

The
OPEN COURT

Devoted to the Science of Religion,
the Religion of Science, and the Extension
of the Religious Parliament Idea

FOUNDED BY EDWARD C. HEGELER

NOVEMBER, 1931

—←—→—
VOLUME XLV NUMBER 906

Price 20 Cents

The Open Court Publishing Company

Wieboldt Hall, 339 East Chicago Avenue
Chicago, Illinois

The
OPEN COURT

Devoted to the Science of Religion,
the Religion of Science, and the Extension
of the Religious Parliament Idea

FOUNDED BY EDWARD C. HEGELER

NOVEMBER, 1931

“←—————→”
VOLUME XLV NUMBER 906

Price 20 Cents

The Open Court Publishing Company

Wieboldt Hall, 339 East Chicago Avenue
Chicago, Illinois

THE PHILOSOPHICAL REVIEW

EDITED BY

FRANK THILLY

and G. WATTS CUNNINGHAM

OF THE SAGE SCHOOL OF PHILOSOPHY, CORNELL UNIVERSITY

WITH THE CO-OPERATION OF

ÉTIENNE GILSON (Paris)

GEORGE SANTAYANA (Rome)

ARTHUR LIEBERT (Berlin)

A. E. TAYLOR (Edinburgh)

W. A. HAMMOND (Washington)

ASSOCIATE EDITOR

HAROLD R. SMART

OF THE SAGE SCHOOL OF PHILOSOPHY, CORNELL UNIVERSITY

Contents for September, 1931

Some Descriptive Properties of Relations (II) Henry Lanz
Lotze and the One and the Many Thomas R. Kelly
Epistemology Re-examined Charles M. Perry
A Broadening Factor in Logic John Wright Buckham
Discussion.

"Of the Nature and Definition of a Cause" D. W. Gotschalk

Reviews of Books

A. E. Taylor's The Faith of a Moralist: by Warner Fite—
W. B. Pillsbury's The History of Psychology: by G. S. Brett—
Proceedings of the Aristotelian Society, Vols. XXIX, XXX;
by H. G. Townsend—*Raymond F. Piper* and *Paul W. Ward*,
The Fields and Methods of Knowledge: by Stephen A. Emery
—*Raymond Schmidt's* Die Philosophie der Gegenwart in Selbst-
darstellungen: by D. Luther Evans—*Daniel Sommer Robin-
son's* An Anthology of Recent Philosophy: by Albert E. Avey—
W. H. Johnston and *L. G. Struthers*, Hegel's Science of Logic:
Henry S. Macran's Hegel's Logic of World and Idea: by G.
Watts Cunningham—*Augusta Gaskell's* What is Life?: by
Seba Eldridge—*Jean Wahl's* Le malheur de la conscience dans
le philosophie de Hegel: by J. Loewenberg—*Walter Lippman's*
A Preface to Morals: by H. G. Townsend.

Notes.

Harald Höffding (1843-1931); Edgar S. Brightman; Eugenio Rignano
Prize; The Australasian Association of Psychology and Philosophy;
Prize Competition of Sociological and Philosophical Societies in Vienna;
American Council of Learned Societies, Research Grants and Fellowships.

PUBLISHED EVERY TWO MONTHS

LONGMANS, GREEN, AND COMPANY
LANCASTER, PA.

55 FIFTH AVENUE, NEW YORK

SINGLE NUMBERS \$1.00 (5s.). PER ANNUM \$5.00 (25s.).

THE OPEN COURT

Volume XLV (No. 11) NOVEMBER, 1931

Number 906

TABLE OF CONTENTS

	PAGE
<i>Frontispiece</i> —A Sketch of Hegel by Wilhelm Henzel	
<i>The Philosophy of Hegel.</i> EDWARD L. SCHAUB	641
<i>Mechanistic and Vitalistic Concepts of Life.</i> T. J. THOMPSON	657
<i>Gandhi: Saint and Statesman.</i> SYUD HOSSAIN	670
<i>New Light on the Mystery of Comets.</i> J. V. NASH	676
<i>Some Off-Shoots of the Legalist School.</i> L. TOMKINSON	683
<i>The Pejorist.</i> FREDERICK F. BARKER	692
<i>Utopia Forty Years Ago.</i> T. SWANN HARDING	695

Published monthly by
THE OPEN COURT PUBLISHING COMPANY
337 East Chicago Avenue
Chicago, Illinois

Subscription rates: \$2.00 a year; 20c a copy. Remittances may be made by personal checks, drafts, post-office or express money orders, payable to the Open Court Publishing Company, Chicago.

While the publishers do not hold themselves responsible for manuscripts sent to them, they endeavor to use the greatest care in returning those not found available, if postage is sent. As a precaution against loss, mistakes, or delay, they request that the name and address of the author be placed at the head of every manuscript (and not on a separate slip) and that all manuscripts and correspondence concerning them be addressed to the Open Court Publishing Company and not to individuals.

Address all correspondence to the Open Court Publishing Company, 337 East Chicago Ave., Chicago.

Entered as Second-Class matter March 26, 1897, at the Post Office at Chicago, Illinois under Act of March 3, 1879.

Copyright by The Open Court Publishing Company, 1931.

Printed in the United States of America.

THE NEW ORIENT SOCIETY OF CHICAGO

under the auspices of

THE OPEN COURT PUBLISHING COMPANY

announces

the publication of twelve monographs on modern Oriental culture beginning January, 1932, and continuing bi-monthly for two years as special numbers of the OPEN COURT magazine.

EDITORIAL COMMITTEE

MISS ELIZABETH CARUS, Editor of the OPEN COURT monthly, *Chairman*.

DR. BERTHOLD LAUFER, Curator, Department of Anthropology, Field Museum of Natural History, Chicago.

PROFESSOR ALBERT H. LYBYER, Department of History, University of Illinois.

PROFESSOR A. T. OLMSTEAD, Department of Oriental History, Oriental-Institute, University of Chicago.

PROFESSOR MARTIN SPREGLING, Department of Arabic and Islam, and head of sub-department of Islam, Oriental Institute, University of Chicago.

These Monographs will deal with relatively modern cultural development of the Orient, meaning Asia and related adjacent territories, e. g. Moslem North Africa and a large part of Malaysia.

PROPOSED LIST OF MONOGRAPHS

January, 1932. **The Heritage of Western Asia.**

Edited by Professor Martin Sprengling, University of Chicago.

March, 1932. **The Heritage of Eastern Asia.**

Edited by Professor A. E. Haydon, Department of Comparative Religion, University of Chicago.

May, 1932. **Modern Turkey.**

Edited by Professor A. H. Lybyer, University of Illinois.

July, 1932. **Syria-Palestine.**

Edited by Professor A. T. Olmstead, University of Chicago.

September, 1932. **Egypt.**

Edited by Professor Halford L. Hoskins, Department of History, Tufts College, Massachusetts.

November, 1932. **Arabia.**

Edited by Professor Martin Sprengling, University of Chicago.

January, 1933. **Persia.**

Edited by Professor Arthur Upham Pope, Director of the Persian Institute, assisted by Myron Bement Smith, Secretary.

March, 1933. **Russian and Central Asia.**

Edited by Dr. Berthold Laufer, Curator, Department of Anthropology, Field Museum of Natural History, Chicago.

May, 1933. **Japan and Korea.**

Edited by Professor Quincy Wright, Department of Political Science, University of Chicago.

July, 1933. **India.**

Edited by Professor Walter E. Clark, Department of Sanskrit, Harvard University.

September, 1933. **China.**

Edited by Dr. Berthold Laufer, Field Museum of Natural History.

November, 1933. **Northern Africa.**

Those who are desirous of becoming members of the New Orient Society of Chicago are invited to apply for particulars of purposes and privileges of membership to the SECRETARY.

Care of

THE OPEN COURT PUBLISHING CO.

337 E. CHICAGO AVE.

CHICAGO

BOOKS FROM THE PAUL CARUS LECTURE FOUNDATION

THESE books represent the publication of the biennial series of lectures established by the Paul Carus Foundation and published by The Open Court Publishing Company. The lecturers are chosen by committees appointed from the Divisions of the American Philosophical Association and the lectures present the most significant of contemporary work in philosophy. The books by Professor John Dewey and Professor A. O. Lovejoy, listed below, are both publications of Paul Carus lectures. The next publication from the Foundation will be a book by PROFESSOR GEORGE HERBERT MEAD of the University of Chicago.

THE POINT OF VIEW: in the work of Paul Carus.

This book presents the point of view of the distinguished philosopher who founded *The Open Court* and edited *The Monist*. "The name of Paul Carus will always be associated with his life work for the advancement of science in the fields of religion and philosophy."—Press note.

Beautifully printed in two colors throughout. Boxed \$2.50.

THE REVOLT AGAINST DUALISM.

An Inquiry Concerning the Existency of Ideas.

BY ARTHUR O. LOVEJOY,

Professor of Philosophy, The Johns Hopkins University.

The last quarter century will have for future historians of philosophy a distinctive interest as the age of the great revolt against dualism, a phase of the wider revolt of the 20th against the 17th century. THE REVOLT AGAINST DUALISM, Dr. Lovejoy's long awaited book, reviews this most characteristic philosophic effort of our generation.

Price \$4.00

EXPERIENCE AND NATURE.

BY JOHN DEWEY.

Irwin Edman writes: "The wish has long been expressed that John Dewey would some day produce a book making clear and explicit the metaphysical basis of his singularly humane and liberalizing philosophy of life. . . With monumental care, detail, and completeness Professor Dewey has in this volume revealed the metaphysical heart that beats its unvarying alert tempo through all his writings. Price \$4.00*

* A. L. A. recommendation.

THE OPEN COURT PUBLISHING COMPANY

Chicago

London

Fourth Carus Mathematical Monograph

PROJECTIVE GEOMETRY

By

JOHN WESLEY YOUNG

Professor of Mathematics, Dartmouth College

Price, \$2.00

Projective Geometry may be approached by various routes: postulational or intuitive, synthetic or analytic, metric or purely projective. In a monograph which is to give a first approach to the subject it has seemed to me that the treatment should be based on intuition, should develop the subject by synthetic methods, and should keep projective properties sharply distinguished from the metric specializations. The reader will accordingly find in the first five chapters a systematic and thoroughly elementary treatment of the most fundamental propositions of projective geometry, culminating in the theorems of Pascal and Brianchon and the polar system of a conic. My purpose in these chapters has been to develop on an intuitive basis the concepts and the properties of projective space, without any admixture of metric ideas. Only in this way, I believe, can the reader gain a clear impression of what the word projective means. [Extract from Preface.]

THE RHIND MATHEMATICAL PAPYRUS

CHANCELLOR ARNOLD BUFFUM CHACE, of Brown University, is rendering signal honor to the MATHEMATICAL ASSOCIATION OF AMERICA by publishing under its auspices his RHIND MATHEMATICAL PAPYRUS.

Volume I, over 200 pages (11 $\frac{1}{4}$ "x8"), contains the free Translation, Commentary, and Bibliography of Egyptian Mathematics.

Volume II, 140 plates (11 $\frac{1}{4}$ "x14") in two colors with Text and Introductions, contains the Photographic Facsimile, Hieroglyphic Transcription, Transliteration, and Literal Translation.

This exposition of the oldest mathematical document in the world will be of great value to any one interested in the work of a civilization of nearly 4,000 years ago.

LIMITED EDITION

\$20.00 Plus Postage

THE OPEN COURT PUBLISHING COMPANY

Chicago

AMERICAN MATHEMATICAL SOCIETY

COLLOQUIUM SERIES

New edition, published in April, 1931:

O. Veblen, *Analysis Situs*. 10+194 pp. Second edition, with new appendices by the author and Philip Franklin. \$2.00.
(Part II of Volume V of the Series.)

EARLIER VOLUMES

Volume I. *Linear Systems of Curves on Algebraic Surfaces*, by **H. S. White**; *Forms of Non-Euclidean Space*, by **F. S. Woods**; *Selected Topics in the Theory of Divergent Series and of Continued Fractions*, by **E. B. Van Vleck**. (Boston Colloquium.) New York, 1905. \$2.75.

Volume II. Out of print.

Volume III. *Fundamental Existence Theorems*, by **G. A. Bliss**; *Differential-Geometric Aspects of Dynamics*, by **Edward Kasner**. (Princeton Colloquium.) New York, 1913. \$2.50.

Volume IV. *On Invariants and the Theory of Numbers*, by **L. E. Dickson**; *Topics in the Theory of Functions of Several Complex Variables*, by **W. F. Osgood**. (Madison Colloquium.) New York, 1914. \$2.50.

Volume V, Part I. *Functionals and their Applications*, by **G. C. Evans**. Out of print.

Volume VI. *The Logarithmic Potential. Discontinuous Dirichlet and Neumann Problems*, by **G. C. Evans**, New York, 1927. \$2.00.

Volume VII. *Algebraic Arithmetic*, by **E. T. Bell**. New York, 1927. \$2.50.

Volume VIII. *Non-Riemannian Geometry*, by **L. P. Eisenhart**. New York, 1927. \$2.50.

Volume IX. *Dynamical Systems*, by **G. D. Birkhoff**. New York, 1927. \$3.00.

Volume X. *Algebraic Geometry and Theta Functions*, by **A. B. Coble**. New York, 1929. \$3.00.

Volume XI. *The Theory of Approximation*, by **Dunham Jackson**, New York, 1930. \$2.50.

Volume XII. *Topology*, by **S. Lefschetz**. New York, 1930. \$4.50.

Orders may be sent to the American Mathematical Society,
501 West 116th Street, New York City, or to

THE OPEN COURT PUBLISHING COMPANY
337 East Chicago Avenue Chicago, Illinois

JOURNAL of PHILOSOPHY

This periodical is the organ of active philosophical discussion in the United States. There is no similar journal in the field of scientific philosophy. It is issued fortnightly and permits the quick publication of short contributions, prompt reviews and timely discussions.

*Edited by Professors F. J. E. Woodbridge,
W. T. Bush, and H. W. Schneider,
of Columbia University*

515 WEST 116TH STREET, NEW YORK

\$4 a Year, 26 Numbers

20 Cents a Copy

LOGIC AND NATURE

By Marie C. Swabey, Ph.D.

Assistant Professor of Philosophy
in New York University

To vindicate logic as the method of metaphysics and to show its applicability to current problems of science and nature, is the purpose of this volume. This involves a demonstration of the priority of logic to experience and a discussion of the nature of reason. Hypothetical judgments, non-syllogistic arguments, the paradoxes of Russell, the relation of the form and matter of inference, the nature of postulational systems, the problem of truth, and the theory of universals are among the logical topics considered.

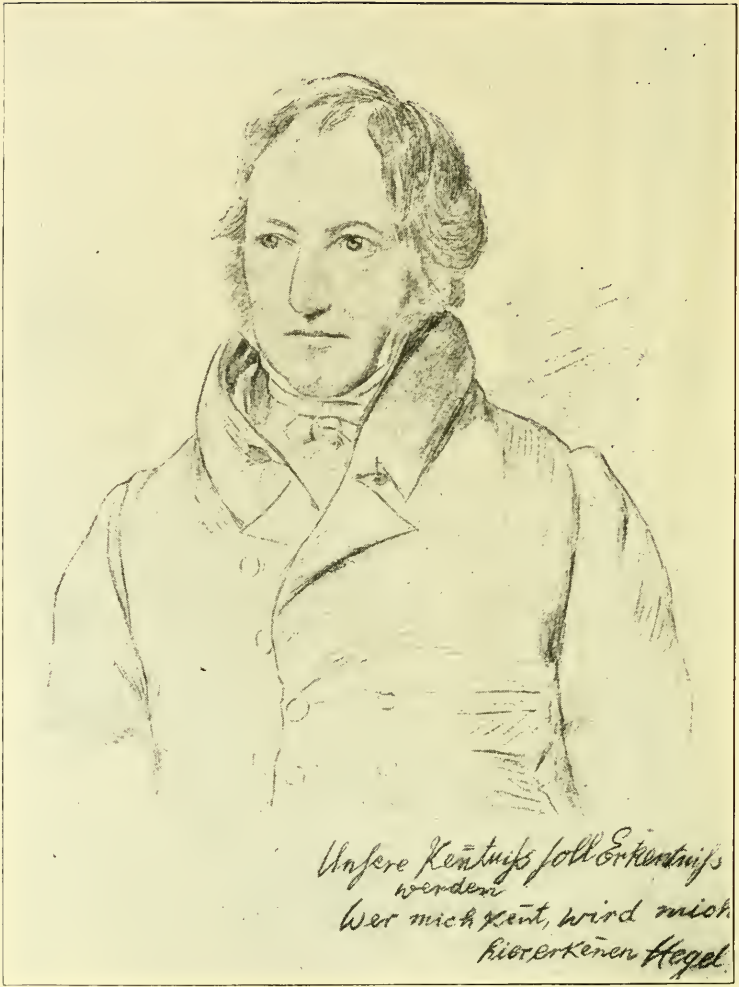
"A strong case for the primordality of logic."—Professor Cassius J. Keyser, Columbia University.

"Marked by a fine capacity for logical analysis and reasoning. . . . It holds the attention continuously."—Professor Robert MacDougall.

"The book is founded on a detailed, lucid, and convincing criticism of naturalism. Its positive thesis . . . is closely and vigorously argued. The book is written in a style unusual for its clarity and brevity, and reveals the wide reading of its author in classical and in contemporary modern philosophy."—Professor Mary Whiton Calkins.

8vo, xiv + 384 pages. Bound in blue cloth, gold-lettered. Price \$4.00.

The Open Court Publishing Company
337 East Chicago Avenue Chicago, Ill.



A SKETCH OF HEGEL BY WILHELM HENZEL
PRIVATELY OWNED

Frontispiece to The Open Court.

THE OPEN COURT

A MONTHLY MAGAZINE

Devoted to the Science of Religion, the Religion of Science, and
the Extension of the Religious Parliament Idea.

COPYRIGHT BY OPEN COURT PUBLISHING COMPANY 1931

Volume XLV (No. 11) NOVEMBER, 1931

Number 906

THE PHILOSOPHY OF HEGEL¹

BY EDWARD L. SCHAUB

THE disturbing events and tragedies of recent history have forced upon the attention of all thoughtful men the nature of the social order in which we are living. They have led to a deeply serious investigation into the fundamental principles and into the real significance and value of our present civilization. This has widened the interest in philosophy. For, some truth there surely is in Hegel's remark that a philosophy is the mode in which an epoch exhibits a reflective self-consciousness of its diversified and yet basically related expressions. Philosophy, moreover, is receiving impetus from the fact that individuals are being turned by the forces of circumstance into the search for a satisfactory *Lebensanschauung*. Scientists, on their part, are pressing beyond their restricted fields to determine the wider bearings of their theories and to discover a synthesis in which ascertained truths may dwell together in a meaningful coherence. It is keenly realized that the richly adorned temple of the sciences—to employ a figure of Hegel's

¹This paper was prepared in response to the desire of the Editor to take some cognizance of the centenary of the death of one of mankind's master minds.

George William Frederick Hegel died in Berlin, on November 14, 1831, while at the height of his academic influence and of his philosophic powers. He was then sixty-one years of age, having been born on August 27, 1770. His native city was Stuttgart, and the influence of this Swabian environment, as well as of the upper middle class family to which he belonged, manifested themselves in his attitudes and thought throughout his entire career.

From the elementary schools and the gymnasium of Stuttgart, Hegel went, in 1788, to the university in Tübingen. Here he was matriculated as a student of theology. He gave large play, however, to an early acquired interest in Greek literature and art, and he turned his attention also to current revolutionary movements and to contemporary writers, particularly Rousseau, as well as to Kant's teachings concerning the moral autonomy of the rational individual. He devoted much thought likewise to the relation of

—must again be given its holy of holies, that is, a metaphysics. Thus we are witnessing an active quest for a philosophy that issues from the findings of science and that likewise reckons justly with the facts of concrete social and historical experience. Such being the case, is it at all strange that there is a revival of interest in that particular philosophy which still stands as man's most imposing attempt to bring together into a meaningful whole—or, more accurately, to set forth methodically the intrinsic relationships that subsist between—the categories of logical thought, the general concepts of scientific knowledge, the basal characteristics of individual minds, and the forms and developmental stages of political and social institutions, of art, of religion, and of those systems of reflective interpretation known as philosophy?

Whatever may be the explanation—whether the conditions of contemporary life (such as those suggested), or the immanent logic of cultural history in general or of philosophical development in particular²—the plain fact is that the philosophy of Hegel is today enjoying a renaissance, even where, as in the country of its birth, it had for decades commonly been deemed to belong at best in a museum of speculative constructions.³

Kant's ethical doctrines, and of philosophy in general, to theology. All of this, however, was outside the scope of his academic work in course. The certificate which he received upon leaving the university—it is interesting to note—made special reference to his inadequate knowledge of philosophy.

During seven years of tutorship in Bern and Frankfurt, Hegel centered his personal study about the origins of Christianity and its connections with the Greek and Jewish religions. He wrote a life of Jesus and committed to paper his thoughts on the relations of Kant's ethical philosophy to the religion of Jesus. His mind wrestled, among other things, with the problem of the freedom of the individual in its apparent conflict with institutional and social authority. He clearly recognized that the principle of freedom expounded by Kant and Fichte and, in a somewhat different form, expressed by the revolutionary spirit of the age, had very genuine and high claims; yet these, he was forced to believe, must not be allowed to dim the prestige possessed by the social order in Greek life and thought. The issue was a particular form of one which, in some context or another, remained important throughout all of Hegel's thought and writing. The whole and its parts or members, the universal and the particular, unity and diversity, identity and difference—in all of these cases, both terms, Hegel contended, must be vigorously pressed, each in its intrinsic relations to the other, if either is to preserve itself and to possess meaning.

In 1801 Hegel was appointed to a Privat-Docentship, and in 1805 to a professorship, in Jena. Here he at first collaborated sympathetically with Schelling, a friend of Tübingen days. Soon, however, he reached independent views, critical alike of Schelling and of Fichte, whose stormy Jena career had terminated in 1799: Critical of Schelling because of the latter's increasing tendencies toward mysticism and his interpretation of the ultimate principle of unity as transcendent of differences—a view, Hegel pointed out, which

Few events in the history of philosophical systems are more striking than the vicissitudes of the Hegelian system, particularly within the land where it was first proclaimed. The sun in the intellectual firmament of Hegel's own day, it passed abruptly, shortly after his death, into almost total eclipse (within the orbit of German vision), only within little more than the decade just past to break forth anew and now to shine with a splendor all but dazzling. German thinkers have of late been moving from the most diverse starting-points in the direction of Hegelian doctrines; Hegel's works are again the subject of intensive study;⁴ a new and attemptedly definitive edition of Hegel's works is under way; and the Second International Hegelian Congress, arranged to commemorate the centenary of Hegel's death, was this past month held in Berlin, and the majority of those on its program were Hegelians from Germany.⁵

In Italy and France the Hegelian doctrines have had a less checkered career. They have seldom failed of able expounders or even champions. In English-speaking countries, they have exercised a leading influence ever since the time of their importation, affords us not the light of day but leaves us in the darkness of the "night in which all cows are black"; and critical of Fichte because of his excessively abstract conception of the Absolute Ego and his doctrine that the "ought" is a more basic category than "being," that the "ought-to-be" preconditions the "is."

Hegel's first great philosophic work, the *Phänomenologie des Geistes*, appeared in 1807. The contents of this book are described by Edward Caird (*Hegel*, p. 62) as "a kind of genetic psychology or philosophical 'Pilgrim's Progress,' in which the individual, beginning with the lowest sensuous consciousness which is possible to a rational being, is gradually led upwards, by the dialectic of his own thought to the highest speculative idea of the world as an organic system, whose principle of unity lies in the self-conscious intelligence." The work, however, is so complex, as well as so unique, that it might with equal or perhaps even greater truth be said to set forth in dialectical form the perennial types of human experience. In the words of Loewenberg (*Hegel's Selections*, Introduction, pp. xviii f.): "Different and recurrent views of life—sensuous and intellectual, emotional and reflective, practical and theoretical, mystic and philistine, sceptical and dogmatic, empirical and speculative, conservative and radical, selfish and social, religious and secular—are induced to voice the will to believe in their own exclusive reasonableness. And reasonable each does appear from the point of view of its own perspective....(Yet each) finds its claim to power rebuked and impugned....The truth is that every particular point of view ineluctably suffers from a warped perspective....The dialectical method (lays) siege to every typical attitude or belief by rendering its partisan claims logically ridiculous."

The battle of Jena caused a break of ten years duration in Hegel's academic career. During this interval he served as editor of a newspaper in Bamberg (1806-8) and as director of the gymnasium in Nüremberg (1808-16); and, what is of vastly greater significance, he brought out his comprehensive

and today they have been brought into an even more strategic position through the publication of English translations of the *Phänomenologie des Geistes* (by J. B. Baillie, in 1910) and of the *Wissenschaft der Logik* (by W. H. Johnston and L. G. Struthers, in 1929), as well as of an independent translation of a part of the latter work, and through the admirable compilation of selections with which Prof. Loewenberg has enriched the Philosophy Series of the Modern Students' Library.

What modifications in the interpretation of Hegel may issue from the fresh study of today, especially in the light of recent translations, may not confidently be predicted. For we realize that after Dilthey, in 1905, published *Die Jugendgeschichte Hegels*, and others at about the same time studied the early chapters of Hegel's life, many believed themselves in possession of a new key with which to unlock the Hegelian philosophy as a whole. Hegel, they contended, was not a rationalist and panlogist, but was essentially a romantic and, indeed, a mystic in a very real sense of this term. His dialectical method, they declared, was not the product of speculative thought, nor should it be regarded as setting forth the movement

Wissenschaft der Logik, the one work, as Caird maintains, "which the modern world has to put beside the 'Metaphysic' of Aristotle" (*l.c.*, p. 75). Hegel's *Logik* exhibits the immanent dialectical necessity with which the categories progress from the most abstract of them all, namely "being," to the Absolute Idea, the self-comprehending Notion," the principle of rational self-consciousness.

While professor of philosophy in Heidelberg (1816-18) Hegel published the *Encyclopädie der philosophischen Wissenschaften*. This treatise offers us the only statement which Hegel has given us of his philosophical system as a whole. Unfortunately the material is offered, as the title page of the book indicates, only "in Outline"; it takes the form of compact paragraphs which represent epitomizations or expressions of doctrine which Hegel developed orally in his university lectures.

From Heidelberg Hegel migrated to the university in Berlin. This institution he served for thirteen years as a professor, and, during 1830, as rector. In 1821 there appeared the *Grundlinien der Philosophie des Rechts*, which was thus the fourth, as it proved to be the last, of the books published by Hegel himself. The subject matter is set forth in the manner characteristic of the writer. Concepts are shown to lead of inner, dialectical necessity to other concepts by which they are at once annulled and preserved; they are shown to be partial truths, which, therefore, are not *the* truth while yet they convey *a* truth, the nature and range of which are disclosed by the successively more inclusive concepts. These more inclusive concepts, principles or institutions, as the case may be, are the presupposition of the more abstract and therefore less self-sustaining ones; they are the rational matrix of the latter, the medium within which alone these have their life and meaning. In the case of the *Philosophie des Rechts* the development is from "right," as abstract, universal and external, to its antithesis "morality," which is internal and individual, and then to the synthesis described as the ethical

of reason. It was, on the contrary, an instrument of emotional interpretation. Hegel's logic, in brief, is a logic of passion, of the hard wrestling of Hegel's own tragic spirit in its attempt to reconcile practical antinomies of experience, such as those of unhappiness and happiness, defeat and victory, profound sorrow and exultant joy, death and the resurrection. Thus taken, it was alleged, Hegel's system as a whole becomes, if not transparent, at least clearer and more significant. With its penetrating flashes of imagination, its terms freighted with a wealth of meaning and allusion, its intricately developed themes, dramatic transitions, and brilliant denouements, Hegel's philosophy, it was said, is the utterance of a soaring spirit who voiced, with passionate earnestness and philosophic artistry, his concrete reactions to the issues of human life and to the cosmos in which these have their setting. Increasing preoccupation with the *Phenomenology*, it seems clear, is likely to fortify this interpretation of the Hegelian writings. On the other hand, intensified study of the later works, such as that of the newly translated *Science of Logic*, will throw into prominence Hegel's insistent demands that emotion and imagination be

order and represented by the institutions of the family, the civic community, and, finally, the state. Thus Hegel concluded that the national state is the source and medium of abstract right and morality, and the order within which the family and the economic and civic life reach their full possibilities; that the national state is the culminating expression of the Absolute in the realm of objectively manifested spirit, though, to be sure, each particular manifestation of it has its place within the process of world history. For this doctrine, with its associated defence of war, Hegel has often been subjected to the most severe of criticisms. Whatever may be said, however, respecting the cogency of his argument, this should not be regarded as a bid for the favor of the political powers dominating Prussia at the time. It was rather an honest expression of a mind which in all domains of reality sought the essential reasonableness of things, which had early been impressed by Greek civilization and political philosophy, and had been a personal witness of the consequences of the revolutionary doctrines of abstract individualism. Hegel was convinced of the necessity of social stability as it is guaranteed by a comprehensive institution—an institution, however, not so much vested with power as living in the unreserved loyalties of its members.

During his Berlin professorship Hegel's intellectual influence and prestige increased very rapidly. Not even the efforts of a Schopenhauer could dislodge him from his position of dominance. He founded a philosophical school which, with all its changing fortunes, has proved to be as influential as any in modern history, and which still possesses a vitality sufficient to destroy, through assimilation, many a movement that may rise up against it.

Hegel's lectures on the history of philosophy and on the philosophy of history, of art, and of religion, were published posthumously from student notes, and they now form part of the edition of Hegel's works brought out in 1832-5 in the form of eighteen volumes, later supplemented by a volume of letters edited by Hegel's son, Karl.

kept in proper bounds by the critical reason, that reflective thought be given its rightful sovereignty, and that insight and knowledge be claimed only where conclusions are rationally comprehended, that is, are understood not alone in terms of the principles and processes employed in reaching them, but also in the light of their underlying assumptions when these are themselves grasped and definitely justified.

In his introductory preface to the *Science of Logic* Viscount Haldane ventures the assertion that "no student of philosophy can be sure of the ground he is treading unless he has made the effort required to follow out what Hegel claims to tell him." Hegel's philosophy an indispensable object of study for all who would philosophize seriously even today! What thing greater, one might well ask, could be claimed for any system of thought? Yet one claim there is which, if not greater, is at least more sweeping, and it is this which Hegel did not hesitate himself to advance for the philosophy which he developed. The latter, he insisted, is the absolute philosophy. It sets forth the final truth; moreover, it does so in such wise as cogently to exhibit the fact that what it presents is in fact the truth. Hence it merits not merely the study but also the acceptance of all who would possess a valid comprehension of reality.

This claim, extravagant or even preposterous as to some it may appear, was not the expression of a frenzied, a Nietzschean, or

²This subject is penetratingly analyzed by Dr. Heinrich Levy in his monograph *Die Hegel-Renaissance in der deutschen Philosophie*, pp. 5ff. For an illuminating account of the conditions that have led to a renewed interest in metaphysics, more especially on the part of German philosophers, reference may be made to the essay on "Contemporary Metaphysics" which Professor Arthur Liebert contributed to the present writer's volume, *Philosophy Today* (Open Court Publishing Co., 1928).

³During a visit which the writer was privileged to have in Berlin with the late Alois Riehl, this distinguished scholar—but twenty years ago—inquired how it could be that the Hegelian philosophy, so long discarded in Germany as essentially misdirected and false, should continue to receive such high and wide-spread recognition among British and American thinkers.

⁴As one item in the rapidly growing bibliography, particular reference may be made to Th. L. Haering's *Hegel: Sein Wollen und sein Werk*. Of this work only the first volume (1929) has as yet appeared. This is a tome of 785 pages, though the period covered is only that prior to 1802, prior, therefore to the time when Hegel's system first took form.

⁵For a glance at the rich and varied program of this Congress, see *The Monist*, XLI, 4, (October, 1931), p. 636.

a bigoted mood. Hegel could logically put forth no other. For the claim followed from his conception of reality and from his doctrine concerning the nature and office of philosophy. And these views, he believed himself to have shown, have their foundation in the immanent and logically necessary development, throughout the centuries, of self-critical, reflective thought concerning the world and man's place therein, and concerning the principles and stand-points involved in such reflection.

Let us develop this point a bit further. Hegel's comprehensive system explored, first, the field of logical categories and, secondly, the domain of physical nature; then it passed on to the realm in which nature comes to a consciousness of itself in man, and in which the meanings and self-conscious purposes of the individual mind are objectified (and thus in course expanded and rationalized) into and through social institutions and art, which are superseded by the direct realization, in religious experience, of man's identity with the ultimate reality, which is absolute spirit, and finally by the effort at a rational comprehension (called philosophy) of the truth vouchsafed by the religious experience but embodied by the latter in imaginative forms. This philosophic comprehension, as self-conscious rationality, reaches its goal when it understands itself as grasping the truth and also as integrally related to the real order which it knows; when it possesses a knowledge of its own genesis and of its development into the clear consciousness of itself, of the validity of its findings, and of the identity of itself with the real world. Thus, for Hegel, reality attains to its culminating expression when, in the capacity of self-conscious beings, it comes to a rational comprehension of itself, and this it does in philosophy; and, furthermore, the culmination of philosophy is that philosophical knowledge of philosophy in which the nature and the truth of the latter are methodically and rationally set forth, and in which philosophy has therefore reached its goal. The philosophy in which the logical development of philosophy thus issues is final. Its finality is guaranteed by the fact that the principles underlying other philosophies give way, under active reflection and by an immanent rational necessity, to successively ampler and truer principles until they eventually find in it their logically required completion. Of this ultimate philosophy two things may be said: it explicitly recognizes and gives due place to the partial truth of the

various subordinate systems of thought; and it satisfies the requirements of the reason which functions as the mainspring of the succession within which they appear.

Hegel penetrated to the underlying principles of philosophical systems, and with his marvellous combination of analytic power, synoptic comprehension, and speculative gifts, set forth at once the full range of their truth and likewise the limits of their significant functioning. Because of this fact he is indeed, as Viscount Haldane affirms, a most valuable guide for all who would properly assess the nature and validity of their philosophical views. But Hegel himself, as we have noted, believed himself to have shown conclusively that the dialectic of philosophic thought leads inevitably to, and finds logical completion in, one particular system. This system he therefore felt under compulsion to accept. Hence he could make no claim for his philosophy short of absoluteness and finality. Because this philosophy is a philosophy, and because it is that particular philosophy which is absolute, Hegel was forced by his doctrines to declare that it embodied the final truth of reality.

Reality, as the foregoing will already have suggested, is for Hegel definable in terms of that which fully satisfies the requirements of reason. Reason, in turn, occupies a place of centrality. It cannot, in his view, be either an accident or a stranger within the cosmos. Nor can it be what recent proponents of emergent evolution represent it: a characteristic of a particular level of reality or some stage belonging to the series of novelties generated in the unpredictable processes of an emergent evolution. Still again, it cannot be what pragmatists and instrumentalists allege: simply a feature or part of the equipment which, in the first instance, contributes to the survival of certain organic beings by facilitating their adjustments to environmental conditions, and, in due course, enhances the values of life by increasing the control over circumstances. Reason, for Hegel, yields a knowledge which is other and higher than that sought by certain of the modern sciences in their concern for relations of cause and effect and for abstract laws; it yields results which transcend the knowledge described by Francis Bacon in terms of power. Reason, in the Hegelian doctrine, is not a mere servant of life. Quite the contrary. It is autonomous as respects its ends, free as respects its activities, and supreme as re-

spects its value. Reason is the manifestation in finite spirits of that universal or absolute spirit whose expressions include all that exists and whose being includes within itself all its expressions. Reason, therefore, is the principle whereby man comes to find himself at home in the universe and attains to the insight that this experience of at-homeness is justifiable; it is a function of knowing and not of behavior, of cognition and not of action; it is central to, indeed is constitutive of, finite spirits, and is not merely a part of their endowment. It is identical with the reason which underlies all that of which true being may be affirmed. What is real is rational, and what is rational is real.

That reason may afford truth, and that reason satisfied represents truth attained, are the necessary assumptions on the part of all philosophies that would escape the self-contradictory position of the absolute sceptic who declares it to be true that we may never characterize any proposition as true. Even those "critical" thinkers who set out by investigating the powers of mind or of reason to yield truth, or by seeking to determine the limits of rational knowledge, must employ cognitive processes in their critiques, and so, like Kant, must—if they would affirm the conclusions to which they come—tacitly assume the validity of reason. To Hegel this seemed so indisputable that he saw no point in any investigation by pure reason of itself, of its nature and powers. The latter, he contended, are manifest in the achievements of reason when employed in its own characteristic function of rendering intelligible the real world. Philosophy, therefore, like pre-philosophical cognition, should begin by directing its attention to material that requires interpretation, and should thenceforth devote itself to the task of comprehending the nature of that which is to be known. To be sure, reason may concern itself with an examination of achieved knowledge in order to ascertain the categories and general concepts which the latter involves. This, however, does not reveal the structure of a mind in the sense of something that exists independently of, and, as it were, prior to experience or the world which it knows. Rather does it afford insight into the structure of knowledge and of the real world. Categories are not a priori forms of an understanding or a reason in the sense, for example, of Kant; they are not imposed by the mind upon objects in such wise that the outcome is merely

a mental product, and therefore a knowledge simply of phenomena as distinguished from an order of things-in-themselves which remains unknown and is unknowable. Categories, Hegel contends, represent the structure of the world as rationally comprehended, and thus of the intelligible, and, therefore, of the real world. The categories have an ontological, and not simply an epistemological—much less a merely psychological—status.

Reason, thus, of necessity begins its tasks with a simple faith in its own validity. In the course of its operations, however, this faith is increasingly justified, until, at the conclusion of philosophical thinking—so Hegel teaches—it shines forth as demonstrably valid. The philosophy of philosophy, Hegel believed himself to have established, discloses the truth that the reason employed in knowing the world is in principle identical with the reason whose objectified expressions are the worlds of nature and of social and historical life. The beginning thus leads to a conclusion which represents the presupposition of the process as a whole: the end is its own beginning. Thus we have a circle, and this, according to Hegel, is testimony of the adequacy of the point of view and the procedure adopted. Such a circle, for example, appears also when one considers the system of the categories. Of these, the most simple, the most abstract and yet most immediately inescapable, is that of pure being. From pure being, as the first of the categories, thought is carried on to ever more inclusive and concrete categories, until it reaches one in which it attains to complete satisfaction. This it does in the category of absolute idea, described by Hegel's as that which "contemplates its content as its own self. . . . (and thus) is its own content, in so far as it ideally distinguishes itself from itself." This identity of thought and object, of subject and object, is the presupposition of being, and, furthermore, it alone makes intelligible the movement of thought from this category to the one which is self-maintaining. The end is at once the fulfillment, the presupposition and the justification of the beginning, and in so far also of itself. It, and the entire system, are therefore self-justifying; they are final and absolute; reason's faith in itself and claims for itself are firmly grounded; the real is rational and the philosophy which brings this to explicit and methodical exhibition is the ultimate philosophy.

The philosopher's concern is not with that which may be or will be—with what may or will happen to him after death, for example—but with that which *is*. He should not aspire to prophecy but to wisdom. Wisdom, however, is something that comes when experiences have run their course and serene reflection ponders their teachings. It is not until the shadows of evening have fallen, as Hegel reminds us, that the owl of Minerva takes its flight. So, too, the essential function of philosophy is not the condemnation or the criticism of the real order under the drive of what individuals or generations suppose ought to be. Philosophy should rather labor for a rational comprehension of what eternally is real, and, because real, is also the ultimate eirenicon for our standards of value. To put the matter theologically, man should not assert his ideas and his preferences over against the rational will of God, but should aspire to know the divine mind and should unwaveringly and in all piety accept the latter as the norm of goodness and beauty as well as of truth. It is therefore a degradation and a profanation of philosophy to subsume it under the instruments of social reform. The course of history is the march of the absolute spirit in the world; it no less than nature is rational and divine. *Die Weltgeschichte ist das Weltgericht*. To understand that this is the case, and to capture the order of ideas systematically exhibited by history and nature, is the basic task of philosophy and the highest activity of man. Property, contract, family, and state, for example, are not institutions that have arisen accidentally or that owe their being to the inventiveness of individual men. Nor is their justification and meaning to be found in the fact that they satisfy subjective needs or desires. They express the nature of reality. Their existence and their essential nature are not fortuitous but are necessary—not, however, in the sense of being causally determined by empirical conditions but of belonging to the requirements of reason. Some truth there doubtless is in the charges that Hegel was unduly conservative in his social and political theories, that he “deified” the state (indeed, the Prussian state), and that he was lamentably insensitive to the injustices and other evils of existing institutions in general. On the other hand, it should be acknowledged that few, if any, thinkers have more profoundly disclosed the essential nature and spiritual contributions of the basic insti-

tutions of modern civilization. And it was at such insight that Hegel aimed rather than at information concerning how far the institutions of his own particular day, in the details of their structure and functioning, were factually true to their essential nature and rational purpose. In his social philosophy, as throughout, Hegel concerned himself, not with a description or an analysis of what factually is but with the exhibition, in methodical form, of rational requirements and thus of the necessary.

Hegel has at times been accused of bending his energies to the spinning of imaginative cobwebs. It has been charged that he was scornful of science and that, in detachment from facts, he unabashedly forced his mind to a priori speculations of the extremest and emptiest sort. Scarcely anything could be further from the truth. He contended, to be sure, that the point of view, the categories, and the conclusions of the particular sciences were not the highest, that they belonged to the level of *Verstand*, of the "understanding," and not of *Vernunft*, of "reason." In so doing, however, he differed from many of the greatest of thinkers, both earlier and later, only in the subtlety and thoroughness of his analysis. He himself was well versed in the scientific knowledge of his generation and contributed not a little to it, especially as concerns the things of the spirit. When the story is finally written of the genesis and development of the historical method in the social disciplines and in the interpretation of philosophy, a large chapter will revolve about his work and teaching. His mind, furthermore, was of a deeply realistic cast. He repudiated everything that savored of the subjective. He attacked all theories of a "pure" reason, of mind as a spiritual substance or activity separable from the content of the world known, of a priori "forms" or powers yielding knowledge in independence of experience. It was his contention that spirit and reason represent the real *qua* intelligible, and in his own procedure he ever remained faithful to this thesis. Human thought, he maintained, must surrender itself to subject matter and must throughout loyally accept its governance. Things must be allowed to reveal their own character; comprehension is always from within. Reason must follow *der Gang der Sache selbst*. Even "independent," free lance, critiques of concepts and theories must be eschewed. These must be permitted, yea forced, to tell their own story; only when given full play will their limitations,

as well as their value, be disclosed in a genuinely significant way.

Thus Hegel disallows every divorce between mind and its objects. No less emphatically does he decry all attempts to isolate method from content. Things reveal their nature in their own way. This way is essential to them and thus enters into our knowledge of them. All-pervasive is their dialectical character. To comprehend matters dialectically, therefore, is to grasp them in their truth and is not an eccentric method of forcing them into an arbitrary framework. The dialectical method is not one among others between which philosophers may choose. It is the one valid and rationally required method for all thought which, like philosophy, would be faithful to that to which it addresses itself. The fact is that "the truth is the whole." Hence every category and general concept, every theory and phenomenon, every institution and manifestation of spirit, being instinct with the life of the whole asserts itself to the utmost; but, in so doing it betrays the fact that it is not the whole and thus falls short of the truth. It impinges upon that which limits it and in this wise it exposes its own limitation. Since, however, that which limits it is *its* limitation, the limiting factor is in so far inherent within itself. To put the matter otherwise, it represents a thesis which involves an antithesis; this antithesis, although genuinely such and therefore distinguishable from the thesis, is nevertheless the latter's own antithesis, required by its very nature, and therefore intrinsically related to it. This means that both thesis and antithesis are integral to a synthesis within which they have determinate meanings and positions. The synthesis, however, in turn reveals its own limitations. Thus it acquires the status of a thesis with an antithesis of its own, and this necessitates a fresh synthesis. This condition of affairs prevails until there finally emerges an all-inclusive synthesis which, as the rational whole, is self-sustaining; which, as infinite, confronts no extraneous limitation or antithesis; and which, as absolute, includes within itself the entire system of distinctions in the form of subordinate syntheses with their thetic and antithetic constituents.

Some there are who extol the Hegelian method but thrust aside what they describe as the body of Hegelian doctrine; others accept the latter but find no value in the method. Neither of these groups would Hegel consider as his disciples. Both depart from an insistence which to him was fundamental, namely that method

and results are bound up together, that the constituents of reality are dialectical in their own essential nature, that form and content, mind and its objects, are inseparable.

Thus the dialectical method which Hegel advocated as prerequisite to the acquisition and the formulation of the truth seemed to him an important discovery, rather than an invention in the strict sense of the term, on the part of philosophy. For this discovery he gave the credit to others. The method had been used, as he pointed out, by Socrates and Plato, and, in modern times, by Kant and some of those who had learned from him. It is only fitting to acknowledge, however, that no previous thinker gave to it either the scope or the importance which it received at the hands of Hegel, nor had anyone else employed it so skillfully. On the other hand, interpreters are to this day disagreed as to whether the method, as found in the Hegelian philosophy, relates essentially to concepts and realities, as was above maintained, or simply to attitudes and views respecting the world, or to both: whether it remained and was intended to remain identical throughout the several fields of its employment, such as logic, philosophy of nature, philosophy of mind, and the transitions between them; whether, as Croce contends,⁶ its use betrays a confusion between the relations of abstract aspects of a conception, on the one hand, and, on the other, of opposities or distinct manifestations of principles; whether its setting is the non-temporal realm of essences or the world of temporal and historical occurrences, or both: whether, in case, and when, it is utilized for historical interpretation, culture is regarded as continuous and cumulative or as a succession of phenomena different both in form and content and without historic continuity; and, whether, in spite of its stress upon development and movement, and its rejection of formal and of "static" logic,⁷ it was itself, as Liebert maintains,⁸ in the last analysis still so infected with staticism that it must give way to a newer and more vital dialectic—a dialectic truer to the problematical character of historical and

⁶In his important book translated into English under the title *What is Living and What is Dead of the Philosophy of Hegel*.

⁷Formal logic was criticized by Hegel on the ground that its laws of thought are tautologous and its propositions analytical, for which reason it fails to yield significant knowledge. It belongs essentially at the level of mechanistic interpretation; it cannot express the truth of things precisely because it is indifferent to content. To be true, thought must pulsate with the life of its objects.

⁸In his above-mentioned essay on "Contemporary Metaphysics."

psychological life, in which (to quote Liebert)—“rational elements are combined with others that are thoroughly irrational, intuitive, and neither reducible to nor expressible in conceptual terms,” the combination being “fundamentally antinomical and paradoxical.”

Similarly divergent also are the findings of scholars with respect to the details of Hegel's imposing system of speculative or absolute idealism. Upon these differences we may not here enter without making a still heavier overdraft upon the space at our disposal. Suffice it here to stress some general and fundamental features that demarcate and characterize Hegel's philosophy. Over against the Spinozistic teaching that determination is negation, it ranges the doctrine that negation is determination, that significant denial implies and issues in affirmation. Reality is determinate. It is a unity that is realized in multiplicity; it represents an identity that mediates itself through and in differences which it at once distinguishes from itself and yet sustains. The infinite or absolute is self-determining and self-developing. Hence it is not substance but spirit. As spirit it is characterized by life, and the knowledge of it therefore involves a rational comprehension of all its developmental stages and processional expressions. Such comprehension is possible. For the absolute spirit—to borrow Hegel's way of putting it—is not envious but discloses itself to the knowing mind of man⁹; it does not remain hidden but wills to be known and does reveal its inmost nature to human reason. Reality, to be sure, is not, and will never be, known in the fullness of its detail; yet in principle it is knowable. Metaphysical agnosticism may seem modest yet it is false. The declaration that reality is unknowable can be based only on some knowledge of reality. To know a limit is already to have transcended it. Similarly, oppositions and antitheses, in so far as they appear as such to thought, are *ipso facto* already in principle overcome and require only an explicit integration into syntheses. The Kantian doctrine of things-in-themselves therefore succumbs to attacks from this line of approach as well as from a true apprehension of the nature and status of the categories.

⁹“To say that we cannot penetrate into the essence of nature, to say that we cannot grasp the nature of God, is to believe that he is envious. God communicates and reveals what he is” (*Werke*, VI, pp. 277 f.) Also: “The inscription on the veil of Isis vanishes before thought” (*Ibid.*, VII, p. 16).

The debate over the validity of Hegel's general point of view and central teachings is not likely soon to terminate. But even among the doubters and deniers there are many who find in Hegel's detailed treatments of philosophical principles and systems, of politics, of art, and of religion many insights and interpretations which impress them as penetrating and fruitful. Hegel's style, as well as his thought, imposes a heavy burden upon the reader. Yet scattered throughout his writing are epigrammatic statements of unusual power, and metaphors which, as "living flowers of imagination," brighten the difficult path which a student of Hegel must tread. That the path yields ample rewards for him who has the strength and the resolution to persist thereon is today more widely acknowledged, perhaps, than at any time since Hegel's death a hundred years ago.

THE MECHANISTIC AND VITALISTIC CONCEPTS OF LIFE

(A chemist's view)

BY T. J. THOMPSON

A DISCUSSION of life phenomena from the mechanistic or vitalistic point of view requires that the limits and definitions of these theories be understood.

The distinctive characteristic of the mechanistic theory of life is that in a series of sequential events, the position and the attributes of any particular event in the series may be easily determined. The mechanist has always believed that his conclusions are borne out by the experiences of those sciences which deal more especially with the causal relationships of the ultimate elemental particles of matter: namely, physics and chemistry. He has believed that in the qualitative and quantitative aspects of these sciences he should be able to find a practical basis upon which to construct his theories. It is upon this basis the mechanist proposes to show that life is a purely physico-chemical process, although he recognizes that many of the attributes of life, such as growth, reproduction, heredity, and voluntary acts, are not at present susceptible to the interpretations of these sciences. However, the pure mechanist insists on believing that all of these will ultimately be explained. The mechanist likewise believes that all things, living and non-living, material and otherwise, may be regarded as "material simple" and that the existence of living things must finally be explainable on a physico-chemical causal basis.

The vitalist, on the other hand, believes that permeating material matter there is in reality a psychical agency—an "entelechy" according to Driesch or a soul according to numerous other vitalistic writers. Quite naturally too, it seems to me, we find less agree-

ment regarding the exact definition of vitalism than we do regarding mechanism. In fact, there are at present at least two vitalistic theories advocated which agree in arguing against the strictly physico-chemical basis of life and against the theory that all life is "material simple," but which nevertheless do not agree completely upon other phases of the explanation of the origin of life. Many variations in the interpretation of these two theories of vitalism exist, but in the course of this discussion it is impossible to consider them in detail.

The controversy between the adherents of the mechanistic and vitalistic concepts of life is one of long standing. Its history is associated on the one hand with the names of Descartes, Schwann, and Huxley, who advocated the mechanistic concept of life, and on the other with the names of Aristotle, Hippocrates, and Müller, who, unable to find in the mechanistic physico-chemical basis satisfactory explanation for all that they observed, advocated the vitalistic concept. The question under consideration is likewise a live one, if we can judge from the number of books and articles that have been published recently bearing upon one phase or another of life from a scientific-philosophical point of view. Scientists and philosophers alike have contributed to these writings.

The rise of the mechanistic theory, which was widely accepted during the 18th and up until the middle of the last century, was due in a large part to the fact that during this period physiology, which had had its origin in the practical medicine of Hippocrates, made its most rapid advance. This movement was climaxed in 1859 by Darwin's publication of his *Origin of the Species*. With the publication of this work, it was generally supposed that an explanation of the origin of the transmission from generation to generation of certain structural characteristics had been solved. It was not strange that many persons, and among them many scientists, should immediately assume that it was but a short step from Darwin's interpretation of these structural characteristics to the establishment of the physico-chemical process responsible for the transmission of these structural characteristics from individual to individual. As we now see it, however, the theory gave little, if any, assistance to the interpretation of the process regarding fundamental responsibility for the transmittal of specific characteristics.

In addition to Darwin, many other writers and thinkers of

the present day have added strength to the cause of mechanism. Late in the 19th century, John Tyndall, the famous British natural philosopher, said in the course of an address: "We find in matter the promise and potency of every form of life." The late Loeb, doubtless the most prominent mechanist of our time, speaking of parthenogenesis said: "The process of regeneration was thus revealed as a purely physico-chemical phenomenon, leaving no necessity or room for the postulation of a guiding principle, aside from the purely physico-chemical forces." Among those who have most recently contributed to the mechanistic idea, we find Joseph Krutch. In an article entitled "Conclusions" in the *Atlantic Monthly* for February, 1929, Krutch states that "living is merely a physiological process with only a physiological meaning."

With this rise of mechanism and the increased interest in physiology, physics, and chemistry, it is easy to see how it came to pass that vitalism virtually disappeared during this period. In fact, I believe it is generally conceded that from Darwin's publication of the *Origin of the Species* until perhaps a decade ago, vitalism, except for the fact that it was in the minds of such persons as Driesch and a few others, received very little attention from the thinkers in philosophy, biology, and the physical sciences. More recently, however, and perhaps as a reaction, a very active interest has been revived concerning the explanation of life phenomena.

Indeed, until a short time ago it appeared to many as though the mechanist had furnished rather extraordinary and conclusive explanation of the physico-biological phenomena of life, and that it would be but a short time until the how, the when, and the why of life phenomena itself would be explained. During this time a great impulse was given the idea of determinism (or mechanism) by the work of Loeb, and by the work of other physiologists, both in animal and plant life, and by physicists and chemists, the latter group being especially active in the field of colloidal chemistry. As a result of their research, it was shown that striking instances of life-like phenomena could be produced and that life processes could be imitated and apparently completed by the use of chemical means. Dr. Martin Fischer in his volume *Oedema and Nephritis* showed that certain irregularities that accompany and characterize the production of flowers may be imitated by taking thin strips of gelatin, painting them with an acid, and then dipping them into

water. The places where the acid has been painted on, swell and simulate growth processes. Bechhold in his volume *Colloids in Biology and Medicine* summarizes certain experimental work of Stephane Le Duc, in which Le Duc shows how solutions may be prepared in which inorganic salts agglomerate into structures resembling seaweed, mushrooms, toadstools, etc., and that in some respects the internal structure of these products resembles that of cells in living organisms.

These experiments of Fischer, Le Duc, and others of like kind that are at hand in the literature, have been used by mechanists in support of their thesis. It is true they appear to have produced life-like phenomena. This fact, coupled with the fact that these results have been brought about by physico-chemical agents, has led the mechanist, it seems to me, to erroneous conclusions. True, he has produced through physico-chemical means structures that resemble living things, but it must be borne in mind that the resemblance concerns external structure only. The chemical and physical internal content of Fischer's gelatin, for example, is far different from the chemical and physical composition of the growing plant whose activities he describes. The same is true of Le Duc's experiment in the simulation of the formation of seaweed, etc. Outside of structural formations, these and similar experiments have failed to produce results that have shown the functional attributes associated with life.

This lack of conclusiveness is further apparent in the research of Loeb and his followers, who carried out a very comprehensive study upon the substitution of chemical agents for normal fertilization. Loeb discovered that if the eggs of a sea urchin are placed for a short time in hypertonic sea water and then returned to normal sea water, they will develop. The means by which the solution was rendered hypertonic appears to make no difference in the final results. In fact, Loeb found he could cause the development of the eggs by immersing them in a pure sugar solution of slightly greater osmotic pressure than normal sea water. The fertilization that resulted from the most optimum conditions, however, did not furnish a perfectly true picture of the phenomena of natural fertilization. Nevertheless, the eggs frequently developed into larvae capable of moving about; but they did not live long, they always appeared sickly, and always behaved abnormally. The most outstand-

ing peculiar abnormality of the sea urchin's egg when placed in a hypertonic solution is the fact that it does not form a fertilization membrane.

Loeb, observing this, set about seeking means to induce the formation of such a membrane, and was rewarded by finding a series of agents that would do this. Among these, the monobasic fatty acids, which are soluble in sea water, were found to be very effective. For example, if mature sea urchins' eggs are placed in sea water containing acetic acid and then placed in normal sea water, development of a fertilization membrane occurs in one hundred per cent of the mature eggs. However, eggs that are treated in this manner undergo a few divisions and very soon die. In fact, they die more quickly than unfertilized eggs under the same conditions. The process however affords a membrane similar to that accompanying the process of natural fertilization; and when the two processes of fertilization membrane formation and osmotic pressure treatment are successively carried out, an apparently perfect imitation of natural fertilization is produced, and usually one hundred per cent of the eggs develop and produce normal larvae. The work of Loeb, which has been verified many times and also very largely added to by other investigators, has added great strength to the mechanistic cause. However, the facts remain that although parthenogenesis has apparently produced normal first generations, it has been impossible to carry the process beyond this stage. It is probable that the physico-chemical agents in such cases have released or abnormally catalyzed the reproductive hormone. The essential thing to remember, then, is that the process did not continue into the second generation, although the chemical and physical composition of the larvae must have been nearly the same as the normally produced larvae. Apparently, then, something associated with life processes was lacking, else reproduction would have again occurred.

Another group of scientists feels that if it were possible to get at the intrinsically small particle of matter, both living and non-living, we might find the explanation of life there. Physical scientists have succeeded in measuring ultramicroscopic organisms of colloidal nature and find them of the approximate dimensions of colloidal inorganic matter. "This result," says Donnan, British physical chemist speaking on the subject *The Mystery of Life* before the British Association for the Advancement of Science, "gives

rise to strange hopes. If we can find a complete continuity of dimensions between living and non-living, is there really any point where we can say that there is life and there is no life?" In reply to this question, may I say I can hardly see how continuity of dimensions may have anything of a fundamental nature to do with life, unless, as I shall point out later, certain functional aspects of matter may be associated with ultimate units of matter.

It is true that the physical characteristics of small colloidal particles, both living and non-living, have many properties in common: both may be precipitated from solutions by various salts, acids, etc., exhibit Brownian movement, and are absorbed by activated carbon. Moreover, there are certain agglutinative reactions of blood particles and bacteria that have their counterpart in the chemistry of inorganic compounds of colloidal nature. However, the fact that these fine particles in living and non-living matter may behave much alike is by no means conclusive proof that they are identical in their intrinsic internal character. These are only a few of the many facts having a bearing on the relationship of living to non-living matter which may be found in the literature of colloidal chemistry.

A generation ago many scientists believed that soon the riddle of life would be solved. They did not understand, however, the nature of the astounding discoveries and advances that were imminent, nor did they realize how meagre the knowledge of the chemist and physicist really was concerning the structure of matter.

The first great upset regarding the insufficiency of the chemist and physicist to explain matter in its ultimate form became apparent in the discovery of radium by Becqueril and Madame Curie. With the discovery of radium and radio active substances, the atomic concept of Dalton was replaced by the electronic conception of matter. This conception is that the atom is composed of a positive nucleus, the proton, which is surrounded by electrons spinning about in orbits. A little later it was observed that as these electrons spin about in orbits, they may under certain influences hop, as it were, from one orbit to another: and it appears from recent research that this atom, composed of proton and spinning electrons, is also being accompanied by a set of waves.

Thus, the further the scientist pushes his investigations, the more he is perplexed by the darkness into which he peers. In fact, the revelations of the past three decades have been so stupendous

that those who understand them best are unwilling to conjecture of their ultimate results. When the physicist sees his concept of position and velocity suddenly swept aside by new relationships and experimental facts; when he sees his time-worn notion that nature is understandable and subject to law shattered into bits as he extends his experimentation; and when he finds that the interaction between the individual intrinsic elemental units of matter of which the physical world is composed cannot be unequivocally predicted—it is as though a leaden twilight had suddenly descended about him.

These new discoveries seem to indicate that in an elemental analysis, when we deal with matter of an atomic or electronic or sub-electronic nature, there seems to be considerable evidence of action for which there appears to be no cause. That is, while causality may be applied within wide limits to large bodies, it does not follow that, because an atom behaves in a given manner in one system, it will behave in the same manner again; but only that there is a certain probability that it may do so. In a larger body these small atomic units exist in millions upon millions of numbers and therefore these atomic uncertainty activities complement each other until the large body obeys the laws of physics within limits. Moreover, careful physicists agree that the more they study physical phenomena, the more they are convinced that there is almost no physical law that can be exactly verified.

It is significant, too, that most physical scientists believe that these new discoveries forecast still others of even more fundamental nature. Just what these new considerations may mean as regards the interpretation of life phenomena, no one can foretell. Temporarily at least, since the activities of ultimate particles seem essentially unpredictable, it appears, does it not, that the causality demanded by mechanism is seriously shaken?

The development of the functional activities of living organisms is another phase of this question that is very difficult of explanation. If the mechanist can explain such functional activities as assimilation, growth, consciousness, and reproduction, which have already been mentioned from a physico-chemical point of view, he will have removed the most serious argument against his case, for it is primarily through functional activities that living matter appears to be different from non-living.

For the purpose of our study of this phase of the question, sup-

pose we select a simple unicellular organism, the amoeba. We find that this minute organism possesses certain functional characteristics of form, assimilation, reproduction, growth, response reactions, that thus far have proven impossible of explanation on a physico-chemical basis and that have no counterpart in non-living matter. Although it is subject to the chemical and physical forces of the medium in which it exists, the amoeba maintains its form, is able to conserve the protoplasm of which it is constituted, and reproduces. Moreover, this minute organism without a doubt has as components of its protoplasm some very complex compounds; and it is difficult, is it not, to conceive of these being formed into a stable system from physical forces and chemical substances without the influence of some form of energy to carry on the process. If the amoeba is composed of complex chemical substances, as we believe it is, these are constantly being synthesized from the food ingested, and in this little micro-organism is being carried forward a synthesis that no chemist has yet been able to duplicate.

The living organism, whether of high or low order, selects from those chemical substances surrounding it the material necessary for its sustenance. In living animals of high order, however, two phases of selectivity appear to be operative: namely, selection of the necessary substance from its own digestive tract to reconstitute its physiological being, and the differential selection of the rough foodstuffs. Nowhere in non-living matter do we find a property of selection which eventuates in self-reconstruction or metabolism. It is also very difficult to account for the differential digestive apparatuses and technic of different classes of animals from a purely mechanistic point of view. In short, metabolism—self-reconstruction—the process by which the living organism selects, distributes, and arranges the accumulated components into stable equilibrium, has no counterpart in non-living matter.

Another functional activity thus far defying adequate explanation, and incidentally one which has furnished most of the fireworks for the controversy between the mechanists and the vitalists is “proprioceptiveness,”—the response to environment, environmental sense, the psychic attribute, the consciousness of living matter, or whatever you may call it. The vitalists, for the most part, claim that the most fundamental characteristic of living matter is this “proprioceptive” response to environment. Even in the simplest cell,

they believe, the "proprioceptive" adjustment of the means to an end is the all important characteristic of the phenomenon of life of the cell. In this I believe the vitalists are right, for it is quite impossible, it appears, to understand the phenomenon of the life of any species of living matter without understanding its complete environmental background. It is only through this means, it seems, that it is possible to show why the organism developed in the particular manner in which it did rather than in some other. It is very difficult to see how the various functional attributes could have developed without the presence of this quality of "proprioceptiveness." There seems to be no way, it appears, by which this particular function could be associated with physico-chemical processes alone as they are known.

Suppose we accept the theory that living matter originated from non-living; that first there was a formless universe—a void composed of ether, electrons, protons, photons, or the elemental stuff of which matter is composed. These elemental units are supposed to have combined into molecules, and molecules into larger masses, until eventually we have comet masses, planet masses, and sun masses. Eventually these were arranged, so this theory says, into solar systems and took their places in the universe. Then on the surface of one of these planet masses, at least on the Earth mass, water condensed, rocks disintegrated, forming carbon dioxide. The nitrogen derived from the atmosphere or from the nitrates combined with hydrogen of the water to form ammonia. Then in time amino acids and other organic acids were formed. These in turn aggregated into larger groups, colloidal particles. Finally these colloidal aggregates agglutinated, and we have a unicellular bit of protoplasm. Thus, this theory says, came about the beginning of living things,—the egg perhaps.

Even if we accept this theory for the formation of the egg, how can we by any possible stretch of the imagination account for the development of the embryo from the egg through its various evolutionary stages from a purely chemical or physical basis, or must it not be accounted for on the basis of its past evolutionary history as well as its present and future functional ends? The anatomist claims that in the development of the embryo he can show the various stages of evolution of the species. Perhaps here we may find the history we are seeking. But the real question is: why

did the embryo develop as it did? An examination of the living embryo will show that it is not alone a collection of protoplasm, muscles, nerves, tissues of various kinds, etc., but that its attributes and functions are coupled with a "proprioceptive" sense. It is, I believe, this "proprioceptive" quality which is responsible for the evolution of the embryo and which is also eventually responsible for the development of its functional activities. Whether this "proprioceptive" sense is associated with the atoms, electrons, molecules, protons, waves, or what not, matters little, for it is but reasonable to believe that in the evolution of the species a certain environmental sense is essential. The living animal organism, the living human body, is more than an aggregation of tissues and bones. It is more than a physical and chemical unit made up of proteins, carbohydrates, fats, and bony structures, etc., for in life it is under the dominance and direction of consciousness.

Moreover, the efforts which living things have put forth have always been to overcome environment. Living matter has always fought to free itself from its surroundings, and its ability thus to strive, it seems to me, presupposes a "proprioceptive" sense. Therefore it appears that it is reasonable to believe that as living things have struggled with environment and thereby developed certain physical attributes, there has also been a concomitant development of the "proprioceptive" qualities. Haldane writing in "Scientific Calvinism" says: "If man has evolved from animals of lower mental organization mainly as a result of natural selection, it is difficult to see why his consciousness should have evolved if it is merely a looker-on in the game and cannot actively influence events." It seems to me that Haldane is right in questioning whether the will and the emotions which have their bases in consciousness may not likewise have evolved and developed. This naturally leads to the question: If consciousness plays such a prominent part in life processes, does it have its inception in the "material simple" of the physical sciences?

Charles Johnson in an article entitled "Conditioned Immortality" ably answers this question, I believe, when he points out that whatever our views of ultimate particles of matter may be, "it is wholly inconceivable" that these particles should be so arranged as to "result in a perceiving consciousness. . . . No philosophic speculation can bridge that chasm. There is, perhaps, one possible loop-

hole: that each electron is endowed with consciousness from the very beginning that consciousness is coeval with these primordial units of being. But if we accept this solution, we thereby admit that the origin of consciousness is an insoluble mystery. . . . If, as we have suggested, there is in each electron and proton some germ of consciousness, then it is a consciousness, beginningless and endless, and without change or the sense of duration—absolute immortality.”

Thus it appears impossible to account for such functional activities in living things as assimilation, metabolism, and reproduction; and especially does it seem impossible to account for the “proprioceptive” quality, the quality of consciousness of living things, on a purely physico-chemical basis alone. And, although the physicist, the chemist, the biologist, and the physiologist have been able to probe far into the structure of matter, none have yet been able to discern the hand that starts the physico-chemical engine which has produced life.

You will recall that the theory advocated by Driesch and his followers is constructed upon the idea that at certain critical periods in the development of living things, there is operative a directing influence. Driesch, it has already been stated, calls this force an “entelechy” and claims it controls the physical forces of living matter; in fact, it is assumed to be able to suspend the second law of thermodynamics.

Haldane and his followers, although not accepting Driesch's theory, believe that the functional activities of life are not adequately explained on a physico-chemical basis, and that there is a phenomenon which causes the organization of the essentials of life on a higher level than is possible with physical and chemical forces alone. In fact, they believe that the phenomenon of life is constituted of certain elements that are not subject to physical laws. The exponents of this theory, which had its beginning with Hippocrates, lay great stress upon the “unconscious activities of life as natural processes.”

In his recent volume *The Sciences and Philosophy*, we find Haldane setting forth Hippocrates' idea and giving expression of his own approval of the same in the following words: “The coordinated activity manifested in the phenomena of life was regarded by Hippocrates as nothing more than a visible and tangible manifestation of Nature. He found coordination and its maintenance in the as-

pect of nature which he was studying, and refused to be moved by the philosophical atomism of his time. . . ." Continuing, Haldane says: "It seems to me that the attitude of Hippocrates was and is the only possible attitude in scientific biology."

This suggests the possibility that life itself is an intrinsic energy, a part of nature's scheme, with ability to mobilize the forces and elements of nature within wide limits for its own maintenance and evolution. Is this belief not just as sensible as Driesch's entelechies described in his volume *The Science and Philosophy of the Organism*, which he says "are not energies, not forces, not intensities, not constants, but entelechies," for if this so-called entelechy inaugurates action, intensifies action, or suspends action, it must be conceived of as a force or energy of a magnitude and direction sufficient to mobilize the physical and chemical forces and energies at hand for its use? It appears that Driesch has failed to see the significance of his postulation of a controlling "entelechy" in the light of our concept of energetics. It is inconceivable that a scientist would accept such an interpretation of life without many mental reservations. It is doubtless for this reason that actual scientific research workers have chosen to pay little attention to the vitalist's theory of life; that is, they have felt that if the hypothesis of Driesch and his followers was to be accepted as representative of the vitalists, a very distinct limit was placed upon their experimental investigations. Doubtless they are right in coming to this conclusion. There are, for this reason I believe, many among our leaders in science who subscribe to the mechanistic point of view largely because they fear that to do otherwise would be giving expression to a lack of faith in the investigations they are conducting.

Suppose we accept the view of Hippocrates and Haldane, as I understand it, that life is an aspect of nature, that it is a form of energy, an intrinsic part of nature, which has the power to coordinate and maintain itself through the subjugation of the chemical and physical forces with which it is associated. Rignano, the Italian philosopher, predicts the discovery of such a form of energy and designates it as "a vitalistic nervous energy." Such a postulation does presuppose that there is a plan in the universe.

Is there, I wonder, anything strange or unscientific in the idea that living things, the world, and the universe are being shaped toward a definite purpose and end? Even a casual review of life

in its various relationships, such as we have just made, clearly discloses its teleological significance. This teleological aspect of nature manifests itself constantly from the simplest functional activities of living phenomenon to its most complex physiological and psychical attributes. It is difficult to understand how one who has given attention to the apparent order in the cosmic universe, who recognizes evolutionary processes, who knows the experimental facts surrounding heredity, and who subscribes to a perceiving consciousness, can arrive at the conclusion that the Universe, and the Earth with its living things, developed from scattered bits of matter haphazardly thrown together without the interposition of some plan not accounted for by the mechanistic theory.

Perhaps, life itself is an intrinsic energy of the Universe—an energy without mass, without form, without duration; yet a part of the Eternal scheme of things.

GANDHI: SAINT AND STATESMAN

BY SYUD HOSSAIN

THE arrival, at last, of Mahatma Gandhi in London marks an event whose momentous potentiality is equalled by its picturesque interest. It has taken twelve years of travail and desperate struggle between Great Britain and India to make the occasion possible, and it is safe to say that the result of the deliberations in which he is participating for good or ill, will determine the internal history of India for the next generation, besides having far-reaching effects on the evolution and even the existence in its present form of the British Empire. Needless to say, the denouement of this drama will have a corresponding influence upon the world situation as a whole.

The specific issue that is engaging the Round Table Conference convening in London is the attainment of responsible self-government by India, and the constitutional mold into which it shall be cast. This conference seems to promise the last opportunity for a settlement by consent to be arrived at between the representatives of the British Government and those of the Indian people. It is certainly a propitious fact that in spite of the recent domestic upheaval in Great Britain, one group will be headed by Ramsay McDonald and the other by Mahatma Gandhi.

There can be little doubt, however, that not only is Mahatma Gandhi the observed of all observers in London, but that he exerts the most powerful single influence both on the course of the deliberations and the ultimate result of the conference. It may, indeed, be affirmed with confidence, that any settlement that is acceptable to Gandhi will be acceptable to India, and equally, that any proposed arrangements from which he withholds his endorsement will be automatically rejected by the Indian National Congress and probably by a considerable majority of the Indian people.

Such a statement could not be made about any other Indian leader in the same position and constitutes the measure of the uniqueness of the influence and prestige which Gandhi enjoys among his countrymen.

Mahatma Gandhi is present in London with a type of mandate for which there be but few precedents in the annals of national or international plenipotentiaries. The Indian National Congress at its sessions in Karachi last March, in spite of the fact that much inflammatory dissent was known to exist within its ranks against the course, nevertheless unanimously endorsed the Gandhi-Irwin truce concluded between the Mahatma and the British Viceroy which served as the prelude to the calling of the Round Table Conference in London. Subsequently, the working committee of the All-India National Congress decided to make Mahatma Gandhi its sole representative and spokesman at the Round Table Conference; whereas, in the ordinary course a score or more of veteran leaders with eminent records of public service would have gone to London to negotiate the terms of settlement on behalf of the Congress. Such a declaration of national confidence in one man is as impressive as it is unprecedented.

The measure of Gandhi's prestige is also the measure of the responsibility that will rest upon him.

Gandhi thus is the pivot of the Conference. The Mahatma has not only captured the heart of India but apparently the imagination of the world, and in some ways is already, as was perhaps inevitable, tending to become a legendary figure. What is attempted here is a brief sketch of the character and personality of India's great leader in the light of personal contact and first-hand knowledge. It may prove helpful in making Gandhi's role at the Round Table Conference more vivid to the reader.

The Western world is getting gradually reconciled, it would seem, to a saint functioning as a statesman apparently without loss of saintliness and to the probable good of the politics involved.

The term Mahatma in the Indian language means, literally, "Great Soul." It is an appellation of veneration that the Indian people of all types and kinds and religious persuasions have voluntarily applied to Gandhi for the better part of twenty years. That is the measure of their reverence and affection for this extraordinary man. Gandhi has more than once in recent years publicly pro-

tested against having holiness thus thrust upon him, but in vain. It looks now as though he will irrevocably go down to history as the Mahatma.

This title gives the clue both to Gandhi's inner personality and to his unparalleled influence over his fellow countrymen.

India has produced a great many saints, as well as a great many statesmen in her age-long history. It is the unique distinction of Mahatma Gandhi that, while an authentic saint according to the criteria of Indian tradition, he has devoted himself to tasks which have hitherto been regarded generally in the West and East alike as the exclusive province of the statesman. Moreover, paradoxical as it may seem, he is meeting these practical and conventional weapons or tactics of so-called statesmanship but primarily with the spiritual resources of a saint projected into the province of statesmanship.

To explain this paradox of the same person acknowledged as a saint, as the leader of one of the greatest national revolutionary movements of history, and as an international statesman, it is necessary to understand the personality of Gandhi and the principles and forces that have gone to the moulding of his personality.

Mahatma Gandhi is at once the exponent and exemplar of a personal philosophy of life whose roots go back to the immemorial spiritual traditions of his race and country. Hinduism, Buddhism and particularly, Jainism, in which he himself was brought up,—all lay great stress upon the inviolable sanctity of life, and the practice of "non-injury," both as a social duty and as the personal method of spiritual self-realization.

Reared in this faith and tradition, Gandhi also from his earliest days found them congenial to his own temperament, and in the course of his educational studies in adolescence and early manhood deepened his convictions by a process of assembling and assimilating much corroborative truth from other sources and religions than his own. The Sermon on the Mount, for instance, as can easily be imagined, made a great appeal to him and he also came to be attracted to and impressed by the Tolstoyan teaching and attitude to life.

This was the broad base upon which his remarkable public life of now more than thirty years' standing came to be erected.

In the spiritual synthesis which Gandhi thus personally achieved,

the guiding principle is service of Truth by non-violence and self-sacrifice. Analyzed, this means that Gandhi believes that there is and should be only one governing law operative in all the affairs and relationships of humanity—individual, domestic, national, international and any other. By the same token he rules out hate in any shape or form from the scheme of human relationship—in the interest not so much of the potential objects of one's hatred as in that of the sanctity and integrity of one's own immortal soul! By ruling out hate from his scheme of things Gandhi automatically rejects and repudiates violence or coercion which he regards as merely the instruments which subserve hate. To him the attainment of any end, however intrinsically laudable it may be in itself, by methods of forcible compulsion, is a gross immorality. For Gandhi emphatically the end does not justify the means. But in contemning the conventional methods, Gandhi is very far from following the line of least resistance. If from his point of view the implement of force is sinful, even in retaliation to injury, so also even more are the oppression and exploitation of the poor and the humble. And Gandhi holds it to be the bounden duty of every individual not to acquiesce in or compromise with Evil, but on the contrary, positively to give it battle. But the difference is that Gandhi gives battle to wrong not by retaliatory hate and violence but by love and self-suffering. In other words, it is the practical unvarying application in daily life and to mundane affairs of the spirit embodied in "Forgive them, Father, for they know not what they do." The application, however, is at once retrospective and redemptive.

Perhaps the most distinctive contribution of Gandhi to the ethical idealism of his time is his application of these principles on a scale that is unprecedented, and in a domain where it has never been tried before, namely, the notoriously sanguinary field in which Imperialism and Nationalism deadlock for mutual destruction.

We may now perhaps better realize how the saint came to be also the recognized and undisputed leader of perhaps the greatest national revolutionary movement of history.

It was after long years of careful study and observation, and after disillusionment had followed upon disillusionment, that Gandhi finally and reluctantly came to the conclusion that British rule in India was, in his own words, "satanic"—that it had operated in its totality to the grave detriment of the Indian people. It had, he

held, spiritually emasculated them by sustained denial and filching away of their natural and national rights; and by prolonged economic exploitation, it had materially impoverished them to the point of destitution. When Gandhi had become finally convinced of this in his own mind and had despaired of the British Government ever relaxing their strangle-hold upon India of their own accord or volition, he served notice upon them that if the situation could not be mended then it must be ended.

That was the beginning of the now famous "non-violent non-cooperation movement" in India twelve years ago. This unwieldy phrase had to be especially invented to give expression to the peculiar technique of the revolution launched by Mahatma Gandhi. In effect, he announced that inasmuch as British rule in India rested upon a foundation of coercive force, military and naval, and was motivated primarily by greed and self interest, it was immoral; and that therefore it was sinful for Indians in any shape or form to cooperate with it and thereby help its perpetuation. On the contrary, Mahatma Gandhi held that it was their duty to "non-cooperate" with the British Government in all its ways and works, and even to embark upon the civil disobedience of all laws passed by the British Government which were repugnant to the moral sense of the people or infringed their inalienable natural rights.

This movement of nation-wide non-cooperation, however, was to be conducted at every stage and at all times in a spirit and by methods of complete and unconditional non-violence. Upon his followers he enjoined non-violence not only in action but even in thought and in spirit. They must resist the British but not hate them. Even if and when confronted with repression and terrorism by the agents of government they might never retaliate with violence but unflinchingly suffer. They were to conquer by love. They might die but never kill.

Such, in broad outline, has been the scope and character of the passive resistance with which the Indian people have confronted British imperialism for the last decade under the intrepid and inspiring leadership of Mahatma Gandhi. It is no exaggeration to say that the actual number of those actively participating in the non-cooperation movement ran into hundreds of thousands, and it is a tribute to Mahatma Gandhi's leadership and to the spiritual reserves of the Indian people, that on the whole the movement

sustained the almost super-human moral discipline and self control under provocation, that was demanded of it.

This is now generally admitted, even by British authorities, and it is this circumstance indeed that provides the clue to the measure of the success of the movement as shown in the truce that the British Government made with Mahatma Gandhi as a preliminary to the meeting in London of the Round Table Conference and which, it is hoped, a final peace settlement will be arrived at between Great Britain and India. One of the conditions of the armistice signed by Mahatma Gandhi and Lord Irwin was the unconditional release of sixty thousand followers of Mahatma Gandhi who had been imprisoned by the British Government during the course of the movement of civil disobedience. That gives one some idea of the scale of the passive resistance that had been offered. It was only when the Government realized that "the King's Government" could not be carried on without constant resort to ever-increasing repression and after British trade with India had been knocked off almost fifty per cent under the intensive boycott of the non-cooperators, that it finally agreed to the truce. No wonder Edgar Snow, American staff correspondent in India has described Mahatma Gandhi as "the world's first conqueror by non-violence."

It is in this capacity that Mahatma Gandhi has taken his seat at the Round Table Conference now convening in London. Its deliberations will be fraught with the most far-reaching consequences, political and economic, for the millions comprised in the sub-continent of India and the British Empire. But above all, if the conference should prove a success and lead to a permanent and peaceful settlement of the nearly two-hundred-year-old moral war between British imperialism and Indian nationalism, it will have set a totally new precedent in the solution of international conflicts.

Until Gandhi appeared upon the scene, every revolutionary movement in history had been fought out in terms of hate and by the instrumentality of force. Gandhi chose to mobilize what he calls "soul-force"—to conquer your enemy, by love and the compulsion of self-suffering and self-sacrifice. If this concept, exemplified effectively in practice by Gandhi and his followers, ever comes to dominate the consciousness of war-torn and hat-ridden humanity, the millenium will be at hand.

NEW LIGHT ON THE MYSTERY OF COMETS

BY J. V. NASH

THE nature and origin of comets has been until recently one of the unsolved mysteries of astronomy. In contrast with the planets, whose orderliness is one of their most distinguishing features, comets seemed to be strange and eccentric bodies with no definite place in the general scheme of the solar system.

Because of their unexpected appearances, suddenly blazing into view in the heavens and then mysteriously departing, comets were almost universally, until a few generations ago, and still are among primitive peoples, objects of superstitious terror. The coming of a comet into the heavens was held to portend calamity to men and nations. Comets were, in many cases, believed to be evil spirits prying around, above the earth, for the purpose of doing mischief.

For instance, in Shakespeare's *Julius Caesar* (act ii, scene 2), we find these lines:

“When beggars die, there are no comets seen ;
The heavens themselves blaze forth the death of princes.”

Again, in *Paradise Lost*, Milton wrote :

“Incens'd with indignation Satan stood
Unterrify'd, and like a comet burn'd
That fires the length of Ophiuchus huge
In th' arctic sky, and from his horrid hair
Shakes pestilence and war.”

But at last the veil of mystery which surrounded comets has been, to a large extent, removed, and they have been revealed as very harmless objects, formed in a manner that is extremely simple, once it is understood.

As in the case of everything else in the universe, their history is explained on the basis of the principle of evolution. They are,

like the planets, children of the sun, but belong to a different solar family.

The late Dr. T. C. Chamberlin, in his fascinating book, *The Two Solar Families: The Sun's Children* (University of Chicago Press, 1928), published but a few weeks before his death, tells the story of the genesis of comets. It will be found fully set forth in Part III, "The Genesis of the Cometary Family."

"The comets," says Professor Chamberlin, "are relatively rare swarm-like assemblages of small units in very open arrangement, devoid of refraction, shrinking and expanding with approach to and retreat from the sun, and giving off minute particles and molecules under repellent action from the sun, forming spectacular tails. On the average, only about half a dozen come into sight yearly, and then promptly go out again."

In brief, the material of which comets are composed is erupted from the sun by the terrific storms which are continually occurring on the sun's surface. In some of these sun-storms, immense togues of flame are thrown half a million miles above the sun's disk. Some of this material, because of the violence of the eruption, escapes into interplanetary space and gathers into swarms of elemental stuff known as chondrulites. On approaching the outermost bounds of the solar system, they encounter the repulsion of radiation from the stars, and solar gravitation draws them toward the sun once more.

"The comets," Professor Chamberlin goes on to say, "usually shrink as they approach the sun, and expand again as they retire from it. This is so peculiar and distinctive a phenomenon as practically to demonstrate that the head is formed of small bodies in very slow revolution about their mutual center of gravity."

The general aspect of a comet is well known, since many of these celestial visitors are visible with the unaided eye. Indeed, before the invention of the telescope, in 1609, some 400 comets had been recorded. More than that number of comets have been observed by astronomers since then. With the powerful telescopic apparatus now available, it is possible to detect hundreds of comets otherwise invisible. Every year from three to ten are discovered in different parts of the heavens.

The composition of a typical comet is quite simple. It consists generally of a head with a bright, starlike nucleus, and a long, lu-

minous tail, always streaming out in a direction away from the sun and gradually fading into the darkness. When the comet is receding from the sun, the tail suggests the bright beams thrown forward by the headlight of a locomotive. Sometimes, especially in the case of a small comet, the nucleus and the tail may be absent, leaving only the head, with the appearance of a circular nebula.



GREAT COMET OF 1901—PHOTOGRAPHED IN SUMATRA

Comets vary greatly in size and in degrees of brightness. A very few are so bright that they can be seen in broad daylight, while others are barely visible at night with the aid of the largest telescopes. Notwithstanding the brightness of certain comets, the material of which they are composed is exceedingly rarefied. They are, in fact, almost transparent; so much so, that faint stars are visible through them.

Until about 240 years ago, the movements of comets were a puzzle even to the greatest scientists. Doerfel, in 1681, was the first to discover that comets move in parabolas, with the sun as a focus. The great Newton devised, a few years later, a method

for computing the orbits of comets. The problem has been the subject of calculations by others since then; at the present time the orbit of a comet can often be computed with much exactness. Some four hundred have been carefully worked out, and it has been shown that the great majority of them are essentially parabolic, though some are elliptical in shape.

Comets are now recognized as permanent members of our solar system, instead of visitors from outer space, as many heretofore inferred. The point where a comet passes round the sun is called its perihelion. One or two comets have been seen to graze the sun within a few hundred thousand miles from its surface, and actually to pass through its corona.

About twenty-five comets, in circling the sun, pass within the orbit of Mercury, while nearly three-quarters of those that have been studied pass within the orbit of the earth. All of the known comets approach the sun to a point within the orbit of Jupiter. However, as the brilliancy of comets sometimes increases 100,000 times in moving from the orbit of Mars sunward to the orbit of Mercury, many of those whose perihelia are far distant from the sun would be so faint as not to be observable from the earth.

A comet's head may vary in size all the way from 10,000 miles up to more than 1,000,000 miles in diameter. A remarkable phenomenon is the fact that in approaching the sun a comet's head almost always contracts, and expands again in receding from the sun, the variation at times being as great as 100,000 to 1. The brilliant nucleus within the head may be as small as 100 miles in diameter, or as large as the earth. In one instance it was found that the head of a great comet was half a million miles in diameter, while its nucleus had a diameter of less than 500 miles.

The tails of comets, likewise, are very extraordinary. Their lengths range all the way from a few million to over 100,000,000 miles. They are fanlike in shape, spreading out as they recede from the head, and have diameters of thousands, or even tens of thousands, of miles, increasing with the distance from the head. As already noted, the tail always points away from the sun, regardless of whether the comet is coming or going. It is supposed that this is due to a repulsive force, of an electrical nature, exerted by the sun. Faint when the comet is first perceived by observers on the earth, as it approaches the sun the tail increases greatly in ap-

parent size and luminosity. Some comets, however, for little understood reasons, show slight if any indications of tails.

While the total volume of all the known comets is greater than that of the sun and all the planets combined, the inconceivable thinness of the material of which they are composed prevents their producing an observable disturbance in the motions of the planets among which they pass.

Another interesting fact about comets is that although they seem to be highly individualistic, there are several groups of comet families, the members of which bear an intimate relation to one another or to some particular planet. The planet Jupiter has a large comet family, which it seems to have captured by reason of its immense size and hence the powerful attraction which it exerts upon a passing comet.

The earthlike planets (Mercury, Venus, the Earth, and Mars) do not have comet families, partly because of their small mass, and partly by reason of the terrific speed which comets attain when they approach so close to the sun.

The distances which many comets traverse in their orbits is almost inconceivably vast; most of them pass from the sun to regions in the heavens several times as distant as the planet Neptune. Some go much farther. The geometrical patterns of their orbits, however, indicate that they do not go beyond the influence of the sun—a fact tending to confirm Chamberlin's theory of comet origin.

As Dr. F. R. Moulton points out in his remarkable new textbook, *Astronomy* (Macmillan, 1931), if a comet's aphelion (farthest point from the sun) "is only 32,000 times the distance from the sun to the earth, it does not arrive at its far turning point until after the lapse of about 2,000,000 years."

Comets are subject to disintegrative processes. The particles forming the tail come from the head and never return, for the tail is constantly being dispersed into space. It was noted that Halley's comet, at the time of its latest visit in 1910, was somewhat less brilliant than on former occasions; in fact, many persons, including the present writer, were disappointed by the poor showing it made. Again, when passing near the sun, the tidal forces which operate upon comets tend to tear them apart. Instances have been observed in which comets were broken into a number of fragments.

It goes almost without saying that the material of which comets

are composed is gaseous. Spectroscopic observation shows the presence of such gases as hydrogen, hydro-carbon gas, and ionized carbon monoxide.

The larger comets which have been noted during recent centuries have made their appearance in our skies every twenty-five or thirty years. With the improved apparatus and more delicate instruments now available, it will be possible to study such comets much more thoroughly than has been the case heretofore, and thus learn more about their constitution. Our improved photographic processes, especially, will show very clearly just what happens to such comets in their dash about the sun.

In 1910, when Halley's famous comet heralded its approach, there was a great deal of popular discussion as to the possible danger to the earth and its inhabitants from the presence of deadly gases in the tail. While it is true that carbon monoxide and other gases known to exist in comets' tails are highly deleterious, they are dispersed more thinly than the highest vacuum obtainable by artificial means. Indeed, the escaping fumes from automobiles passing along the street make the air far more deeply impregnated with poisonous gas than any comet's tail could possibly impregnate it.

During recent centuries, there have been many comets of extraordinary interest observed from the earth. In 1680, there appeared a great comet which was carefully studied by the astronomers of that day. Newton computed its period of traversing its orbit as about 600 years. In passing perihelion, it tore along at the rate of 370 miles per second, and passed through the solar corona within 140,000 miles of the sun's surface. Its tail was 100,000,000 miles long.

Another famous comet of the long ago was the great comet of 1811, which was visible in the skies for over a year.

One of the most interesting of such visitors during the last hundred years was Donati's comet of 1858, which was visible with the unaided eye for 112 days, and with a telescope for more than nine months.

Then there was Tebbutt's comet in 1861. The earth passed through the tail of this comet, without the slightest observable terrestrial disturbance.

The comet of 1882 was of an unusual type. It swept through the sun's corona without apparently disturbing its own orbit. It

appeared, however, to have been subjected to tremendous disruptive forces, for at least five nuclei were observed in its head, and in the immediate vicinity there were discovered six or eight small comet-like masses which apparently had broken from the parent body and were traveling in orbits parallel with it.

Halley's comet is probably better known to the public than any other. It is a regular visitor to our part of the heavens at intervals of seventy-five years, more or less, so that it may be seen twice in a long lifetime. Mark Twain, born at the time of this comet's visit in 1835, had a whimsical belief that he would go out of life with it when it called again; and, as the event turned out, when the comet reappeared in 1910 it found the old humorist on his death-bed. For hundreds of years, the visits of this spectacular comet had been noted before men knew that it was the same visitor every time. It was named for Edmund Halley, a distinguished British scientist who had charge of the printing of Sir Isaac Newton's great work, the *Principia*.

Shortly after the comet's appearance in 1682, Halley computed its orbit, and proved that the comet was identical with the ones which had aroused apprehension and excitement in 1607, 1531, 1456, and so on back to 1066, the year in which William the Conqueror landed in England.

Halley predicted the comet's return in 1759. His prediction was received with much ridicule; but, though he did not live to see it, the comet appeared in the sky and passed perihelion within one month of the time predicted by Halley. The verification of this prediction was one of the triumphs of astronomy.

At the time of the reappearance of Halley's comet, it was known that the earth would pass through a part of the comet's tail. As we have already noticed, there was a good deal of apprehension as to the possibly disastrous results that might be expected. The alleged danger was magnified and exploited by certain newspapers. As usual, nothing happened. Comets are curious but perfectly harmless visitors. No one need fear them. Even if a comet should strike the earth head on, there probably would be no great damage done. If the collision occurred in some uninhabited portion of the earth's surface or on the broad expanse of the ocean it might pass unnoticed. And such a collision is an exceedingly remote contingency.

SOME OFF-SHOOTS OF THE LEGALIST SCHOOL

(*Concluded*)

BY L. TOMKINSON

THE Legalists influenced or were influenced by a number of more or less contemporary writers and statesmen who cannot be strictly classed as Legalists. Yin Wen Tse was a logician ("Ming Chia") rather than a Legalist and furthermore according to the "T'ien Sha P'ien" was a pacifist, a follower of Meh Tse. His connection with the Legalists has already been indicated.

Yen Tse is classified in the "Han Chi" as a Confucianist and this is probably correct, the chapters in the work attributed to him which are of a different complexion may be regarded as apocryphal. These chapters, however, caused him to be styled a follower of Kuan Tse.

We have mentioned the view of Heo Kuan Tse that the role of the sage is not to make the law but to seize it in the "tao." He speculated much on the ultimate nature of the universe. He held that originally there existed the Supreme One, undifferentiated and without feeling, in what is now the centre of the universe—the great unknown whence came the "yin" and the "yang;" Heaven is a being who gives by virtue of the "tao" their nature to all beings. He is indeed more a Taoist than a Legalist.

In the period of the Warring States there came into being a school of thought which developed some of the more cynical tendencies of the Legalists. It became known as the TSUNG HUEN CHIA or "Perpendicular and Horizontal School of Politics." The name is usually derived from the advocacy of alliances of states north and south to separate the east and west (Ch'i and Ch'in respectively) and east and west to isolate the principalities of north and south. Yet having regard to the wider application of their philosophy "tsung-huen" might perhaps be translated "warp and woof."

The founder of this school, so far as it may be said to have had a founder, has generally been regarded as Wang Hu, better known as Kuei Ku Tse which Wieger interprets as "Master of the Valley of the Dead." There is no mention of the writings under his name earlier than the Sui Chi, but Mayers observes that the material suggests that his doctrines were applicable to the conditions of the Fourth Century B. C. He maintained, like Wei Yang, that law is the expression of the will of the prince and like him insisted on the duty of blind obedience on the part of the people, but does not enlarge on these subjects as he regards them as known. His work is more taken up with his theories concerning the alternation of the "yin" and the "yang," of which the most obvious manifestation in nature is the rotation of the four seasons. He compares various states of mind and of fortune with one another. The mouth is, he says, the door of the mind, and the mind the lord of the spirit; will, pleasure, desire, thought, knowledge, scheming, all enter and exit by it. Wherefore the thing to know was when to open and when to close it. Indeed there was a time for everything and for everything a time—to his followers, at least, this meant a time for making promises and a time for breaking faith. Indeed in politics the main doctrine of this school seems to have been that alliances should be made and broken according to policy, following the way of the earth, ever revolving, and of the ever interchanging "yin" and "yang." This principle he called "fei" or dart, for as Wieger says its purpose was to "harpoon" opportunity.

According to Sze Ma Ch'ien the two notorious statesmen, Chang Yi and Su Tsin, studied under Wang Hu. Their careers show them to have been apt pupils. The career of Chang Yi is neatly summarised by Father Wieger somewhat as follows: He was a native of the state of Wei, but he betrayed his lord the Marquis of Wei and in 328 B.C. took service in Ch'in and fought Wei. In 323 under Wei he fought against Ch'in. In 317 under Ch'in he fought Wei. In 310 he re-entered the service of Wei and died in bed—"personne ne l'ayant pendu" as the learned Father aptly observes. The same authority adds that he worked "pour l'amour de l'art et pour espèces sonnantes." The records of the arguments he used to detach Chao Yen and Ch'i from an anti-Ch'in alliance, show that he was well able to suit his arguments to each individual,

whether to stimulate ambition or to encourage prudence. Much the same may be said of Su Tsin's arguments to persuade six states to join his policy of an alliance against Ch'in. They were each won by his allowing for local and personal idiosyncrasies—by taking advantage of weakness, ambition, jealousy or fear. His phrase to stimulate the ambition of Han has become well known: "Better to be a chicken's head than an ox's tail." The story of the mussel, the bird and the fisherman is also attributed to him.

In an account of the early Legalists an account of PAO SENG may seem out of place as he was certainly not a believer in the majesty of the law, and he probably lived in the third century A.D. Yet it may be of some interest to see how it was possible from many of the same premises as the Legalists started from, to arrive at very different conclusions. For though an observation of the Way of Nature led the Legalists to Absolutism if not Tyranny, in politics it led Pao Seng to philosophical Anarchy. For a record of his views we are indebted to a chapter entitled "Warning against the Teaching of Pao" in the work of the famous Taoist of the Chin Dynasty, Pao P'u Tse (the surnames though the same in their romanised forms are represented by different characters), better known as Ku Hong, who criticises his views from what is practically a Confucian standpoint. Pao Seng himself appears to have been the leading Taoist in his own day. The following summary of his views is based on Hsieh Yu Liang's "History of Chinese Philosophy."

The Confucianists say that Heaven produced the people and set up rulers over them—but was this actually the will of Heaven? The strong coerce the weak and the weak submit, the cunning get the better of the dull and the dull submit—from this sprang the system of rulers and subjects. All life delights in going its own way. The branch indeed is shaped and the rattan split, but that is not the desire of the tree or of the cane. The bird has its wings clipped, but that is not the will of the bird. It is not the nature of the horse to be bridled, nor does the ox delight in being yoked to a heavy load. Even so is the submission of the people brought about by the officials: for those of high rank enjoy the emoluments of office while the people labour. If the latter have to give their life to gain security what is their gain?—It were at least better not to die. And as for governors giving up rank and position in order to gain

a name—if such renunciation is laudable, how much better not to take office in the first place! It is when the empire is in disorder that loyalty and justice are manifest. When relatives are not in harmony then only do filial piety and compassion appear.

These last remarks merely echo the views of the great early Taoists. Pao Seng's account of the evolution of political society, too, is in accord with suggestions in the writings of those philosophers, but it differs much in spirit from the accounts given in an earlier chapter, and not a little in fact. In ancient times, he says, there were no rulers and in those days men dug wells and drank the water, they cultivated fields and ate the products; at dawn they went forth and at even they returned home. There was no strife for there was no competition, there being neither glory nor shame. There were foot-paths in the mountains, but no boats, so rivers could not be crossed and so there was no encroaching on the territory of others. The leaders did not gather the people together so there was no war. It was safe to step on the tail of a hungry tiger, or to take hold of poisonous snakes. If a man waded in a marsh the wild geese did not fly away; if he entered the woods the foxes and rabbits were not alarmed. "For in those days as authority had not sprouted there were no disasters." As there were no swords and spears there were no walls and ramparts. All things were equally simple, so with immunity all could forget The Way. But when men began to use cleverness, cunning arose and virtue declined. Then too there came ranks and grades of high and lowly; some heaped up wealth, and they departed daily further from their primitive simplicity. The promotion of the capable led to striving for reputation. When possessions were valued robbery arose. Thus came the saying that if the white gem were not broken there would be no imperial tablet, and if virtue were not lost how should men make much of benevolence and righteousness?

One of Pao Seng's chief points is that the ease and comfort of the few could not be obtained without the toil and suffering of the many and that law and government are a device of the few to secure themselves in the enjoyment of their possessions. He supports this with a variety of illustrations. Where the otters are many the fish are sad, he points out, where the eagles are many the birds are in confusion; so when officials are appointed the people suffer. When the rulers have abundance the people are poor.

When within the harem are many women, without are many bachelors. When the rulers heap up grain and silk, the people are cold and hungry. When the body-guards are numerous the people have to support many idle hands and the people lack clothes and food. Because it is feared that otherwise the wise and vigorous will not take office large salaries and stipends are added to attract them. Because it is feared that the unruly otherwise will not be restrained high walls and deep moats are constructed. For it is not realised that high salaries for the officials mean poor people and arrogant ministers, that when the walls are strong the assault is fierce and skillful. If it is considered a great happiness to lay aside the quiver and the bow and to stack arms how much better never to raise an army and to have no war! If the official who exacts little is thought generous his kindness after all is only like wiping a fish with a moist cloth after taking it out of the water. When laws and commandments are spread abroad then thieves and robbers abound. Such methods of "saving" only make the disaster worse. It is because there are weights and measures that there is fraud. If there were no walls and ramparts to protect them there would be no wealth and treasures stored up. If there were nothing to covet, though there were no walls and ramparts no enemy would attack.

THE INFLUENCE OF THE LEGALISTS AND THE
VIEWS OF VARIOUS CRITICS

Kuan Chung, Shang Yang and some of the minor Legalists being powerful statesmen were able to exert an immediate practical influence, especially in their own states. From the time of Wei Yang Legalist theories had a marked practical effect on the statecraft of the principality of Ch'in, which steadily increased its power and extended its sway until it absorbed the whole empire. Li Se himself may be fairly described as a Legalist and his master, the "First Emperor" found many of the theories of this school after his own heart, though from these the doctrine of "wu wei" as applied to the sovereign must certainly be excepted! To those who have in mind the views of Shang Yang and Han Fei Tse on scholars and learning this will be particularly evident in the most notorious deed of the founder of the Ch'in Dynasty. Macgowan's account of this brings out clearly the connection, so we can hardly do better than quote it:

"In the year B.C. 212 a great council was held at Hien-Yang to discuss the affairs of the kingdom. It was advocated by some that the old methods of government under the previous dynasty should be adopted and the same division into states. The idea was strenuously opposed by Li Se, who showed how the nobles, under that system, had fought with each other to the detriment of the common weal, and how the scholars had been a source of mischief to the nation, because they had been accustomed to offer their services to the highest bidder without any reference either to their own particular states or to the empire at large. To stop this latter evil he advised that all the classical literature should be burned, and that only those on medicine, agriculture, divination, etc., should be preserved, and that all students should give their minds to the study of law, which they were to learn from the recognised officials of the empire. The emperor was highly pleased with this idea and at once promulgated an edict to this effect, which was carried out with the utmost stringency. It was enacted that all classical books should be handed over to the nearest magistrate to be burned; that if two scholars were found talking together about the classics they were to be put to death; and that if they were heard expressing their belief that the ancient books and customs were superior to those of today they and their families were all to be executed. In the following year, finding that the scholars had not obeyed his order, Shih Huang-Ti ordered that four hundred and sixty of the most conspicuous of them should be decapitated as a warning to the rest."

The Ch'in Dynasty was short lived and under the Hans the classical Confucian learning was revived. Yet the Legalists were still studied. Liu Pang, who became the founder of the Han Dynasty, was himself regarded as a disciple of the Legalists. Liu Hsiang, one of the most celebrated statesmen, historians and philosophers of the Han Dynasty described the "Kuan Tse" as a work "especially designed to enrich the realm, to give peace and happiness to the people and to set forth the principles essential to government and to direct the united force of the state." We have in earlier chapters given some quotations from Tong Chong Hsu, the most noted Confucian scholar of this dynasty showing that he was influenced to some extent by Legalist views, especially as regards the "objective standard."

We have noted, too, that Chu Ko Liang greatly valued the writ-

ings attributed to Kuan Chung and to Wei Yang. Of the former Fang Hsuen Ling one of the chief ministers of T'ai Tsung, the second emperor of the T'ang Dynasty wrote a commentary. A standard edition of this work was produced in the Ming Dynasty and it is perhaps safe to assume that the Legalist writings have throughout the centuries of Chinese history since the Ch'in Dynasty continued to exert an unobtrusive but perhaps important influence.

L. Wieger sums up his views on this subject thus: "The counts of Ch'in appropriated to themselves the system (of the Legalists), became, thanks to it, very powerful, crushed all the small states, destroyed the last remains of the feudal system and founded in 221 B.C. "la monarchie absolue chinoise, qui a duré jusqu'en 1912."

Of more or less contemporary criticisms the most noted are those of Hsuin Tse: "To point in the direction of law and yet to be without law, to despise the building up of character, while delighting in original activity; on the one hand subservient to their rulers, and on the other following the popular trend; spending their whole time in compiling books and yet without any controlling principle in their writings; incapable of laying down any principle of duty to the state and yet stubbornly maintaining their loyalty; with a speciousness in their teachings sufficient to lead astray the ignorant multitude; such were Shen Tao and T'ien P'ien." ("Criticisms of the Twelve Teachers") "Shen Tao was biased towards law and did not understand ability. Shen Pu Hai was biased towards authority and did not understand wisdom." ("The Expounding of Biases.") "Shen Tse's gaze was fixed on what would follow and he looked not at what went before."

Yet Hsuin Tse himself was not uninfluenced by their views as this passage quoted by Hu Shih in his "Development of Logic in Ancient China" shows: "The wise ruler knows that the people can be united by the 'tao' (the royal way) but cannot be expected to reason about things in the same manner. Therefore a wise ruler establishes authority over them, guides them by truths, reminds them from time to time by ordinances, makes truth clear to them by expository treatises, and forbids their deviation by penalties. By these means the people can be converted to truth as readily as by the aid of the gods. What use is there for arguments and debates?"

Liang Ch'i Ch'ao also holds that Hsuin Tse shows the influence of the Legalists in a marked degree in his doctrine that society should be reformed by strict adherence to "li" (which, Mr. Liang suggests, for Hsuin Tse meant definite rites and specific rules of conduct rather than a spirit of reverence or a sense of propriety). He further expresses the view that if some mechanical means or objective standard is to be employed "fah" are really preferable to "li."

The Legalists criticised above by Hsuin Tse naturally did not include Han Fei Tse as he was a pupil of Hsuin Tse himself, and his writings were probably produced after his master's death. However to subsequent generations they have been perhaps the best known of the Legalist works with the possible exception of the Kuan Tse. As to their immediate effect Hu Shih expresses himself thus: "The pragmatic method of Han Fei contained in it the downfall of the most glorious era of Chinese Philosophy. . . . The cause was a too narrow construction of the practically useful."

In conclusion it may be of interest to give some of Liang Ch'i Ch'ao's opinions concerning the influence of the Legalists and the value of their ideas. "Using the Taoist philosophy of Life and combining it with Confucian and Mehist logic," he says, "they evolved a consistent political theory. The Ch'ins took their theories and used them as a unifying principle; the Hans followed the example of the Ch'ins so that the system flourished for four hundred years. All the great statesmen and political theorists of the Han Dynasty made use of their doctrines in the government of the empire. . . . The great accomplishment of the Legalists was the treating of the people as one—the doctrine of the unity of the empire. The result was to make the people all of one mould like the articles turned out by a brick maker. To say that the individual character was entirely swallowed up by the state is possible if one regards the state as an outside inanimate thing, but if one regards the state as a living organism then one cannot admit the possibility of paring away the individuality of its members without harming the life of the body. The most poisonous result of the teaching of the Legalists was just this. The Confucianists, on the contrary,—as in the Chung Yung—held to "the utmost development of the character."

The concluding paragraphs of the "History of Pre-Chin Politi-

cal Thought" may be abridged as follows: The effect of the individual on society and of society on the individual have everywhere been recognised. But there are two schools of thought:—one that the individual must first be changed in order to change society, and the other that society must first be changed in order to change the individual—the one holding that society exists for the individual and the other that the individual exists for the sake of society. Liang holds that the course of progress in the world has come entirely from the strength of the living mind of the individual. He finds the Confucian saying, "One must first be able to perfect one's own character before one can perfect the character of others," accord with his own view. He wholly disapproves of the Mehist and Legalist idea of rectifying individuals by some mechanical process as if melting them in a common furnace and pouring them into the same mould, for he feels that this must result in individuality being swallowed up by society. Yet he recognises that ancient society was simple while modern society is very complicated. The power of the evil factors in this complicated society to suppress the good individuality so that it can hardly exist is very great. In the modern parliament, school, or factory the individual is like one grain in a granary. He himself cannot believe entirely in the absolute goodness of human nature, and still less in the perfect goodness of an agglomeration of many human natures. One cannot say therefore that the application of a unifying objective standard is wholly unreasonable, and this explains the great vogue of nationalism and socialism today. Mr. Liang cannot admit the excellence of a mechanical society and yet the ever increasing complication of society is a thing which cannot be escaped. He feels it a great duty to try to work out some means by which such a society, ever more complicated, may not become mechanical and by which the harmonious ("ren") society which is in the heart of the individual may become a fact. He concludes: "I must admit that I have not found the solution of this problem. Yet I believe the way can be found and that our ancient sages have vaguely intimated the direction in which it is to be found."

Who can say whether the future is with Liang Ch'i Ch'ao and Confucianism or with a narrow Nationalism and the Legalists!

(THE END)

THE PEJORIST

BY FREDERICK F. BARKER

THE trend of all human affairs is for the worse." This is the peyorist's creed. He is a root-and-branch radical, an iconoclast, a philosophical nihilist, an agnostic if not an atheist, and an egoist. His favorite pastime is debunking and the only publication he indorses unreservedly is *The American Mercury*. His characteristic is an irresistible urge to destructive criticism. No peyorist is ever guilty of constructive thinking. He leaves that field to the meliorist.

Our purpose here is not to make converts to peyorism, but to place the creed and to show its usefulness to society.

Perhaps the best services rendered by the peyorist are in the realm of ethics. He insists, and with good reason, that to characterize any act as virtuous or as vicious is always to beg the question at issue—its acceptability. Truth itself is no sane ideal if pursued to the exclusion of all other ends; nor is veracity in high esteem among those who achieve their purposes through diplomacy and finesse. In the past, no doubt, the conscious cultivation of the social or herd instincts in man made for the growth of stable communities; but nowadays the danger of social disintegration, in any of the more civilized countries, has passed, and with it has passed also the need for any emphasis upon the social qualities as against those that are primarily egoistic. The human sport or variation from type is nature's supreme effort. Today, to crush any biologic sport out of existence for fear of social dissolution is an anachronism.

In the training of children, obviously, some cultivation of the social qualities is still expedient. Every parent aims to keep his offspring out of the penitentiary, the poorhouse, and the psychopathic ward. To this end the child needs to recapitulate in his de-

velopment the faith cultures of past civilizations: the belief in fairies, in dogmatic theism, in the social creed; but at full maturity he should have graduated from reliance upon ethical and religious symbols. A too-prolonged insistence by parents upon an outlived moral code is largely responsible for the present breach between youth and age. The situation, however, is evolving its own remedy: many Victorian parents are undergoing forcible re-education at the hands of their children.

Confidence in the authoritativeness and efficacy of the ancient catalogue of virtues and vices dies hard, even among the intellectual. For instance, a professed unbeliever, writing recently under the title "Agnosticism and the New Tendencies in Science and Philosophy," condenses all good behavior into a single trilogy of principles: "justice, beneficence, altruism." He assures his readers that "the more we carry these principles into our conduct, the more happiness we attain and the more abundant and worthy is the life we lead." Another moralist, in a recent article entitled "The Faith of an Atheist," is more discriminating but perhaps not more convincing. He holds that in the practice of the red-blooded virtues lies the salvation of the race. He urges that while the priestly virtues of meekness and asceticism should be disdained, kindness toward the lower animals is to be encouraged; that since vice itself purifies a race by killing off the vicious, we should not be too anxious to shield a fool from his folly; always bearing in mind, however, that chivalry should be displayed toward the weak. He is confident that in the community of the future the virtues of integrity, sincerity, courage, industry, initiative, self-reliance, and in a single phrase, "love of the good and hatred of the evil" will be honored by every organ of public opinion. But the three virtues held to be basic by the first writer quoted, namely, justice, beneficence and altruism, are here entirely overlooked. The explanation is, perhaps, that one of the writers is constitutionally an altruist and the other an individualist. The ardent seeker after authoritative ultimates is left free, therefore, to make his own selection from among the virtues listed, or to continue his search elsewhere.

We are, it would seem, still steeped in the same old superstition—the sense of sin: fearful of ourselves, clinging to authority, demanding a sign, timid of the herd's criticism. But modern youth is combining with the behaviorists, the psychoanalysts and others whose

mental approach is scientific, to free us from religious and ethical dogmas. New points of reference and a new technology of behavior, stripped of moral implications, will evolve; and so our threadbare ethics, with its inventory of virtues and vices, will pass.

To return to our pejorist, the inveterate bubble-pricker, who is doing good work in clearing the way for a more rational view of human conduct. As a pronounced individualist, he is irked by the restraints and prohibitions of society. He is distinctly asocial. We will endeavor to show that even as an anti-social element he is rendering invaluable service to society.

The writer holds no brief for any formula of human progress. He admits regretfully that he has never yet learnt of a race goal or *summum bonum* that will stand up under rational criticism. The stream of life is too broad, perhaps, to be encompassed by a single watchword or principle. In the last analysis all ideals are matters of faith—faith in one's self. For the purpose here in view, however, we may be permitted to set up as a race ideal the one now most in vogue in this country: "the miracle of the fully shared life," a life devoted to social service, to the promotion of an abounding sympathetic accord within the human brotherhood. Now, if this is indeed the end to be desired, then the quickest way to attain it is through democracy, through the standardization of the individual, and the sacrifice of all personal idiosyncracies in the interests of society at large. In the past, however, the race has advanced largely through the pursuit of quite personal desires and ambitions. If such individuality of expression is to be eliminated in favor of the achievement of a smooth-working, homogeneous social entity, then we must needs sacrifice variety and diversity. We shall stabilize sooner, it may be, but at a lower level. The mission of the pejorist is, seemingly, to oppose all stabilization, and by so doing to provoke in the end a higher and more complex civilization. He is the brake on the social coach. If man is destined to follow in the wake of the bee-hive and the ant-hill, surely nothing will be lost by striving for the utmost heterogeneity attainable.

Really the pejorist is the meliorist's best friend. The Spaniards have a saying: "*Nadie sabe para quien trabaja*" (No one knows for whom he works.) Who would have predicted ten years ago that the prohibitionist would share with the boot-legger a common objective—retention of the Eighteenth Amendment? Or that a war

waged by us "to make the world safe for democracy" would have fructified new autocracies?

As the writer sees what is termed human progress, this comes about quite as much through clash and conflict as it does through love and sympathetic understanding. An active antagonism between the altruist and the egoist, the social and the asocial, the pacific and the belligerent, will, it seems, always remain a necessary factor in the civilizing process. Only in the grave is there peace. The pejorist performs a cosmic task, as does every other person who pursues a purpose or expresses a bent. One's individual reaction to pejorism, whether friendly or hostile, is of course self-justified; or better, needs no justification. But surely the reflective observer, one who is catholic in his sympathies and has an abiding faith in mankind, will view the destructive propensities of the pejorist with equanimity.

UTOPIA FORTY YEARS AGO

BY T. SWANN HARDING

ON a recent Sunday I went to the Library of Congress in quest of the fugitive papers by a man who stands almost alone as an original and clear-thinking American philosopher, Charles S. Peirce. This led me to old volumes of the *Journal of Speculative Philosophy* and of *The Open Court*. What was my amazement, however, when I opened Volume 4 of the latter journal to page 2248 of the issue of May 1, 1890, to discover some "Notes" by one M. M. Trumbull which were both amazingly witty and precociously wise—their precocity consisting in a successful early production of opinions and comments to be found expressed almost identically in our highbrow weekly journals of opinion of the past five years.

Further investigation disclosed that Trumbull was English born, that he came to America when quite young, worked as a day laborer, taught school, studied law, fought through the Civil War, was wounded, and also became a Brigadier General. Under President Grant he was Collector of Internal Revenue for Iowa. His declining days he devoted to literature and he contributed these "Notes" which later became "Current Topics" to the latter pages of the *Open Court*, beginning on the page mentioned above, and ending on page 4079 of Volume 8 of the issue of May 17, 1894. An issue published two weeks later was a memorial number to the general whose wit had meanwhile been silenced perhaps by a distraught deity for his own peace of mind. The general's department appeared with certain irregularities, usually atoned for by the presence of an entire article or essay in the number, signed M. M. Trumbull.

The issues of the *Open Court* which appeared between May 1, 1890, and January 29, 1891, especially interested me (they hap-

pened also to be bound together along with a few other copies) because, being just about forty years of age I was rather anxious to discover what progress the United States had made, perhaps by reason of my tenure of office as a citizen. It therefore amused me to go through Trumbull's "Notes" and "Current Topics" between these dates to discover the condition of the realm at the time of my birth, the evils and wrongs then extant, the more interesting topics of polite conversation, and the trends of political and social thought. In view of the fact that many recent articles and books assure us that our country is just now sliding precipitately to oblivion in a peculiarly rapid manner, more highly developed these latter days, it may afford some amusement to discover how things were in Utopia forty years ago.

In his very first onslaught, dated May 1, 1890, Trumbull declared that the Mayor of Chicago had just defied the law by arranging that the saloons be open on election day, April 1. The day before reading this I had seen something in a Baltimore paper about stuffing special ballot-collection-boxes for the poor. One such box was located at a police station with a patrolman in charge to watch it. An excited motorist approached with a ticket for overtime parking in his hand, and the patrolmen cheerfully offered to defy the law and tear up the ticket, provided the motorist would stuff the ballot box with \$50 for the poor. This was done to the satisfaction of both. But the Chicago Mayor defied the law in 1890. For his temerity in doing so Trumbull humorously accused him of "abdication of authority" and the "advocation of anarchy"—"anarchist" being the popular hate word of that day as "communist" is of this. About this time it also appears that the unconstitutional suspension of sentences upon prisoners by various judges was brought to the attention of Congress in Washington. Since this abuse of power had been going on for about twenty years Trumbull sagely remarked it was just about time that Congress heard about it and made an investigation.

In the issue of May 29 Trumbull informs us that vigorous efforts are being made to help the farmer. Senator Stanford of California had, in fact, introduced a measure authorizing loans to farmers from the United States Treasury at 2 per cent interest. Another bill had also been introduced suggesting the erection at government expense of government warehouses at strategic points

where farmers might store their crops, the government to advance them 80 per cent of the value of said crops in cash as soon as storage was effected. Trumbull offered as his suggestion the tip to farmers that potatoes were about the best substitute for food he knew of. Senator Plumb of Kansas wanted to help the unemployed, however. He therefore introduced a gaudy bill to enlist what he called a "Grand Army of Labor," the President to issue the call for citizen volunteers as in war time. This, he felt, would tend to help current "industrial depression." The soldiers were to serve four hours daily, five days a week (is the 5-day week so modern then?) at \$4 a day, and were to be paid in "declaratory full-legal-tender silk-threaded greenback paper money of the United States of America." This money, and Plumb was very particular about its silk threads, was to be kept in stock by the Secretary of the Treasury who was to be admonished to replenish his stock assiduously when it showed signs of depletion.

In the issue of June 5 Trumbull was discussing the curious types of Civil War veterans who insistently demanded a reward from the government for their war time heroism. Some of them made their demands purely upon the basis of "mental anguish" endured during the war. The General remembered a Captain who came to him desiring to resign in the midst of a certain battle because he had discovered he was a rank coward. His resignation was accepted but, in due time, he applied for a pension for having been scared out of the army, saying, "Anybody who knows how I was scared at Kirkville, will never begrudge me a pension!"

By June 19 the General felt up to rebuking Macaulay for being an intellectual phonograph, able to read anything at all and then reproduce it verbatim to the astonished listener, and yet so negligent as to declare that a sentence could not end with the word "its." Had Macaulay forgotten those lines from Act I of *Henry VIII*—

"Each following day
Became the next day's master, till the last,
Made former its."

This somehow led Trumbull to reflect upon the etiquette of type-writing letters, he having recently typed a letter to an English friend who rebuked him for doing so. He concluded that possibly a typed letter did lack "the immortal essence" of a friend after all. He concluded his column for the week with a paragraph designed to

show that "government by party is a lucrative business—for the governors."

On July 3 the indefatigable General was amused because the people of Minneapolis turned out *en masse* to aid the census takers in an effort to exceed St. Paul in size. He believed that if 50,000 of them would work with sufficient vigor they might be able to puff their city up to a population of half a million, which ought somehow to be most gratifying. He also discussed two rival candidates for Congress from the Fourth District in Chicago who had villified each other with diligence and scant courtesy in the manner common in that city today. Their separately esteemed kept newspapers also joined energetically in the name-calling and added venom to the vituperation. But after the nomination finally went to one candidate, the press of the other eulogized him in the highest terms, his rival congratulated him magnanimously, and referred to him punctiliously as the winner in this "gentlemanly contest." The General enjoyed this delightful exchange of unctuous courtesies to the full.

July 24th Trumbull commented upon the gorgeous legions of an army "composed entirely of officers," a nobility purchaseable by anyone at \$20 a head—and provided one could stomach the thought of joining the Knights of Pythias. He remarked on our American love of a title and our urgent desire to be knights or commanders, or to have some other intangible distinction based upon anything but personal merit.

On June 31st he discussed the sinking of an excursion boat filled with Sabbath pleasure seekers, which catastrophe the Chicago clergy attributed humanely to a judgment of God visited upon the wicked for Sabbath breaking. This, of course, conveniently excused the reckless seamanship of the captain, and relieved the coroner's jury of any further perplexity or expense. However, when a Sunday later, lightning struck a church and killed fifteen of those within, it became somewhat difficult to construe this as a judgment of God, such judgments habitually being reserved for Sunday excursionists drowned in such disasters as that of The Lake Pepin. Trumbull also dilated on an "air-of-mystery" plan used, with marked commercial success, to advertise a dull, uninteresting novel by an unknown writer. Everybody was asked to guess who wrote the book which resulted in a tremendous sale followed by quick,

merited oblivion. Finally, he opined that the Speaker of the House of Representatives had too much power. For unless the existence of a quorum can be established to the satisfaction of the "speaker's eye" there is no quorum, no matter how many members are present in the body, and business cannot go on. Thus "we are frequently driven to revolutionary practises in order to escape from the fetters of our Constitution," he observes.

August the 7th brought the General to consider a strike of the London police which resulted in a protest from the burglars to the effect that this lack of police protection made their avocation both extra-hazardous and unprofitable. For so zealous were private citizens in falling back upon the doctrine of self-protection, that life became exceedingly irksome for the burglars. Fortunately the police soon returned to duty whereupon "a gratifying revival was observed in the burglar trade." At that date it also appears that we were a "badged people," and the General wept crocodile tears because a G. A. R. member, even though properly badged, was now and then mistaken for a crook, a most intolerable insult. We find too that one Pat Sharkey, recently deceased, was called "one of God's own people" by an eloquent Chicago citizen. Pat had backed sporting men of all sorts. He lost \$27,000 on Kilrain in the "Sullivan-Kilrain affair." He kept a corner saloon on 13th street and was a big Tammany man. However, he was denied burial in consecrated ground by the Holy Church—not because of any past rascalities or trifling deviations from virtue—perish the thought—but because he was a member of the Masons, the Elks, and the Knights of Pythias. Trumbull felt the church was not so far wrong at that. He concluded by discussing "force bills" and remarked—"When laws are made for the protection of the rich and the correction of the poor, the 'force' behind them is regarded as their highest virtue; but when passed for the protestation of the poor and the correction of the rich, 'society' complains that the 'force' principle in the bill is so very coarse and common that its nerves are greatly shocked."

On August 28 we learn that, while the political world is convulsed, while society is disturbed and bewildered by the gigantic conflict between capital and labor, and while the revision of creeds fills the religious with misgivings and doubts, the fashionable elect are tormented by the important question as to which Mrs. Astor—Mrs. William or Mrs. William W.—is *the* Mrs. Astor, and could

rightfully receive a letter addressed merely to Mrs. Astor. "The inflammation" was spreading rapidly and the fever might soon involve the government itself. The "celestial four hundred" had been thrown into "high-toned anarchy," merely because a letter addressed to "Mrs. Astor" had reached the wrong lady. Hereupon Trumbull launched into a delightful satire of the "counterfeit monarchy" at Washington with its "imported Windsor Castle" ceremonials.

There is now a gap until October 2nd when the General remarked that the pronouncements of the aged are inviolate because an old person can always observe how much better things were in the past. He next notes that Queen Victoria, in her old age, can actually attend a funeral by proxy of a gentleman who kindly goes "in her behalf." He expects soon to read where Lord Colville has attended divine services, offered a prayer, sung a hymn, and partaken of communion, "in behalf of the queen."

This brings us to October 16 where the General opened quietly by remarking that the "incivility" of "sales ladies" and "sales gentlemen" in Chicago department stores did not afflict him half so much as their habit of adding a surcharge to the price of purchases which they themselves pocketed. Since certain progressive citizens were going to offer a gold medal to the most civil clerks he suggested other citizens offer a still larger medal for truth and honesty in clerks. From this he diverged into marvelling at the extraordinary accuracy of the phonograph of that day and said: "Figuratively speaking, such a phonograph is in operation at Washington, in the form of a comic paper called *The Congressional Record*." However, reflection compelled him to aver that the duty of this Washington phonograph was to corrupt history, to repeat what was not said, and to certify to what was not done, at very considerable expense to the general public. This somehow propelled him into observations about the Army affidavit officer of his Civil War days, who balanced the Captain's quarterly returns by accounting, under oath, for any missing property. It appears that a really good affidavit officer found no difficulty whatever in accounting for as many as twenty saddles or thirty blankets at one good round oath.

The department concluded on this particular occasion with some comments upon the timidity and lack of self-assurance on the part of a member of a political convention when called upon to nomin-

ate a man for judge. The member declared that the nominee unfortunately had no pull on account of his nationality, and apologized so profusely that the other delegates began to think he was about to propose a Chinaman. However, it proved to be an American he had in mind, a man who could draw no German or Irish votes. "Up to that moment, the selections made had created the impression that the convention was nominating candidates for office in the county of Cork, instead of the county of Cook, and therefore the appearance of an American candidate looked like the intrusion of a foreigner. And even then the main question for consideration was not the character and fitness of the aspirant, but whether or not it would be 'good policy' to give the Americans a 'show.'"

The book-publishing habits of America have changed little, because on November 6 the General speaks of a new book entitled *The Art of Authorship*, which is nothing less than a symposium by 178 successful authors including—Corelli, Huxley, Macaulay, Lowell, Ballantyne, Blackmore, Freeman, and Meredith. While the authors ostensibly told "how it was done," few of them told the truth. Huxley, however, who was cited as a model by many of his colleagues, candidly wrote as follows—"I never had the fortune, good or evil, to receive any guidance or instruction in the art of literary composition. It is possibly for that reason that I have always turned a deaf ear to the common advice to 'study good models,' to 'give your days and nights to Addison,' and so on." He then insistently urged young authors never to ape any model for any purpose.

On November 13 we are regaled with "The Misgovernment of Cities," and the "terrible example and unspeakable villain," in all displays of this sort, was then, as now, Chicago. Her low estate in 1890 Trumbull attributed to "accumulated corruption." To what we may now attribute it I have no idea.

On November 20 the good General sought to define a gentleman. He finally concluded that whatever a gentleman was, good citizens certainly voted too little and bad citizens too much—so often, in fact, that they had repeatedly to be arrested in gangs for their perverted civic assiduity. He finally expatiated upon the extraordinary fact that many cities were impeaching the accuracy of the census of 1890 which, they said, "grossly falsified" their pop-

ulation statistics, and made them appear far smaller than they really were. Do times really change? Have we even a better columnist today than Trumbull was in 1890?

On December 11th the old soldier comments upon the fact that a farmer has just been appointed judge in a distant state and he asks whether a judge must be a lawyer and why a nonlawyer may not possess a fine judicial temperament. He next observed that certain Christians had invited some Jews to a joint conference, only to have their churches censure them violently for their iniquity in doing so. He then fell upon the opulent descriptive powers of sychophant journalists who burst forth into gaudy displays of rhetoric in depicting the opening of Congress. He had read that Vice President Morton wore "the rarest of roses," and "beamed upon the Senate"; that Senator Vest had a new suit; that Senator Harris wore lavender kid gloves—a predecessor of Ham Lewis in sartorial splendor?—; that Senator Ingalls' hair was ruffled; that Senator Cary had the baldest head, and that Chaplain Butler's prayer was a trifle long, probably to keep the Chamber from falling into a state of religious destitution.

In the Christmas Day issue 1890 we find the General exercised over the fact that newspapers always carry semi-obituary notices in the form of editorials of sympathy for bankers whose banks fail, but never express sorrow for the poor depositors who really suffered. He found editors also chiding industries in this period of acute depression for withdrawing their confidence from the speculative markets and he wondered why they should not do so. He read of General Miles' declaration that if we would only feed the Indians they would cease to stage revolts. "Sockless" Jerry Simpson was in Congress, "threatening the hosiery industry with disaster." A new Jersey manufacturer had just sent Jerry an elegant assortment of hose but "with Roman courage he resisted temptation." Since he objected to the tax on socks Trumbull reminded him that, to be consistent, he should adopt the entire costume of Leatherstocking and not the moccasins only.

We also read something else that should be most stimulating just now. The H. C. Frick Coke Co. of Scottdale, Pennsylvania, had just banked 255 of its ovens and discharged all its single employeés. It retained the married men at full wages, however. Thereupon the single men met together, remembered the Scriptural

injunction that "it is better to marry than to burn," and began to cause quite a flutter among the young women of the coke region. They had faith surpassing understanding for, when their suits were successful, they hurried to Frick and demanded back their jobs. Unfortunately we are not told the final results of this industry-matrimonial crisis.

In the issue of the *Open Court* for January 15, 1891 we read that the *North American Review* has just most inconsiderately and intemperately asked—"Are we a nation of rascals?" The General could see a great deal of evidence for the affirmative, and then he deviated into condemnation of the frenzied literary hyperbole utilized by society press reporters in describing the costumes of great ladies and of Supreme Court Justices. January 29 he devoted himself to a description of the manner in which eighty cents had been metamorphosed into a dollar by Act of Congress, in order to "restore confidence," "stimulate business," "move crops," and "lift mortgages."

All of this has such a devitalizingly familiar sound and such a modern ring that it may be better for our peace of mind to part company with the General at this point before he discovers drought relief and a soldier's bonus. Personally, I feel that my life has fallen short of success, as the evidence all goes to show that my forty years sojourn in this vale of tears has produced no discernable progress whatever.

For Leaders —

The **JOURNAL OF RELIGION**

To read *The Journal of Religion* is to keep in the vanguard of those who are thinking about the problems of present day religious life.

This non-sectarian periodical provides for its readers an unprejudiced, critical account of modern religious thought. It attempts to reveal the inner reality of religion, rather than to defend a doctrinal system. It consistently avoids cant, dogma, technical abstruseness; and constantly emphasizes the interrelationship of religious life and social environment.

This scholarly journal is indispensable to the serious reader interested in religion as a living, spiritual reality in society, in history, and in individual experience.

The Journal of Religion is edited by Shirley Jackson Case with the cooperation of the Divinity Faculty and Conference of the University of Chicago. It is published quarterly at the subscription price of \$3.00 a year.

If you wish to examine *The Journal of Religion* a sample copy will be mailed you free upon request.

THE UNIVERSITY OF CHICAGO PRESS
5750 ELLIS AVE. . . . CHICAGO, ILLINOIS

THE LOGIC OF DISCOVERY

By

ROBERT D. CARMICHAEL

Head of the Department of Mathematics
University of Illinois

The main aspects of the process of discovery are skillfully discussed in a manner to interest the non-technical reader.

Three of the chapters have previously been published in *The Monist*, *Scientia* and *The Scientific Monthly*.

TABLE OF CONTENTS

Chapter

- I The Logic of Discovery
 - II What is the Place of Postulate Systems in the Further Progress of Thought?
 - III On the Nature of Systems of Postulates
 - IV Concerning the Postulational Treatment of Empirical Truth
 - V The Structure of Exact Thought
 - VI The Notion of Doctrinal Function
 - VII Hypothesis Growing into Veritable Principle
 - VIII What is Reasoning?
 - IX The Larger Human Worth of Mathematics
- Index

Pp. 280, cloth. Price \$2.00

By the same Author

A DEBATE ON THE THEORY OF RELATIVITY with an introduction by William Lowe Bryan, Indiana University.

Favoring the Theory: Robert D. Carmichael, University of Illinois, and Harold T. Davis, Indiana University.

Opposing the Theory: William D. MacMillan, University of Chicago and Mason E. Hufford, Indiana University.

(First Impression in 1925, Second Impression in 1927.)

Cloth, \$2.00

THE OPEN COURT PUBLISHING COMPANY

Chicago

London