, while the secondary, though less vivid, shows its colours in surprising strength and purity.

But the primary bow is accompanied by appearances calculated to attract and rivet attention almost more than the bow itself. I have already mentioned the existence of effective rays over and above those which go to form the geometric bow. They fall within the primary, and, to use the words of Thomas Young, 'would exhibit a continued diffusion of fainter light, but for the general law of inter-

---

9 It is perhaps worth noting here, that when the camera and lens are used, the beam which sends its 'effective rays' to the eye may not be more than a foot in width, while the circular bow engendered by these rays may be, to all appearance, fifteen or twenty feet in diameter. In such a beam, indeed, the drops which produce the bow must be very near the eye, for rays from the more distant drops would not attain the required angle. The apparent distance of the circular bow is often great in comparison with that of the originating drops. Both distance and diameter may be made to undergo variations. In the rainbow we do not see a localised object, but receive a luminous impression, which is often transferred to a portion of the field of view far removed from the bow's origin.
ference which divides the light into concentric rings.' One could almost wish for the opportunity of showing Young how literally his words are fulfilled, and how beautifully his theory is illustrated, by these artificial circular rainbows. For here the space within the primaries is swept by concentric supernumerary bands, coloured like the rainbow, and growing gradually narrower as they retreat from the primary. These spurious bows, as they are sometimes called, which constitute one of the most splendid illustrations of the principle of interference, are separated from each other by zones of darkness, where the light waves, on being added together, destroy each other. I have counted as many as eight of these beautiful bands, concentric with the true primary. The supernumeraries are formed next to the most refrangible colour of the bow, and therefore occur within the primary circle. But in the secondary bow, the violet, or most refrangible colour, is on the outside; and, following the violet of the secondary, I have sometimes counted as many as five spurious bows. Some notion may be formed of the intensity of the primary, when the secondary is able to produce effects of this description.

An extremely handy spray-producer is that employed to moisten the air in the Houses of Parliament. A fillet of water, issuing under strong pressure from a small orifice, impinges on a little disk, placed at a distance of about one-twentieth of an inch from the orifice. On striking the disk, the water spreads laterally, and breaks up into exceedingly fine spray. Here also I have used the spray-producer both singly and in groups, the latter arrangement being resorted to when showers of special breadth and density were required. In regard to primaries, secondaries, and supernumeraries, extremely brilliant effects have been obtained with this form of spray-producer. The quantity of water called upon being much less than that required by the rose, the fillet-and-disk instrument produces less flooding of the locality where the experiments are made. In this latter respect, the steam spray is particularly handy. A puff of two seconds' duration suffices to bring out the bows, the subsequent shower being so light as to render the use of waterproof clothing unnecessary. In other cases, the inconvenience of flooding may be avoided to a great extent by turning on the spray for a short time only, and then cutting off the supply of water. The vision of the bow being, however, proportionate to the duration of the shower, will, when the shower is brief, be evanescent. Hence, when quiet and continued contemplation of all the phenomena is desired, the observer must make up his mind to brave the rain.11

In one important particular the spray-producer last described commends itself to our attention. With it we can operate on sub-

10 A term, I confess, not to my liking.
11 The rays which form the artificial bow emerge, as might be expected, polarised from the drops.
stances more costly than water, and obtain rainbows from liquids of the most various refractive indices. To extend the field of experiment in this direction, the following arrangement has been devised: A strong cylindrical iron bottle, wholly or partly filled with the liquid to be experimented on, is tightly closed by a brass cap. Through the cap passes a metal tube, soldered air-tight where it crosses the cap, and ending near the bottom of the iron bottle. To the free end of this tube is attached the spray-producer. A second tube passes also through the cap, but ends above the surface of the liquid. This second tube, which is long and flexible, is connected with a larger iron bottle, containing compressed air. Hoisting the small bottle to a convenient height, the tap of the larger bottle is carefully opened, the air passes through the flexible tube to the smaller bottle, exerts its pressure upon the surface of the liquid therein contained, drives it up the other tube, and causes it to impinge with any required degree of force against the disk of the spray-producer. From this it falls in a fine rain. A great many liquids, including coloured ones, have been tested by this arrangement, and very remarkable results have been obtained. I will confine myself here to a reference to two liquids, which commend themselves on account of their cheapness and of the brilliancy of their effects. Spirit of turpentine, forced from the iron bottle, and caused to fall in a fine shower, produces a circular bow of extraordinary intensity and depth of colour. With paraffin oil or petroleum a similar effect is obtained.

Spectrum analysis, as generally understood, occupies itself with atomic, or molecular, action, but physical spectrum analysis may be brought to bear upon our falling showers. I asked myself whether a composite shower—that is to say, one produced by the mingled spray of two or more liquids—could not be analysed and made to declare its constituents by the production of the circular rainbows proper to the respective liquids. This was found to be the case. In the ordinary rainbow the narrowest colour-band is produced by its most refrangible light. In general, the greater the refraction, the smaller will be the bow. Now, as spirit of turpentine and paraffin are both more refractive than water, I thought it probable that in a mixed shower of water and paraffin, or water and turpentine, the smaller and more luminous circle of the latter ought to be seen within the larger circle of the former. The result was exactly in accordance with this anticipation. Beginning with water, and producing its two bows, and then allowing the turpentine to shower down and mingle with the water, within the large and beautifully coloured water-wheel, the more richly coloured circle of the turpentine makes its appearance. Or, beginning with turpentine, and forming its concentrated iris; on turning on the water-spray, though to the eye the shower seems

12 Rose-aniline, dissolved in alcohol, produces a splendid bow with specially broad supernumeraries.
absolutely homogeneous, its true character is instantly declared by the flashing out of the larger concentric aqueous bow. The water primary is accompanied by its secondary close at hand. Associated, moreover, with all the bows, primary and secondary, are the super-numeraries which belong to them; and a more superb experimental illustration of optical principles it would be hardly possible to witness. It is not the less impressive because extracted from the simple combination of a beam of light and a shower of rain.

In the Philosophical Transactions for 1835, the late Colonel Sykes gave a vivid description of a circular solar rainbow, observed by him in India, during periods when fogs and mists were prevalent in the chasms of the Ghâts of the Deccan.

It was during such periods that I had several opportunities of witnessing that singular phenomenon, the circular rainbow, which, from its rareness, is spoken of as a possible occurrence only. The stratum of fog from the Konkun on some occasions rose somewhat above the level of the top of a precipice forming the north-west scarp of the hill fort of Hurreeschundurghur, from 2,000 to 3,000 feet perpendicular, without coming over upon the table-land. I was placed at the edge of the precipice just without the limits of the fog, and with a cloudless sun at my back at a very low elevation. Under such a combination of favourable circumstances, the circular rainbow appeared quite perfect, of the most vivid colours, one half above the level on which I stood, the other half below it. Shadows in distinct outline of myself, my horse, and people appeared in the centre of the circle as a picture, to which the bow formed a resplendent frame. My attendants were incredulous that the figures they saw under such extraordinary circumstances could be their own shadows, and they tossed their arms and legs about, and put their bodies into various postures, to be assured of the fact by the corresponding movements of the objects within the circle; and it was some little time ere the superstitious feeling with which the spectacle was viewed wore off. From our proximity to the fog, I believe the diameter of the circle at no time exceeded fifty or sixty feet. The brilliant circle was accompanied by the usual outer bow in fainter colours.

Mr. E. Colborne Baber, an accomplished and intrepid traveller, has recently enriched the 'Transactions' of the Royal Geographical Society by a paper of rare merit, in which his travels in Western China are described. He made there the ascent of Mount O—an eminence of great celebrity. Its height is about 11,000 feet above the sea, and it is flanked on one side by a cliff 'a good deal more than a mile in height.' From the edge of this cliff, which is guarded by posts and chains, you look into an abyss, and if fortunate, or rather the mists, favour you, you see there a miracle, which is thus described by Mr. Baber:

Naturally enough it is with some trepidation that pilgrims approach this fearsome brink, but they are drawn to it by the hope of beholding the mysterious apparition known as the 'Fo-Kuang,' or 'Glory of Buddha,' which floats in mid-air, half-way down. So many eye-witnesses had told me of this wonder, that I could not doubt; but I gazed long and steadfastly into the gulf without success, and came away disappointed, but not incredulous. It was described to me as a circle of brilliant and many-coloured radiance, broken on the outside with quick flashes
and surrounding a central disc as bright as the sun, but more beautiful. Devout Buddhists assert that it is an emanation from the aureole of Buddha, and a visible sign of the holiness of Mount O.

Impossible as it may be deemed, the phenomenon does really exist. I suppose no better evidence could be desired for the attestation of a Buddhist miracle than that of a Baptist missionary, unless, indeed, it be, as in this case, that of two Baptist missionaries. Two gentlemen of that persuasion have ascended the mountain since my visit, and have seen the Glory of Buddha several times. They relate that it resembles a golden sun-like disc, enclosed in a ring of prismatic colours more closely blended than in the rainbow. . . . The missionaries inform me that it was about three o'clock in the afternoon, near the middle of August, when they saw the meteor, and that it was only visible when the precipice was more or less clothed in mist. It appeared to lie on the surface of the mist, and was always in the direction of a line drawn from the sun through their heads, as is certified by the fact that the shadow of their heads was seen on the meteor. They could get their heads out of the way, so to speak, by stooping down, but are not sure if they could do so by stepping aside. Each spectator, however, could see the shadows of the bystanders as well as his own projected on to the appearance. They did not observe any rays spreading from it. The central disc, they think, is a reflected image of the sun, and the enclosing ring is a rainbow. The ring was in thickness about one-fourth of the diameter of the disc, and distant from it by about the same extent; but the recollection of one informant was that the ring touched the disc, without any intervening space. The shadow of a head, when thrown upon it, covered about one-eighth of the whole diameter of the meteor. The rainbow ring was not quite complete in its lower part, but they attribute this to the interposition of the edge of the precipice. They see no reason why the appearance should not be visible at night when the moon is brilliant and appositely placed. They profess themselves to have been a good deal surprised, but not startled, by the spectacle. They would consider it remarkable rather than astonishing, and are disposed to call it a very impressive phenomenon.

It is to be regretted that Mr. Baber failed to see the 'Glory,' and that we in consequence miss his own description of it. There seems a slight inadvertence in the statement that the head could be got out of the way by stooping; for, as long as the 'Glory' remained a circle, the shadow of the head must have occupied its centre. Stepping aside would simply displace the bow, but not abolish the shadow.

Thus, starting from the first faint circle seen drawn through the thick darkness at Alp Lusgen, we have steadily followed and developed our phenomenon, and ended by rendering the 'Glory of Buddha' a captive of the laboratory. The result might be taken as typical of larger things.

JOHN TYNDALL.

NOTE.

At the last moment, by desire of the Editor, I append here two diagrams reduced from their originals in the excellent optical atlas of Engel and Shellbach, Berlin. To render essential points clear, unessential details are omitted from the diagrams. We will first deal with the primary bow. $\alpha$, fig. 1, is the centre of a spherical raindrop, with the circle $g ad$ for its boundary. The line $fr$,
passing through $M$, is what I have called the central ray, which, on striking the back of the drop, is in part reflected back along its own course. The lines above $F$ represent parallel rays, each of which on entering the drop is refracted, on reaching its back is reflected, and finally emerges from the drop below the central ray. The angle enclosed between the incident and emergent rays is found by producing these rays until they intersect behind the drop. This angle increases in size up to a certain point, where it attains a maximum value, diminishing afterwards. In the diagram the particular ray, $a \ b$, which suffers the maximum deviation, is represented by a line thicker than the others. Its course can be followed through the drop to $c$, thence to $d$, where it emerges and passes on to the eye.

A mere inspection of the figure will show that a considerable body of rays in the neighbourhood of $a \ b$ converge almost exactly on the point $c$. They are here reflected, and quit the drop nearly parallel to each other. In reality the rays cut each other at angles of infinitesimal magnitude, and form by their intersection a caustic or line of intense illumination. By the waves thus kept together the light of the rainbow is carried to the eye.

Within the drop it will be noticed that through the intersection of the rays the light is heaped up along the curved line $c \ H$, which is also a caustic.

In fig. 2 we deal with the secondary bow, in which the ray of minimum deviation and its neighbours, after two reflections within the drop, carry the light of the bow to the eye. Here the rays strike the lower hemisphere of the drop and are refracted on entering it. The ray of minimum deviation enters the drop at $b$, reaches the back of the drop at $c$, is reflected from that point to $d$, from which it is again reflected to $e$. Here it is refracted, and, supported by its neighbour rays, passes on to the eye. Before reaching the eye, it crosses the incident rays, and to this crossing, as stated in the text, the inversion of the colours is due.

The beautiful curved line shown within the drop in fig. 2, is a caustic produced, as before, by the intersection of the rays. The darkish area $k \ n \ o \ p$—darkness here representing excess of light—is bounded by four caustics. Such would be the aspect presented by a drop of water, could we see it in the act of producing the secondary bow.13

13 With a white basin or cup, and a candle held opposite the interior concave surface, caustics by reflection can be produced at will. A little practice is here required in finding the best position for the light.
Fig. 1.
HALF-CREDIT SYSTEM:
LIFE ASSURANCE UPON FAVOURABLE TERMS.

Merchants, Traders, and others requiring the full use of their Capital, and desiring a Life Policy at the cheapest present outlay, are invited to examine the terms of the Half-Credit System of this Office.

Explanatory Leaflet may be obtained upon application to the Secretary.

50, REGENT ST., W., & 14, CORNHILL, E.C., LONDON.
At the Division of Profits in 1883 the Results were—

Total Surplus . . . . . . £499,031 17 8

One-half reserved until the next Division of Profits in 1888 . . . . . . £249,515 18 10
Shareholders' Portion . . 8,145 0 0
*Policyholders' Portion . . 241,370 18 10

£499,031 17 8

*This sum yielded Additions to Policies payable at death exceeding £390,000.

Attention is solicited to these Figures, as they show—

(1) That the Shareholders' Portion of Profits in 1883 was less than one-thirtieth part of the sum divided.

(2) That the amount of Surplus Profits left undivided was £249,515. This sum will be thrown into the Total Surplus in 1888, to be again divided and one-half again reserved. The Policyholders by this Regulation—which has been in force since the establishment of the Office in 1806—have the additional Security of a large sum improving at Compound Interest. The Interest thus earned at the end of Five Years will exceed £55,000, and the Surplus in 1888 will be augmented accordingly by that sum.

The Annual Dividends are paid solely out of the Interest arising from the Investment of the Shareholders' Capital and its Accumulations.

The Provident is thus shown to possess the advantages of a Mutual Office, with the additional Security of a Subscribed Capital.

Bonuses to Policyholders exceeding £2,600,000 have already been declared.

Full information given upon application to
CHARLES STEVENS, Secretary.
New York Life
INSURANCE COMPANY.

(ESTABLISHED 1845.
THE COMPANY'S BUILDINGS, NEW YORK.)

Conducted under the Official Supervision of the Insurance Department of the Government of the State of New York. Reports deposited annually with the Board of Trade in Great Britain, in accordance with "The Life Assurance Companies Act, 1870."

TRUSTEES FOR GREAT BRITAIN AND IRELAND.
With whom is deposited 250,000 Dollars in United States Bonds (for the protection of all Policy Holders and Annuities), and 100,000 Dollars in the same Bonds (as additional protection for the representatives of deceased Policy Holders), or equal to over £70,000 in all.

The Right Hon. Hugh C. E. Childers, M.P., F.R.S.
Frederick Francis, Esq., Director London & County Bank.

Bankers:
London & County Bank, 21, Lombard Street, E.C.
BANK OF BRITISH NORTH AMERICA, 3, Clement's Lane, Lombard Street, E.C.

Solicitors:—Messrs. Ashurst, Morris, Crisp & Co., 6, Old Jewry, E.C.

LIFE ASSURANCE ONLY. PURELY MUTUAL.
ALL PROFITS BELONG TO POLICY HOLDERS, AND APPORTIONMENTS ARE MADE ANNUALLY.

STATEMENT for Year ending December 31st, 1882:

ACCUMULATED FUNDS ... ... ... ... ... £10,414,281
SURPLUS over all Liabilities and Reserve Fund, according to Valuation made by the Government... ... ... ... ... ... £2,072,817
INCOME FOR YEAR... ... ... ... ... ... £2,365,050

CHAIR OFFICE FOR GREAT BRITAIN AND IRELAND:
76 & 77, CHEAPSIDE, LONDON, E.C.

J. Fisher Smith, General Manager;
From whom Prospectus, containing full information, can be obtained.

C. AND E. LAYTON, LONDON.

HEAD OFFICE: 6 ST. ANDREW SQUARE, EDINBURGH.
ADVANTAGES OFFERED
BY THE
NEW YORK LIFE INSURANCE COMPANY.

1st.—It is a MUTUAL COMPANY, AND NO LIABILITY IS INCURRED BY ITS POLICY
HOLDERS. There are no Shareholders. Profits are divided annually among the Policy Holders only.

2nd.—BONUSES can be used to reduce the second and following years’ premiums, or to increase the
amount of Policy.

3rd.—BONUSES are larger and Rates on the average lower than British Companies, owing to the
higher rate of interest obtained on first-class investments in America.

4th.—SECURITY is guaranteed by the stringent laws of New York, which restrict Investments, for
a positive standard of solvency, and require a rigid annual examination to be made by the Government
Insurence Department.

5th.—STABILITY. The accumulated funds, December 31st, 1889, were £10,414,281 securely invested.
The annual income is £2,365,050, and the surplus over reserve and all liabilities £2,072,817.

6th.—The TONTINE POLICIES of this Company practically combine Life Insurance with an Investment
or an Annuity, at the ordinary premium rates.

7th.—ANNUITIES. The amounts required to purchase these are lower on the average than those
charged by British Companies.

8th.—LIBERALITY in payment of claims. The records of the Company show many acknowledgment
of its liberality and fairness in the payment of claims. There are no Shareholders, and consequently
no interests adverse to those of the Policy Holders.

9th.—CLAIMS are payable in London in sterling, and all disputed claims (if any) should arise
in Great Britain are to be decided by British Courts.

BRANCH OFFICES:

BIRMINGHAM—26, Corporation Street.
District Manager—WILLIAM C. MACKIE.

BRISTOL—The Exchange.
District Manager—W. H. COULTAS.

LIVERPOOL—B.4, Exchange.
District Manager—A. DRUMMOND HENDERSON.

MANCHESTER—100, Mosley Street.
District Manager—JOHN LE M. BISHOP.

NEWCASTLE-ON-TYNE—17, Dean Street.
District Manager—W. H. HALL.

NORWICH—Albert Terrace, Unthanks Road.
District Agent—THOMAS MCCOLLUM.

NOTTINGHAM—St. Albans Chambers, Long Row.
District Manager—FRANK R. GOUGH.

PLYMOUTH—42, George Street.
District Agent—W. R. COLLINSON.

YORKSHIRE AND DURHAM—15, Bridge Street, BRADFORD.
District Manager—W. H. HAYWARD.

GLASGOW—Herald Buildings, 69, Buchanan Street.
Manager for Scotland—W. E. HERBERT.

EDINBURGH—31, Princes Street.
Agent—PATRICK TURNBULL.

DUNDEE—3, India Buildings.
Agent—G. A. MCLAREN.

DUBLIN—4, Church Lane, College Green. BELFAST—St. Ann’s Buildings.
District Manager—JAMES H. SCOTT. District Agents—J. W. MONCRIEFF & CO.

Full information given upon application to
CHARLES STEVENS, Secretary.
Scottish Provident Institution

The following are the Results reported for the Year 1882:

New Assurances, £2,031,965, with £40,402 of Premiums, of which £7430 by Single Payment.

Net Premiums received, £423,724.—Total Income, £601,072.

Realised Funds (increased in year by £307,797), £24,509,730.

Early Payment of Claims.

A Resolution was submitted, providing for Payment of Claims One Month after admission of proof of Death.

Mr. Ferguson of Kinnundy, in moving the adoption of the Report, said:

The Report just read is probably one of the most satisfactory ever presented to you. That in an ordinary year, without the stimulus of an approaching division of profits, or any other specialty to influence business, the large sum of One Million and Thirty Thousand Pounds of New Assurances should have been effected, is a matter for mutual congratulation. The business, moreover, has been of a safe and genuine character, being entirely a Home Business, and not inflated by large sums on one life, requiring to be reassured in other Offices; and it has been obtained at an exceptionally low cost, as I shall afterwards show. Another feature worthy of note is the moderate ratio of Claims to the Annual Income. These Claims were in all £235,213, against an income of £601,072, evidently a very low proportion.

This statement leads up to a third, and that the most gratifying feature of the Report, namely, that the Realised Funds of the Institution have been increased in the year by the large sum of £307,797,—their amount at the close of 1882 being £4,509,728, against subsisting Assurances of £15,850,000. This, I need not say, is a very high proportion, particularly for an Office in which, from the low average age of the members, the premiums will continue to be drawn for a lengthened period.

It was stated in last year's Report that "the Accumulated Fund has increased in the last nine years by upwards of Two Millions," and that "of a hundred Offices in the kingdom not more than four (all of much longer standing) have as large a fund." This was given with the caution which we have always wished should characterise such statements. I am now in a position to state that not more than two Offices are possessed of Funds which, as do ours, exceed Four and a Half Millions of Pounds. These two are also native Scottish Offices. Their names will, no doubt, at once occur to you. And without wishing to appear unduly to magnify our own Institution, I may just add that it is now possessed of a much larger Accumulated Fund than either of them had at the same stage of their history.

Such are the salient points in the business history of the last year. They tell of stability, and they point to progress. The increase of our business is not purchased at the expense of security. As the one extends the other is built up. The million of New Assurances is backed up by an increase of £307,000 to the funds; and thus extension and financial strength go hand in hand.

He then referred to the cost of management, which is greatly under any Office doing a large progressive business, and which has been steadily falling. In the Board of Trade Report, in 1874, the cost was stated at 12½ per cent on the premiums. Last year the ratio was 9¾ per cent to premiums, and to the year's income 6½ per cent only.

Mr. John Cowan, Beeslack, seconded the motion; which, with the Resolution for earlier Payment of Claims, was unanimously approved of.

The advantages which this Institution offers to Assurers are:

A greatly larger original Assurance—generally as much as £1200 or £1250 for the Premium charged elsewhere (with Profits) for £1000 only.

The prospect, to good lives, of very considerable additions—no share of Profit being given to those by whose early death there is a loss.

Edinburgh, April 1888.

James Watson, Manager.
# Scottish Provident Institution.

**TABLE OF PREMIUMS, BY DIFFERENT MODES OF PAYMENT.**

For Assurance of £100 at Death—With Profits.

<table>
<thead>
<tr>
<th>Age next Birthday</th>
<th>Annual Premium payable during Life</th>
<th>ANNUAL PREMIUM LIMITED TO</th>
<th>Single Payment</th>
<th>Age next Birthday</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Twenty-one Payments.</td>
<td>Fourteen Payments.</td>
<td>Seven Payments.</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>£2 16 3</td>
<td>£2 10 6</td>
<td>£3 4 11</td>
<td>£5 10 0</td>
</tr>
<tr>
<td>22</td>
<td>1 16 9</td>
<td>2 11 0</td>
<td>3 5 9</td>
<td>5 11 0</td>
</tr>
<tr>
<td>23</td>
<td>1 17 2</td>
<td>2 11 6</td>
<td>3 6 5</td>
<td>5 12 1</td>
</tr>
<tr>
<td>24</td>
<td>1 17 7</td>
<td>2 12 1</td>
<td>3 6 11</td>
<td>5 13 1</td>
</tr>
<tr>
<td>25</td>
<td>1 18 0</td>
<td>2 12 6</td>
<td>3 7 3</td>
<td>5 14 0</td>
</tr>
<tr>
<td>26</td>
<td>1 18 6</td>
<td>2 13 0</td>
<td>3 7 10</td>
<td>5 14 11</td>
</tr>
<tr>
<td>27</td>
<td>1 19 2</td>
<td>2 13 6</td>
<td>3 8 7</td>
<td>5 15 11</td>
</tr>
<tr>
<td>28</td>
<td>1 19 8</td>
<td>2 14 1</td>
<td>3 9 5</td>
<td>5 17 1</td>
</tr>
<tr>
<td>29</td>
<td>2 0 5</td>
<td>2 14 3</td>
<td>3 10 3</td>
<td>5 18 6</td>
</tr>
<tr>
<td>*30</td>
<td>2 1 6</td>
<td>2 15 4</td>
<td>3 11 2</td>
<td>5 18 0</td>
</tr>
<tr>
<td>31</td>
<td>2 2 6</td>
<td>2 16 2</td>
<td>3 12 1</td>
<td>6 11 0</td>
</tr>
<tr>
<td>32</td>
<td>2 3 5</td>
<td>2 17 2</td>
<td>3 13 1</td>
<td>6 3 8</td>
</tr>
<tr>
<td>33</td>
<td>2 4 6</td>
<td>2 18 0</td>
<td>3 14 4</td>
<td>6 5 8</td>
</tr>
<tr>
<td>34</td>
<td>2 5 7</td>
<td>2 19 0</td>
<td>3 15 7</td>
<td>6 7 9</td>
</tr>
<tr>
<td>35</td>
<td>2 6 10</td>
<td>3 0 2</td>
<td>3 16 11</td>
<td>6 10 0</td>
</tr>
<tr>
<td>36</td>
<td>3 1 8</td>
<td>3 15 5</td>
<td>3 18 4</td>
<td>6 12 5</td>
</tr>
<tr>
<td>37</td>
<td>3 2 8</td>
<td>3 2 9</td>
<td>3 19 11</td>
<td>6 15 0</td>
</tr>
<tr>
<td>38</td>
<td>3 3 3</td>
<td>3 4 3</td>
<td>4 1 7</td>
<td>6 17 9</td>
</tr>
<tr>
<td>39</td>
<td>3 12 11</td>
<td>3 5 5</td>
<td>4 3 4</td>
<td>7 0 7</td>
</tr>
<tr>
<td>40</td>
<td>2 14 9</td>
<td>3 7 5</td>
<td>4 5 2</td>
<td>7 3 7</td>
</tr>
<tr>
<td>41</td>
<td>2 16 8</td>
<td>3 9 2</td>
<td>4 7 2</td>
<td>7 6 8</td>
</tr>
<tr>
<td>42</td>
<td>2 18 8</td>
<td>3 11 1</td>
<td>4 9 3</td>
<td>7 9 11</td>
</tr>
<tr>
<td>43</td>
<td>3 0 11</td>
<td>3 13 1</td>
<td>4 11 5</td>
<td>7 13 3</td>
</tr>
<tr>
<td>44</td>
<td>3 3 3</td>
<td>3 15 5</td>
<td>4 13 10</td>
<td>7 16 9</td>
</tr>
<tr>
<td>45</td>
<td>3 5 9</td>
<td>3 17 6</td>
<td>4 16 4</td>
<td>8 0 7</td>
</tr>
<tr>
<td>46</td>
<td>3 8 5</td>
<td>4 0 0</td>
<td>4 19 1</td>
<td>8 4 6</td>
</tr>
<tr>
<td>47</td>
<td>3 11 5</td>
<td>4 2 8</td>
<td>5 2 1</td>
<td>8 8 8</td>
</tr>
<tr>
<td>48</td>
<td>3 14 8</td>
<td>4 5 8</td>
<td>5 4 4</td>
<td>8 13 2</td>
</tr>
<tr>
<td>49</td>
<td>3 13 1</td>
<td>4 8 9</td>
<td>5 5 8</td>
<td>8 17 11</td>
</tr>
<tr>
<td>50</td>
<td>4 1 7</td>
<td>4 12 1</td>
<td>5 12 4</td>
<td>9 2 10</td>
</tr>
<tr>
<td>51</td>
<td>4 5 6</td>
<td>4 15 5</td>
<td>5 16 1</td>
<td>9 7 11</td>
</tr>
<tr>
<td>52</td>
<td>4 9 5</td>
<td>4 18 10</td>
<td>5 19 11</td>
<td>9 13 1</td>
</tr>
<tr>
<td>53</td>
<td>4 18 5</td>
<td>5 2 5</td>
<td>6 3 11</td>
<td>9 18 3</td>
</tr>
<tr>
<td>54</td>
<td>4 17 8</td>
<td>5 8 3</td>
<td>6 8 0</td>
<td>10 3 5</td>
</tr>
<tr>
<td>55</td>
<td>5 1 11</td>
<td>5 10 2</td>
<td>6 12 1</td>
<td>10 8 6</td>
</tr>
<tr>
<td>56</td>
<td>5 6 4</td>
<td>6 14 9</td>
<td>10 13 7</td>
<td>61 3 8</td>
</tr>
<tr>
<td>57</td>
<td>5 10 11</td>
<td>6 18 8</td>
<td>10 18 8</td>
<td>62 6 5</td>
</tr>
<tr>
<td>58</td>
<td>5 15 9</td>
<td>7 2 9</td>
<td>11 3 10</td>
<td>63 9 4</td>
</tr>
<tr>
<td>59</td>
<td>6 1 0</td>
<td>7 7 3</td>
<td>11 9 0</td>
<td>64 12 11</td>
</tr>
<tr>
<td>60</td>
<td>6 6 7</td>
<td>7 12 0</td>
<td>11 14 3</td>
<td>65 16 9</td>
</tr>
</tbody>
</table>

*Example.—A person of 30 may thus secure £1000 at Death, by a yearly payment, during life, of £20:15s. This Premium, if paid to any other of the Scottish Mutual Offices, would secure £350 only, instead of £1000.

[These Rates are about as low as the usual non-participating Rates of other Offices, which are expected to yield a surplus and whose sufficiency is guaranteed.]

Oh, if unwilling to burden himself with payments during his whole life, he may secure the same sum of £1000 by twenty-one yearly payments of £27:13:4—being thus free of payment after age 50.

† At age 40 the Premium ceasing at age 60, is for £1000, £33:14:2, being about the same as most Offices require to be paid during the whole term of life.
RESOURCES OF THE COMPANY.

I. AUTHORIZED CAPITAL - - - £3,000,000 0 0
Subscribed Capital - - - 2,500,000 0 0

II. FIRE FUND—
Reserve - - - £844,876 19 11
Premium Reserve - - - 362,188 18 3
Balance of Profit and Loss Account 67,893 12 6

Total £1,274,661 10 8

III. LIFE FUND—
Accumulated Fund of the Life Branch £3,274,833 19 1
Annuity Branch 473,147 3 2

Total £3,747,983 2 3

IV. REVENUE FOR THE YEAR 1882—
From the Life Department.
Life Premiums and Interest - £469,075 6 8
Annuity Premiums and Interest and Consideration for Annuities granted 124,717 7 11

Total £593,792 13 4

From Fire Department.
Fire Premiums and Interest - £1,157,078 14 0

Total £1,750,866 7 4
Life Assurance Branch.

To the Assured with Profits this Office presents the peculiar feature of combining the advantages of a Mutual Office, with the great additional security offered by a large and influential Proprietary.

NINE-TENTHS of the whole Profits of the Life Assurance Branch belong to the Assured, one-tenth only going to the Shareholders.

The next Division of Profits will be made as at 31st December 1885.

To Policies on the Participating Scale, effected on or before 31st December next, a Bonus (which will become a vested addition after payment of six Annual Premiums) will be allocated at the next and subsequent Divisions of Profits. The Bonus so allocated will be proportionately larger in amount than that allocated to Policies effected after 31st December next.

The attention of intending Assurers is invited to the various Schemes:

1. Insurance by Yearly, Half-Yearly, or Quarterly Payments during the whole period of life.
   
   This Scheme is for those who are able now, and who anticipate that they will continue to be able to pay during life the calculated rate of Premium at present age sufficient to insure the sum in the Policy.

2. Insurance if death shall occur within any given period.
   
   This Scheme is for those who desire to provide, at as low a rate as possible, for the contingency of death within a given period.

3. Half-Premium System.
   
   Under this Table the Premiums for the first five years are about one-half of those payable under Scheme 1, while those for the remainder of life are slightly higher.

   The advantages of this Scheme are, that the Assured gets all the benefit of taking out a Policy in early life, while health is unimpaired, at a low rate, and so escapes the weight of heavy Premiums during that period when he may be least able to pay them.
4. Terminable Premiums.

By this Scheme the Sum Assured is payable at death, but the payment of the Premium ceases in 10, 15, 20, or 25 years, as the Insured may prefer.

This Scheme is for those who, in the active years of life, are able to pay a large Premium, whereby they escape all burden in the later years of life. Policies effected under it possess special Non-Forfeitable advantages inasmuch as in the event of the Premium being unpaid they remain in full force for such a proportion of the sum assured as the number of Premiums paid bears to the number stipulated for. A Policyholder may thus, at any moment, know the precise amount for which he is assured without further payment. These Policies are, in every respect, non-forfeitable, and afford absolute security to the Assured for a sum proportional to the number of Premiums paid.

The attention of intending Assurers is specially invited to this Scheme.

5. Annual Premium until the Attainment of a Specified Age for the Assurance of a sum payable to the Insured on attaining that age, or to his representatives or assignees at his death, if that happen earlier than the specified age.

This system presents the advantage of enabling a man to provide at once for his own old age, or for his heirs if he should fail to reach that age.

6. Annual Premiums for Assurance on Two Joint Lives—the money to be payable at the death of the first that fails.

This Scheme is useful for partners in trade and it also provides for the case of those who may be able to afford mutual support during Life—the income of the survivor, however, being insufficient for himself alone.

One-half of the Premiums for the first five years, or one-third of the Premiums for the first five, seven, or ten years, on a Policy effected under the Whole Life (with Profits) or Endowment Assurance Tables, may, in certain cases, remain unpaid and form a debt upon the Policy, provided interest thereon at 5 per cent. be regularly paid in advance. This debt may be paid off at any time the Assured may find convenient.

The Company grants Insurances on the lives of Persons Abroad, or about to proceed Abroad, at Moderate Rates. Separate Tables have been prepared for residents in India and China, and these form an attractive feature in the Company's Business.
NORTH BRITISH & MERCANTILE INSURANCE COMPANY.

BESIDES INSURANCES ON ALL THE FOREGOING SYSTEMS
THE COMPANY PROVIDES
ENDOWMENTS FOR CHILDREN.

These Endowments may be effected on any of the following Systems:

1. By Single or Annual Premium for a sum payable on a Child attaining a certain age, Annual Premium to cease on death of the Child, or his attainment of the age.
2. By Single or Annual Premium for a sum payable on a Child attaining a certain age, but if the Child die before attaining that age, all the Premiums to be returned to the Parent.
3. By Annual Premium without return, the payments of Premium to cease on the death of either the Parent or Child.
4. By Annual Premium, the payments to cease on the death of either Parent or Child, all the Premiums being returnable should the Child not attain the age specified.

Annuity Branch.

The Company grants Annuities to Persons of all Ages on very favourable terms:—

1. Immediate Annuities, payable yearly, half-yearly or quarterly.
2. Deferred Annuities, to commence after the expiry of any number of years; and either with or without return of premiums in the event of death before attainment of the age selected for commencement of the Annuity.
3. Survivorship Annuities to commence after the failure of one or more lives, and either with or without return of Premiums.

Fire Department.

The Company was established as a Fire Office in 1809. Property of nearly all descriptions Insured, at Home or Abroad, at the lowest Rates of Premium corresponding to the risk.

The Company holds itself responsible, without extra charge, for damage done by Explosion of Gas in a building not forming part of any Gas Works.

The Policies of the Company now extend to cover loss or damage by Lightning to the property insured, whether set on fire thereby or not.

The Company’s Prospectus and Tables of Premiums can be obtained on application at the Offices of the Company, or at any of the Branches or Agencies.

Branch Offices.

LONDON (West End Branch)—8 WATERLOO PLACE.

GLASGOW—102 St. Vincent Street
ABERDEEN—103 Union Street
LIVERPOOL—Tithbarn Street
MANCHESTER—Hartford Chambers, 5 St. Ann’s Square
NEWCASTLE—25 Mosley Street
BRISTOL—1 Corn Street

NORWICH—The Upper Close
DUBLIN—28 College Green
LEEDS—Commercial Buildings, Park Row
BIRMINGHAM—Unity Buildings, Temple Street
Belfast—69 High Street

Offices require to be paid during the whole term of life.

LONDON OFFICE—No. 17 KING WILLIAM STREET, E.C.
Directors.

Chairman—Right Hon. Sir J. R. MOWBRAY, Bart. M.P. D.C.L.
Deputy-Chairman—Sir WM. BOWMAN, Bart. Ll.D. F.R.S.

LIONEL S. BEALE, M.B. F.R.S.
JOHN COLES, Esq.
WILFRED JOSEPH CRIPPS, Esq.
CHARLES MARCH DEANE, Esq.
VAN. ARCHDRACON FARRAR, D.D. F.R.S.
ARTHUR FARRE, M.D. F.R.S.
SIR PRESCOTT G. HEWETT, BART. F.R.S.
WILLIAM OVEREND

Professor HUMPHRY, M.D. F.R.S.
SIR WM. JENNER, BART. K.C.B. M.D. F.R.S.
REV. JOHN EDWARD KEMPE, M.A.
The Viscount MIDLETON.
SIR JAMES PAGET, BART. D.C.L. F.R.S.
GEORGE H. PINCKARD, Esq.
RICHARD DOUGLAS POWELL, M.D.
PRIESTLEY, M.D.

Actuary and Secretary.

BENJAMIN NEWBATT, Esq.

Financial Position on the 30th June, 1883.

The Annual Income for the Year then ending, was £296,226
The Assurance Fund at that date was ... £2,451,102
The New Policies in the Year were 512 in number, for £357,374
The New Annual Premiums thereon amounted to ... £11,726
The Bonus added to Policies in January, 1882, was £406,755
The Total Claims by Death paid to Date, were ... £4,666,835
The Subsisting Assurances and Bonuses were ... £6,648,995
REPORT
OF THE DIRECTORS OF THE
Clerical, Medical and General Life Assurance Society,
PRESENTED AT THE 59TH ANNUAL GENERAL MEETING,
FRIDAY, NOVEMBER 30TH, 1883.

The Directors have good results to report of the financial progress of the Society and the development of its business during the year ending June 30th last.

The new Policies issued during the year—the second of the present Quinquennium—were 512 in number, assuring £357,374, and yielding £11,726 : 4 : 1 in annual premiums. Combined with the scarcely less satisfactory amounts reported last year, the aggregate new business of the two years, both as regards sums assured and premiums, will be found to exceed that of any corresponding years in the history of the Society.

The accounts show a receipt from premiums of £194,091 : 12 : 11, and from interest of £101,958 : 11 : 10. Both are larger than any before reported. The interest, moreover, notwithstanding the lessened value of money, represents a rate of earning on the funds fully equal to that of last year.

Claims by the death of 182 Persons, assured under 216 Policies for £179,778 : 19 : 0, arose during the year. While approaching more nearly than in some recent years to the amount which the increased age of the assured and the enlarged business of the Society rendered probable, these claims were still below those for which ample provision was made at the last valuation, and what is not less important in relation to profit, they fell in an unusual degree on mature Policies held on lives of advanced ages.

After providing for these and all other outgoings, there remained the very considerable surplus of £60,068 : 8 : 5. By the addition of this sum, the Assurance Fund was raised to £2,451,102 : 9 : 8, the highest amount at which it has yet stood.

The Members of the Society will be interested in learning that the new Conditions of Assurance announced at the last Meeting have had an excellent effect. Their primary object was to simplify and, as far as might be, to perfect the assurance contract, by removing old restrictions and adding new facilities; and the Directors have been glad to observe that to the advantage, as they think, of assurance business generally, many kindred Institutions have been satisfied in not a few particulars to follow their example.

These new conditions had, however, another purpose, in respect of which this Society may fairly claim to have taken a somewhat exceptional position. Entering, as Policies of Assurance do, into financial arrangements of every kind, and used, as they not unfrequently are, as a means of investment, their current realizable value is a matter of as much moment as their ultimate value; and it has long been the settled policy of the Directors, which they have lately further developed, to make the assurances of this Society, during the life of the assured as well as at his death, instruments of the highest possible worth.
City Branch: Mansion House Buildings, E.C.

This can be best illustrated by reference to the sum paid last year on surrender of Policies. Though this sum is in amount beyond the average, it has no special significance on that account, the policies surrendered not having been more than usually numerous, but only somewhat larger and somewhat older. Its importance consists in this, that, with bonuses previously paid, it represents an average return of 65 per cent. on the total premiums received on all the surrendered Policies, individual returns, in the cases of some of the oldest Policies, even reaching 89 per cent.

The substantial nature of this benefit the Directors have the satisfaction of knowing is recognized and fully appreciated, not only by individual policyholders, but by financial bodies who largely hold the Policies of the Society as security, and to whom the fact is of especial importance. The Directors know of nothing better deserving the consideration of those who in the choice of an office adopt the ordinary business principle of seeking to obtain the best value for their outlay.

The NEW CONDITIONS OF ASSURANCE

referred to in the Directors' Report, and embodied in a New Prospectus, to which attention is specially invited, comprised:—

1°. The practical abolition, so far as concerns the bulk both of new entrants and existing assured, of all restrictions on residence, travel and occupation.

2°. Increased facilities, by extension, on certain conditions, of the ordinary period of grace, for maintaining Policies in force.

3°. Increased facilities for reviving Policies allowed to temporarily lapse.

4°. The publication of specimen minimum and maximum surrender values, thus affording to the assured the nearest approach to guaranteed maximum values that is possible.

5°. The holding, in the case of a lapsed Policy, at the disposition of the assured during a period of two years from the date of forfeiture, of any surrender value which may have attached to it.

If to these new conditions be added those previously in operation for lending freely on Policies to the extent of nine-tenths of their surrender value, and for paying all claims immediately on proof of death and title, it will be seen that the arrangements of the Society for preserving the equitable rights of its Policyholders under all circumstances are complete.

BONUS.

The Reversionary Bonus allotted to the Assured at the Division in January, 1882 (amounting to £406,755) averaged 54 per cent., and the Cash Bonus 32 per Cent., on the Premiums paid in the 5 years.

The next Division of Profits will take place in January, 1887, and Persons who effect new Policies before the end of June, 1884, will be entitled at that Division to rank for Three full Years' Bonus, and so obtain one year's additional share of Profits.
The practice of granting Policies on "Invalid" lives—i.e., lives below the average standard, either from personal defect or hereditary taint—was established by this Society in 1824, and has been successfully continued to the present time. Much of this success is due to the fact that the Bonus System of the Society as applied to these Policies has been devised—and in this respect it stands almost alone—to ameliorate and, should the life be prolonged beyond the estimate, ultimately to nullify the original surcharge. By the aid of the subjoined table of Bonuses actually allotted at the last division this will be made clear.

Specimens of Bonuses allotted to Policies of £1000.—January 1882.

| Duration of Policy | HEALTHY LIFE | INVALID LIFE—Real Age 40, but treated as of | |
|--------------|--------------|--------------------------------------------||
|               | Real Age at Entry | 40 (35 : 10 : 0) | 50 (45 : 7 : 8) | 60 (52 : 7 : 0) |
| 10           | 52 10 0 | 3 7 6 29 2 6 | 72 0 0 6 1 8 39 5 10 | 119 0 0 | 14 1 8 58 5 10 |
| 15           | 52 10 0 | 3 7 6 22 5 0 | 74 0 0 7 5 0 32 0 10 | 119 10 0 | 18 0 0 40 5 10 |
| 20           | 53 0 0 | 4 7 6 20 1 7 6 | 74 10 0 8 16 8 23 4 2 | 122 0 0 | 24 1 8 16 4 2 |
| 25           | 53 10 0 | 6 6 8 9 6 8 | 75 0 0 11 5 0 11 9 2 | 123 0 0 | 32 15 10 |

A man of the real age of 40, for example, if charged the premium for age 50, would be allotted from time to time the larger Bonuses shown in the Table as given at age 50. These results, it will be seen, are not only larger in themselves, but each £2 of Bonus produces a larger reduction of premium. On the assumption that like Bonuses will be given in future—about which, of course, no pledge can possibly be given—a man entering at the real age of 40, but charged the rate for age 50, will at the end of 10 years have to pay a smaller premium (viz.: £32 : 10 : o) than the healthy premium at 40 (viz.: £32 : 10 : 0), and thus from that time be more than freed from the original surcharge. In 10 years more he will have to pay an absolutely less premium (viz.: £11 : 10 : 0) than if he had been treated at the outset as a healthy life, when the reduced premium would have been £15 : 13 : 4. And, finally, at the end of 25 years, not only will his premium be extinguished, but a Bonus will attach to the Policy.—a condition he would not nearly have reached had he been treated as a healthy life at entry and charged the premium for his real age. The effect is even more striking when the reductions allotted to a man entering at the assumed age of 60 are compared with those granted to one entering at 50.

It cannot be insisted on too strongly that results like these are only possible in a Society having the amplest reserves and administered with a wise economy.

Copies of the New Prospectus, the Bonus and Annual Reports, the Returns to the Board of Trade, Forms of Proposal, and every information, can be obtained at either of the Society’s Offices or from any of its Agents.

B. NEWBATT,  
Actuary & Secretary.

13. St. James’s Square, S.W.
SEED DEPARTMENT.

B. S. W. begs to intimate to his numerous patrons that he has erected large and commodious premises, for the execution of Seed orders, which afford increased facilities for the despatch of business, and he is now prepared to receive orders to any extent. For Flower and Vegetable Seeds, Potatoes, Agricultural Seeds, Horticultural Implements and Sundries, &c., which will be executed with the greatest care, and forwarded, when desired, the same day the orders are received.

EXPORT ORDERS receive particular attention. They will be packed in the best possible manner, and despatched by the cheapest and most expeditious routes to any part of the Globe.

Collections of Flower Seeds, excepting heavy kinds, post free to all countries included in the Postal Union.

Having, for the last thirty years, devoted particular attention to the cultivation of Choice Strains of Florists' Flowers, and made the selection of good Strains of these Seeds a special object of care, B. S. W. is enabled to offer Seed, which, for excellence of quality, is unrivalled. His Strains invariably carry off First Prizes wherever they are exhibited.

Packets of Flower Seeds, excepting heavy kinds, are forwarded free by post to any part of the United Kingdom.

COLLECTIONS OF FLOWER SEEDS,
CAREFULLY SELECTED, CONTAINING ONLY GOOD VARIETIES.

<table>
<thead>
<tr>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>F 10 fine selected varieties of hardy Annuals</td>
<td>1 6</td>
</tr>
<tr>
<td>G 20</td>
<td>1 6</td>
</tr>
<tr>
<td>H 12</td>
<td>1 6</td>
</tr>
<tr>
<td>I 20 fine selected varieties of hardy Biennials and Perennials, suitable</td>
<td>3 0</td>
</tr>
<tr>
<td>for Rockwork.</td>
<td></td>
</tr>
<tr>
<td>J 12 fine selected varieties of half-hardy Annuals</td>
<td>3 0</td>
</tr>
</tbody>
</table>


NOVELTIES and SPECIALTIES in FLOWER SEEDS for 1884.
The difference in the Price of the Packets applies only to quality, the quantity of all being alike.

Larger sized Packets can be had if required.

Per pkt. - s. d.

<table>
<thead>
<tr>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lucilla Gratissima</td>
<td>2 6</td>
</tr>
<tr>
<td>Mimulus, finest mixed</td>
<td>1 0</td>
</tr>
<tr>
<td>Musk, Giant (Mimulus Moschatus Majus)</td>
<td>1 6</td>
</tr>
<tr>
<td>pansy, English show varieties</td>
<td>2 6</td>
</tr>
<tr>
<td>Pentstemon, extra choice mixed</td>
<td>1 6</td>
</tr>
<tr>
<td>Petunia, striped, extra choice</td>
<td>1 6</td>
</tr>
<tr>
<td>Polyanthus, Williams' Prize Strain</td>
<td>1 0</td>
</tr>
<tr>
<td>Pyrethrum, Aureum Selaginoides</td>
<td>1 6</td>
</tr>
<tr>
<td>Williams' Primula S. Fimbriata Alba Magnifica</td>
<td>1 6</td>
</tr>
<tr>
<td>Williams' Primula Sinensis Fimbriata Chiswick Red</td>
<td>1 6</td>
</tr>
<tr>
<td>Williams' Primula Sinensis Fimbriata Coccinea</td>
<td>1 6</td>
</tr>
<tr>
<td>Williams' Primula Sinensis Fimbriata Meteor</td>
<td>5 0</td>
</tr>
<tr>
<td>Williams' Primula S. Fimbriata Queen of the Whites</td>
<td>3 6</td>
</tr>
<tr>
<td>Primula Sinensis Fimbriata Rubro Violaea</td>
<td>3 6</td>
</tr>
<tr>
<td>Williams' Super-Strain S. Fimbriata Red, White, or Mixed, each</td>
<td>2 6</td>
</tr>
<tr>
<td>Williams' Primula Sinensis Fimbriata Mixed Packets in 6 varieties,</td>
<td>2 6</td>
</tr>
<tr>
<td>containing Alba Magnifica Chiswick Red, Coecina, Purple, Red and White</td>
<td>2 6</td>
</tr>
</tbody>
</table>
THE FOLLOWING

DESCRIPTIVE & PRICED CATALOGUES, &c.,

Are published annually at the time specified, and will be forwarded Gratis and Post Free to all applicants.

THE SEED CATALOGUE,
ILLUSTRATED.
(JANUARY.)
Contains upwards of Sixty pages, including descriptive Lists of Novelties in Flower and Vegetable Seeds, also a detailed compendium of all previously known kinds, with copious Notes for the guidance of Amateur cultivators, and a List of best varieties of Potatoes, Agricultural Seeds, Horticultural Implements, and Garden Requisites.

THE NEW AND GENERAL PLANT CATALOGUE,
ILLUSTRATED.
(SPRING.)
Contains upwards of One hundred and twenty pages, including detailed Lists of New Plants, Orchids, Ferns, Palms, Stove, Greenhouse and Hardy Plants, &c., &c., with full descriptions of the choicest varieties.

A LIST OF BEDDING AND SUB-TROPICAL PLANTS.
ISSUED IN MAY.

THE BULB CATALOGUE.
(AUGUST.)
Contains selected Lists of Hyacinths, Tulips, Narcissus, Coccus, Ranunculus, Amaryllis, Ixias, Gladioli, Liliums, and all other choice and rare kinds of Bulbs, with suggestions as to Culture, &c.

AND A

SUPPLEMENTARY LIST OF FRUIT TREES, PINES, VINES, STRAWBERRIES, HERBACEOUS AND ALPINE PLANTS, HARDY ORNAMENTAL SHRUBS AND CLIMBERS, &c.

B. S. WILLIAMS,
VICTORIA & PARADISE NURSERIES, UPPER HOLLOWAY,
LONDON, N.
EARTH NOT A GLOBE.

A CHALLENGE TO MR. R. A. PROCTOR.

Reprinted from the Newcastle Weekly Chronicle of Sept. 13th, 1879.

For some time prior to the above date, Mr. R. A. Proctor, a well-known modern scientist, had been writing articles in the above Journal on the figure of the Earth. In some of his remarks he ridiculed the statement that the Earth was a Plane; and somewhat abused Mr. John Hampden for his advocacy of that proposition. In the above paper of August, 1879, he said, "But after all it is not John Hampden who is so much to blame, but his teacher, ‘Parallax’ &c. &c.”

Permission was subsequently obtained from the Editor to insert the following challenge to Mr. Proctor, and the Newtonians generally:

"Sir,—At an early age I was led to doubt the practical truthfulness of the entire Newtonian Astronomy, and in the year 1839 (just forty years ago) I was on a visit to a gentleman who farmed a large estate in the ten lands of Cambridgeshire. A portion of his estate adjoined the "Old Bedford Canal"—a "sluice" upwards of twenty statute miles in length, and, except a slight bend at a distance of a few miles from its inland terminus, a perfectly straight line through that part of the county called the "Bedford Level."

The gentleman above named was very fond of rowing and shooting wild fowl, which abounded in the neighbourhood. I often accompanied him in his aquatic enjoyments, and had many opportunities of noticing that objects were seen from the shallow gunboat in which we had to lie down to take aim, at distances perfectly incompatible with the doctrine of the earth's rotundity.

After a great variety of observations, I decided upon trying the following experiment: A shallow boat or punt was fixed close to a bridge which crossed the canal. Another similar boat, with a flag-staff in the centre, was gradually rowed away to a distance of six miles. I fixed a good telescope on the prow of the first boat, at an elevation of eight inches above the water. Lying down at full length, I observed the boat with the flag-staff, which was six feet above the water, throughout the whole distance!

Now, the elevation of the eye of the observer being eight inches above the surface of the water, if the earth is a globe of 25,000 miles in circumference, one mile would be required to be taken from the six miles for the horizon. From that horizon to the position of the boat at the end of six miles would be five miles. The square of five miles multiplied by eight inches would give 200 ins., or fully 16ft. 6ins.

The flag being six feet above the water, which amount must be deducted from the 16ft. 6ins., would leave 10ft. 6ins., as the distance which the top of the flag should have been below the horizon. As this would be the amount of declination in the water if rotundity existed, and as no declination was observed, then rotundity is impossible!

I have during the last forty years tried many experiments similar to the above, and always with the same result, namely, that the surface of
the standing water in the old Bedford Canal is perfectly horizontal, and that, therefore, the earth cannot possibly be a globe, but is "to all intents and purposes" an extended plain.

My challenge to Mr. Proctor is to a trial of the above described experiment, and a public discussion of its logical consequences.

I am &c., "PARALLAX."

Welney House, 49 Haverstock Hill,
London, N.W., Sept. 10th, 1879.

"In the County of Cambridge there is an artificial river or canal, called the 'Old Bedford.' It is upwards of twenty miles in length, and passes in a straight line through that part of the fens called the 'Bedford Level.' The water is nearly stationary, often entirely so, and throughout its entire length has no interruption from locks or water-gates; so that it is in every respect well adapted for ascertaining whether any and what amount of convexity really exists. A boat with a flag standing five feet above the water was directed to sail from a place called 'Welche's Dam' (a well known ferry passage), to another place called 'Welney Bridge.' These two points are six statute miles apart. The observer, with a good telescope, was standing in the water, with the eye not exceeding eight inches above the surface. The flag and the boat were clearly visible throughout the whole distance, as shown in the following diagram.

"From this experiment it was concluded that the water does not decline from the line of sight! As the altitude of the eye of the observer was 8ins., the highest point, or the horizon, or summit of the arc, would be at one mile from the place of observation; from which point the surface of the water would curvate downwards, and at the end of the remaining five miles would be 16 feet 8 inches below the horizon! The top of the flag, being 5 feet high, would have sunk gradually out of sight, and at the end of six miles would have been 11 feet 8 inches below the eye line!"

This will be rendered clear by the diagram.
On the contrary this simple experiment is all sufficient to demonstrate that the surface of the water is parallel to the line of sight and is therefore Horizontal; and that the earth cannot possibly be other than a Plane!"

Mr. Proctor's answer to this challenge, which appeared in The Newcastle Weekly Chronicle of Sept. 20th, 1879, was to the effect that he was preparing to sail for America, where he was engaged to deliver a series of lectures, and could not, therefore, accept such a challenge. On Mr. Proctor's return to England he quickly announced the publication of a weekly journal, called "Knowledge." In some of the numbers of this journal he began to write against the fact that the Earth is a Plane. The language he employed was most unpolite and unfair, indeed, much of it was so insultingly insinuative both of motive and capacity, that the Zetetic Society of London, at its November meeting, 1883, resolved that their Secretary should send him a respectful challenge to meet their President, "Parallax," in public discussion, to consider the question, "Is the Earth a Globe or a Plane?" This challenge Mr. Proctor has practically declined, urging that "if certain phenomena can be explained" he is ready to discuss the matter with any member of the Zetetic School. This is one of the most disingenuous and illogical conditions which any one scientist could propose to another. The challenge he is called upon to accept is to demonstrate the rotundity or non-rotundity of the Earth, without any regard to phenomena. The doctrine of rotundity is an artful assumption of astronomers, to enable them to explain the cause of day and night, winter and summer, and other phenomena. It is claimed that if the assumption of rotundity seems to explain certain matters, the assumption must be considered a truth. This is a process so illogical and unjust that future generations will be ashamed to own that any such thing ever formed part of their philosophy. Every thoughtful person will repudiate such a process, and yet it is just that which Mr. Proctor would have us to adopt. The true question for discussion is whether the surface of standing water is convex or horizontal, for if the Earth is a globe, every portion of still water will be an arc of a circle. If it is otherwise—horizontal—then a globe is an impossibility. This may and must be ascertained by experiment regardless of consequences. If Mr. Proctor argues that if the Earth is not a globe but a Plane, that certain phenomena cannot be explained, and that, therefore, the demonstrated fact must be ignored, and called a falsehood, he cannot but see that his procedure is unjust and illogical, let him take part in an experiment which shall prove the truth of the matter, and let consequences be disregarded. The surface of standing water demonstrated to be horizontal and the Earth a Plane, Mr. Proctor will himself feel that he is bound to take part in endeavours to explain phenomena in connection with that demonstrated fact. The Zetetics are able to explain all the leading phenomena without assuming that convexity exists. Even if they could not do so, they cannot admit a falsehood for the purpose of helping them over a difficulty.

The simple experiment with a boat on the "Old Bedford Canal" very easily demonstrates that the surface of still water is horizontal, and that, therefore, the earth cannot be other than a Plane. Will Mr. Proctor accept the challenge, now given, to make the trial? If not, many will say that he dare not.
ZETETIC ASTRONOMY.

EARTH NOT A GLOBE:
AN EXPERIMENTAL ENQUIRY INTO THE
TRUE FIGURE OF THE EARTH,
PROVING IT A PLANE,
WITHOUT ORBITAL OR AXIAL MOTION, AND THE
ONLY KNOWN MATERIAL WORLD:
ITS TRUE POSITION IN THE UNIVERSE, COMPARATIVELY
RECENT FORMATION, PRESENT CHEMICAL CONDITION, AND
APPROACHING DESTRUCTION BY FIRE,
&c., &c., &c.

By "PARALLAX,"
Author of 'Patriarchal Longevity,' &c., and Founder of the Modern Zetetic Philosophy.
Price Seven Shillings and Sixpence.
May be ordered, post free for 8s. from the Author,
"PARALLAX,"
Welney House, 49, Haverstock Hill, London, N.W.

ZETETIC ASTRONOMY:
AN ADDRESS TO THE
RELIGIOUS WORLD,
Showing the Inconsistencies between Theoretic Astronomy
and True Religion.
Sent in return for Seven Stamps, directed as above, post free.

PATRIARCHAL LONGEVITY
RE-ATTAINABLE!

Sent in return for Seven Stamps, directed as above, post free.

EARTH-LIFE:
A Record of Facts, Principles and Discoveries
relating to the Improvement and Preservation of Human Life on Earth.

The Four Numbers sent in return for Three Stamps, directed as above.
ESTABLISHED 54 YEARS.

FUNDS OVER THREE MILLIONS.

THE CLERGY MUTUAL ASSURANCE SOCIETY.

OFFICE—1 & 2, THE SANCTUARY, WESTMINSTER, S.W.

Open to the Clergy and their Lay Relatives.

Patrons—

Chairman—The Very Rev. The Dean of Westminster.
Deputy-Chairman—Robert Few, Esq.
Physician—Dr. Stone, 14, Dean’s Yard, S.W.
Secretary—Matthew Hodgson, Esq. | Actuary—Stewart Helder, Esq.

Attention is particularly requested to the following points respecting this Society, as being of special importance to Clergymen and their Lay relatives desiring to assure their lives:

1. SECURITY.—The security offered by this Society for the due fulfilment of its engagements consists of Funds, amounting to £3,002,005, created from Premiums accumulated at compound interest, together with an Annual Income derived from Premiums and interest on these Funds of £333,189. The average rate of interest obtained on the Society’s Funds during the financial year 1882-3 was 4s. 3½d. per cent. The investments comprise Mortgages of Freehold Estates in England and Wales, of long Leaseholds in the cities of London and Westminster, of Rates under Acts of Parliament, and of Life Interests and Reversions; Railway, Gas, and Waterworks Debenture Stocks; and Loans on the Society’s Policies within the surrender values.
2. BONUS.—This Society being purely mutual, has no Proprietors, and consequently no Proprietors' Fund upon which to pay interest. All the Profits are the property of the Assured Members. The total Profits realized and divided since the establishment of the Society amount to £1,619,812, of which £437,347 was distributed at the last Quinquennial Bonus among 7,882 Policies. Of these 1,070 were then, by means of Bonus, not only altogether released from the payment of Annual Premiums, but had, in almost every case, additions made to the sums originally assured.

3. PREMIUMS.—The Rates of Premium for which assurances may be effected in this Society are less than those charged by the great majority of Life Assurance Offices. One-fifth of the Annual Premium may remain a charge upon the Policy, to be paid wholly or in part at each Quinquennial Division of Profits. Assurances upon life are granted for any amount not exceeding £7,500. (For Table of Rates, see page 4.)

4. MANAGEMENT.—This Society neither employs Agents nor allows Commission for the introduction of new business. The expenses of management on all accounts were in the past financial year only £3,158. per cent. of the Total Revenue, and less than £5.16s. per cent. of the Premium Revenue. So that for £5.16s. out of every £100 received for Premiums,—which is very little more than the most moderate allowance paid by other Offices for Commission alone,—the whole business of this Society is conducted.

NO LIABILITY INCURRED BY THE ASSURED.

The business of the Society is chiefly with a class of persons in which the average duration of life is allowed to be beyond that ordinarily found in the community at large. The experience of the duration of life among the Members has hitherto been very favourable.

QUALIFICATION.

The following may make an Assurance upon his or her own Life, and also for his or her own benefit upon the Life of any other person, provided he or she may have an interest in such Life to the amount of the capital sum to be assured:—

1. Any Clergyman of the respective Churches of England and Ireland, or of the Protestant Episcopal Church in Scotland.
2. Any Wife, Widow, Child or Grandchild, or any Father, Mother, Brother, Sister, Uncle, Aunt, Nephew or Niece of any such Clergyman.
3. Any Father, Mother, Brother, Sister, Uncle, Aunt, Nephew or Niece of the Wife or Widow of any such Clergyman.
4. The Wife or Widow of any Son, or the Husband or Widower of any Daughter, of any such Clergyman.
5. Any Director, or other person holding any office in the Society.

Any person not thus qualified may make Assurances upon Life, if the persons upon whose lives such Assurances are to be made, are themselves qualified.

Copies of the 54th Annual Report and revised Prospectus, Forms of Proposals, &c., may be had upon application to the Office, 1 & 2, The Sanctuary, Westminster, S.W.
Established 54 Years.

Funds over three millions.

The next bonus will be due 1st June, 1886.

Each Member's share therein will be governed by the age then attained, the amount assured, and the number of premiums paid since the last valuation.

* Table showing, in a line with Ages in Column 1, the result of the single Bonus of 1881, arising from surplus capital accumulated between the years 1876 and 1881, in respect of Policies of £1,000 each, whether appropriated to "Reduction of Annual Premium" (Column 3), or to "Addition to the Sum Assured" (Column 4), or to a "Payment in Cash" (Column 5).

<table>
<thead>
<tr>
<th>Age on 1st June, 1881</th>
<th>Sum Assured</th>
<th>Reduction in Annual Premium for whole of Life</th>
<th>Addition to Sum Assured</th>
<th>Immediate Cash Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>£1,000</td>
<td>£ 1 8 1</td>
<td>£ 59</td>
<td>£ 26 16 4</td>
</tr>
<tr>
<td>35</td>
<td>...</td>
<td>£ 1 6 0</td>
<td>£ 66</td>
<td>£ 32 2 11</td>
</tr>
<tr>
<td>40</td>
<td>...</td>
<td>£ 2 5 5</td>
<td>£ 71</td>
<td>£ 37 12 7</td>
</tr>
<tr>
<td>45</td>
<td>...</td>
<td>£ 2 16 7</td>
<td>£ 75</td>
<td>£ 42 16 8</td>
</tr>
<tr>
<td>50</td>
<td>...</td>
<td>£ 3 12 6</td>
<td>£ 80</td>
<td>£ 49 1 3</td>
</tr>
<tr>
<td>55</td>
<td>...</td>
<td>£ 4 18 7</td>
<td>£ 87</td>
<td>£ 58 3 0</td>
</tr>
<tr>
<td>60</td>
<td>...</td>
<td>£ 7 4 6</td>
<td>£101</td>
<td>£ 72 8 2</td>
</tr>
<tr>
<td>65</td>
<td>...</td>
<td>£ 12 8 6</td>
<td>£136</td>
<td>£103 19 9</td>
</tr>
<tr>
<td>70</td>
<td>...</td>
<td>£ 21 1 7</td>
<td>£176</td>
<td>£143 0 5</td>
</tr>
<tr>
<td>75</td>
<td>...</td>
<td>£ 38 1 10</td>
<td>£233</td>
<td>£203 4 5</td>
</tr>
</tbody>
</table>

*Note.—This Table has respect to all Policies of not less than Five full years' duration, and the Bonus is altogether independent of any previous Bonus or Bonuses.

Members who were 30 years of age at the Bonus of 1st June, 1881, will, if surviving, be 35 at the next Bonus, viz., that of 1st June, 1886. Let it be observed, then, that such members will be able to find, in a line with age 35, in Column 3, or 4, or 5 of this Table, what their Bonus on that occasion may be expected to be. In like manner, members of all ages will find in lines with successive ages, in Column 1, at which they may arrive, what the Bonuses at such ages may be expected to be, whether in Reduction of Premium, Column 3, or in Addition to Sum Assured, Column 4, or in Immediate Cash Payment, Column 5. As the ages are given quinquennially, approximations can only be obtained for the intermediate ages. By age on 1st June, 1881, is meant the age at entry plus the number of complete years elapsed since the date of the Assurance. But all expectations as above will depend for their realization upon the total amount of Surplus Capital in 1886, or at any date afterwards, being in full proportion to that of 1881.

Members insured for a less period than five years share proportionately in the profits.
ESTABLISHED 54 YEARS.
Funds over three millions.

ANNUAL PREMIUMS FOR ASSURING £100 FOR THE WHOLE TERM OF LIFE.
WITH PROFITS.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>£ 1 10 4</td>
<td>32</td>
<td>£ 2 8 8</td>
<td>50</td>
<td>£ 4 7 4</td>
</tr>
<tr>
<td>15</td>
<td>£ 1 11 0</td>
<td>33</td>
<td>£ 2 10 0</td>
<td>51</td>
<td>£ 4 11 4</td>
</tr>
<tr>
<td>16</td>
<td>£ 1 11 8</td>
<td>34</td>
<td>£ 2 11 6</td>
<td>52</td>
<td>£ 4 15 8</td>
</tr>
<tr>
<td>17</td>
<td>£ 1 12 6</td>
<td>35</td>
<td>£ 2 13 0</td>
<td>53</td>
<td>£ 5 0 2</td>
</tr>
<tr>
<td>18</td>
<td>£ 1 13 4</td>
<td>36</td>
<td>£ 2 14 8</td>
<td>54</td>
<td>£ 5 5 0</td>
</tr>
<tr>
<td>19</td>
<td>£ 1 14 2</td>
<td>37</td>
<td>£ 2 16 6</td>
<td>55</td>
<td>£ 5 10 4</td>
</tr>
<tr>
<td>20</td>
<td>£ 1 15 0</td>
<td>38</td>
<td>£ 2 18 4</td>
<td>56</td>
<td>£ 5 16 0</td>
</tr>
<tr>
<td>21</td>
<td>£ 1 16 0</td>
<td>39</td>
<td>£ 3 0 2</td>
<td>57</td>
<td>£ 6 2 2</td>
</tr>
<tr>
<td>22</td>
<td>£ 1 17 0</td>
<td>40</td>
<td>£ 3 2 2</td>
<td>58</td>
<td>£ 6 8 6</td>
</tr>
<tr>
<td>23</td>
<td>£ 1 18 0</td>
<td>41</td>
<td>£ 3 4 0</td>
<td>59</td>
<td>£ 6 15 0</td>
</tr>
<tr>
<td>24</td>
<td>£ 1 19 0</td>
<td>42</td>
<td>£ 3 6 0</td>
<td>60</td>
<td>£ 7 1 6</td>
</tr>
<tr>
<td>25</td>
<td>£ 2 0 2</td>
<td>43</td>
<td>£ 3 8 0</td>
<td>61</td>
<td>£ 7 7 5</td>
</tr>
<tr>
<td>26</td>
<td>£ 2 1 4</td>
<td>44</td>
<td>£ 3 10 0</td>
<td>62</td>
<td>£ 7 13 8</td>
</tr>
<tr>
<td>27</td>
<td>£ 2 2 6</td>
<td>45</td>
<td>£ 3 12 4</td>
<td>63</td>
<td>£ 8 0 4</td>
</tr>
<tr>
<td>28</td>
<td>£ 2 3 10</td>
<td>46</td>
<td>£ 3 14 10</td>
<td>64</td>
<td>£ 8 7 9</td>
</tr>
<tr>
<td>29</td>
<td>£ 2 5 0</td>
<td>47</td>
<td>£ 3 17 6</td>
<td>65</td>
<td>£ 8 15 9</td>
</tr>
<tr>
<td>30</td>
<td>£ 2 6 4</td>
<td>48</td>
<td>£ 4 0 4</td>
<td>66</td>
<td>£ 9 4 8</td>
</tr>
<tr>
<td>31</td>
<td>£ 2 7 6</td>
<td>49</td>
<td>£ 4 3 8</td>
<td>67</td>
<td>£ 9 14 7</td>
</tr>
</tbody>
</table>

One-fifth of the above premiums may remain as a charge on the Policy, to be repaid by Bonus allotted at Quinquennial Divisions of Profits. For full explanation of the working of this plan, apply for the Society's Prospectus.

**EXAMPLE:**

A person aged 35 next birthday may assure £1,000, payable at his death by payment of an Annual Premium of £26. 10s.; or by payment of a "Reduced" Annual Premium of only £21. 4s. 2d., under certain conditions.
LIBERAL TERMS AND PRIVILEGES OF THE STANDARD POLICY.

FREE ASSURANCE.

Persons not less than 25 years of age, who, when proposing for Assurance, satisfy the Directors that they have no intention or prospect of proceeding abroad, from their occupation and other circumstances, are charged the ordinary Home Premium, and may afterwards proceed abroad without extra Premium.

REVIVAL OF POLICIES.

Policies of Five Years' Duration, executed for the whole term of Life at a uniform rate, may, with certain exceptions, be renewed within thirteen months of the date of issue, on payment of fine, and in the event of death, the claims will be paid subject to a deduction of Premiums unpaid and fine.

DURATION may be renewed when the Premiums are paid in advance.

POLICIES UNCHALLENGEABLE.

Policies are Unchallengeable after Five Years' Duration, on any ground connected with the original documents, if age has been proved.

PAYMENT OF CLAIMS.

Claims are payable three months after proof of death on all Policies now being issued.

SURRENDER VALUES.

Surrender Values of fixed amount, or Policies fully paid up in exchange, after payment of One Annual Premium on "With Profit" Policies, or Three Annual Premiums on "Without Profit" Policies.

RATES OF PREMIUM.

The Rates of Premium for home and foreign residence are moderate and consistent with the risk. The limits of free residence have been considerably extended, and are now very comprehensive.

LOANS.

Loans granted on Policies within their Surrender Values.
Family Provision and Investment.
Self-Endowment for Old-Age.
Protection to Partners or Creditors.

EDINBURGH: 3 & 5 GEORGE STREET (Head Office).
LONDON: 83 KING WILLIAM STREET, E.C., & 3 PALL MALL EAST, S.W.
DUBLIN: 66 UPPER SACKVILLE STREET.

AGENCIES IN INDIA AND THE BRITISH COLONIES.

ACCUMULATED FUNDS . £6,000,000
ANNUAL REVENUE . . . £830,000
SCOTT’S MIDLOTHIAN OAT FLOUR

Is unequalled as the most Wholesome and Nutritious Food
FOR INFANTS AND INVALIDS.

SCOTT’S MIDLOTHIAN OAT FLOUR, which is made entirely from the finest quality of Midlothian Oats, is so purified from the fibrous integument, that it has been concentrated in 80 per cent. more flesh and bone forming properties than the finest Oat Meal, which is acknowledged to be the most nutritious of all Cereals. Unlike many preparations sold for Infants’ Food, which contain a mixture of Cereals that would require different degrees of boiling to become properly assimilated, SCOTT’S MIDLOTHIAN OAT FLOUR is easily prepared, most satisfying and invaluable in promoting a healthy regularity of system when given to Infants, as it can be used in an ordinary Feeding Bottle by Infants of two weeks’ old.

For Invalids and Adults, SCOTT’S MIDLOTHIAN OAT FLOUR is unequalled as a satisfying, nourishing, and easily digested Food.

HIGHLY RECOMMENDED AND USED BY EMINENT PHYSICIANS, USED IN THE LEADING HYDROPATHIC ESTABLISHMENTS.

Sold by FAMILY GROCERS and CHEMISTS in Tins of various sizes.

Sole Makers: A. & R. SCOTT, Millers, GLASGOW.

POOLE & LORD,

318 (late 145) OXFORD STREET,
NEARLY OPPOSITE
BOND STREET, W.

OUTFITTERS,

SOLE INVENTORS
OF THE
SANS-PLIS SHIRT.
GLOVERS.

In correspondence with
ASQUITH & LORD, 8 Rampart Row, Bombay.

The Sans-Plis Shirt is superior to any other for Indian and Colonial wear. Being entirely free from gathers, it is cooler, much stronger, and will bear the Indian mode of washing better than any other Shirt in use.

A single Shirt, or other article, made to measure, and accurate patterns preserved to ensure correctness in the execution of future orders.

AN ENTIRELY NEW ARTICLE OF DIET

For Infants, Dyspeptics, Weak Digestion.

Benger's Self-digestive Food

This NEW FOOD is distinguished from all others by the important fact that when mixed with Warm Milk a process equivalent to partial digestion takes place, by which both it and the milk are adapted for rapid absorption. It can therefore be taken with comfort when other forms of nutriment disagree. It forms a delicious supper dish; its soothing and highly nutritive properties promote healthy sleep.

The whole of the Medical Press and many leading Physicians advocate its use. Their reports accompany each tin.

This, 1s. 6d., 2s. 6d. and 5s. each, of all Chemists, or by Parcel Post of the Manufacturers, MOTTERSHEAD & CO., 7 Exchange Street, MANCHESTER.
Soups of all Descriptions.

TURTLE SOUP—Clear or Thick.

BEFF—Alamode, Hashed, Boiled, Spiced, Stewed, Fillets, Roasted, &c.

VEAL—Tendons, Cutlets, Fried andau, Curry, &c.

MUTTON—Roasted, Boiled, Haricot, Hashed, Irish Stew, Cutlets, &c.

CHICKEN—Curry, Chicken and Rice, Chicken Broth.

LAMB—Roasted, Cutlets, Lamb and Peas, &c.

ENTREES—Salmi Pheasant, Partridge or Grouse, Roast ditto, Civet of Hare, Curry of Rabbit, &c.

YORKSHIRE PIES, GAME PIES, POTTED MEATS, TONGUES, OXFORD SAUSAGES, &c.

CAUTION!—BEWARE OF IMITATIONS.

EACH CASE BARES THE FIRM'S SIGNATURE AND ADDRESS AS UNDER, WITHOUT WHICH NONE ARE GENUINE.

Brand & Co.'s

11 LITTLE STANHOPE ST., MAYFAIR, LONDON, W.