Psychology: empirical and rational / by Michael Maher.

Contributors

Maher, Michael, 1860-1918.

Publication/Creation

London : Longmans, Green, 1911.

Persistent URL

https://wellcomecollection.org/works/rr9ykwkh

License and attribution

Conditions of use: it is possible this item is protected by copyright and/or related rights. You are free to use this item in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s).

wellcome collection

Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
https://wellcomecollection.org

STONYHURST PHILOSOPHICAL SERIES

PSYCHOLOGY

BY MICHAEL MAHER, S.J.

2373

THE
CHARLES MYERS
LIBRARY

Spearman
Collection

NATIONAL INSTITUTE
OF
INDUSTRIAL
PSYCHOLOGY

22500443106

J. POOLE & CO.,
Educational Booksellers,

Med
K39255

GAB

CARNEGIE INSTITUTE OF
TECHNOLOGY
INDUSTRIAL PSYCHOLOGY
LIBRARY

NATIONAL INSTITUTE OF
INDUSTRIAL PSYCHOLOGY
LIBRARY

PSYCHOLOGY

Reviews of the First Edition.

PSYCHOLOGY.

"We regard Father Maher's book on Psychology as one of the most important contributions to philosophical literature published in this country for a long time. . . . What renders his work especially valuable is the breadth of his modern reading, and the skill with which he presses things new, no less than old, into the service of his argument. His dialectical skill is as remarkable as his wealth of learning, and not less notable is his spirit of fairness. . . . Whether the reader agrees or disagrees with the author's views, it is impossible to deny the ability, fulness, and cogency of the argument."—*St. James's Gazette*, July 8, 1892.

". . . The author has proved himself a thoroughly competent guide and teacher on the subject of his work. Almost every page of his book bears the mark of careful thought and wide reading. . . Taken for what it professes to be, this is an excellent manual. It deserves and will repay study."—*The Scotsman*, August 4, 1890.

"This book, by the Professor of Mental Philosophy at Stonyhurst College, is a sober, scholarly, and important work. . . . The author's treatment of Psychology is simple, logical, and graceful. His definitions are clear and precise, his style is crisp and nervous, and his knowledge of the literature of his subject is very considerable."—*Educational Review*, June, 1891.

"This Manual is an able and well-considered effort to reconcile mediæval and modern philosophy. The author bases his argument mainly on the works of Aquinas and the schoolmen, but he gives fair recognition to modern philosophers and to modern science. . . . We can commend the book to students of Natural Theology and Psychology."—*The Church Review*, September 26, 1890.

"Father Maher's joining of old with new in his *Psychology* is very skilful; and sometimes the highly systematized character of the scholastic doctrine gives him a certain advantage in the face of modern psychological classifications with their more tentative character. . . . The historical and controversial parts all through the volume are in general very careful and well managed."—*Mind*.

"The author is always lucid, cogent, and learned. His knowledge of the works of writers on Psychology is thorough and sound, and results in a most valuable aid to the student: particularly good examples of this are his historical sketches of the Theories of External Perception, General Cognition, and the Moral Sense, whilst the historical references and notes on almost every point should prove extremely helpful."—*The University Correspondent*, November, 1890.

"This work cannot be too highly recommended."—*The Tablet*, November 1, 1890.

". . . The book is a distinct gain to psychological science, and places its author in the front rank of the clear, deep thinkers of our time. It is a thoroughly scientific work, evincing on the part of its author great powers of analysis and discrimination, with the most profound and varied knowledge of philosophical literature."—*The Irish Ecclesiastical Record*, January, 1891.

STONYHURST PHILOSOPHICAL SERIES

PSYCHOLOGY:

EMPIRICAL AND RATIONAL.

BY

MICHAEL MAHER, S.J.,

D. LIT., M.A. LOND.

PROFESSOR OF MENTAL PHILOSOPHY AT STONYHURST COLLEGE,
FORMERLY EXAMINER FOR THE DIPLOMA IN TEACHING OF THE
ROYAL UNIVERSITY OF IRELAND.

SEVENTH EDITION.

(TWENTY-FIRST TO TWENTY-FIFTH THOUSAND.)

LONGMANS, GREEN, AND CO.
39 PATERNOSTER ROW, LONDON
NEW YORK, BOMBAY, AND CALCUTTA
1911

NATIONAL INSTITUTE OF PSYCHOLOGY LIBRARY

ROEHAMPTON :

PRINTED BY JOHN GRIFFIN.

WELLCOME INSTITUTE LIBRARY
Coll. WelMCmac
Coll.
No. WM

PREFACE TO SEVENTH EDITION.

THE Sixth Edition of the present work with two subsequent impressions having been exhausted in less than five years, the Seventh Edition is now issued. This Edition has been carefully revised. Some passages have been emended for the sake of greater clearness, and some verbal inaccuracies and misprints corrected, but no substantial alteration has been introduced. A number of references to recent psychological literature have been added to bring the work down to date in this respect.

STONYHURST, *December*, 1910.

PREFACE TO FOURTH EDITION.

THE unhoped for success which met the present work in the form in which it was printed in 1890 induced me to abstain from making more than a few verbal changes in the second or third editions. But by the time the fourth edition of the book was called for the large quantity of fresh psychological literature which had appeared, especially from America, in the entire interval, had rendered sundry additions and alterations desirable. The process of emendation once begun it was not easy to draw the line, and the result is that the present volume is practically a new work containing a considerably larger quantity of matter than the former. The limitations of the series have forced me to squeeze many topics into small type, as I was unwilling to omit them altogether. The unexpectedly extended circulation has, however, made publication possible without a corresponding augmentation of the price.

The modifications up to the ninth chapter are, with the exception of the enlarged treatment of physiology, psycho-physics, and psychometry comparatively slight; but thenceforward the book has been virtually re-written. Chapters xiv., xvi.,

xvii., xviii., xix., xxii., xxiv., are, minus occasional sections, new: the Supplement on Hypnotism and the criticisms of the theories of Professors James and Höffding entirely so. The historical sketches—which I believe have proved helpful to various classes of students—have also been substantially increased, and I trust considerably improved. I have also introduced a number of diagrams which illustrate the brain and nervous system.

My aim here, as in the previous editions, has been not to construct a new original system of my own, but to resuscitate and make better known to English readers a Psychology that has already survived four and twenty centuries, that has had more influence on human thought and human language than all other psychologies together, and that still commands a far larger number of adherents than any rival doctrine. My desire, however, has been not merely to expound but to expand this old system; not merely to defend its assured truths, but to test its principles, to develop them, to apply them to the solution of modern problems; and to re-interpret its generalizations in the light of the most recent researches. I have striven to make clear to the student of modern thought that this ancient psychology is not quite so absurd, nor these old thinkers quite so foolish, as the current caricatures of their teaching would lead one to imagine; and I believe I have shown that not a little of what is supposed to be new has been anticipated, and that most of what is true can be assimilated without much difficulty by the old system. On the other

hand, I have sought to bring the scholastic student into closer contact with modern questions; and to acquaint him better with some of the merits of modern psychological analysis and explanation.

There is at least one phase of current psychological literature to which my opposition is in no way diminished—the prevalent view that *the science of psychology* and *the philosophy of the human mind* can be shut up in water-tight compartments and rendered completely independent of each other. Indeed, the now customary vehement protestations of psychologists that their works are innocent of all philosophical beliefs—if not also devoid of all metaphysical foundations—and the austere gravity with which they are wont to apologize whenever they make mention of the soul, or allude to such irrelevant matters as the possibility of a future life, the origin of the human mind, or its connection with the body, have often appeared to me liable to give rise to the suspicion that the sense of humour is incompatible with psychological eminence. For it is now taken for granted by the most distinguished of these writers that of all human beings the student of psychology feels least interest in the question as to whether he has a soul, or what is to become of it; and that of all branches of human knowledge the science of the mind has least to say on such a topic. In fact, to trespass in such alien matters is universally assumed to be the gravest of professional delinquencies.

Notwithstanding the weight of authority for this view, I have had the temerity to suggest that it is

the most misleading and extravagant *idolon* of the psychological cave at the present day. I have even ventured to maintain throughout this work that to construct such a water-tight science of psychology, from which all metaphysical conceptions and beliefs have been effectually bailed out, is simply impossible. Accordingly, I warn my readers at the start that the analysis of mental activities which commends itself to me as the truest and most thorough, has resulted in the conception of the human mind as an immaterial being endowed with free-will and rational activity of a spiritual order; and that my exposition and interpretation of the phenomena lead back to this conclusion.

At the same time my procedure throughout is purely rationalistic, in the sense of being based solely on experience and reasoning. There seems to have arisen in some minds the notion that the works of this series assume or imply dogmatic beliefs pertaining exclusively to revealed religion. Of course no one who had read my volume, or who was at all familiar with the series, could have fallen into such an error; but it may be as well to repeat formally here that this work is purely philosophical, and that it contains nothing to which, not merely every Christian, but every Theist may not assent. Indeed, the very first institution to adopt this work as a text-book, save that in which I am engaged in teaching, was a Protestant Theological College in the South of England.

I have profited much by the various criticisms and reviews of the first edition, which were uniformly

very friendly, even when the writers were widely opposed to my philosophical views. But in spite of the very large alterations and, I trust, improvements in form of treatment, there is no change of importance in doctrine in the present work.

I wish here, to make general acknowledgment also of my indebtedness to many writers of various schools—foes no less than friends. I have endeavoured throughout the volume to indicate the particular sources from which I have derived special assistance; and I have been all the more careful in this matter, as I have observed that some writers have shown a very practical appreciation of my own labours, without obtruding the fact upon their readers. In addition, I desire to express my obligations to the Rev. H. Irwin, S.J., for sundry valuable suggestions, and also for having corrected all the proofs.

A few hints on judicious skipping may be useful. I have marked with special headings the more scholastic and metaphysical discussions. The student, unless he be already familiar with or specially interested in the philosophy of the schools, had better omit these on first reading. The beginner will similarly find a flanking movement preferable to a frontal attack with respect to the longer historical sketches. For the general reader perhaps the most interesting course would be to start with chapter xix. on Free-will, then to read from chapter xxi. to the end of the volume, after which he may begin the book and follow his own tastes. The portions of Psychology generally

deemed of most importance from the standpoint of the theory of Education are dealt with in the following sections: pp. 1—21, 26—51, 59—92, 125—152, 163—200, 208—241, 292—303, 314—326, 344—367, 378—393, 424—448, 454—458. The relevancy, however, of these topics to the art of teaching varies much, as the intelligent reader will perceive for himself.

On the other hand, for the benefit of the more advanced or more earnest student, I have indicated a considerable quantity of useful supplementary reading on very many questions of interest which the limits of my space have compelled me to treat more briefly than I desired. All the French works cited can be obtained, I believe, through Alcan (Paris), the German through Herder (Freiburg).

STONYHURST, *October*, 1900.

TABLE OF CONTENTS.

ILLUSTRATIONS . . . . . Pp. xix—xxii

INTRODUCTION.

CHAPTER I.

DEFINITION AND SCOPE OF PSYCHOLOGY . . . Pp. 1—10

Definitions of Psychology, Subjective and Objective, 1, seq. —Scope, 2—Empirical and Rational Psychology, 5—Psychology distinguished from Cosmology, 6—From Logic, 7—From Ethics, 8 —Relations with Physiology, 9.

CHAPTER II.

METHOD OF PSYCHOLOGY . . . . . Pp. 11—25

Psychology a Science, 11—Introspective Method, 11—Objective or Supplementary Methods, 13—These Methods not new, 18 —Rational Psychology deductive, 18—Attacks on Psychology, 19 —Objections to Introspection answered, 20—Real difficulties, 24.

CHAPTER III.

CLASSIFICATION OF MENTAL FACULTIES . . . Pp. 26—41

Consciousness, 26—Subconscious mental activities, 27—Mental Faculties classified, 28—Subdivision, 32—Various classifications: Aristotle's, 33—St. Thomas', 33—Scotch school, 34—Hamilton's, 34 Herbert Spencer's, 35—Attacks on Mental Faculties, 36—Mutual relations of the Faculties, 39—Feeling, 40.

BOOK I.

Empirical or Phenomenal Psychology.

PART I.—SENSUOUS LIFE.

CHAPTER IV.

SENSATION . . . . . Pp. 42—62

Sensation, Sense and Sense-organ defined, 42—Excitation of Sensation, 43—The Nervous System, 44—Properties of Sensation, Quality, Intensity, Duration, 46—Composite stimuli, 47—Cognitive Character of Sensation, 48—Sensation and Perception, 49—Scholastic doctrine of *species*, 51—Experimental Psychology; Psychophysics, 54—Interpretations of the Weber-Fechner Law, 58—**Psychometry: Reaction-time, 59.**

CHAPTER V.

THE SENSES . . . . . Pp. 63—97

How many External Senses, 63—Taste, 65—Smell, 66—Touch, 68—Organic Sensations, Common-sensibility, Cœnæsthesis, or the Vital Sense, 69—Sense of Temperature, 70—Contact or Passive Touch, 71—Cognitional value of Touch, 72—Active Touch, Muscular Sensations, 74—Hearing, 79—Sight, 83—The Senses compared, 88—The "Law of Relativity," 90—Scholastic doctrine of the Internal senses, 92—Internal sense, 95—Common sense, 96.

CHAPTER VI.

PERCEPTION OF THE MATERIAL WORLD: CRITICAL SKETCH OF THE LEADING THEORIES OF EXTERNAL PRECEPTION . . . . Pp. 98—124

Psychology and Philosophy of Perception, 98 — Sceptical Theories, 99—Philosophical proof of Realism, 100—Psychology of Perception, 101—Ambiguity of Terms, 104—Ego and Mind, 104—Two Questions, 105—Historical sketch: Descartes, Locke, Berkeley, 108—Hume, Mill, and Bain, 110—Kant, 117—Herbert Spencer, 122.

CHAPTER VII.

DEVELOPMENT OF SENSE-PERCEPTION. EDUCATION OF THE SENSES . . . . . Pp. 125—162

Growth of Knowledge, 125—Complexity of perceptional process, 126—Development of Tactual Perception, 127—Tactual cognition of the Organism, 130—Of other Objects, 132—Cognition of other Minds, 133—Secondary acquisitions, 134—Visual Perception, 135—Immediate Perception of Surface Extension, 137—Mediate Perception of Distance and Magnitude, 139—Binocular Vision, 142—Erect Vision, 144—Auditory Perception, 145—Gustatory and Olfactory Perception, 146—Objections solved, 147—Co-operation of Faculties, 147—Intelligent Cognition not mere Instinctive Belief, 149—Mental and Cerebral Development, 150—Primary and Secondary Qualities of Matter, 152—Views of Aristotle, St. Thomas, 153—Descartes, Locke, Berkeley, Hume, 154—Hamilton, Spencer, 155—The Relativity of Knowledge, 157.

CHAPTER VIII.

IMAGINATION . . . . . Pp. 163—178

Imagination compared with Perception, 163—Productive and Reproductive, 165—Æsthetic, 166—Scientific, 167—Dangers of, 170—Fancy, Wit, Humour, 170—Illusions, 171—Dreaming, 176.

CHAPTER IX.

MEMORY. MENTAL ASSOCIATION . . . . Pp. 179—207

Memory defined, 179—Reproduction and Recollection, 180—Laws of Association, 181—Reduction of those laws, 184—Physiological hypothesis, 188—Co-operative and Conflicting Associations

188—Secondary Laws, 190—Retention, 191—Ultra-spiritualist theory, 192—Purely physical theory, 194—Recognition, 195—Reminiscence, 196—Intellectual and sensuous memory, 197—Scholastic controversy, 198—Qualities of good memory, 199—Training of Memory, 200—Historical sketch of the doctrine of mental association: Aristotle, St. Thomas, 201—Locke, Hobbes, Hume, Hartley, 203—James Mill, 204—J. S. Mill, Bain, Sully, 205—Obliviscence, 206.

CHAPTER X.

SENSUOUS APPETITE AND MOVEMENT . . . Pp. 208—220

Sensuous Appetency, 208—Scholastic doctrine of Appetency, 208—Movement, 210—Voluntary movement analyzed, 210—Automatic, Reflex, Impulsive, 211—Origin of voluntary movement: Theory of random action, 212—Theory of instinctive action, 213—Growth of control of movement: Probable theory, 214—Movements classified: Secondary-automatic and Ideo-motor action, 218.

CHAPTER XI.

FEELINGS OF PLEASURE AND PAIN . . . . Pp. 221—228

Feeling and other terms defined, 221—Aristotle's Theory of Feeling, 222—Laws of Pleasure and Pain, 225—Feeling not a third Faculty, 226—Theories of Pleasure and Pain, 226.

BOOK I. (*continued.*)

PART II.—RATIONAL LIFE.

CHAPTER XII.

INTELLECT AND SENSE . . . . . Pp. 229—251

Erroneous views, 229—Sensationalism, Materialism, Phenomenism, Positivism, Associationism, Evolutionism, 230—Intellect essentially different from Sense, 230—Proved by Attention, 232—Comparison and Judgment, 233—Necessary Judgments, 234—Universal and Abstract Concepts, 235—Reflection and Self-consciousness, 238—Intellect a spiritual faculty, 239—Intellect mediately dependent on the Brain, 241—Balmez on Sensationism, 242—Lotze, 245—Controversy concerning Universals: Extreme Realism, 247—Nominalism, Conceptualism, 248—Moderate Realism, 249.

CHAPTER XIII.

CONCEPTION. ORIGIN OF INTELLECTUAL IDEAS. ERRONEOUS THEORIES. . . . . Pp. 252—291

Origin of Ideas, 252—Theory of Innate Ideas, 253—Empiricism, 254—Historical sketch of Theories of General Knowledge: Plato, 255—Descartes, 256—Geulincx, Malebranche, 258—Spinoza, 260—Leibnitz, 262—Rosmini, 264—Kant, 265—J. G. Fichte, 270—Locke, 270—Bain, 272—Sully, 275—Comte, 279—Origin of Necessary Truths: Associationism, 281—Evolutionist Theory, 286—Intuitionalist Doctrine, 289.

CHAPTER XIV.

CONCEPTION. ORIGIN OF INTELLECTUAL IDEAS (*continued*) . . . . . Pp. 292—313

Thought an activity, 292—Thought Universal, 293—Conception: Two questions, 293—Elaboration of Universal Concepts, 294—Intellectual Apprehension, 297—Comparative Abstraction, 297—Comparison and Discrimination, 298—Generalization, 299—Thought and Language, 302—Second Question: Origin of Ideas, 302—Aristotelico-scholastic Theory of Abstraction, 305—Doctrine of St. Thomas, 312.

CHAPTER XV.

JUDGMENT AND REASONING . . . . . Pp. 314—344

Judgment defined, 314—Analysis of judicial process, 315—Assent and Consent, 318—Reasoning defined, 320—Analysis of Ratiocination, 320—Deduction and Induction, 321—Implicit reasoning, 322—The Logic of real life: Newman's *Grammar of Assent*, 324—Thought viewed differently by Psychology and Logic, 325—Belief: Historical sketch, 326—Three questions: (A) Nature of Belief, 328—Belief and Knowledge, 329—(B) Causes of Belief, 331—(C) Effects, 334—Conscience, 334—Scholastic view, 335—Other Theories: Moral Sense, 336—Associationist theory, 337—Origin and Authority of moral judgments, 339—Evolutionist hypothesis, 340—Intuitionalism, 342—Kant, 342—Conscience a Spring of Action, 342—Butler's doctrine, 343.

CHAPTER XVI.

ATTENTION AND APPERCEPTION . . . . Pp. 345—360

Attention and Sensation, 345—Attention and Volition, 346—Attention interrogative, 346—Voluntary and non-Voluntary Attention, 347—Laws of Attention, 348—Effects, 349—Attention and Genius, 351—Physiological conditions, 352—Pleasure and Pain, 353—Education, 354—Unconscious modifications of the Mind, 355—Apperception, 357—Historical sketch, 358—Nature of Apperception, 359—Apperception and Education, 360.

CHAPTER XVII.

DEVELOPMENT OF INTELLECTUAL COGNITION: SELF AND OTHER IMPORTANT IDEAS . . . Pp. 361—377

Reflexion: Grades of Consciousness, 361—Growth of the Knowledge of Self, 362—The Developed Mind's consciousness of itself, 363—Abstract Concept of Self, 365—Unity, Continuity, Discontinuity of Consciousness, 366—Genesis of other Ideas, 367—Substance, Accident, Cause, 368—The Infinite, 370—Space, 371—Cognition of Time, 372—Development of this Idea, 373—Subjective and Objective Time, 374—Relativity of our appreciation of Time, 375—Localization in Time, 375—Expectation, 376.

CHAPTER XVIII.

RATIONAL APPETENCY . . . . . Pp. 378—393

Rational Appetency: Desire defined and analyzed, 378—Is Pleasure the only object of Desire, 379—Motive, 380—Spontaneous action and Deliberation, 381—Choice or Decision, 382—Volition, Desire, and various forms of conative activity, 384—Self-control, 385—Order of development, 388—Habit: Practical rules, 388; Moral discipline, 390—Character, 392—Temperaments, 393.

CHAPTER XIX.

FREE-WILL AND DETERMINISM . . . . Pp. 394—424

Free-Will: Philosophy and Psychology, 394—Free-will defined: Scholastic terminology, 395—Problem stated, 396—Fatalism and Determinism, 397—Argument from Ethical Notions: Obligation, 398—Merit and Desert, 401—Responsibility, 402—Justice, 404—Free-will and Ethics, 405—Argument from Consciousness: Attention, 406—Deliberation, 408—Decision or Choice, 409—Adhesion to resolution, 411—Metaphysical argument, 413—Objections: Psychological, 415—Metaphysical, 419—From Science, 420—Theological, 423.

CHAPTER XX.

THE EMOTIONS. EMOTIONAL AND RATIONAL LANGUAGE . . . . . Pp. 425—458

Feeling and Emotions, 425—Scholastic view, 426—Chief forms of Emotion, 427—Self-regarding, 427—Altruistic, 430—Attached to intellectual activity, 432—Æsthetic, 435—The Moral Sentiments, 440—No distinct Faculty of feeling, 442—Genesis of Feelings: James's theory, 443—Classification of Emotions, 446—Expression of Emotions, 449—Evolutionist Theory, 450—Origin of Language, 454.

BOOK II.

Rational Psychology.

CHAPTER XXI.

SUBSTANTIALITY, IDENTITY, SIMPLICITY, AND SPIRITUALITY OF THE HUMAN SOUL . . . Pp. 459—473

Scope of Rational Psychology, 459—Its importance: Method, 460—Substantiality of the Soul, 461—Validity of Notion of Substance, 462—The Mind is a Substantial Principle, 463—Abiding Identity of the Mind, 464—Simplicity, 466—Spirituality, 469.

CHAPTER XXII.

FALSE THEORIES OF THE EGO . . . . Pp. 474—492

Kant's Theory, 474—Empiricist theory: Hume, 475—Mill, 476—W. James's theory, 477—James's Attack on the Soul, 481—Double Consciousness and "Alterations of Personality," 487—Criticism, 489.

CHAPTER XXIII.

MONISTIC THEORIES . . . . . Pp. 493—524

Dualism and Monism, 493—Spiritualist Monism or Idealism, 494—Materialism, 495—Thought is not a secretion of the Brain, 496—Nor a function, 497—Nor a resultant of material forces, 497—Dependence of Mind on Body, 499—Shadworth Hodgson's "Conscious Automaton," theory 503—New-Spinozism, Double-Aspect theory, or Identity-hypothesis, 505—Mind-stuff: Clifford, 506—Bain, 507—Spencer, 508—Mental States not composite, 510—Incredible consequences, 513—Monism: Conservation of Energy: Höffding's doctrine, 517—Criticism, 520—Law of Inertia, 523—Agnosticism, 524.

CHAPTER XXIV.

IMMORTALITY OF THE SOUL . . . . . Pp. 525—544

Immortality and Psychology: Theism, 525—Teleological Argument, 526—Ethical Argument, 529—Formal Theistic proof, 533—Argument from Universal belief, 533—Scholastic Ontological Argument, 533—Objections against the doctrine of a Future Life, 537.

CHAPTER XXV.

SOUL AND BODY . . . . . Pp. 545—561

Individuality of the Human Soul, 544—Unicity of the Soul in man, 545—Vitalism and Animism, 546—Organicism: Physico-chemical theories of Life inadequate, 547—Definitions of Life, 551—Union of Soul and Body: Ultra-dualistic theories, 553—Aristotelico-scholastic doctrine, 555—Soul and Body one Nature and Person, 558—Aristotle's definition of the Soul, 560.

CHAPTER XXVI.

SOUL AND BODY (*continued*). OTHER PROBLEMS . Pp. 562—578

Locus of the Soul, 562—The Soul present throughout the Body, 563—Phrenology, 564—Localization of Cerebral Functions, 565—Methods of research, 566—D. Ferrier, Flechsig, 567—Origin of the Soul, 572—Traducianism and Creation, 574—Time of its Origin: Scholastic doctrine, 575—Lotze and Ladd, 576—Origin of the first Human Soul: Evolution Theory, 578.

SUPPLEMENTS.

A.—ANIMAL PSYCHOLOGY . . . . . Pp. 579—594

Comparative Psychology, 579—Difficulties of Animal Psychology, 580—Cartesian Theory: Animals sentient, 582—Animals irrational, 583—Instinct, 587—Origin of Instinct: Evolutionist Theories, 588—Animal "Souls," 593.

B.—HYPNOTISM . . . . . Pp. 594—601

Hypnotism: Historical sketch, 594—Induction and Characteristics of hypnotic state, 595—Theories concerning Hypnotism, 598

C.—REPLY TO MR. MALLOCK'S CRITICISM . Pp. 603—610

DIAGRAMS ILLUSTRATING THE

STRUCTURE OF

THE NERVOUS SYSTEM DESCRIBED

IN THE TEXT.

For the subject-matter of Figures I.—III. see pp. 44—46

Fig. I.—Side view of Brain and Spinal Cord.
(Barnet.)

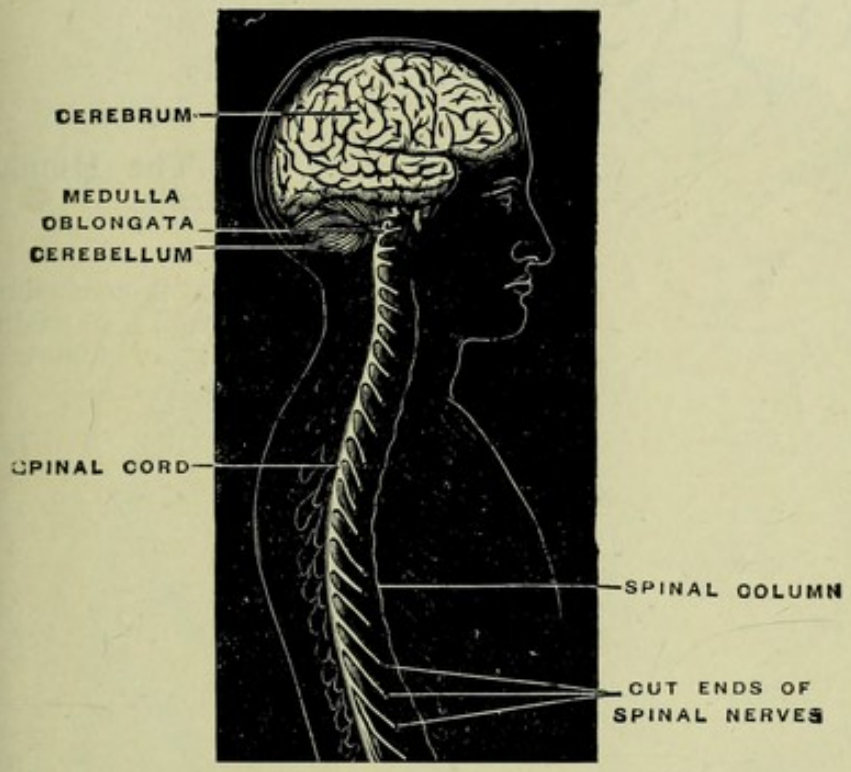
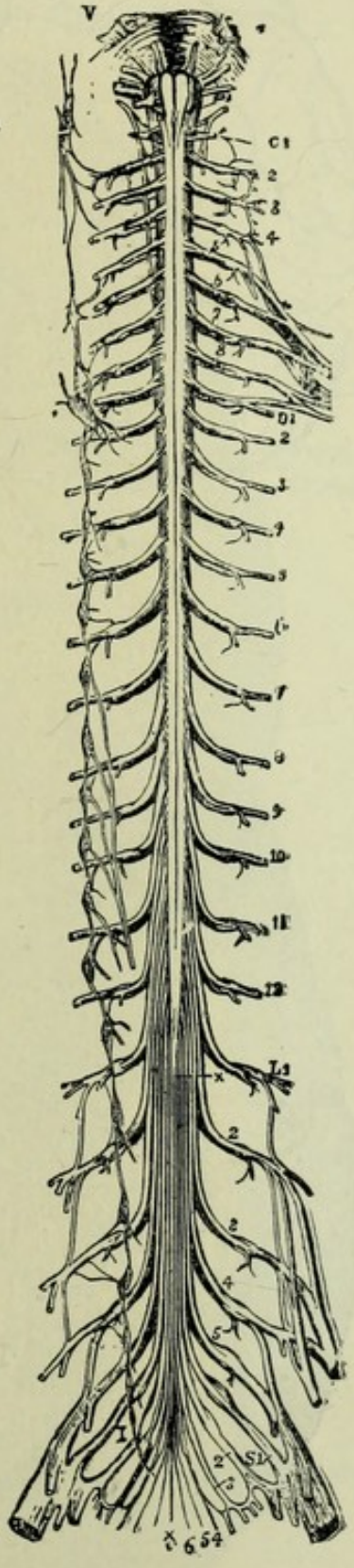
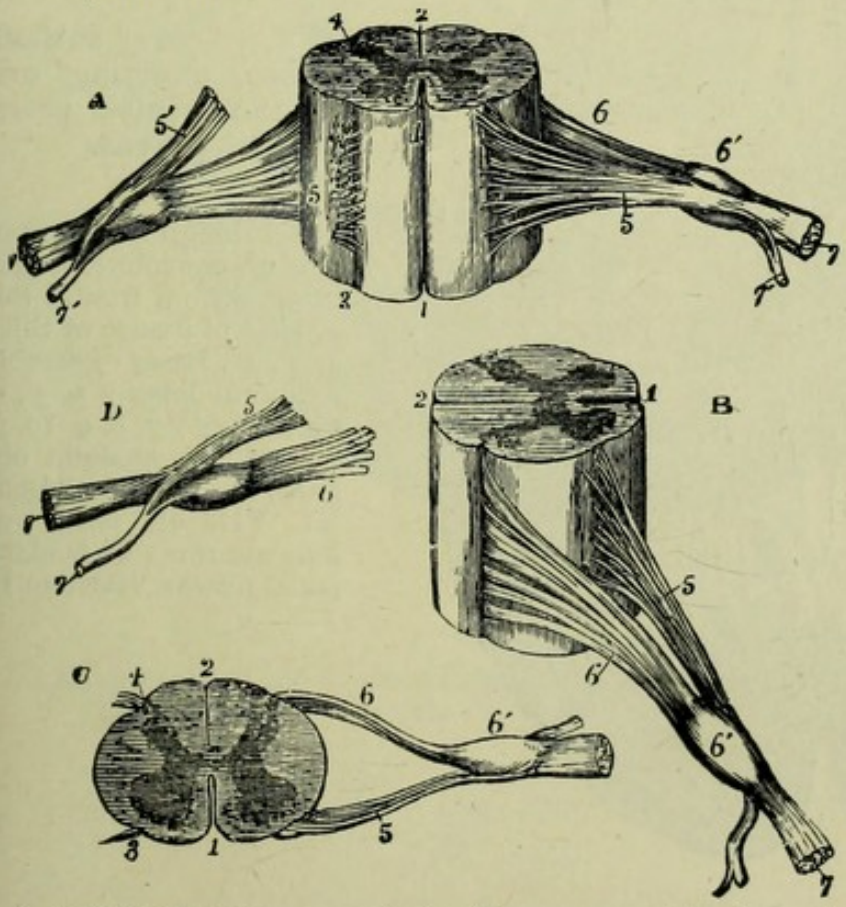


Fig. II.—Spinal Cord and Nerves, with Sympathetic Chain on one side.



V, pons varolii, below which is the medulla oblongata; C 1 to 8, the cervical nerves; a to X, the sympathetic chain connected with spinal nerves. (Furneaux.)

Fig. III.—Roots of a Spinal Nerve issuing from the Cord: viewed (A) from before; (B) from the side; (C) from above; (D) the roots separated.



1, anterior fissure; 2, posterior fissure; 3 and 4, lateral grooves of cord; 5, anterior, efferent, or motor root; 6, posterior, afferent, or sensory root. (Furneaux.)

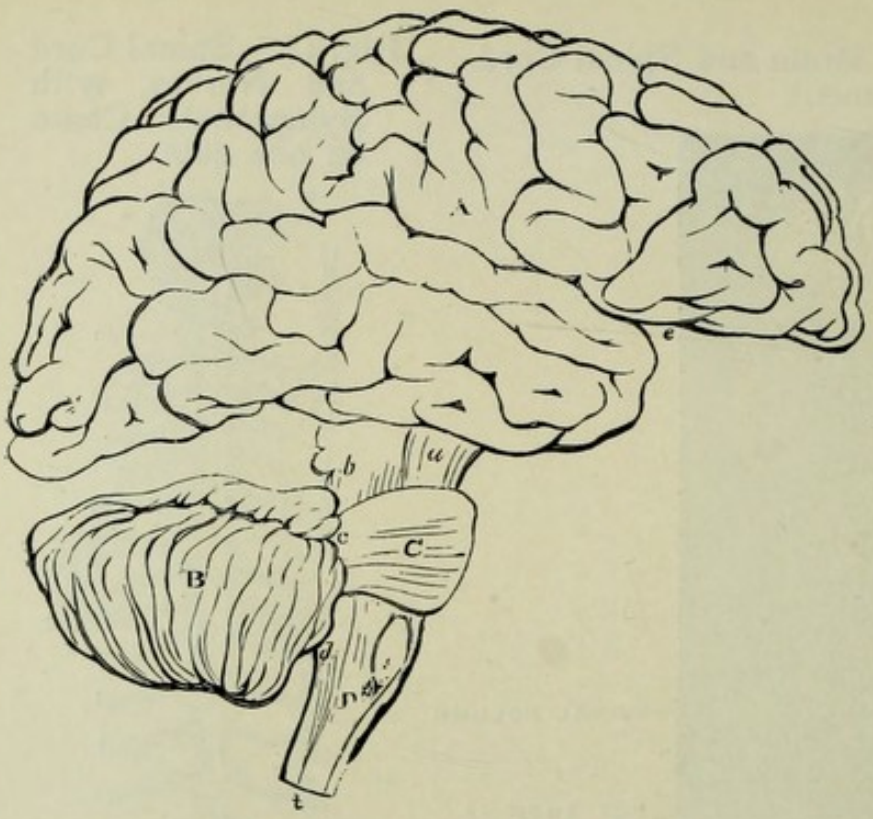


Fig. IV.—The Human Brain.

A, cerebrum ; B, cerebellum ; C, pons varolii ; D, medulla oblongata ; e, fissure of Silvius.

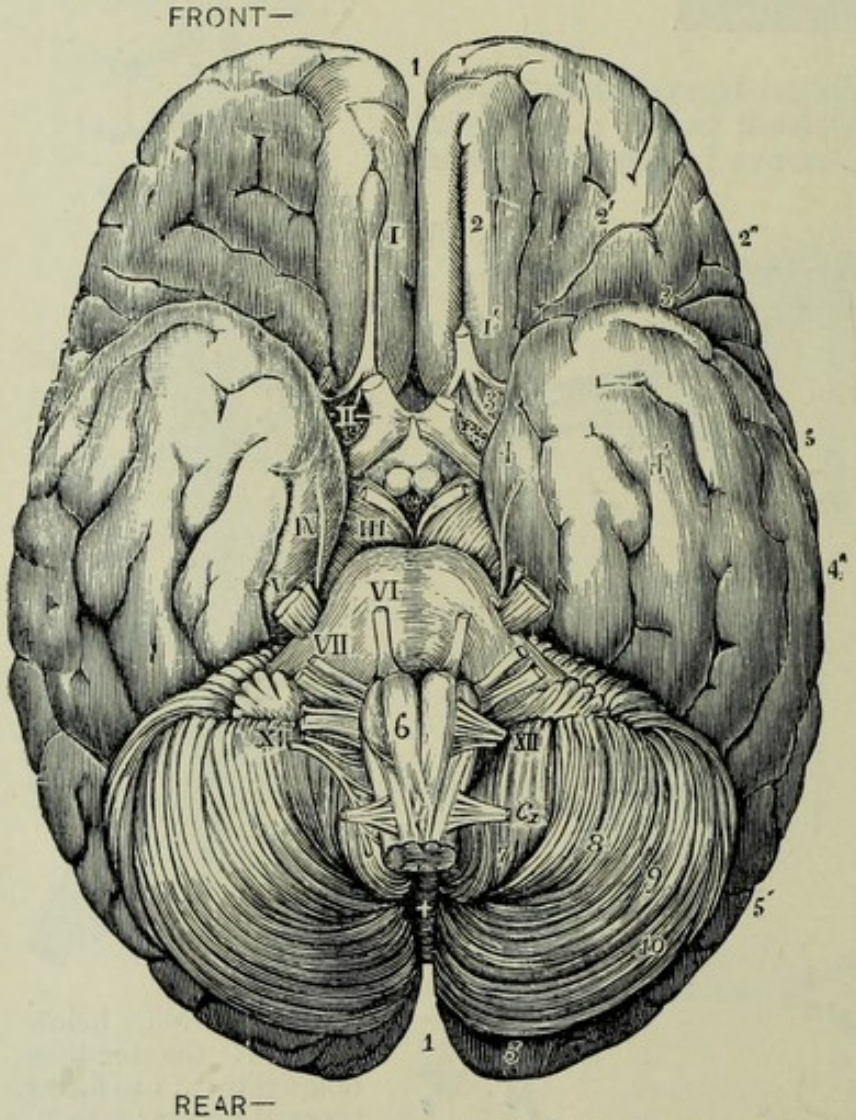
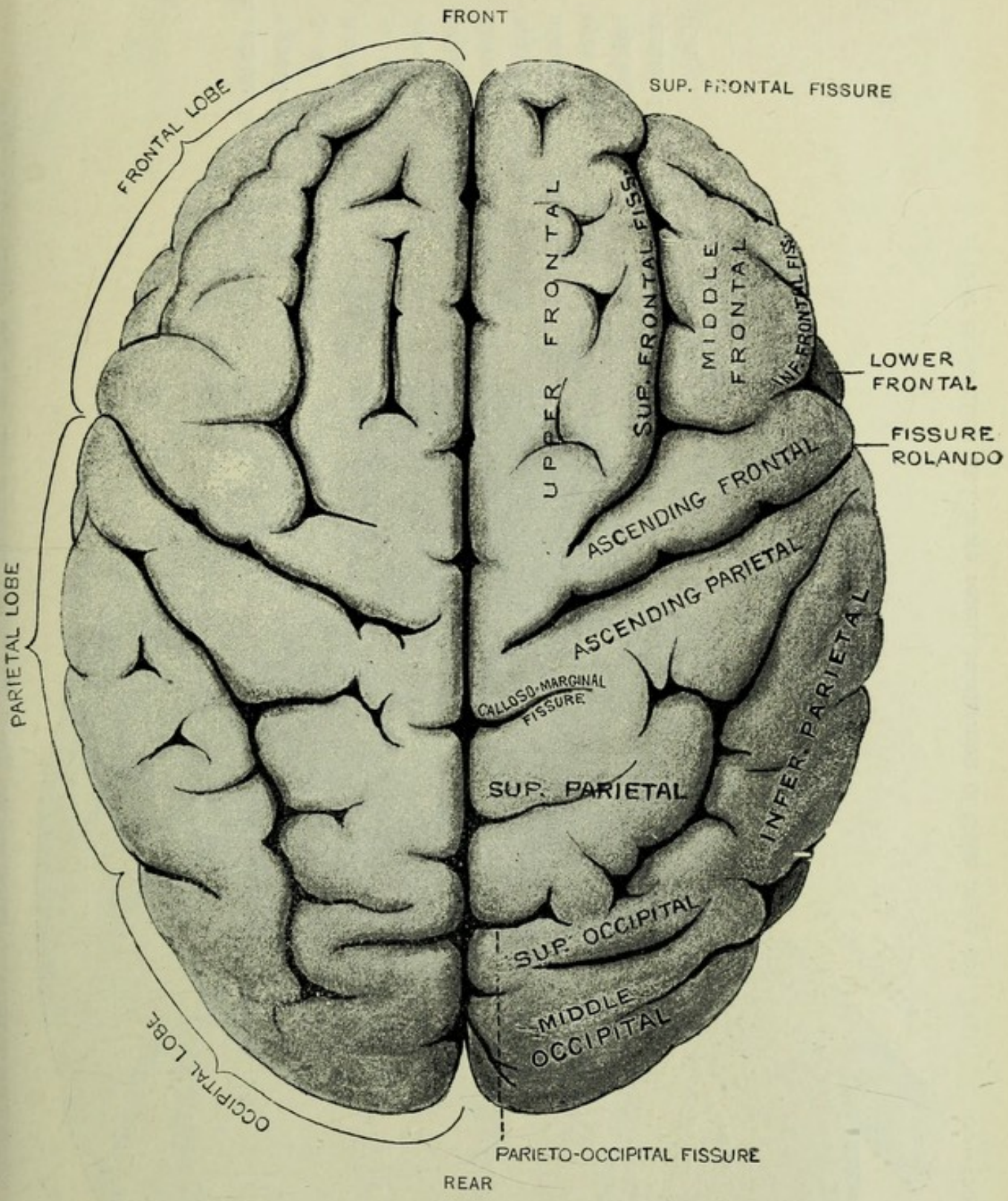


Fig. V.—Under surface of Brain, showing origin of the twelve pairs of cranial nerves.

1, great longitudinal fissure ; 2, 2′ 2″, convolutions of base of cerebrum, frontal lobes ; 3, base of fissure of Silvius ; 4, 4′, 4″, bases of cerebrum, temporal lobes ; 5, 5′, occipital lobes ; 7, 8, 9, 10, cerebellum ; 6, medulla oblongata; I.—IX., cranial nerves; VI. VII. on pons varolii indicate roots of ocular and facial nerves. (Bastian.)

(See Text, pp. 44—46).

Fig. VI.—Upper surface of Brain, arachnoid membrane being removed. (Gray.)

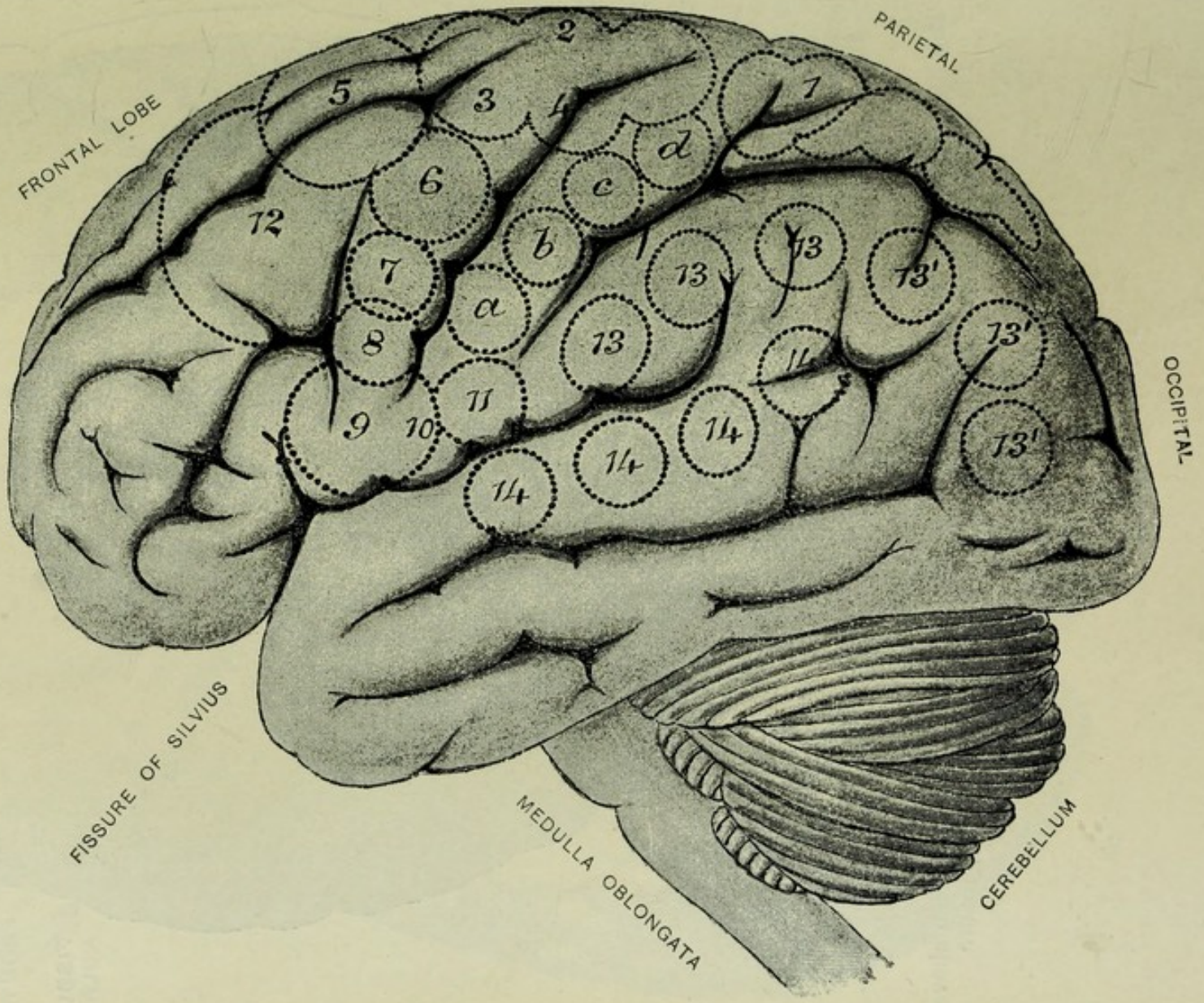


This illustration shows the chief convolutions and fissures of the cerebrum from above. The two hemispheres are divided by the great longitudinal or median fissure.

(See Text, pp. 45, 567—570).

Fig. VII.—Side view of the Human Brain, showing localization of various functions. (After Ferrier.)

1, centre for movements of opposite leg and foot; 2, 3, 4, centres for complex movement of arms and legs; 5, extension forwards of arm and hand; 6, flexion of hand and forearm; 7, 8, elevators and depressors of angle of mouth; 9, 10, lip and tongue; 12, motion of eyes; 13, 13′, vision; 14, hearing; a, b, c, d, movements of wrists and fingers. (Gray.)



(For explanation and more recent subdivision of these areas see Text, . 66—570).

PSYCHOLOGY.

INTRODUCTION.

CHAPTER I.

DEFINITION AND SCOPE OF PSYCHOLOGY.

Definition.—Psychology (*τῆς ψυχῆς λόγος*) is that branch of philosophy which studies the human mind or soul. By the *mind* or *soul* (*ψυχή*) is meant the thinking principle, that by which I feel, know, and will, and by which my body is animated. The terms Ego, Self, Spirit, are used as synonymous with mind and soul, and, though slight differences attach to some of them, it will be convenient for us (except where we specially call attention to divergencies of meaning) to follow common usage and employ them as practically equivalent.

Subjective and Objective.—In modern philosophy the mind is also called the Subject, especially when set in contrast with the external world, which is characterized as the Object. The adjective *subjective* is similarly opposed to *objective*, as denoting *mental* in opposition to *extra-mental* facts, what pertains to the *knowing mind* as contrasted with

what belongs to the *object known*. Thus a train of thought, an emotion, and a dream are said to be subjective; whilst a horse, an election, and a war are objective realities. Such are the primary significations of these terms, but the meanings vary with different writers.[1]

An objection.—We may here be met with the objection that we are unwarrantably postulating at the very commencement of our work the most disputed doctrine in the whole science of Psychology—the existence of some "inscrutable entity," called the soul. To this we reply that for the present we only use the term provisionally to indicate the source or root of our conscious states. We make no assumption as regards the nature of this principle. Whether it be the brain, the nervous system, the whole organism, or a pure spirit, we do not yet attempt to decide. But we claim to be justified, in employing the familiar terms soul and mind to designate this apparent bond, by the obvious fact that our various mental states manifest themselves as bound together in a single unity.

Scope of Psychology.—The subject-matter of our science is, then, the Soul or Mind. The psychologist investigates those phenomena which we call sensations, perceptions, thoughts, volitions, and emotions; he analyzes them, classifies them, and

[1] In strict language the word *mind* designates the animating principle as the *subject of consciousness*, while *soul* refers to it as the root of *all forms of vital activity*. *Spirit* is of still narrower extension than mind, indicating properly a being capable of the *higher, rational*, or *intellectual* order of conscious life. *Ego* and *self* strictly signify the *whole person* constituted of soul and body.

seeks to reduce them to the smallest number of fundamental activities. He studies the nature of their exercise and the laws which govern their operations, and he endeavours to enunciate a body of general truths which will accurately describe their chief and most characteristic features. But Psychology cannot rest here. Whether it wishes it or not, Psychology is inevitably a branch of Philosophy.[2] It cannot remain satisfied with the mere generalization of facts; it must pass on to inquire into the inner nature and constitution of the root and subject of these phenomena; it must seek to explain the effect by its cause. Consequently, a work which does nothing more than describe and classify the operations of the mind, omitting all discussion regarding the mind itself, is but an abortive attempt at a science of Psychology.[3] *La*

[2] Etymologically, Philosophy (φιλοσοφία) is equivalent to the *love of wisdom*, but at a very early date it had come to signify the *possession* of the highest knowledge, or *wisdom* itself Wisdom or Philosophy, thus understood, was defined as *the science of things in their last causes*. The term, *Metaphysics*, was also employed as synonymous with Philosophy, to denote the science which investigates the ultimate principles of things Metaphysics has been divided into the subdivisions: *Ontology* or *Metaphysics proper*, also called General Metaphysics, which studies the nature and attributes of Being in general, and *Special Metaphysics*, including *Cosmology*, *Rational Theology*, and *Psychology*, which investigate special forms of Being. By many modern writers, the terms Philosophy and Metaphysics are used in a very vague and indefinite sense, to signify the investigation of all fundamental problems bearing on the ultimate origin, constitution, or end of things, and the nature of knowledge.

[3] Yet such a truncated exposition of the subject is almost unanimously adopted by English psychologists. *Confer*. A. Bain, *Mental Science*, pp. 1—3; J. Sully, *Outlines of Psychology*, pp. 1, 2; J. C Murray, *Handbook of Psychology*, pp. 1, 2; T. Ribot, *Contemporary English Psychology*, pp. 15—20. Similarly William James, *Principles of Psychology*, Vol. I. pp. v.—vi and H. Höffding, *Outlines of Psychology*, p. 29.

Psychologie sans âme, is Hamlet without the Prince of Denmark. What is the meaning and value of life? What are we? Whence come we? Whither go we? These have ever been questions of profound interest to the human race, and it is the belief that Psychology can throw some light on them which has always vested with such importance this branch of Philosophy.

Besides the fact that the chief interest for mankind in Psychology is due to the expectation that some information as regards the nature of the soul itself can be thence derived, there is another reason for the explicit treatment of these metaphysical problems here. The two sets of questions are incapable of isolation. They can never be really separated. Our final conclusions as regards many vital philosophical problems are necessarily determined by the view taken of the nature of mental activity in the empirical part of the science. The sensationalist doctrines, for instance, on perception, intellectual cognition, or volition, cannot be reconciled with the Hegelian or with the Intuitionalist conception of the mind. It is, consequently, only fair to the reader that the philosophical conclusions to which the treatment of mental phenomena presented to him logically lead, should be clearly pointed out.[4]

[4] "The philosophic implications embedded in the very heart of psychology are not got rid of when they are kept out of sight. Some opinion regarding the nature of the mind and its relations to reality will show itself on almost every page, and the fact that this opinion is introduced without the conscious intention of the writer may serve to confuse both the author and his reader." (J. Dewey, *Psychology*, p. iv.) Höffding's work is a striking illustration of this.

Empirical and Rational Psychology. — The discussion of the former questions—the inquiry into the character of our various mental states and operations—is called by different writers *Phenomenal, Empirical,* or *Experimental Psychology;* whilst the investigation into the nature of the mind itself is styled *Rational Psychology*. Sir W. Hamilton describes this second part as Inferential Psychology, or the Ontology of the mind.[5] The term *Phenomenal* is applied to the first part of Psychology, because it investigates the various *phenomena* of the mind, the facts of consciousness. It is called *Empirical* or *Experimental,* because we have an immediate experience of these facts: we can study them by immediate observation. The second part of our subject is marked by the epithet *Rational,* because the truths which are there enunciated are reached, not by direct experience, but by reasoning from the conclusions established in the earlier part. In the present work we have devoted Book I. mainly to Empirical Psychology, whilst Book II. is confined

Before the end of chapter ii., in which he has professed to treat Psychology from the "purely empirical or phenomenal, not metaphysical or ontological standpoint" (p. 29), he makes it clear that the "identity hypothesis" which makes mind and matter merely "two manifestations of one and the same being," is the only "scientific" theory as to their relations, cf. pp. 54—70. The outcome of Professor Sully's psychological teaching is practically the same. Cf. *The Human Mind*, Vol. II. p. 369. Professor Ladd justly insists that "the problems of *philosophy* all emerge and force themselves upon the mind in the attempt to thoroughly comprehend and satisfactorily to solve the problems of a scientific psychology." (*Philosophy of Mind*, p. 73. Chapters i. ii. of that work contain some sound criticism of "clandestine" metaphysics smuggled into what claim to be purely "scientific" non-philosophical expositions of psychology.)

[5] *Metaphysics*, Vol. I. p. 125.

to the problems of Rational Psychology. We have not, however, sought to make the division rigid: in fact, our chief contention is that a complete and accurate separation of the two branches of Psychology is impossible. Thus we have included in our First Book certain questions regarding external perception, memory, the origin of ideas, the nature of intellectual activity, and the freedom of the will which would now-a-days be usually allotted to the sphere of Rational Psychology. The two branches of the science of course employ both observation and inference; but while frequent appeal to the facts of consciousness is a prominent feature in the first stage, deductive reasoning prevails in the last. Starting from the knowledge acquired in Empirical Psychology regarding the character of the operations and activities of the mind, we draw further conclusions as to the nature and constitution of the root or subject of those activities. The knowledge of the effect leads us up to that of the cause; the mode of action indicates the nature of the agent. We may thus hope by a judiciously combined use of reasoning and observation to attain to a well grounded assurance regarding the existence of an immaterial soul, its relations with the body, its origin, and its future destiny.

Psychology and Cosmology.—The scope of *Psychology* will be made still clearer by pointing out how it is connected with other kindred sciences, and how it is separated from them. In the scheme of strictly metaphysical branches of speculation it stands opposed to *Cosmology*, as the Philosophy of *spirit* to that of *nature*. The latter science seeks to investigate the inner consti-

tution of matter, the nature of space and time, and the ultimate principles or laws which underlie and govern the course of the universe; while Psychology confines itself to the study of the subjective world, the mind of man.

Psychology and Logic.—There are, however, other departments of Philosophical knowledge of a subjective character; both *Logic* and *Ethics* deal with mental activities. As regards *Rational Psychology*, which inquires into the nature of the mind itself, there is no difficulty in seeing how it is differentiated from these sciences, so we need only keep *Empirical Psychology* in view when comparing them. Both *Psychology* and *Logic* study mental states, but whereas the former embraces within its ken sensations, emotions, volitions, and all other classes of conscious acts, the latter is limited to the consideration of cognitive operations, and mainly to that of reasoning. Again, the points of view from which they approach their subject-matter is different. Psychology looks on our mental processes as natural events *interesting in themselves*. It seeks to describe and classify them, to explain their genesis, and to discover their laws or constant modes of action. It may, indeed, incidentally afford useful information regarding the acquisition of habits, the cultivation of the memory, and the training of other faculties; but its primary aim is *speculative*. Logic, on the other hand, is interested in mental operations *as representative of objective fact*. It is the science, not of thinking *in general*, but of *correct* thinking. It is less purely a speculative science, and in the eyes of some even its primary aim is *practical*. Its object is the discovery of the general canons of truth. It is, in the words of St. Thomas, "the science which teaches man how to order aright the acts of the intellect in the pursuit and attainment of truth." In a word, while Psychology studies thought merely *as a subject*, Logic investigates it *for an object*. The researches of the psychologist are directed towards the *causal connections* between mental states, and lead up to the apprehension of a body of *natural* laws—general truths describing uniformities of succession and co-existence

among such states. Those of the logician centre upon the *rational correlations of intellectual acts*, and result in the formulation of a code of *normal* laws—a body of precepts—which can be disobeyed but under the penalty of error. In addition to these points of similarity and contrast, the two sciences are related by a certain mutual interdependence. Psychology, like every other science, must conform to the rules of right reasoning; it must observe the canons of inductive and deductive inference, and it must carry out the general precepts of Logical Method. On the other hand, the validity of thought may be seriously affected by its genesis. The materials with which the logician works are products which have been analyzed by the psychologist, and, consequently, although Logic is not properly based on Psychology, a false theory of the nature of our cognitive faculties may sap the very foundations of knowledge, and lead to a disbelief in the existence of all real truth. Logic may therefore at times have to appeal to a sound system of Psychology in justification of its fundamental assumptions.

Psychology and Ethics.—*Ethics* as the science of morality is easily distinguished from *Psychology*. It investigates the right end of human action, the nature and foundations of moral distinctions, the grounds of moral obligation, and the sanctions of morality. It classifies virtues, vices, and duties, and promulgates the rules of right conduct. Whereas Psychology considers our mental activities in their *causes*, Ethics studies them in their *results*: and while Logic seeks to harmonize *cognition* with the order of the physical world—the *Real;* Ethics would conform *volition* to the order of the moral world—the *Ideal*.[6] In establishing, however, the existence of moral intuitions, and in exhibiting their character, appeal must be made to the philosophy of the mind. The nature of the mental activity called

[6] We have noticed only the most striking points of contrast. Strictly speaking, Logic is concerned for *all* truth—physical, metaphysical, and moral. For a complete account of the province of Logic and its relations to the other sciences, see G. H. Joyce, S.J., *Principles of Logic*, c. i.

conscience, the genesis of moral sentiments, the formation of moral habits, and the freedom of the will, a truth on the proof of which moral responsibility in its universally accepted sense is absolutely dependent; all these questions—matters of the highest importance to the moral philosopher—belong to the sphere of Psychology.

Psychology and Physiology.—The term *Biology* is sometimes used in a wide sense to embrace all the branches of knowledge which treat of the phenomena of life. More properly, it comprehends two co-ordinate physical sciences,[7] *Morphology*, which investigates the structure of living organisms, and *Physiology*, which investigates their functions. The latter science stands in close relations to Psychology, both Phenomenal and Rational. The physiologist studies the various operations of our vegetative life, he examines into the action of digestion, respiration, growth, nutrition, and the other vital processes which take place within us. He observes the working of our several organs, and seeks to enunciate laws that will express the general uniformities exhibited in the aggregate of operations which go to constitute our physical life. These events are perceived by the external senses, and are ultimately reducible to movements in matter.

Physiology is thus distinguished from Empirical Psychology, both by the *phenomena* of which it treats, and by the *faculty* through which these phenomena are apprehended. It is marked off on the other hand from Rational Psychology, as the *positive science* of the *physical*

[7] The term *positive* science is frequently used to designate those branches of knowledge which deal with the laws of *phenomena*, facts observable by immediate experience. Some writers would confine the term *science* exclusively to this signification Such usage is, however, illegitimate. The object of science is to discover causation; consequently, the inquiry into *primary* causes, which are properly the *real* causes, has *a fortiori* a right to this title. For the sake of precision, however, the term *philosophical* science may be conveniently employed to denote those branches of knowledge which deal not merely with secondary, but with the higher or primary causes. Rational Psychology is in this sense a philosophical science, as compared with the phenomenalistic or so-called positive sciences of Physiology and Empirical Psychology

manifestations of life from the *philosophical science* which seeks to investigate into the *inner nature of the subject* of vital phenomena, both *physical* and *psychical*. Again, the vegetative and psychical activities proceeding from the same root reciprocally influence each other. Our sensations, intellectual operations, emotions, and volitions, are profoundly affected by the physical condition of the organism at the time, and in turn they modify the character of the functions of physical life. Consequently, as we shall see in the next chapter, Physiology forms an important supplementary source of knowledge in building up our science of Empirical Psychology.

But Rational Psychology is still more concerned with the teaching of Physiology Its scope is to investigate the inner nature of the subject or root of both psychical and vegetative functions, and the relations subsisting between that subject and the body. It is alike interested, therefore, in the sciences of conscious and of unconscious life, and its final conclusions must alike harmonize with the established truths of Physiology and of Empirical Psychology.

Readings.—On the dignity, utility, and scope of Psychology, cf St. Thomas, *Comm. de Anima*, Lib. I. ll. 1, 2; Dr. Stöckl, *Lehrbuch der Philosophie*, §§ 1—3; Tilmann Pesch, S.J., *Institutiones Psychologicæ* (Friburg, 1897), §§ 19—22, 28—30.

CHAPTER II.

METHOD OF PSYCHOLOGY.

Psychology a Science.—In describing Psychology as the science of the human mind or soul, three conditions are implied—*first*, that Psychology has a definite subject-matter, the nature and activities of the thinking subject; *secondly*, that it possesses an efficient method; *thirdly*, that it comprehends a systematized body of general truths, or, in other words, that it embraces a number of facts in their relations to their universal causes. In our first chapter we sought to mark out clearly the field of our science; in the present we propose to describe its method, pointing out the chief instruments of investigation which lie open to us; the rest of the work will be devoted to the satisfaction of the third essential requirement.

The Subjective or Introspective Method.—The subject-matter of Empirical Psychology is *consciousness*. Now states of consciousness can only be observed by *introspection*—that is, by the turning of the mind in on itself. Consequently this faculty of internal observation must be our chief instrument in the study of the mind. To its adjudication must be the first as well as the ultimate appeal in every

psychological problem. Mental states can only be apprehended by each man's own consciousness. Their reality consists in this apprehension—their *esse* is *percipi*. Therefore the endeavour to decide as to their nature or origin by information gathered from any other source is obviously absurd. The greatest care must, however, be taken to notice accurately all the aspects of the phenomena presented to us, and to detect those numerous unobtrusive differences in the character of mental phenomena which may indicate profound divergency in the nature of their source. The injudicious observer, impressed by the greater intensity of sentient states, may thus easily ignore the more subtle activities of our higher rational life, and so be led to form a conception of mind from which the most important features are absent.[1]

Still, although our mental states are of an evanescent character, and enjoy but a transitory existence, it must nevertheless be insisted on that they are facts as real as any in the universe. A sensation, an intellectual judgment, or a volition, possesses as much reality as a nervous current, a chemical solution, or a transit of Venus; and whilst the most thorough-going sceptic cannot question the

[1] The truth of this remark is strikingly illustrated in the history of Mental Philosophy in this country by the manner in which the relational activity of the mind—its power of apprehending universal relations—has been ignored or misconceived by the entire sensationalist school from Hartley to Dr Bain. The writings of Stirling, Green, Bradley, and other thinkers of Hegelian tendencies have had in recent years the good effect of bringing about the re-discovery of this intellectual faculty, which occupied such a prominent position in the psychological system of the leading scholastic philosophers.

existence of states of consciousness, ingenious and acute thinkers have been found over and over again to deny us all certainty regarding material objects. This mode of investigating psychical phenomena by means of internal observation is called the *Subjective* or *Introspective Method.*

Objective Method. — Introspection must be supplemented, however, by other lines of research, if we wish to make our conclusions as trustworthy and as widely applicable as possible. Appeal to these additional means of information constitutes what is called the *Objective Method* of inquiry, since they form part of the outside world, and are apprehended only through the external senses. But evidence gained in this way is of an essentially secondary or supplementary value, its chief use being that of suggestion or corroboration. The principal forms of objective investigation are the following:

1. *Other minds.*—The results of other men's observations of their own minds as far as these results can be gathered from oral description, and compared with the results of our own individual experience.

2. *Language.*—The products of the human mind as embodied in language may afford valuable information. Comparative philology and the study of various literatures are here our chief resources. Language has been happily styled crystallized or fossilized thought, and under skilful handling it may be made to unfold many interesting secrets of past mental history. Thus the rich and varied vocabulary

of the Tagan dialect, which contains over 30,000 words, a vast inherited wealth far beyond the needs of the present generation, is maintained by Professor Max Müller to point to a degradation of that race from a previous condition of considerable mental development, rather than to a gradual evolution from a lower and less intellectual state.[2] Similarly the presence in various languages of words connoting certain moral ideas may constitute important testimony in disputed interpretations of consciousness.

3. *Historical or Genetic Method.* — A diligent study of the human mind as manifested at different periods of life, and in different grades of civilization, may throw much light on the laws which govern the development of the mental faculties, and on the conditions which have given rise to various customs, sentiments, and modes of thought. Historical researches into the manners, religions, and social institutions of different nations may here prove very fruitful.

4. *Animal Psychology.* — The study of the instincts, habits, and other psychical activities of the lower animals, if undertaken in a sober and judicious spirit, can be made to yield considerable assistance in some questions. This sphere of investigation, when grouped with that just mentioned, is

[2] Cf. "The Savage," *Nineteenth Century*, January, 1885, p. 120. Professor Max Müller there argues very forcibly, that "the magnificent ruins in the dialects, whether of Fuegians, Mohawks, or Hottentots, tell us of mental builders whom no one could match at present." The Tagan language is that spoken by the natives of Terra del Fuego, the race which Darwin considered to be the lowest and least developed family of human beings yet found.

sometimes rather questionably dignified with the title of *Comparative Psychology*. However, the anthropomorphic tendency in man to project his own thoughts and sentiments into other beings renders this scientific instrument peculiarly liable to abuse. Still subject to proper precautions it may assist us materially. By means of it we may advantageously apply the great inductive methods of difference and residues. The lower animals possess certain faculties in common with man, but they are deficient in others, and hence by a diligent study of their actions we are enabled to distinguish how much of man's conduct is necessarily due to different faculties.

5. *Physiology*.—The science of Physiology is also a source of valuable information. The intimate nature of the relations between the mind and the organism, so strongly emphasized in the Aristotelian and Scholastic Philosophy which conceives the soul as the *form* of the body, receives more elucidation every day with the advance of biological science. In examining into the operations of sense, the development of imagination and memory, the formation of habits, and the transmission of hereditary tendencies, the advantage of a knowledge of the physical basis of these phenomena is obvious; but as all mental processes, even the most purely spiritual acts of intellect and volition, are probably accompanied or conditioned by cerebral changes, too much labour cannot be devoted to the study of the constitution, structure, and working of the organism. At the same time care must be taken

to distinguish clearly between the two orders of facts. The mental state and its physiological accompaniment or condition are separated, as Professor Tyndall says, by an "impassable chasm." It is then not sufficient to explicitly admit once or twice, as most writers of the Sensist school do admit, that the neural and psychical events are divided by a difference which transcends all other differences, and then to forget, or lead the reader to forget, the vital character of this difference. The mental states must be treated and described throughout in such a way that no confusion between the two kinds of phenomena is caused to arise in the student's mind, and he must not be misled into supposing that a conscious process has been finally explained when its physical correlate has been indicated, or when the whole operation has been described in cloudy physiological language.

6. *Pathology: Psychiatry.*—Hand in hand with Physiology goes Pathology, the complementary science of organic disease; and the opportunities presented in the investigations connected with this branch of knowledge for the observation of mental activities in an isolated or abnormal condition will occasionally throw light on obscure questions. Somnambulism, illusions, hallucinations, and various forms of insanity exhibit particular mental functions under exceptional conditions, and not infrequently suggest or confirm explanations of special mental operations. Similarly, the study of those deprived of different senses may advance the scientific analysis of normal perception and the discovery of how

much is due to the various faculties. But here again judgment is required, and we must be on our guard against assigning too much weight to irregular and exceptional cases. The emotional interest excited by abnormal occurrences may easily lead us to exaggerate their philosophical importance, and to forget that after all the proper subject-matter of our science is the *mens sana in corpore sano*. The reality of this danger becomes apparent when we find writers on Psychology founding their theories as to the nature of the soul, or of its cognitive operations, not on the observation of the activities of the normal healthy mind, but on dubious conjectures regarding some obscure ill-understood forms of mental aberration that appear perhaps once among a hundred thousand human beings.

7. *Experimental Psychology: Psycho-physics: Psychometry.*—Closely connected with physiological psychology are certain methods of investigation sometimes styled *Experimental Psychology*. Strictly speaking, whenever we deliberately exert or cause another to exert any form of mental activity *in order* to observe it we perform "a psychological experiment." But the term Experimental Psychology is commonly confined to the more elaborate methods of modifying mental operations in order to study them. Various ingenious means have been recently invented for estimating the power and accuracy of imagination, memory, and the several senses; and numerous "psychological laboratories" have been erected for carrying on these investigations in Germany, America, and elsewhere. The terms

psychometry and *psycho-physics* are more especially employed to denote sundry methods employed for measuring the duration of simple mental processes and also the relation between the intensity of sensations and their stimuli. We shall return to this subject again.

These Methods not new.—We have here explicitly enumerated the various sources from which our science draws its materials, but, although it has only in recent times become customary thus to classify them in detail, all of them except the last have been made use of by writers on the philosophy of the mind since the days of Plato and Aristotle. Some recent authors appear at times to believe that these methods of inductive inquiry are a result of modern discovery, and that surprising advances of an undefined character have been, or in the immediate future will be, effected by their means in our knowledge of the nature of the mind. A comparatively brief study, however, of Aristotle's great work on the soul, and of his supplementary treatises on special psychological questions, will show how fully he appreciated the value of these extended fields of information.[3]

Rational Psychology : Method.—The method pursued in Rational Psychology will be mainly inferential. From the truths established in the earlier part of our work as regards the life of the soul, we shall draw inferences as to its inner consti-

[3] M. St. Hilaire has shown clearly how accurate were the views of the founder of the Peripatetic school on the use of the inductive methods in Psychology. (Cf. *Psychologie d'Aristote*, pp. lii.—lxv.)

tution; from the character of the activity we shall argue to the nature of the agent, from the degree of perfection in the effect we shall reason up to that of the cause.

Attacks on Psychology.—The scope just assigned to Psychology is objected to by writers of widely different schools in this country, so it may be well to add a few supplementary remarks in defence of our position. Opponents we may divide into three classes. Some deny the possibility of a science either of Rational or Phenomenal Psychology. Others, admitting the existence of a genuine science of the phenomena of the mind, deny the possibility of any real knowledge regarding the nature or existence of the soul. Others, again, whilst allowing with this second class the value of Empirical Psychology, exclude from its treatment various questions, such as the freedom of the will, and the origin of intellectual ideas, on the ground that these are metaphysical or philosophical problems to be treated of elsewhere. As regards this last view, the divergence from us may be mainly one of method and classification. Provided these questions are satisfactorily discussed in some branch of Philosophy, it does not appear vital what department be selected. We may, however, point out that Psychology, the philosophy of the mind, seems to be under more distinct obligations to face these problems than any other science; and, in the second place, as we have already stated, any attempt at adequate treatment of mental phenomena will inevitably involve some particular philosophical view as to the nature of our faculties.

The only sufficient answer to writers of the second class—those who deny the possibility of a rational science of the soul—is to work out a systematized body of certain truths regarding its nature, and the relations subsisting between it and the body. This we will endeavour to accomplish in the Second Book of the present volume. That a work claiming to be a treatise on Psychology ought to make some such

attempt seems so manifest that it is difficult to understand why the duty should be so uniformly ignored in English manuals. Locke's influence and the national distaste for metaphysical argument has had much to do with it, but probably the authority of the Scotch school has had still more. For it was to Reid and Stewart those most interested in a satisfactory exposition of the evidence bearing on the existence and character of the human soul naturally looked for a proper vindication of the subject. Unfortunately, idolatry of empirical fact and contempt for deductive reasoning reached a climax in the common-sense school. As a consequence, the worship of the Baconian method in its most exaggeratedly vicious form wrought that evil in the science of the mind which it would assuredly have effected, had it been as faithfully followed, in the study of external nature.[4] Thus we find that whilst in Germany and other Continental countries mental philosophy was approached with a view to the solution of the most interesting and important problems that can occupy the human spirit, British psychologists have been seeking to convert their science into a mere natural history of psychical phenomena. Any attempt at a comprehensive treatment of our mental activities is stigmatized as an illegitimate introduction of philosophical problems, and we have finally reached a stage in which even such a clearly psychological question as the freedom of the will is to be rigidly boycotted on the grounds of its connexion with the discredited science of metaphysics.

Objections to Introspection.—As regards the third class of opponents—those who deny the possibility of a genuine science even of phenomenal psychology—since they attack the foundations on which our whole work rests, we will here state and answer briefly their chief arguments. The leading

[4] On the reaction against the pure Baconian doctrine of method in recent times, see Jevons' *Principles of Science*, Vol. II. c. xxiii. He remarks that "its value may be estimated historically by the fact that it has not been followed by any of the great masters of science." (p. 134.)

representatives of this view have been Comte in France, and Dr. Maudsley at home. Both teach that Psychology is merely a subsidiary department of Biology, and that it must be studied exclusively or mainly by objective methods. Dr. Maudsley states the case against Psychology at length in the earlier part of his work, *The Physiology of Mind*. But in this, as indeed in other philosophical questions, that vigorous writer does not appear to hold very clear or consistent opinions even throughout the course of the same volume.

1. He urges that Psychology, as a distinct independent science built up by introspection, is impossible, for introspection is itself impossible. "In order to observe its own action it is necessary that the mind pause from activity, yet it is the train of activity that is to be observed." (*The Physiology of Mind*, p. 17.)

This assertion we dispute, and in support of our view we would appeal to each man's inner experience. *First*, as regards the various modes of our sentient life, sensations, perceptions, appetites, pleasures, and pains, our only difficulty is to understand how such a statement as that attention to them causes their immediate annihilation could ever have been penned. Life could be made happy without much difficulty if our disagreeable states and experiences would vanish when we turned to observe them; but unfortunately cold, hunger, thirst, and disease, the pains of muscular strain, and of toothache are not such obliging visitors. The activities of sight, hearing, taste, smell, and touch, can certainly be studied both in actual operation on their objects, and as reproduced in imagination. *Secondly*, that we can attend to and examine our higher forms of mental activity is equally certain. Emotions, desires, perceptions of relations, reasonings can be both concomitantly studied in their direct course[5] and afterwards

[5] Mr. Sully, who defends the introspective method, yet seems to hold that immediate concomitant consideration of *present* mental states is impossible, that it is only *past* states we can properly be said to observe, and that in fact "all introspection is retrospection." (*Illusions*, p. 190, and *Outlines of Psychology*, p. 5.) This tenet is a necessary deduction from the sensationist theory of mental life, but the logical position for the disciple of that school is that assumed

recalled by memory. This is due equally in either case to the self-conscious power of the mind, and implies in us a higher order of mental activity than that involved in mere sentient affections. Our only proof of this, as well as of every other psychological fact, must be an appeal to each man's own consciousness.

2. Again, it is a maxim of "inductive philosophy that observation should begin with simple instances, ascent being made from them step by step through appropriate generalizations." (Maudsley, p. 19.) Moreover, science being universal, the psychologist should be able to contemplate a variety of specimens which exhibit the object of his investigations in its various stages of development. But introspection presents only a single subject for examination, and that a most rare and exceptional one, "the complex self-consciousness of an educated white man." Consequently, even were introspection possible, its deliverances would be deprived of that feature of *universality* essential to every genuine science. To this we may reply in the first place that, were a number of anatomists limited each to the study of a single human organism, they would still be able to frame a collection of results containing a substantial amount of agreement. Secondly, comparison of observations among psychologists, appeal to general experience, and the several objective methods we have described, and which have been in use from

by Dr. Maudsley, and not the halting inconsistent doctrine of Mr. Sully. To the mind endowed with no activity essentially higher than that of the sensuous order, both *introspection and retrospection are equally impossible*. But that the human mind is capable of *concomitantly* observing its own normal states becomes clear to any one making the attempt. It is actually the converse of Mr. Sully's *dictum* which expresses the truth, "All retrospection involves present introspection," for, it is the *present* representation of the past state which is examined, and only *while actually present to the mind* can it be the subject of observation. But if we can attend to a present state which happens to be an image of a past state, surely there can be nothing to prevent attention to a state which is not such a representation. Consequently we can concomitantly study those mental processes of which we are conscious. In a word, as Mill urges against Comte, "Whatever we are directly aware of we can directly observe." (*Auguste Comte and Positivism*, p. 64.)

the very birth of Psychology, completely destroy the force of the supposed difficulty.

3. A kindred objection is urged against the necessary limitation of introspective observation to a single observer, "a witness whose evidence can be taken by no one but himself, and whose veracity, therefore, cannot be tested. . . . The observed and the observer are one, and the observer is not likely in such a case to be unbiassed by the feelings of the observed, and to conform rigidly to the rules of exact observation." (*id.*) The answer to the last objection will apply again in great part here. Further, (*a*) the psychologist, like the physiologist and every other scientific inquirer, must seek to lay aside prejudice and to approach his subject in an impartial spirit. (*b*) He must, like them, exercise care and diligence. And (*c*) he must check his results by comparison with those of other observers, and by the study of other minds through the various supplementary methods.

4. Dr. Maudsley also argues that the range of introspection is very limited. (*a*) "Consciousness which does not even tell us that we have a brain is certainly incompetent to give any account of the essential material conditions of our mental life." (p. 21.) (*b*) Mental life itself, too, is largely beyond the range of introspection. "It is a truth which cannot too distinctly be borne in mind, that consciousness is not co-extensive with mind." (p. 25.) As regards the first part of the difficulty it might, perhaps, be not unfairly retorted against the physiologist that the method of external observation on which his science is based can tell us nothing of the mental conditions which profoundly influence many physical processes. Letting this pass, however, it is sufficient to recall to mind that conscious states and mental activities are real facts differing in kind from all physical events, in order to give them as good claim to form adequate matter for an independent science as physiology has to be separated from chemistry or mechanics. Finally, that the study of the physical conditions of conscious processes is a legitimate source of useful supplementary

information has been, as we before urged, fully admitted from the time of Aristotle; but unfortunately, owing to the hitherto extremely backward condition of the science of Physiology in general, and especially in that department which deals with physical basis of mental life, it can afford very little reliable information of any importance.

5. Dr. Maudsley also argues that the illusions and hallucinations of the insane seem to them as clear and evident affirmations of consciousness, as do the introspective observations of the psychologist. Therefore the latter are untrustworthy. This objection is trivial. Insanity is, unhappily, a possible contingency among the investigators both of soul and body, but science will not be ultimately injured by such casualties.

6. Finally, it is urged, as a general proof of the worthlessness of Subjective Psychology, that "there is no agreement between those who have acquired the power of introspection." (*id.*) This objection is based on a confusion of two very distinct questions—the character of the mental states of which psychologists affirm that they are conscious, and the hypotheses or explanations which they advance to account for these states. As regards the former, that there is a very large amount of general agreement, any one who consults the psychological literature even of schools the most opposed will discover. On the other hand, wide and manifold divergence in the theories advanced to explain the origin and nature of mental life, the history of Philosophy since the great scholastic stream of thought was abandoned unequivocally demonstrates. But that is not the fault of introspection any more than conflicting views as to the source of the sun's heat are a reflection on the trustworthiness of the telescope.

Real Difficulties.—We have treated Dr. Maudsley's objections at such great length, not on account of any considerable importance we assign to his work, but because the discussion of his arguments helps to make clear to the student the actual difficulties and limitations of the Introspective Method. For it must be admitted

that internal observation is often not easy. Mental states, unlike the objects of physical science, are unstable and ever changing. They are not independent of concomitant states. Even though it be untrue that *all* introspection must be retrospective, yet the more vehement forms of mental excitement can be adequately studied only by means of recollection. The limitation, too, of direct observation to a single specimen with its inevitable peculiarities may be attended by serious risks. Bias and intellectual prejudices may unconsciously interfere with the correct appreciation of facts, and our very familiarity with our mental states increases the labour of accurate observation. Still these hindrances to introspection can be overcome by (*a*) diligence and attention, (*b*) the skill acquired by practice of reflection, (*c*) industry in repeating our observations under varied conditions and the employment of recollection in studying afterwards states which cannot be well examined whilst actually occurring, (*d*) honest effort to be unprejudiced and impartial in the observation of facts and to be on our guard against the more impressive features of imagination and sensuous states; finally, by (*e*) making the fullest use of the various supplementary objective methods to test and confirm the results of direct introspection.

Readings.—On the opposition in nature between Psychology and the objective sciences, cf. Dr. Martineau's *Essays Philosophical and Theological*, "Cerebral Psychology," pp. 245—253. On the various methods, cf. Pesch, *Institutiones Psych.* §§ 25—30; Dr. Gutberlet, *Die Psychologie* (Munster) pp. 1—15; and F. Mark Baldwin, *Sense and Intellect*, pp. 20—32. On objections to the possibility of Psychology, cf. Pesch, *ib.* §§ 31—34. On the necessity of a consistent theory of Rational Psychology, even for a complete view of the physiological conditions of mental activity, cf. Professor Ladd's *Physiological Psychology*, pp. 585, 586.

CHAPTER III.

CLASSIFICATION OF THE MENTAL FACULTIES.

Consciousness.—The subject-matter which Empirical Psychology investigates is Consciousness, but, as we have already remarked, the chief instrument by which our investigations are to be carried on is also Consciousness. The question then at once arises: What meaning or meanings are we to attach to this term? The word has been employed in a variety of significations, but for our purpose it will be necessary to distinguish and recognize only three.[1] In its widest sense Consciousness as opposed to unconsciousness denotes all modes of mental life. It comprises all cognitive, emotional, and appetitive states which are capable of being apprehended; it is, in fact, synonymous with the sum-total of our psychical existence. In its second sense it signifies the mind's direct, intuitive, or immediate knowledge either of its own operations, or of something other than itself acting upon it. This usage, which is supported by Sir W. Hamilton and some of those writers who maintain that we have in certain acts

[1] A lengthy treatment of this subject by the Author of this work will be found under the article "Consciousness," in the *American Catholic Encyclopedia*. See also John Rickaby, *First Principles of Knowledge*, pp. 340—347.

an immediate perception of a reality other than ourselves, makes Consciousness equivalent to immediate or direct knowledge. Understood in this way Consciousness signifies the energy of the cognitive act, and not the emotional or volitional acts as cognized. On the other hand, it is opposed to mediate and to reflex knowledge. In its third meaning the term is limited to that deliberately reflex operation by which the mind attends to its states and recognizes them *as its own*. Consciousness in this sense is no longer that common constituent of all subjective phenomena, whether intellectual, emotional, or appetitive, which makes them mental realities; nor yet is it the simultaneous notice which the mind concomitantly possesses of such acts. It is a supplementary introspective activity by which all our mental states are studied, and through its means what is implicitly apprehended in our direct consciousness is explicitly brought under review. In this signification the word is equivalent to *Self-consciousness*, and whenever there is danger of ambiguity, or whenever it is of importance to bring out the distinction, we will employ this latter term with its adjective *self-conscious*.

Subconscious Mental Activities.—It should not be forgotten, however, that besides the mental operations which reveal themselves in consciousness, there is much evidence to establish the existence of vital activities of which we are not at the time aware. Not only are there normally unconscious functions of organic life, such as digestion, respiration, circulation, but the sensitive faculties of the mind, even in a natural healthy state, seem at times to undergo modifications without our apprehending these latter. Thus, very faint impressions on the sense-organs are ordinarily

not perceived, and when the attention is engrossed by some object of interest, other sensations of sound, sight, and touch, although perhaps of considerable intensity, may escape unnoticed. The noise in the playground outside my open window, the sound of the flames rising up from the grate, the resistance of the table on which I have been leaning, and of the pen which I have been holding between my fingers were completely unobserved until I now deliberately adverted to them. In the estimation of distance, in the recognition of objects and in the normal acts of perception of mature life rapid reasonings are frequently made with so little cognizance of the operation as to be styled "unconscious inferences." Memories, acquired tendencies, habits constantly affect the character of our conscious life, whilst not themselves present to consciousness. The sleeper and the man in deep reverie respond to sensory stimuli by appropriate movement without having any knowledge of either the exciting cause or the resulting movement. Cheerfulness and sadness, love, hate, and fear are often the outcome of feelings which elude our best efforts to discover them. Such undercurrents, lying as it were below the surface of mental life, have been called by recent psychologists *subconscious states*. There is considerable dispute as to their exact nature and how their relation to the mind should be conceived. For the present it is sufficient to call attention to their reality and to remind ourselves that although unsusceptible of introspective observation, some of these activities are intimately connected with our conscious life.

Mental Faculties : Classification.—Our primary duty in entering upon a scientific treatment of the facts of Consciousness is to effect a proper distribution of these phenomena. From very ancient times it has been customary to divide our mental states into a small number of general groups conceived to be the outcome of separate *faculties* or *powers*[2] of the

[2] The exact meanings of the terms, Faculty, Power, Capacity, Function, and the like, are not very accurately fixed in Psychology. Power (*potentia*) may be conceived as either active or passive, that is either as a special causality of the mind or as its susceptibility for a particular species of affections or changes. Hamilton, following Leibnitz, would confine the term Faculty (*Facultas, Facilitas*) to the former meaning and Capacity to the latter. The

mind. By a faculty is meant the mind's capability of undergoing a particular kind of activity; thus, our sensations of colour are due to the faculty of vision, our judgments to the faculty of intellect, and our volitions to the faculty of will. Such a method of classification is justified by the conspicuous differences found both in the quality of the several kinds of mental life, and in the manner in which the latter put the mind in relation with the object.[3]

Cognitive and Appetitive.—These activities assume either of two generically different forms. Every mental act or energy constitutes a relation between the mind or subject and the object or terminus of that act. Now this relation we find always to

terms *Act*, *Operation*, *Energy*, on the contrary, denote the present exertion of a power. The last of the three, however, is also used in a kindred sense to the previous terms, as the perfection or special ground in the agent from whence the activity proceeds. The word *Function* may signify either the *actual exercise* or the *specific character* of a power. *Faculty*, *Power*, and *Capacity*, all properly signify *natural* abilities. Accordingly, G. H. Lewes inverts the original and universally accepted meaning when he would make the term Faculty connote an acquired or artificially created aptitude. Faculty is *efficient* cause of Function, not *vice versa*, though the latter is both *final* and *formal* cause of the former. (Cf Hamilton, *Metaph.* Lect. x.; Lewes, *A Study of Psychology*, p. 27.)

[3] "The ground for the division of the mental faculties lies in the special nature of the psychical activities." (Cf. Jungmann, *Das Gemüth und das Gefühlsvermögen der neueren Psychologie*, p. 12.) Scholastic philosophers taught that the faculties of the soul should be distinguished *per actus et objecta*, that is, according to the nature of each activity and the object towards which it is directed. The former principle, however, is the real causal ground for the distinction, the latter being valuable mainly as an indication or symptom which helps to exhibit more clearly diversities in the quality of the energy. "Potentia, secundum illud quod est potentia, ordinatur ad actum. Unde oportet rationem potentiæ accipi ex actu ad quem ordinatur; et per consequens oportet quod ratio potentiæ diversificetur, ut diversificatur ratio actus." (*Sum.* i. q. 77. a. 3. c.)

consist either in (*a*) the assumption by the soul of the object into itself after a psychical manner (*imagine intentionali*), or (*b*) the tendency of the soul towards or from the object as the latter is in itself. In the previous case the object of the state is presented or represented in the mind by a *cognitive* act, in the latter the mind is inclined[4] towards or from the object by an *appetitive* act; and the aptitude for the one class of operations is described as cognitive, percipient, apprehensive, and the like, while the root of the other has been styled the "striving," "orectic," "conative," or "affective" power. Under the faculty of cognition or knowledge are aggregated such operations as those of sense-perception, memory, imagination, judgment, and reasoning; under the affective or appetitive faculty are included desires, aversions, emotions, volitions, and the like.

2. *Rational and Sensuous.*—Besides this distribution of mental energies into those of a *Cognitional* and those of an *Appetitive* character, and running right through both classes, there is another division of still more vital importance from a philosophical standpoint; we mean that based on the distinction between the powers of a *higher, rational,* or *spiritual* grade, and those of the *lower, sensuous,* or *organic* order. Throughout the entire history of Philosophy it has been recognized that this difference is of profound significance. Thinkers upholding so multi-

[4] There is indeed a certain sense in which the apprehensive faculties exhibit a *tendency* towards their appropriate objects. This is implied in the scholastic term *intentionalis*. Still the distinction between such general responsive affinity and the special "striving" element of appetite remains evident.

farious and divergent philosophical creeds as Plato, Aristotle, the Schoolmen, Descartes, Leibnitz, Kant, and Hegel, all agree in looking on this difference of nature in our sensuous and intellectual activity as the central fact in the whole of Philosophy. Accordingly, in addition to the division which separates appetency from cognition, and intersecting both these departments of mental life, we must draw a line marking off *sensuous* from *rational* or *spiritual* phenomena. These, however, must not be conceived as two co-ordinate classes of activities standing independently side by side; they are akin rather to superimposed strata. The superior faculty presupposes and supplements the action of the lower, though both are properties of the same soul.

To the sensuous order belong such operations as seeing, hearing, forming concrete pictures by the imagination, and conserving sensible experiences in the organic memory. Intellectual consciousness comprises the processes of forming universal concepts, judgments, and inferences, the recollection of rational truths, and the operation of reflecting on our own mental states. In the sphere of orectic activity or conation we find in the lower grade organic appetite and sensuous desires, in the higher spiritual desires and rational volition. Affections, emotions, and passions pertain partly to one, partly to the other order. It is true of course that in actual concrete experience we cannot separate the superior from the inferior activity. The sensation in mature life is rarely given without some faint accompanying exercise of Intellect. But such

dependence, or concomitance, does not identify the two energies.

Subdivision. — A further examination of our cognitive power of the sensuous order reveals to us certain lesser differences which afford us reason for a subdivision of this generic capability. We find that some faculties make us directly cognizant of material phenomena existing without the mind. These are the *External Senses*. Others have for their objects not such extra-mental realities, but conscious representations of the former. These faculties were called by the scholastic philosophers the *Internal Senses*, the chief of which are Imagination and Memory. The first forms images of absent objects, the second super-adds to such representations a conviction of their having been previously experienced. The principal subdivisions, therefore, of the lower grade of cognitive life are Imagination, Memory, and the External Senses. In the sphere of spiritual knowledge the various operations of conception, judgment, inference, and reflection, do not present sufficient divergency in nature to warrant a subdivision of Intellect into different faculties. These several processes are merely successive functions of the same power.

Besides the general partition of appetency, or affective consciousness, into rational and sensuous, no further subdivision seems obvious. The most important class of states which might appear to claim as their root another special property of the soul are the Feelings and Emotions. In so far, however, as they are not identical with the merely

pleasurable or painful aspect of our cognitive energies, these phenomena may be traced to the affective or appetitive disposition of the mind taken in a wide sense. In our present chapter we can of course merely enunciate the principles upon which our system of classification is based; the justification of that scheme will be found in the detailed treatment of these various mental activities throughout the present book.

Various classifications of Mental Faculties: *Aristotle's Scheme.*—Although the vast majority of psychologists have followed the method of referring our psychical phenomena to a small number of general faculties, yet there has been a good deal of disagreement regarding the scheme of powers to be assumed as ultimate. Aristotle, rejecting Plato's allotment of three really distinct souls to man, teaches that the human being is possessed of one vital principle which informs and animates the body. This soul (ψυχή) is endowed with five distinct genera of faculties: "Vegetative Power (τὸ θρεπτικόν), on which the maintenance of the corporeal organism depends; the Appetitive Faculty (τὸ ὀρεκτικόν), which is exerted in striving after what is good and agreeable, and in repelling what is disagreeable (δίωξις καὶ φυγή); the faculty of Sensuous Perception (τὸ αἰσθητικόν), by which the objects perceptible by sense are represented in our cognition, the Locomotive Faculty (τὸ κινητικόν), by which we are enabled to move the body and its members, and make use of them for external action; and lastly, the Reason (τὸ διανοητικόν). The four faculties first-named belong to brutes, as well as to man. Reason, on the other hand, is the characteristic which distinguishes man from the brutes."[5]

Scholastic System.—St. Thomas follows Aristotle,[6] but

[5] Stöckl's *Handbook of the History of Philosophy* (Translated by Thomas Finlay, S.J.), p. 119. This work contains an excellent epitome of Aristotle's Philosophy.

[6] Cf. *Sum.* i. q. 78. a. 10.

lays greater stress than the Greek philosopher on the distinction between mere sensitive appetite (ὄρεξις ἄλογος), for which we are not responsible, and rational appetite or will.[7] Leaving out of account, then, the physiological or extra mental powers of the soul, we have cognitive capabilities of the sensuous order; intellect, or the faculty of rational knowledge; and the two kinds of appetite. This is the scheme which we have ourselves adopted. With St. Thomas, as with us, emotional states are either complex products made up of cognitive and appetitive activities, or mere aspects of such energies.

Scotch School.—Among modern writers, Reid and Stewart put forward the distribution into *Intellectual* and *Active* Powers, based on the antithesis maintained by the peripatetics between the cognitive and appetitive faculties. In doing so, however, they overlooked the equally important principle of division into Sensuous and Rational aptitudes, all forms of cognition being alike styled *intellectual*. In addition to this deficiency, their classification errs by opposing *intellectual* to *active*, whereas the higher order of cognitive activity is as essentially active as many modes of appetency.

Tripartite Division.—Hamilton adopts the three-fold distribution of the facts of consciousness into phenomena of *Knowledge*, of *Feeling*, and of *Conation*. This classification, first propounded last century by Tetens, a German philosopher, was popularized by Kant, and probably enjoys most general favour among psychologists of the present day. It bases its claims on the assumption of three ultimate radically distinct modes of conscious activity to one or other of which all forms of mental life are reducible, while none of these, it is asserted, can be identified with, or resolved into, either of the other two. Consciousness assures me, it is urged, that I am capable of Knowledge, of seeing, hearing, imagining, reasoning, and the rest. It also testifies to the fact that I may be drawn towards or repelled from objects, in other words, that I am endowed with the faculty of Desire. Finally, it reveals to me that I

[7] *Sum.* i. q. 80. a. 2.

experience pleasure and pain, and that I am subject to various emotions, such as curiosity, pride, anger, and admiration, which are not acts of cognition, nor yet of desire. Accordingly there must be postulated as the basis of this last class of states a third capability in the mind, the Faculty of Feeling. Our objection to this scheme is that it sins both by excess and defect. On the one hand it ignores the fundamental distinction between the lower and higher grades of mental life, and on the other hand it asserts without sufficient grounds the existence of a separate third faculty. Hamilton, like most Kantians, was at times fully aware of the divergence in kind which marks off rational from sensuous cognition. Yet this all-important difference receives no real recognition in his classification, whilst the phenomena of feeling, for which he demands a third compartment, are reducible either to aspects of cognitive energies or modes of appetency.

Spencer's Bipartite Division. — Mr. Herbert Spencer rejects the triple division of mental phenomena for a two-fold one: (1) *Feelings*, and (2) *Relations between Feelings* or *Cognitions*. In his view volition is merely a complex form of feeling, and even the "relations" between feelings he speaks of as being merely special feelings. As a psychological classification this division has been very justly, but not consistently, rejected by Dr. Bain, on the ground that what is required is not a scheme of mental products, but of the different kinds of powers or forces of the mind by which such products are attained.[8] Looked at, however, as an ultimate analysis of our mental operations, it must be condemned as proceeding from a false conception of mental life.[9]

[8] *The Senses and Intellect*, p. 640. (2nd Edit.)

[9] H. Spencer, Bain, Mr. Sully, and all empiricists, since they teach that the mind is nothing more than the sum of our conscious states, mean by a faculty merely a group of like mental acts, while Hamilton, who believes that the mind is a real indivisible energy, conceives the different faculties, not, indeed, as independent agents, but as special forms of causality or susceptibility in the soul.

Attacks on Mental Faculties.—But difference of view on the subject of the mental powers has not been confined to the problem of classification. A vigorous crusade has been preached by several psychologists during the present century against the "faculty hypothesis" in any form. The movement was initiated in Germany by Herbart in opposition to Kant, and has been sustained there by Drobisch, Beneke, Schleiermacher, Vorländer, and others. In France, MM. Taine, Ribot, and positivists generally, have followed in the same direction, and a vast amount of wit and rhetoric has been expended in the demolition of these "metaphysical phantoms." We believe, nevertheless, that, once the reality of the mind as a permanent indivisible energy is admitted, the assumption of faculties when properly explained is unassailable.

Faculty defined.—A mental faculty or power is not of the nature of a particular part of the soul, or of a member different from it as a limb is distinct from the rest of the body. It is not an independent reality, a separate agent, which originates conscious states out of itself apart from the mind. But neither is it merely a group of conscious states of a particular kind. It is simply a special mode through which the mind itself acts. "It is admitted by all that a faculty is not a force distinct from and independent of the essence of the soul, but it is the soul itself, which operates in and through the faculty."[10] A faculty is, in fact, *the proximate ground of some special form of activity of which the mind is capable.* That we are justified in attributing to the soul faculties in this sense is abundantly clear. Careful use of our power of introspection reveals to us a number of modes of psychical energy radically distinct from each other, and incapable of further analysis. To see and to hear, to know and to will, are essentially different kinds of consciousness, though all proceed from the same source. Sometimes one is in action, sometimes another, but no one of them ever exhausts the total energy of the mind. They are partial utterances of the same indivisible subject. But this is equivalent to the establishment of certain distinct aptitudes in the mind.[11]

[10] Cf. *Die Psychologie*, von Dr. Constantin Gutberlet, p. 4.

[11] "The proposition, 'our soul possesses different faculties,' means nothing else than 'our soul is a substance which as active principle is capable of exerting different species of energies.'" "If the soul produces within itself acts of perception, then must it also be endowed with a property corresponding to this effect, and this property must be something actual, objectively real in it; otherwise a stone may at times be just as capable of percipient acts. To

Objections examined.—In England the chief psychologist during the early part of this century who attacked the doctrine of mental faculties, was Brown. As the right view was sufficiently vindicated then by Hamilton,[12] we need not return to refute the former writer or Bailey, who added little of any value on the same side. Mr. Sully, however, may be taken as a representative of recent attacks, so a word in answer to this author may be useful. After premising that the discussion of the ultimate nature of the "so-called faculties" belongs to Rational Psychology, and so lies outside of his sphere, he continues: "The hypothesis of faculties can, however, be criticized from the point of view of Empirical Psychology in so far as it succeeds or does not succeed in giving a clear account of the phenomena. Looked at in this way, it must be regarded as productive of much error in Psychology. It has led to the false supposition that mental activity, *instead of being one and the same throughout its manifold phases is a juxtaposition of totally distinct activities answering to a bundle of detached powers, somehow standing side by side, and exerting no influence on one another.* Sometimes this absolute separation of the parts of mind has gone so far as to personify the several faculties as though they were distinct entities. This has been especially the case with the faculty or power of willing."[13]

One or two observations may be urged in reply. (1) Mr. Sully, in asserting that all mental activity is one and the same, cannot seriously intend to maintain that the conscious activity known as *seeing* is identical with that of *hearing*, or that *cognition* is not different in nature from *desire*. But if he allows these energies to be radically distinct modes of con-

deny that property whilst we admit its manifestations, is to assert that the faculty of perception is nothing else than the sum of its acts, and is equivalent to postulating accidents without a substance, effects without a cause, and to discoursing of phenomena and operations when the subject, the agent, is abolished." (*Das Gemüth und das Gefühlsvermögen der neueren Psychologie*, von Jungmann, p. 11.)

[12] *Metaph.* lxx.

[13] *Outlines*, p. 26. Similarly, Mr. G. F. Stout, *Analytical Psychology*, Vol. I. pp. 17—21. Mr. Sully is undoubtedly right when he says that discussion of the nature of the faculties pertains to *Rational Psychology*. But this only proves the evil of "clandestine" Metaphysics. The distinction between the "criticism from the Empirical point of view," which rejects faculties as properties of the mind, putting in their place aggregates of mental states, and the discredited Metaphysics is not very obvious. In fact, such criticism of metaphysical conceptions invariably involves a counter metaphysical system of its own. (Cf. Ladd, *Philosophy of the Mind*, pp. 32, 33.)

sciousness under the vague saving clause of "manifold phases," then all that is needed for the establishment of a variety of mental aptitudes in the sense for which we contend is admitted. (2) The description of the theory as involving the absurd view that the faculties form "a juxta-position of totally distinct activities answering to a bundle of detached powers, somehow standing side by side and exerting no influence on each other," is a mere travesty of the doctrine. Indeed, so far have the supporters of the doctrine been from setting "the faculties side by side exerting no influence on one another," that a great part of the modern attack is based on quite an opposite representation of their view. They are charged in Germany with making the mind the theatre of a perpetual civil war among the faculties; and Vorländer compared the world of consciousness in their system to the condition of the Roman Germanic Empire, when the vassals (the faculties) usurped the functions of the regent (the soul), and were perpetually intriguing and struggling with each other; whilst Schleiermacher styled the theory a "romance replete with public outrages and secret intrigues." If the faculties are to be annihilated on the charge of being everlastingly involved in mutual conflict, it is rather hard that they should be condemned at the same time for exerting no influence on each other. The truth is, no such ridiculous view regarding the nature of our mental powers has ever been held by any psychologist of repute, but in talking of the obvious and indisputable fact that our intellectual operations, emotions, and volitions, interfere with and condition each other, philosophers, like other folk, have been compelled by the exigencies of language to speak as if the faculties were endowed with a certain independent autonomy of their own. They have, however, of course, from the days of St. Augustine, and long before, been aware that it is the one indivisible soul which remembers, understands, and wills.[14] (3) Even regarding the activities of sense and intellect, which we hold, and shall prove to be essentially different, the assertion of an imagined and real independence is untrue. The second of these pre-supposes as a necessary condition of its action the exercise of the first, and is dependent on it for its operation, whilst both are merely diverse energies of the same simple soul. (4) Finally, the Will is not an independent member, an entity separate from the mind; it is merely that per-

[14] Cf. St. Aug. *De Trinitate*, Lib. X. c. xi. "Potentia est nihil aliud quam quidam ordo ad actum." (Aquinas, *De Anima*, Lib. II. lect. 11.) To assign a mental state to a power or faculty is not to *explain* it,—except in so far as classification may be deemed explanation. See p. 587, below.

fection of the Ego which constitutes it capable of that special form of energizing called willing; it is the soul itself which wills.

The Mind a Real Unity.—There is, however, a tenet implied in our system irreconcilably opposed to the phenomenalist view of Mr. Sully and all other sensationist writers. We hold as a fundamental all-important truth that there exists *one real indivisible agent* called the *Mind*, which is something more than the series of events known as conscious states. Those, on the contrary, who maintain that the mind is nothing but an aggregate or series of separate states connected by no real bond, naturally find no place in their theory for *faculties*.

True View of Use of Scheme of Faculties.—To ascribe a mental operation to a faculty is assuredly not to *explain* it. To say that opium induces sleep because it has a "soporific property" does not in any way render the phenomenon more intelligible. Still it may be scientifically legitimate and useful for certain purposes to enumerate "soporific tendency" among the qualities of opium, or to group opium with certain other drugs under this category. The Science of Chemistry devotes much labour to determining and describing the fundamental properties of elementary substances, and to classifying these substances according to the qualities which they possess. Similarly, a primary duty of Psychology—as indeed of every science—is to *classify* its facts. The psychologist has to discriminate carefully the different kinds of conscious activities and to sort them according to their likenesses and unlikenesses. Even Dr. Stout argues: "Reference to a faculty, though it is futile from the point of view of causal explanation, may none the less have a good and useful meaning from another point of view—that of classification. Now some kind of classification is a primary necessity for the psychologist. To divide and arrange the various and fluctuating modes of consciousness in a distinct and orderly manner, so that each may receive an appropriate name, is in itself no small achievement."[15] Consequently, the method of grouping like mental activities under some scheme of faculties is abundantly justified as an essential step in any attempt

[15] *Manual of Psychology*, p. 115.

at systematic treatment of our conscious life, even if the aim were merely the orderly description of the facts.

But further, the explanation of all mental phenomena is only the tracing back of complex states or operations to the more simple and elementary activities from which they proceeded, and the exposition of the laws, or uniform modes of happening, by which the particular results were brought about. The psychological analysis of an act of perception, a process of recollection, an emotion, or any other psychical operation, is in every case an effort to discriminate the diverse elementary modes of the mind's activity which have co-operated in the production of the composite effect. But the investigation of the ultimate irreducible forms of the mind's activity is for the empirical psychologist only another name for the determination of the mental faculties. Consequently, every scientific psychology that seeks to give a rational analytic account of our complex mental life is inevitably led back to some scheme of "faculties," however it may name or even conceive them. The discussion of the question as to the precise nature of the faculties in themselves, and their relation to the soul as a substance, is one of the most subtle problems of rational or metaphysical psychology, and cannot be undertaken here. Widely different views prevailed among the Scholastic Philosophers on the subject.[16] The chief error in regard to the faculties has been the multiplication by some writers, without sufficient grounds, of faculties, assumed to be ultimate, and the too easy abandonment of the effort to explain complex processes by already established elementary activities. At times, also, there have been employed crude forms of language in regard to the faculties and their functions, which if taken literally would be irreconcilable with the mind's unity. This, however, has generally been an error rather in phraseology than in meaning.

Relation of the Faculties to each other.—Which is the most fundamental of our conscious activities? Sensation precedes thought; intellect presupposes the

[16] Cf. Urraburu, *Psychologia*, Lib. I. c. iii.

operation of sense. Again, cognition is naturally prior to volition. We desire, because we perceive or imagine the object of our desire to be good. A sensation of sound, colour, or contact, is a rudimentary act of knowledge, and may awaken a striving for its continuance or cessation. An intellectual judgment may similarly originate a volition.

Feeling.—What position does the faculty of feeling hold in our scheme? Feelings understood as emotional states are, we believe, not the offspring of a third ultimately distinct energy, but complex products resulting from the combination of cognitive and appetitive activities. Feeling viewed simply as pleasure and pain is merely an aspect of our cognitive and appetitive energies. The pleasant or painful character of a cognitive experience determines the direction of the subsequent appetite.[17]

Readings—Classification of the Faculties, cf. *Sum.* i. q. 78. For very able treatment of the whole subject, see Jungmann's *Das Gemüth und as Gefühlsvermögen der neueren Psychologie.* (Freiburg, 1885) See especially §§ 1—5 and 83—100. The attacks on the Faculties are also exhaustively dealt with by Pesch, *Instit. Psych.* §§ 383—390. On the nature of Faculties, cf. Suarez, *De Anima*, Lib. II. c. i. and *Metaph. Disp.* 18, sect. 3; Gutberlet, *Die Psychologie* pp. 3—8; Martineau, *Types of Ethical Theories*, Vol. II. pp. 10—13; Mercier, *Psychologie*, pp. 490—494.

[17] This account of the relations subsisting between cognition, feeling, and appetency, which we believe to represent the view of St. Thomas, embraces the elements of truth possessed by both Hamilton and Dr. Bain in the controversy on the subject. Hamilton is right in holding that the cognitive or apprehensive form of consciousness is the most fundamental, and that feeling, *i.e.*, pleasure or pain, is dependent on the former, whilst desire is a still later result. There is thus some foundation for his assertion that consciousness is conceivable as cognitive energy void of pleasure and pain, whilst the latter cannot be conceived unless as a quality of the former. On the other hand, through not recognizing the difference between sensuous and intellectual cognition, he falls into the error of supposing that the latter, and sometimes even that peculiarly reflex form of it which is known as self-consciousness, is necessarily prior to sensuous pleasure and pain. Dr. Bain maintains *feeling* to be the primordial element, but under this term includes both the pleasurable and painful *aspects* of conscious states, and certain *sensations*. He is right in holding sensuous life in general to be prior to rational life, but wrong in making feeling under the form of pleasure or pain antecedent to or co-ordinate with cognitive sensibility.

PSYCHOLOGY.

Book I.

Empirical or Phenomenal Psychology.

Part I.—Sensuous Life.

CHAPTER IV.

SENSATION.

Sensation : Sense and Sense-organ.—The most fundamental and primitive form of conscious life is *sensation*. Such being the case, sensation cannot, properly speaking, be defined. It may, however, be described as an elementary psychical state aroused in the animated organism by some exciting cause. A sensation is thus a modification, not of the mind alone, nor of the body alone, but of the living being composed of mind and body. The power of experiencing sensations in general is termed *sensibility*, while the capacity of the living being for a particular species of sensations is called a *sense*. The special portions of the organism endowed with the property of reacting to appropriate stimuli so as

to evoke these particular groups of sensations are called *sense-organs*. A being capable of sensations is described as *sentient*, or *sensitive;* and the term *sensuous* may be applied to all those mental[1] states which are acts, not of the soul alone, but of the animated organism.

Excitation of Sensation.—The excitation of a sensation usually comprises three stages. First, there is an action of the physical world external to the organism. This action, transmitted in some form of motion to the sense-organ, gives rise there to the second stage. This consists of a molecular disturbance in the substance of the nerves which is propagated to the brain. Thereupon, a completely new phenomenon, the conscious sensation, is awakened. The nature of the external agencies which arouse sensation is the subject-matter of the science of Physics; the character of the process within the organism which precedes or accompanies the psychical state is studied by the science of Physiology; while the investigation of the conscious operation itself is the function of Psychology. In describing the action of the senses later on, we will say a brief word on the physical and physiological conditions of each in particular, but a few very general remarks on the nature of the physical basis of conscious life as a whole may be suitable here.

[1] We employ the word *mental*, as equivalent to *conscious*. In this sense, it is applicable to all states of consciousness, whether cognitive or appetitive, sensuous or supra-sensuous. The usage of those scholastic writers who would make this adjective synonymous with *intellectual*, seems to us inconveniently narrow, and too much opposed to common language.

The Nervous System.—The nervous apparatus of the animal organism is two-fold—the *sympathetic* system, and the *cerebro-spinal* system. Whilst the former controls organic or *vegetative* life, the latter constitutes the bodily machinery of our mental states. The *cerebro-spinal* system itself is also composed of two parts or subdivisions, the central mass, and the branches which ramify throughout the body. The central mass, called the cerebro-spinal axis, is made up of the *brain* and the *spinal cord* passing from it down through the backbone. The spinal cord consists of a column of white, fibrous matter, enclosing a core of grey, cellular substance.

From the spinal cord, between every two vertebræ, there issue forth two pairs of nerves. The nerves proceeding from the front of the spinal column are called the *anterior*, *efferent*, or *motor* nerves, inasmuch as they are the channels employed in the transmission of impulses outwards, and are thus the instruments of muscular movement. The nerves coming from the back of the spine are called the *afferent*, or *sensory* nerves, because by their means the molecular movements which give rise to sensations, are conveyed inwards from the various organs of the body. The strands of nerves dividing and subdividing as they proceed farther from the trunk branch out into the finest threads through all parts of the skin, so that it is practically impossible to prick any place even with the finest needle without injury to some nerve. The entire surface of the body is thus connected with the brain through the spinal cord by an elaborate telegraph system. (*See illustrations at the beginning of the book.*)

The Brain.—The brain itself is divided into several portions or organs, the functions of which are, however, in many cases but obscurely apprehended. Amongst the chief are the following:

1. The *medulla oblongata*, which is situated at the root of the brain where the *spinal cord* widens out on entering the skull. It is, in fact, the prolongation of the spinal cord. From it proceed the nerves of the face and those governing the actions of the heart and lungs. Hence the fatal nature of injuries in this quarter.

2. Higher up and projecting backwards over this into the lower part of the back of the skull is a large, laminated mass, forming the *cerebellum*. Its precise functions are still much disputed, but it seems to play an important part in co-ordinating locomotive action.

3. Above and in front of the *medulla oblongata* is a quantity of fibrous matter which from its shape and position has been called the "bridge" or *pons varolii*.

4. Above all there rises the *cerebrum* or large brain, exceeding in size all the other contents of the skull. It

includes several well-differentiated parts lying at its basement, the chief of which are the *corpus striatum*, the *optic thalamus*, the *corpus callosum*, and the *corpora quadrigemina*. The cerebrum consists mainly of a soft, pulpy substance of mixed grey and white matter, the former being composed of vesicles or cells, the latter of fibres. The surface has a very convoluted or crumpled appearance, caused by a large number of fissures. One great furrow, called the *median fissure*, running from the front to the back of the head, divides the cerebrum into two nearly equal corresponding parts, the right and left *hemispheres*. Lesser clefts, the chief amongst which are the *Sylvian fissure*, and the *fissure of Rolando*, subdivide the two hemispheres into lobes or districts, each containing several convolutions. The nerve-cells in the upper cortical surface of the cerebrum seem to be specially instrumental in the memory, or retention and reproduction of sensory and motor impressions.

The human brain, when it has reached maturity, exceeds that of all the lower animals in the richness of its convolutions. These latter seem to increase the efficiency of the brain as an instrument of the mind, perhaps, by largely augmenting its superficial area. It is thickly interlined throughout with small blood-vessels, and though ordinarily less than one-fortieth of the weight of the body, it receives nearly one-fifth of the whole circulating blood. Mental operations, as is well known, exhaust a great deal of nervous energy, and vigorous intellectual activity requires a plentiful supply of healthy blood to this organ.

Nerves branching into different parts of the head are given off from the centre of the base of the brain in pairs. The first pair, starting from beneath the *corpus callosum* and proceeding forward form the *olfactory nerves*. The next pair, having their root a little farther back in the *optic thalamus*, supply the *optic nerves*. The remaining nerves have their source in the *medulla oblongata*. The fifth pair supplies the nerves which control the skin of the face and the muscles of the tongue and jaws. The eighth pair, starting still farther back in the *medulla oblongata*, constitute the *auditory* nerve. The ninth pair go to the tongue; and the various nerves issuing from the spinal cord lower down form the tactual and motor nerves of the rest of the body.

Nerve-terminals.—The external nerve-ends in the several sense-organs are modified and arranged in various ways so as to react in answer to their appropriate excitants. But it is not yet agreed among physiologists how far specialization in the structure of the different parts of the nerve-apparatus is required in order to respond to the different forms of sensori-stimuli.

Sensori-motor action.—The ordinary process of movement in response to sensations then is of this kind. An impression, *e.g.*, tactual, gustatory, or visual, wrought upon the end-organ of an *afferent* nerve, is transmitted in some form of motion to a centre in the brain. When it arrives there a sensation is awakened. This state of consciousness now produces an impulse which flows back along a *motor* nerve and causes some movement. Thus, if a man treads on my foot, I pull it away even involuntarily.

Reflex-action.—A simpler form of motor-reaction, however, is exhibited in *reflex-movement.* Here the impression is reflected back along a motor nerve from the spinal cord or some inferior centre before reaching the great terminus in the brain, and there is an appropriate movement in response to the stimuli without the intervening conscious sensation. Thus, tickling the sole of the foot causes convulsive movement even after the spine has been broken and conscious sensibility has been extinguished in the lower part of the body.

Properties of Sensation: Quality, Intensity, Duration.—The most prominent feature by which sensations of the same or different senses are distinguished from each other, is that of *quality.* The sensations of sound are thus of a generically different quality from those of smell, while the feeling of blue is of a specifically distinct quality from that of red. These states may also vary in tone, or pleasurableness and painfulness.

Besides differing in quality, sensations may also vary in *intensity*, and *duration.* By the intensity of a sensation is understood its vividness, its greater or less strength in consciousness. The degree of intensity depends partly on the force of the objective stimulus, and partly on the vigour of attention. The duration of a sensation means obviously the length of time during which it persists in existence. This is determined mainly by the continuance of the stimulus. The duration of the sensation is not,

however, always either equal to or simultaneous with that of the stimulus. A certain brief interval is always required between the irritation of the organ and the birth of the mental state, and the latter continues for a shorter or longer period after the cessation of the former. A certain lapse of time is consequently necessary between two successive excitations in order that there be two distinct sensations. Thus, in the case of sight, if the action of the stimulus be repeated oftener than five times in the second, it ceases to be apprehended as a series of separate events, and instead, one continuous sensation is aroused. The ear can distinguish as many as fifteen successive vibrations in the second, while the recuperative power of taste and smell, after each excitation, is far lower than that of sight.

Composite stimuli.—It is erroneous, however, to speak of the continuous sensation produced by these repeated excitations as a *compound sensation* arising from the combination of a number of simple sensations. It is only by an inaccurate metaphor that unextended mental states can be described as blending, or mixing, after the manner of liquids or gases; and there is, moreover, nothing to show that the supposed constituent elementary states ever came into existence. The simplest and briefest sensation has for its physical condition a neural process, divisible into parts; it would, however, be absurd to speak of it as composite, on this account. In the case of a continuous sensation of sound, or colour, arising from an intermittent stimulus, the

physical and physiological conditions may be more complicated, but the mental state felt to be simple must be described by the psychologist as such.[2]

Somewhat similarly, in the case of touch, a certain interval of space, variable in different portions of the body, must exist between the parts of the organism affected by two stimuli, in order that these may be felt as distinct. The capacity of sensation for variation in intensity and duration has suggested in recent times the attempt to secure exact quantitative measurement of mental phenomena, and the title of *Psychophysics* has been allotted to this line of investigation.

Cognitive character of Sensation.—The features hitherto described, including even pleasantness or painfulness, are merely aspects or accidental properties of sensation. Its essential nature lies in its cognitive quality. The intensity, duration, and emotional tone of a sensation, exist only as they are known. They are of a variable and adjectival nature. They determine and modify, but they do

[2] The "objective" analysis of mental states by Mr. Spencer and M. Taine is thus illusory. If states which consciousness—the only possible witness concerning such facts—declares to be simple, are to be reduced to units of the character of nervous shocks, because the action of the physical agent is of a composite character, then we certainly cannot stop at the feeling of a "shock," as the unit. The briefest and simplest sensation of the colour of violet, which involves between six and seven hundred billions of vibrations in the second, must be resolved into an incredible number of *unconscious* units of consciousness, for the existence of none of which, of course, is there any evidence. A knowledge of the physical conditions of mental states is valuable, but conscious elements affirmed to be simple by introspection, must be accepted as such by the psychologist. "Mental facts," as Mr. Mark Baldwin urges, "are simple states, and they are *nothing independently of the mind* whose states they are." (Cf. *Senses and Intellect*, pp. 98—106; also Dr. Mivart, *Nature and Thought*, 2nd Edit., pp. 89—92.) See also pp. 510—512, below.

not constitute the essence of a sensation. A sensation is in itself an elementary mode of consciousness of a cognitional character. Knowledge, however, may have reference either to extra-organic, or to intra-organic objects and events. We may be cognizant of something other than ourselves, or of the states of our own sentient organism, and different senses stand higher and lower in regard to these different fields. In sight, in the muscular sense,[3] and in the tactual sensations of pressure, knowledge of external reality is the prominent feature; in hearing, taste, smell, and the organic feelings, the sensation is a cognition, which originally bore a subjective character. In the case of these latter faculties, the pleasurable or painful aspects of sensations frequently rise to great importance; and on some occasions the sensation becomes mainly a cognition of pain, or, more rarely, of pleasure.

Sensation and Perception.—This distinction between the objective and subjective import of the sentient act has caused the two terms, *sensation* and *perception*, to be contrasted with each other. *Sensation*, as thus opposed to perception, is variously defined to be, the modification of the sense viewed merely as a *subjective* state, the consciousness of an affection of the organism, or the feeling of pleasure or pain awakened by the stimulus. *Perception*[4] is described as the *objective*

[3] This term is used to denote the power of experiencing sensations of resistance or impeded energy and movement. Its nature will be discussed in the next chapter.

[4] The word *perception*, or rather, the Latin verb *percipere*, was originally used in a wide sense to denote any form of apprehension or comprehension, whether sensuous or intellectual. Later on, it became limited to sensuous apprehension, and was employed by Reid, in contrast to the term *sensation*, to designate the *sensuous cognition of something as external to us*. *Sensation* originally meant the process of sensuous apprehension considered as revealing to us both itself as a subjective state, and the objective quality to which it corresponded. By Reid it was confined to the former significa-

knowledge, the apprehension of *external reality* given in the sentient act; or, as the act by which we localize or project a sensation or cluster of sensations, actual and possible, into the external world.

This separation of the two terms is convenient for bringing out the difference between the developed form of cognition exhibited by sense in mature life, and the vague kind of apprehension afforded in the earlier acts of the sentient powers: but the distinction is one of degree, not of kind. In the most rudimentary sensations of pressure and of colour, there is a cognition of something other than self, and though rude and indefinite in character, this is still an act of objective knowledge. Consequently, there is already here perception, in the modern signification of the term. This vague act receives exacter definition as we advance, and in later years the quality perceived by the sense is cognized as situated in a determinate place, and accompanied by other qualities. Such further determinations, are, however, the result of other sensations, and if no one of them revealed external reality to us, the aggregate could not do so. This subject will be better understood when we come to treat of the nature of Perception. Some writers define *Sensation* as the feeling of pleasure or pain attached to an act of sensuous apprehension, but very few, if any, adhere consistently to this interpretation. When, for instance, the sensations of the different senses are spoken of, and their various properties, quality, intensity, tone, duration, and the rest, are described by psychologists, sensation does not mean the pleasurable or painful aspect of certain mental states, but these states themselves. It is only when used in this narrow signification, as a feeling of pleasure or pain, that sensation and perception can be held within certain limits to stand in an inverse relation to each other.[5]

tion, and thus explained: "The agreeable odour (of a rose) which, I feel, considered by itself without relation to any external object, is merely a *sensation*. Perception has always an external object, and the object in this case is that quality in the rose which I discern by the sense of smell." The later sensationalists (*e.g.* Mr. Sully, *Outlines*, c. vi.), inverting the doctrine of Reid and Hamilton, that perception is the apprehension of a *real* external quality, describe this act as an ejection or projection out of the mind of a sensation carrying with it a cluster of faint representations of other past sensations, the whole being "solidified" or "integrated" in the form of an object. On the terms sensation and perception cf. Hamilton, *On Reid*, Note D, also *Metaph.* Vol. II. 93—97.

[5] Hamilton explains Reid to mean by *perception*, "the objective knowledge we have of an external reality through the senses; by *sensation*, the subjective feeling of pleasure or pain with which the

The modification of a sensuous faculty is thus, in its simplest form, of a percipient character, and in the case of vision and touch, the sensation from the beginning possesses a certain objective reference. A sensation viewed in this way as a modification by which the mind is made cognizant of a material quality of an object, was called by the schoolmen a *species sensibilis*.

The Scholastic Doctrine of Species.—The doctrine of *species* has been attacked and ridiculed by many modern writers, and this in a manner which shows how widespread and profound, even amongst students of philosophy, is the ignorance regarding the most familiar terms of scholastic writers. Democritus and Epicurus formerly taught that we know objects by means of minute representative images which stream off from their surface, and pass into our soul through the channels of the senses. The Latin word *species*, meaning an image, was used by their Roman disciples to signify these volatile images. Aristotle and his followers, however, rejected the theory of a physical efflux of *species*, and taught instead, that objects effected modifications in the mind by acting on the sense-organs through motions in the intervening media. The term *species* was later on employed to denote these modifications by which the mind is made to apprehend the exterior object. In this sense, which is that accepted by the greatest philosophers of the middle ages, such as St. Thomas, Albertus

organic operation of sense is accompanied," and adopting this view he enunciated the law that *above a certain point the stronger the sensation the weaker the perception, and vice versa*. He seeks to establish this general opposition by a comparison (*a*) of the several senses, and (*b*) of different impressions within the same sense. Confined to sensuous apprehension, the formula seems to be approximately true, although it is pain rather than pleasure which interferes with cognition. As a generalization applicable to higher intellectual forms of cognitive activity, it does not hold. Consciousness is not, as Hamilton seems to imply, a fixed quantity where increase in cognition involves decrease in feeling. This is in direct opposition to the doctrine adopted by Hamilton himself from Aristotle, that pleasure is a reflex of mental energy. In the view of the Greek philosopher, keen and intense pleasure accompanies vigorous intellectual activity, and the greatest and best pleasure is the necessary *sequela* of the exercise of the highest form of cognitive energy. (Cf. Hamilton, *Metaph.* pp. 93—105.)

Magnus, and Scotus, the *species* is not an entity which has immigrated into the mind from the object, but a modification or disposition awakened in the mind by the action of the object. They teach, moreover, that this mental modification is not what is primarily perceived in the act of simple apprehension. The mind, they hold, directly tends towards the objective reality; and only by a reflex or concomitant act does it cognize the mental state as such. With them, *Species non est* id quod *primo percipitur*, *sed* id quo *res percipitur*. It is the *medium vel principium* quo, *non* ex quo, *res cognoscitur*. In other words, the *species* is not an *intermediate* representation *from which* the mind infers the object, but a psychical modification *by which* the mind is likened, or conformed, to the object, and thus determined to cognize it.[6]

Intentionalis.—The adjective *intentionalis* was added to the term *species* to signify that the cognition, though truly reflecting the external object, does not resemble it in *nature*. The mental modification was held to be merely a psychical or spiritual expression of the material thing. Resemblance is of many kinds. A photograph, or a statue, is, in a certain sense, utterly unlike a man formed of flesh and blood; the blind

[6] If the primary object of cognition were the mind's own unextended modification, idealism and relativism would be inevitable. "Quidam posuerunt, quod vires, quæ sunt in nobis cognoscitivæ nihil cognoscunt, nisi *proprias passiones*, puta, quod sensus non sentit nisi passionem sui organi, et secundum hoc intellectus nihil intelligit, nisi suam passionem, scilicet speciem intelligibilem in se receptam; et secundum hoc species hujusmodi est *ipsum quod intelligitur*. Sed hæc opinio manifeste apparet falsa ex *duobus*. *Primo* quidem, quia eadem sunt quæ intelligimus, et de quibus sunt scientiæ; si igitur ea, quæ intelligimus essent solum species quæ sunt in anima, sequeretur quod scientiæ omnes non essent de rebus, quæ sunt extra animam sed solum de speciebus intelligibilibus quæ sunt in anima. *Secundo*, quia sequeretur error antiquorum dicentium, omne quod videtur, esse verum; et similiter quod contradictoriæ essent simul veræ; si enim potentia non cognoscit nisi propriam passionem, de ea solum judicat . . . puta si gustus non sentit nisi propriam passionem, cum aliquis habens sanum gustum judicat mel esse dulce, vere judicabit; et similiter si ille, qui habet gustum infectum, judicet mel esse amarum vere judicabit; uterque enim judicabit secundum quod gustus ejus afficitur. . . . Et ideo dicendum est quod species intelligibilis se habet ad intellectum *ut quo* intelligit intellectus. . . .

"Sed quia intellectus supra seipsum reflectitur, secundum eandem reflexionem intelligit et suum intelligere et speciem qua intelligit. Et sic species intellecta *secundario* est *id quod* intelligitur. Sed *id quod* intelligitur *primo* est *res* cujus species intelligibilis est similitudo." (*Sum.* 1a. q. 85. a. 2.)

man's representation of a circle by the sense of touch, is very different from the visual image of the same figure; the intellectual ideas aroused by the words, "equality," "colour," "square," must be widely divergent from both the image and the reality to which they correspond. Yet, in spite of these unlikenesses, there exist genuine relations of similarity between such pairs of things as those just mentioned. The scholastic writers adopting this view, taught that our knowledge, although in itself, as a mental activity, opposed in *nature* to material reality, does, nevertheless, truly *mirror* the surrounding world. They held that though neither the tactual nor the visual image resembles in nature the brass circular substance presented to the sense, yet both accurately reflect and are truly like the external reality; and they called these mental expressions of the object *species intentionales.*

Species sensibiles et intelligibiles.—Furthermore, as the schoolmen held the human mind to be capable of two essentially distinct kinds of cognition, sensuous and intellectual, they termed the apprehensive acts of the former *species sensibiles*, of the latter *species intelligibiles vel intellectuales.* In the genesis of the *species* they distinguished two moments or stages. The modification of the sensuous faculty, viewed as an impression wrought in the mind by the action of the object, was named the *species impressa.* The reaction of the mind as an act of cognitive consciousness was styled the *species expressa.* The latter term designated the sensation considered as a completed and perfect act of consciousness elicited by the soul; the former indicated the earlier stage of the process, the alteration in the condition of the mind looked at as an effect of the action of the object.[7] The *species* proper, however, whether *impressa* or *expressa*, was an affection of the mind. The term *species corporalis* was sometimes used to signify the physical impression or movement produced by the object in the organism, but the strict meaning of the word *species*, and the only meaning of the term *species intentionalis*, was the mental state. Thus, neither the image of the object depicted on the retina of the eye, nor the nervous disturbance propagated thence to the brain, but the *conscious act* finally awakened, was held to be the true *species* or *species intentionalis.*

True doctrine.—Rejecting the interpretation of the *species* as roving images, and every theory conceiving them as representations mediating between the object and the cognitive

[7] Any real distinction between the two *species* may be disputed, but that the alteration or modification wrought in the soul by the act of perception must persist in some form, is established by the facility of representation and recognition.

faculty, the thought embodied in the doctrine is thoroughly sound. Unless we are prepared to maintain that our soul is born with all its future knowledge ready made, and wrapped up in innate ideas, we must allow that the physical world does somehow or other act on our faculties, and that our perceptions are due to the influence of material objects upon us. The mind does not determine all its own modifications, and the strongest volition is unable to make the deaf man hear a word, or the blind man see a colour. But this is to admit that the faculty is stirred into conscious life and informed by dispositions wrought in it by the perceived object. Further, unless we are ready to adopt the position of absolute scepticism, we must hold that knowledge does somehow correspond to reality. There is not a merely arbitrary connexion between the object and its apprehension. The latter is a true, though psychical expression of the former. This subject will be more fully dealt with hereafter, but we have said enough to justify the doctrine of *species intentionales*, as understood by St. Thomas, and the leading philosophers of the school.[8] The modern writer may prefer to describe the perception of a triangle as a modification of the mind mirroring or reflecting in terms of consciousness the external object, but this is only the old doctrine in other phraseology.

Experimental Psychology. Psycho-physics.—*The measurement of mental states.*—If one ounce be added to a weight of three ounces placed on our hand resting upon the table, we can just distinguish the new sensation from the old. A single voice also makes a perceptible increase in the sound when added to a musical trio. If, however, we add a single unit to a weight of thirty ounces or to a chorus of twenty voices, no difference can be felt. By observing and comparing sensations produced by stimuli varying in intensity, a German physiologist, Weber (1834), showed that *the increment necessary to be added to a given stimulus in order to awaken a sensation consciously distinguishable from the former*

[8] Even Hamilton confounds the maintenance of *species* with the doctrine of *mediate* perception, and so looks on St. Thomas and the great body of the schoolmen as representationalists or hypothetical realists. (Cf. *On Reid*, Note M, pp. 852—857.) The passage cited from St. Thomas, p. 52, refutes the charge. For a full treatment of the subject, see Sanseverino, *Dynamilogia*, pp. 390—400; Pesch, *Instit. Psych.* § 472; Boedder, *Psych. Rationalis*, §§ 255—260; Schiffini, *Psychologia*, § 302.

sensation varies with the force of the former stimulus. Thus, if d represent the minimum increment that must be added to a stimulus of the force Z in order to be felt, there will be needed an increment of $2d$ to a stimulus of $2Z$ to be perceived, and in general nd must be added to nZ to cause the minimum appreciable difference in the resulting sensation. In other words, *the minimum appreciable increment in a physical stimulus bears a constant ratio to that stimulus*, though this ratio differs for several senses. This ratio, $\frac{d}{Z}$, is found by some observers (though others give different results) to be in sensations of light $\frac{1}{100}$, in muscular sensations $\frac{1}{17}$, in sensations of pressure, of warmth, and sound $\frac{1}{3}$. The generalization has been called *Weber's Law.*

Continuing Weber's investigations, Fechner (1861) formulated the law in a more complete shape. His main object was to find some fixed unit by which to measure sensations. He believed he had discovered such a unit in *the least observable difference* between two sensations. This he supposes to be a *constant quantity* for the same sense, whatever be the intensity of the sensations, excluding extreme limits. Any sensation of intensity N may be conceived, he held, as equivalent to N of these units, and may according be mathematically calculated in terms of the stimulus.

To take an example: "If stimulus A just falls short ot producing a sensation, and if r be the percentage of itself which must be added to it to get a sensation which is barely perceptible—call this sensation 1—then we should have the series of sensation-numbers corresponding to their several stimuli, as follows:

Sensation 0 = stimulus A
Sensation 1 = stimulus A $(1+r)$
Sensation 2 = stimulus A $(1+r)^2$
Sensation 3 = stimulus A $(1+r)^3$
. . . . . .
Sensation n = stimulus A $(1+r)\,n$

The sensations here form an *arithmetical series, and the stimuli a geometrical series.* . . . So that we may truly say (assuming our facts to be so far correct) that the *sensations vary in the same proportion as the logarithms of their respective stimuli.* And we can thereupon proceed to compute the

number of units in any given sensation (considering the unit of sensation to be equal to the just perceptible increment above zero, and the unit of stimulus to be equal to the increment of stimulus *r*, which brings this about) by multiplying the logarithm of the stimulus by a constant factor which must vary with the particular kind of sensation in question. If we call the stimulus R and the constant factor C, we get the formula:

$$S = C \text{ Log. } R,$$

which is what Fechner calls the *Psychophysische Maasformel*."[9] The outcome, accordingly, of these investigations is summed up in the so-called psycho-physical law: *To increase the intensity of a sensation in arithmetical progression, e.g., as* 1, 2, 3, 4, *the stimulus must be increased in geometrical progression, e.g., as* 1, 2, 4, 8, or, *the sensation increases as the logarithm of the stimulus.*

The *absolute sensibility* of an organ, or part of an organ, is measured by the minimum perceptible stimulus, or that which just rises above the *threshold of consciousness*.[10] The absolute sensibility of the skin to tactual pressure varies in different parts from ·002 to ·015 of a gramme; the absolute sensibility of the skin to changes of temperature varies from ·2° to ·9° Centigrade, the skin being about 30° Cent.; that of hearing is the sound of a ball of cork, 1 milligramme weight, falling on a vibrating plate from a height of 1 millimetre, at a distance of 91 mm. from the ear; that of

[9] James, Vol. I. pp. 538, 539.

[10] This "absolute sensibility" is ascertained by gradually increasing an imperceptible stimulus, or by diminishing a clearly perceptible one till it just reaches the margin. Similarly, the *minimum observable difference* can be obtained either by starting with two equal stimuli and progressively unequalizing them, or by beginning with easily distinguishable stimuli and reducing the difference until they are barely discernible. To eliminate the errors incidental to such delicate appreciations, the experiments are multiplied and combined in various ways, and also corrected by the ordinary scientific methods of measurement such as that of *average errors* or that of *correct and mistaken* cases. Thus, if two stimuli differ by less than the *minimum observable difference*, true and false guesses as to which is the stronger tend to be about equal; but as soon as the difference begins to exceed the minimum limit, the correct judgments rapidly exceed those which are erroneous. (See E. Scripture, *The New Psychology*, c. iii.; Ladd. op. cit. p. 364; James, *ibid.* Vol. I. pp. 540, 541.)

sight, the $\frac{1}{300}$ of the light reflected by white paper under the full moon.[11]

When the stimulus has reached a certain intensity, further increase produces no appreciable difference in the sensation. This maximum stimulus measures the *height of sensibility* of the sense; and the interval between the *threshold* and this point has been termed the *range of the sensibility* of the sense.

Criticism.—The professed object of this line of investigation is to introduce quantitative measurement into Phenomenal Psychology, and so to reduce this branch of mental philosophy to the condition of an exact science. Now, whilst we readily admit that great care and ingenuity has been exhibited in carrying out these experiments, and that many of the facts established are curious and interesting, we believe that the advocates of Psycho-physics mistake and seriously exaggerate the value of that branch of study.

1. In the first place, it may be objected that the fundamental assumption on which Fechner's scheme of measurement rests is untenable. The so-called *least observable differences of sensation*, or more correctly the *judicial acts* by which we discriminate barely distinguishable impressions, are not constant *equal quantities* of consciousness. Still less can it be proved that every sensation is a definite multiplication of such units.[12]

2. Next, it is only a small part, and that the lowest and most unimportant part of mental life, that can be at all approached by the instruments of this science. Emotions, volitions, and all intellectual processes are obviously beyond the reach of any form of quantitative measurement. Even, then, if psycho-physics had attained the utmost hopes of its supporters, and if —what appears equally unlikely—these supporters became agreed as to their results, our knowledge of mental life would not really be thereby much advanced.

3. Again, there may be raised an objection against

[11] Unfortunately the figures given by different observers vary.

[12] Cf. Ladd, *ibid.* pp. 361, 362; Lotze, *Metaphysic*, §§ 258, 259; James, *ibid.* p. 546. On the other side, cf. Wundt, *Human and Animal Psychology* (Eng. Trans.), pp. 20—60.

the conclusions of psychophysicists even within the restricted sphere of sensational consciousness, an objection which strikes at the possibility of any kind of quantitative estimate of mental phenomena. An assumption, involved in all Fechner's experiments, and lying at the root of his chief psychological law, implies that while sensation increases in quantity or intensity, the *quality* remains unaffected. A locomotive of twenty-horse power can drag a load twice as heavy as an engine of ten-horse power. The force exerted in such a case may be rightly described as double in quantity yet similar in quality. But we can hardly say this as regards the energies of mental life. Sensations of light, sound, temperature, and the rest, increased in intensity, do not appear to preserve the same quality of consciousness. The transition from black to white, from hot to cold, from the trickling of the fountain to the roar of the waterfall, is not merely a variation in quantity. In small increments, the alteration in quality may escape notice, but when the effects of large changes in the degree of the stimulus are compared, introspection seems to affirm changes of quality as well as of quantity.

4. Finally, these difficulties are reinforced by serious attacks from careful observers, who question the truth of the alleged results on the evidence of direct experience. Thus, Hering, for example, rejects the Weber-Fechner generalization on the grounds, (*a*) that admittedly its application has to be limited to a very narrow range above and below normal stimulation, and (*b*) that it is completely "inapplicable either to taste or smell, to heat, to weight, or to sound, and that therefore it has not the character of a general law of sensibility."[13]

Interpretation of the Weber-Fechner Law.—Why, it may be asked, does the sensation increase more slowly than its

[13] Ribot, *La Psychologie Allemande*, p. 196. Chapter v. of that work contains a good *resumé* of the subject. See also, Ladd's *Physiological Psychology*, Pt. II. c. v. The reader of that chapter will notice how much disagreement prevails regarding the figures. Of scholastic writers on this subject, see Gutberlet, *Die Psychologie*, pp. 34—41; Mercier, *Psychologie*, pp. 148—154; Farges, *Le Cerveau et l'Ame*, pp. 209—226.

objective excitant? Fechner answers that his generalization is an *ultimate* law describing the relation between physical stimuli and psychical reaction, or between body and soul. The intensity of the nervous change transmitted to the brain increases, he supposes, in direct proportion to the physical stimulus, but the sensation only in proportion to the logarithm of the latter. It must, therefore, be conceived as an ultimate *psycho-physical* law for which no further explanation can be demanded.

Others give a *physiological* interpretation to the generalization of the facts in so far as this holds good. It is, they assert, not an ultimate expression of the relation between mental and material action, but a law describing the relations between the external physical stimulus and the nervous action which reaches the brain. The conscious reaction in this view increases in direct proportion to the intensity of the final physiological stimulus, but the latter increases more slowly than the physical stimulus, owing to the augmentation of resistance and friction as the sphere of nervous disturbance becomes larger.

Finally, others seek to explain the law *psychologically*, maintaining that it expresses neither the relation between the physical and the psychical change, nor between the former and physiological action, but between the sensations and our powers of discriminating them. All appreciation, according to these writers, is relative to existing states. The differences between mental states have their value determined by their relation to these states, diminishing in proportion to the intensity of the latter.[14]

Whilst the reality of the law is subject to such serious dispute, speculation as to its interpretation appears to us neither very hopeful nor profitable, but the physiological explanation seems to give a sufficient account of the facts.

Psychometry: Reaction-time.—If a harpoon be stuck in the tail of a whale an appreciable interval elapses before the tail is moved. The impression, in fact, requires time to be transmitted along an *afferent* nerve to the whale's brain before the whale becomes conscious of the pain, and another period is needed for the transmission of an impulse back from the brain along a *motor* nerve to set the tail in motion. The whole interval is called *reaction-time*.

A similar phenomenon is observed in the case of

[14] Cf. Wundt, *ibid.* pp. 59—64.

human beings in regard to impressions on the several senses. In recent years ingenious psycho-metrical instruments have been invented, and a great number of elaborate experiments have been made to determine accurately the *reaction-time* with respect to different kinds of sensation. The general plan pervading the various methods of experiment is the stimulation of some sense-organ to which the subject responds by a sign the instant he apprehends the sensation.[15] The experiment can be varied so as to involve simpler or more complex operations. Thus the subject, who is blindfolded, is asked to press an electric button as soon as he feels a tap on either knee, whilst a finely graduated time-keeper measures, to the one-hundredth part of a second, the interval between the tap and the signal. Next he is asked to press the button only when the right knee is tapped, remaining quiet if the left is touched; or he is requested to signal with the other hand if he feels the sensation in his left leg. The act of choice here introduced considerably lengthens the process. Similar experiments are made in regard to the time occupied in apprehending and discriminating various sensations of colour, sound, taste, and smell.

The entire process between the impression and the motor sign has been analyzed into several stages, amongst which the following may be easily distinguished:[16] (1) The excitation of the end-organ of the sense sufficiently to start the neural change. (2) The conduction of this neural change along the centripetal or afferent nerves to the brain. (3) The transformation of the sensory impression into the motor impulse. (4) The transmission of this motor change back along efferent nerves to the appropriate muscle. (5) The excitation and contraction of this muscle in the signalling action.

Of these stages only the third is a psycho-physical event. All the others are physiological, and as their duration can be approximately determined by various

[15] A full description and numerous illustrations of these various psycho-metrical machines are given by E. Scripture, op. cit.

[16] Cf. Ladd, op. cit. p. 470; James, op. cit. p. 88.

experiments and then eliminated, the length of the strictly psycho-physical portion of the whole reaction it is alleged, may be estimated.

Wundt gives as average total reaction-time of a series of experiments, for impressions of sound, 0·128 of a second; for light, 0·175; for touch sensations, 0·188. But Exner, Hirsch, and others give different figures. Study of these investigations goes to prove that the reaction-time varies much with different individuals. On this fact is based the "personal equation" of different observers which have to be taken into account in certain delicate astronomical observations. Further, it seems clear that practice shortens the reaction-time very considerably, and that expectant attention also diminishes it. On the other hand, fatigue increases it; intensity of stimulus, too, causes a difference; the weather, the general health of the individual, and the nature of the stimulus also modify the rapidity of the reaction.

Many writers exhibit a laudable enthusiasm for this new department of investigation. We confess, however, we cannot share in their hopeful expectations of psychologically valuable future results; nor does the character of those yet reached justify the very roseate anticipations entertained. For these experiments after all furnish *physiological* rather than *psychological* information. They measure the speed or intensity of nervous processes with which certain mental operations may, or may not, be concomitant; but they throw no real light on the quality of these latter. They are in no true sense a record of the *rapidity of thought*, and if employed as a means of measuring intelligence or mental development, they are utterly misleading. They may indeed help to indicate the delicacy or discriminative sensibility of the sense-organs and nervous system, but the shortening of the "reaction-time" by practice proves it to be a very insecure measure of mental ability.[17]

[17] Mr. Sully writes: "These researches show that mental capacity in general grows between the age of six and seventeen—at first quickly, then more slowly, &c." (*Teacher's Handbook of Psychology*, p. 94, 4th Edit.; cf. Scripture, loc. cit. pp 134, 169.) The value of

Still, much benefit may indirectly accrue to the science of the mind from these researches by raising the Psychologists' standard of precision, and by inciting him to seek increasing accuracy and thoroughness in the use of ordinary introspective observation and analysis of mental processes. Moreover, these studies have already led to an improved knowledge of the physiology of the nervous system and of the working of the material mechanism immediately subservient to our conscious life.

Readings.—On the physiology of the nervous system, see any of the elementary text-books of Physiology. Carpenter's *Mental Physiology*, c. ii., and R. S. Wyld's *Physics and Physiology of the Senses*, Pt. IV. treat the subject well, with special reference to Psychology. However, by far the best and most exhaustive work on the physiological conditions of mental life, which has yet appeared in English, is Professor Ladd's *Elements of Physiological Psychology*. The German reader will find an able and interesting treatment of the whole subject of sensation by Gutberlet, *Die Psychologie*, pp. 12—48. On the history of the terms *sensation* and *perception*, cf. Hamilton, *Metaphysics*, Vol. II. pp. 93—97, and *Notes and Dissertations on Reid*, Note D. The subject of *species* is treated in all the Latin manuals; perhaps, Sanseverino's *Dynamilogia*, pp. 373—403, is amongst the best. Suarez, *De Anima*, Lib. III. cc. 2, 3, discusses the matter at length. See also J. Rickaby, *First Principles*, pp. 8, seq. An admirable exposition of the Scholastic doctrine of *intellectual* knowledge by means of *species* is contained in Kleutgen's *Philosophie der Vorzeit*, §§ 18—52.

such experiments as a standard of "mental capacity" is evinced by the fact that the reaction-time of a pauper, aged 77, experimented on by Exner, was reduced by a little practice from 0·9952 to 0·1866 of a second! The explanation is simple enough. The "mental capacity" of the old man was pretty much the same at the end as at the beginning of the experiments, but his nervous apparatus had acquired the "knack" or facility of reacting in less than one fifth of the original time. Similarly, children may exhibit varying aptitudes, inherited or acquired, in regard to such operations, as they may vary in their power of acquiring any ordinary reflex-action, with little or no relation to their intellectual ability. On the whole subject, cf. James, Vol. I. c. iii. and Ladd, Part II. c. viii.

CHAPTER V.

THE SENSES.

How many External Senses?—A group of sensations containing a number of features in common are assigned, we have said, to a special sense. The question may now be raised, how many senses have we? There has been a good deal of disagreement on the point among modern writers, but the decision arrived at does not seem to us to be of very much importance, provided that the various forms of sensibility be recognized. The specialization of the organ, the nature of the stimulus, and the quality of the consciousness, have each been advocated as the true principle of classification, and different plans have consequently been drawn up.[1] In favour of the old-fashioned scheme

[1] Following Kant, Hamilton styles the five special senses the *sensus fixus*, and adds to them a sixth general sense, the *sensus vagus*, *common feeling*, the *vital sense*, or *cœnæsthesis*, embracing the feelings of temperature, shuddering, health, muscular tension, hunger, and thirst, &c. Dr. Bain's scheme stands thus: A. Muscular sense. B. Six classes of organic sensations: (1) of muscle, (2) of nerve, (3) of circulation and nutrition, (4) of respiration, (5) of temperature, (6) of electricity. C. The five special senses. G. H. Lewes emphasized the importance of the *systemic* sensations, *e.g.*, feelings of digestion, respiration, temperature, circulation, &c. Mr. Murray, who adheres consistently to distinction of organ as his principle of division, gives this classification: I. The Five Special Senses. II. General Senses. A. Connected with a single organ: (1) muscular

of the five senses, *taste*, *smell*, *hearing*, *sight*, and *touch*, it may be urged that it recognizes the obvious structural differences of organ, to a great extent the most marked differences in the quality of the consciousness, and also generic differences in the phenomena apprehended. The eye reveals to us colours, the ear sound, the nose smell, the tongue taste, and touch pressure. In the language of the schools, the *formal objects* of the several senses are generically different. However, if this classification be adopted, it must be remembered that under the sense of *touch* are comprised many groups of mental states importantly different in quality, and frequently attached to parts of the organism of very specialized character.

Method of Exposition.—The most convenient order of procedure will be to start from the simpler and more easily described faculties, and to go on gradually to those of a higher, more varied and complex nature. In our exposition we will adopt the usual plan of saying a few words on the formal object of each sense, on the physiological machinery employed, and on the character of the consciousness awakened. In dealing with this last phenomenon, which is the proper subject-matter of Psychology,

sensations, (2) pulmonary sensations, (3) alimentary sensations. B. General sensations not confined to a single organ: (1) of temperature, (2) of organic injuries, &c., (3) of electricity. The true principle, however, if it could be satisfactorily applied, would be the quality of consciousness. Differentiation of organ is an extrinsic physiological consideration. Still the difficulty of determining how much qualitative difference justifies the assumption of a special sense renders the former principle of little value once we depart from the old scheme of five senses.

the two chief features to be attended to are what have been styled the *emotional* and the *intellectual* aspects of the sense. By the former is meant, the susceptibility of the faculty to pleasure or pain; by the latter, its efficiency as an instrument of knowledge of the external world. The use of the epithet "intellectual," however, is very inaccurate here, and still more so when applied to individual sensations. The Intellect is a faculty essentially distinct from sensuous powers, and its activity, just as that of any of the senses, may possess a pleasurable or painful character. It will accordingly be more appropriate to term this property of a sense or sensation its *cognitional* aspect.

Taste. — *Physiological conditions.* — The formal object of the sense of taste is that quality in certain soluble substances in virtue of which they are called *sapid*. The organ of taste is the surface of the tongue and palate. Over these surfaces are distributed the *gustative papillæ*, from which nerves proceed to the brain. In order to excite the sensation, the body to be tasted must be in a state of solution in the mouth. The precise nature of the action of the sapid substance on the papillæ is unknown, but it is probably chemical.

Sensations.—The sensations of this faculty do not possess such definite qualitative differences as to fall into well-determined groups, and consequently there is no general agreement in the classification of different tastes. The proper pleasure of the sense is sweetness; its proper pain bitterness. Most

gustatory sensations involve elements of tactual, nasal, and organic feelings. Thus, acid, alkaline, fiery, and astringent tastes, are in part the effects of tactual stimulation; feelings of relish and disgust are traceable to the sympathy of the alimentary canal; and sensations of smell also influence our estimation of the sapid qualities of many substances. The cognitional value of this sense is very low. Continuous stimulation rapidly deadens its sensibility; its recuperative power is tardy, its sensations are wanting in precision, and they can be but very imperfectly revived in imagination. The main grounds of its cognitive inferiority, however, lie in its essentially subjective character. Abstracting from the information afforded by concomitant tactual sensations, taste originally gives us no knowledge of external reality, and, consequently, with the exception of the vague systemic feelings of the organism, it must be ranked lowest as a medium of communication with the physical world. On the other hand, viewed from the standpoint of feeling, this sense is capable of intense but short-lived pleasure and pain. Though the lowest of our faculties in point of refinement, and the most subject to abuse, its great utility as a guide in the selection of food throughout the animal kingdom is evident.

Smell.—*Physiological conditions.*—Odorous particles emitted from gaseous or volatile substances constitute the appropriate stimulus of this sense. The organ of smell is the cutaneous membrane lining the inner surface of the nose. The action of

the odorous substance is probably of a chemical character, and the simultaneous inhaling of the air is requisite for the production of the sensation. In the act of inhalation the stimulating particles are drawn through the nostrils over the sensitive surface. Even the strongest smelling substances are not perceived as long as we hold our breath.

Sensations.—This sense resembles that of taste in many respects. Vagueness is a marked feature of each; continuous excitation renders both obtuse; their recuperative power on the cessation of the stimulus is weak; and both are originally of a like subjective character. The close affinity of the two faculties is exhibited in the difficulty of determining how far the recognition of a particular substance is due to taste, and how far to smell; and in the readiness with which most of the adjectives, such as sweet, bitter, pungent, primarily qualifying sensations of taste, are transferred to those of smell. The attempt to distinguish port wine from sherry, apart from sight and smell, is a familiar method of illustrating the former. The delicate susceptibility of smell to some kinds of stimulation is, however, very surprising. The merest trace of a drop of oil of roses awakes a pleasurable feeling, and as infinitesimal a particle as the one thirty-millionth part of a grain of musk is perceptible. The delicacy of this faculty in the dog and other brute animals,[2] as is well known, far exceeds what

[2] Cf. Bernstein, *The Five Senses*, p. 290. He says that some animals can, when the wind is favourable, scent the huntsman several miles away. The number and the minuteness of the volatile particles which proceed from objects perceivable at such distances pass comprehension.

it attains in man. Just as in the case of taste, the sensations of smell may be of an extremely agreeable or disagreeable character. They stand higher, however, in order of refinement. They are, too, more easily revived in imagination; and, being awakened by objects at a distance, these sensations, like those of sight, assume the character of premonitory signs of other future experiences. In this way the sense of smell comes to surpass both organic and gustatory sensations, as an instrument of external perception.

Touch.—Under the generic sense of touch are comprised a variety of classes of feelings widely different from each other. Consequently, very early in the history of Psychology, we meet with discussions as to whether this term does not include several specifically distinct senses. Aristotle[3] called attention both to the close relationship of taste with touch, and to the divergent nature of sensations of temperature, of softness and hardness, and of contact proper. It would certainly seem that sensations of temperature, differing so much in quality from those of touch proper, awakened, moreover, by distant objects, and seated either in different nerves or different properties of nerve, from those of our tactual feelings, have as strong claims to be considered the utterances of a separate sense as our

[3] Aristotle, in the *De Anima*, II. ll. 22—24, holds a plurality of senses to be contained under the generic faculty of touch. Elsewhere, in the *De Gen. Animalium*, he seems to adopt the monistic view. St. Thomas, however, prefers to look on these sensations as merely different classes of feelings comprised under one tactual sense, the formal object of which has not received a definite name. (Cf. *Sum.* i. q. 78. a. 3; also Schiffini, *Disp. Metaph.* Vol. I. p. 322.)

gustatory states. Since, however, every proposed subdivision of touch into separate senses appears open to grave objections, and since the question is really of no very great importance, the most convenient plan will be to distinguish and describe separately the leading modes of sensibility included under touch in its widest sense, without deciding whether they should be assigned to different faculties. These forms of consciousness are: (1) the *organic sensations*, (2) the *sensations of temperature*, (3) *touch proper*, and (4) the *muscular sensations*.

The Organic Sensations, Common Sensibility, Cœnæsthesis, or the Vital Sense.—Under these various designations are included the numerous modes of sensuous consciousness attached to the organism as a whole, or to particular portions of it. Their essential function is to inform us, not of the properties of the extra-organic world, but of the good or ill condition of our own body. Prominent among them are the *systemic* sensations, comprising those of the alimentary canal, such as the feelings of hunger, of thirst, and repletion, the sensations of respiration, of circulation, and such other states as are normal to the system. In addition to these, the chief remaining organic sensations are those arising from disease, and from laceration or fracture of any part of the organism. Estimated from a cognitional point of view, the organic sensations are of little importance. With the exception of particular hurts, they are of an indefinite and obscure character. They can be but very feebly reproduced in imagination. Being in great part beyond the range of touch and sight, they are vaguely and imperfectly localized, and they give us practically no information regarding the external world.[4] On the other hand, as sources of

[4] *Common sensibility* has, however, great importance from an intellectual standpoint in this respect, that it is the source of much error. It may seriously distort men's judgments. Peace and war have at times depended on the Prime Minister's digestion.

pleasure and pain, they possess immense influence over the tenour of our existence, and they are of the greatest utility as guardians of our physical health.

Sense of Temperature.—*Physiological conditions.*—Diffused throughout the organism as a whole, yet specially seated in the skin, the sense of *temperature* has claims to be grouped both with the *organic* sensations and with the sense of *contact* proper. Some writers have maintained that our consciousness of temperature is dependent on a set of nerves distinct from those employed in tactual sensation. This is not yet absolutely proved, but that the properties of the nerve-fibres involved are completely different[5] is shown by the fact that either class of feelings may be almost entirely suspended, whilst the other remains comparatively unaffected.

Sensations.—As our consciousness of temperature is relative to that of our own person, this sense can afford little assurance about the absolute heat or coldness of an external object. When the environment is of the same temperature with that of the part of our body exposed, we are unconscious of it. If we pass into the chill night air from a hot room, we are keenly aware of the change, but even before the skin of our face and hands is reduced to the same degree of warmth as the surrounding atmosphere, we become habituated to the stimulus, and consciousness of temperature almost disappears. It has been found, however, that within a moderate range, fine variations can be noticed in comparing the temperatures of two bodies; and the hand is able to detect a difference of $\frac{1}{4}$ a degree Cent. in two vessels of water. The effect of heat or cold increases with the extent of the surface exposed. Thus, water which feels only comfortably warm to the hand

[5] Recent ingenious experiments by Goldscheider and other physiologists, seem to show not merely that the nervous end-apparatus of temperature sensations differs from that of pressure and of pain, but even that there are in the skin distinct "heat-spots" and "cold-spots"—minute localities sensitive to heat but not to cold, and conversely. This appears surprising when we recollect that to the physicist heat and cold are purely relative. (Cf. Ladd, op. cit. pp. 346—350.)

or arm, may cause severe pain if the whole person is immersed. In extreme heat and cold, the sensation of temperature proper disappears, and, instead, in both cases, a like feeling of keen organic pain ensues. In polar voyages, the sailors speak of cold objects *burning* their hands. Viewed generally, this sense is of little cognitive, but of much emotional significance. Its appropriate pleasure lies in moderate warmth, its specific pain in extreme heat and cold.

Sense of Contact or Passive Touch.—*Physiological conditions.*—The organ of this sense consists of a system of *papillæ* distributed over the surface of the *dermis*, or under-skin, which covers the surface of the body. Above this *dermis* lies the cuticle or external skin, which acts as a protection for the papillæ, nerves, and veins lying beneath. From the papillæ proceed nerve-fibrils to the spinal column and thence to the brain. The proper stimulus of the sense of touch is simple pressure on the external skin. In order that a sensation be awakened, the effect of the physical excitation at the surface must be transmitted along a sensory nerve to the brain. If the nerve is severed above the point of irritation, no mental state is elicited, and if an intersected nerve is irritated above the point of severance, the cause of the sensation aroused is judged to be at the old peripheral extremity. From this it has been inferred that the sensation occurs not at the surface, but in the brain or central sensorium, and that it is by experience we come to learn the seat of the exterior impression.[6] If this doctrine is to be interpreted as

[6] The doctrine that the true seat of sensation is a limited internal centre is as old as Aristotle. (Cf. St. Thomas, *Comm. De Anima*, II. ll. 22, 23.) He holds there that the heart is the proper locus of tactual sensation, the intervening flesh being only a medium differing from the air or other external media by the fact that it is not an accidental but a connatural instrument. That our apparent consciousness to the contrary does not suffice to decide the question, he shows by pointing to the fact that if a covering or rigid substance is placed between the skin and the excitant, we then localize the sensation at the outer surface of the new tegument, and not in the skin. In the *De Gen. Animalium*, however, he seems to pass into the other view. (Cf. also P. S. Seewis, *Della Conoscenza Sensitiva*, pp. 368—372.) Dr. Stöckl is among the most distinguished of

implying that peripheral stimuli were originally localized by us in the brain, or that the soul is confined within the limits of the brain chamber, and that the action of the excitant impinges upon it there, then it must be rejected as warranted neither by physiological nor psychological evidence. The fact, however, may be held to show that our ability to localize impressions is very largely due to experience, and that our original capacity in this respect was very imperfect.

The physiological process which is the proximate cause of sensation contains three stages. The first is the peculiar action set up in the exterior terminals of the nerves of the various senses. The specialization in structure and constitution of these apparatus, which modern Physiology has brought into prominence, demonstrates the significance of this moment in the operation. The second step is the transference of the excitation by means of a molecular change along the nerve to the brain. Here the last item in the physical process takes place, but of its character we know virtually nothing. On its completion, however, the soul which animates equally every part of the nervous system, and, in fact, every part of the organism, reacts in the form of a conscious sensation. The quality of this mental state is affected by the portion of the body in which the physiological process has taken place; the feeling, for instance, of an impression on the leg or the back is different from that of a similar impression on the arm. Nevertheless, the sensation is not definitely localized from the beginning at the precise spot of peripheral stimulation; the exact site of the starting-point of the neural change is learned by experience. This subject will, however, be discussed more fully in a future chapter.

Cognitional Value of Touch.—The sense of touch stands very high as a medium of external perception, yet its sensations possess in many respects the vague-

modern scholastic writers who support the view that sensation is elicited, not in the external parts of the sense-organ, but in the brain. (Cf. *Empirische Psychologie*, § 6, n. 12.)

ness and want of precision which characterize the faculties hitherto dealt with. Thus there is comparatively little variety in kind among our tactual feelings which are mainly discriminated as rough, smooth, gentle, and pungent. They possess, however, a delicate sensibility to differences in the intensity and duration of the stimulus, and still more important in this connexion, they are endowed with fine *local characters* on account of which they come to be referred with great accuracy to the place of excitation. By means of this property the mind is able simultaneously to apprehend co-existing points, cognizing them as separate; and in this apprehension there is the presentation of *extended space*. The simplest form of tactual sensation, such as that of the contact of a feather, does not seem to involve the feeling of pressure, and this is sometimes styled the sense of contact proper, but it scarcely passes beyond the range of the organic sensations. The vast majority of our sensations of contact are sensations of pressure, and this element must be included under the sense of touch.

Discriminative Sensibility.—The sensibility of the skin to purely tactual pressure varies in different parts of the body. If a particular point on the hand is tested, we can, according to some writers, notice the difference between two successive pressures when it equals the $\frac{1}{30}$th of the original weight. Pressures on two different hands can only be observed when one exceeds the other by $\frac{1}{3}$. The capacity of touch for local discrimination also varies in different parts of the skin. The method of experiment adopted by Weber, was to place the two points of a pair of compasses on the part to be examined, and then to widen or narrow them until the two points could be just felt as separate. It was found that along portions of the back and forearm the points of the compass required to be from two to three inches apart in order to be distinguished, whilst on the tips of the fingers and the tongue an interval of one twelfth and one twenty-fifth of an inch sufficed. The spaces within which the doubleness of the stimulus is not observed are called "sensory circles," though the figure

is not generally an exact circle. The smallness of the circle measures the perfection of the sensibility.

The consciousness of mere contact, of tactual pressure, and, with some writers, that of temperature, comprise the feelings which should be grouped under *touch proper*. There are, also, a few other special modes of tactual sensation, such as tickling, and itch, which have a very well marked character of their own. Sensations of touch cannot be very vividly reproduced in imagination; yet the reality of these representations is shown by our power of comparing a present sensation of touch, such as that of a brush or piece of silk, with a recollected experience, and also by the manner in which ideal sensations of touch are awakened by the visual appearance of objects. We seem *to see* the roughness, smoothness, or softness of objects, although, of course, these properties can only be apprehended by touch. This fact, too, marks the high degree of associability possessed by these sensations. These various qualities of the sense of touch give it great importance in the department of objective cognition. We have not, however, hitherto laid stress on the fact that pressure, revealed through tactual sensations, is an influential agent in the generation of our conviction of the externality of the material world, just as the apprehension of co-existing points determines our assurance of its extension. In such sensations of pressure muscular feelings are often implied, and though passively received impressions of contact do really involve the apprehension of something other than ourselves, yet it is when combined with the muscular sensations, and as consequent on the effort put forth by our own energy, that their full significance in the apprehension of the reality of the external world is realized. As a source of pleasure the sense of touch, apart from feelings of temperature and other organic states, ranks low. It has, however, been selected from the beginning as the sense most convenient for the infliction of chastisement, and its capacity in this respect is indisputable.

Active Touch.—*The muscular or kinæsthetic sensations.*—Sensations of pressure are commonly blended

with muscular feelings of *resistance* on our part, and occasionally with those of *movement*. These feelings of impeded energy and of movement constitute the manifestations of the so-called *active* or *muscular sense* of modern psychologists, and it is in connexion with these that the intellectual or cognitional importance of touch becomes most conspicuous. The difference between the tactual and muscular consciousness of pressure will be realized by holding up a half-pound weight on our hand, and then placing the same weight on our hand whilst the latter is supported by the table. In the former case there is in addition to the tactual impression a feeling described as a sense of effort or strain. Again, if we allow our arm to be unresistingly moved by another person, we shall have the passive consciousness of pressure or contact, with also faint tactual and organic feelings due to the changing position of the skin, joints, and muscles. But if we ourselves move it, instead of the passive feeling of pressure we have the consciousness of muscular energy put forth, accompanied as before by the faint organic and tactual sensations due to the varying position of the limb.

Physiological Conditions.—The analysis of this state of consciousness and the determination of the physiological conditions of its various elements have given rise to the **Muscular Sense Controversy**, an unsettled dispute in which psychological, physiological, and pathological evidence is invoked on both sides.

(1) One theory holds that our muscular consciousness consists merely of a special class of tactual sensations seated in ordinary afferent nerves in the skin and surface teguments, the crumpling, pressure, and strain of which excite these feelings. To this it is objected that in cases where the skin is rendered insensible by disease or anæsthetics like cocain, the power of movement and the *feeling of effort* often remain.

(2) The second theory includes among the elements of our muscular consciousness besides those of the skin, sensations located in sensory nerves pertaining to the muscles, tendons, ligaments, and cartilage connexions of the joints. All these feelings, it holds, are the concomitants of *in-coming* nervous processes along *afferent* nerves. They report and measure movement, strain, or resistance already accomplished, not

something to be done. Among the advocates of this view are W. James, Ferrier, Bastian, and Munsterberg.

(3) The third theory maintains that in addition to, and quite distinct from these incoming or peripherally excited feelings, our muscular consciousness includes a *feeling of innervation*, of *effort put forth*, the mental correlate of centrally initiated *outgoing* currents of motor energy which traverse the *efferent* nerves in the execution of movement or resistance. Its chief supporters are Bain, Wundt, Ladd, Stout, and Baldwin.

In behalf of (3) it is argued: (*a*) In children and young animals there is exhibited from the very beginning a fund of activity and spontaneous movements originated by a surplus of energy rather than by external stimulation. The feelings attached to such primitive activity must have for their physical basis *efferent* or *motor* discharges. (Bain.) (*b*) A patient who strives to move a paralyzed limb is conscious *of effort* without any sensation of movement—which does not take place. (*c*) If the muscles which move the eye to right or left are partly paralyzed, the degree of rotation needed to fixate an object is over-estimated and its position misjudged. This illusion proves that our estimate of the movement is measured by the intensity of the effort or innervation which has to be exerted, not by incoming sensations of muscular contraction actually accomplished in the movement. (Wundt.)

In favour of (2) it is urged by W. James: (*a*) The assumption of this unique *active sense* or *feeling of innervation*, opposed in nature to all other forms of sensation,—which are concomitants of afferent nervous processes—is "*unnecessary*." This feeling, were it ever present, would have vanished as a useless link. Movements due to emotions and reflex action occur without it. (*b*) There is really no introspective evidence for its existence. An anticipatory image of the complex feeling of muscular contractions, involved in the movement plus the volition or *fiat* of the will—which is not a sensation—is the total mental state revealed by careful introspection. (*c*) To the arguments based on the seeming existence and our apparent estimate of the feeling of effort in cases of paralysis of certain muscles where incoming sensations from *them* would be impossible, it is answered that the feeling is still really of a purely afferent character coming from the strain of *other* groups of muscles, especially those of the chest and respiratory organs, as will be noticed if we "make believe" of shutting our fist tight, or pulling the trigger of a gun without really moving our fingers.

We confess the question seems to us as yet not definitely decided. The reader will find it fully discussed in W. James's

Principles of Psychology, vol. ii. pp. 189 ff. 493 ff.; and Ladd, *Psychology Descriptive and Explanatory*, pp. 115 ff. 218 ff.

Cognitional value.—The discriminative sensibility of our muscular consciousness to varying degrees of resisting force is very delicate. The duration of muscular sensations is also finely felt. This latter property, when we have acquired the power of estimating velocity, is the chief instrument in our measurement of space. A sweep of the arm lasting for a longer or shorter time, velocity being equal, passes through a greater or less space. Estimation of velocity is not an original quality of muscular feeling, but is learned by experience. Velocity has no meaning unless in reference to space, and it is determined by the quantity of space traversed in a given time. We observe that, in a given time, a certain amount of energy is required to move the arm over a definite length of space, known by sight or touch. By association the degree of impetus becomes the symbol of the rate of velocity. The calculation of the quantity of movement executed by our limbs through means of the muscular feelings alone, unless in the case of a familiar act, is generally very imperfect. If we attempt to ascertain the size and shape of a strange room in the dark, we shall find how vague are our notions of our movement. Similarly, if the eyes are closed and the arm is bared so that the tactual sensations of the sleeve are eliminated, the inadequacy of motor estimation of space will become apparent; when the velocity is increased we invariably undervalue the distance moved through.[8]

The muscular sensations, like the other organic feelings, cannot be vividly revived in imagination, but our power of determining the exact degree of

[8] The fact that our muscular appreciation of velocity is not innate but acquired, and is at best vague and indefinite, constitutes a very serious difficulty to writers like Dr. Bain, who resolve our perception of space into the consciousness of unextended muscular sensations varying in duration and velocity. The latter idea involves the notions both of space and time, and should not be assumed as an innate endowment, least of all by the empirical school. (Cf. Mahaffy, *The Critical Philosophy*, pp. 138—144.)

energy to be put forth in the practice of habitual actions, such as standing, walking, writing, speaking, and the like, is very delicate. The sense of sight, just as well as that of contact, is a heavy debtor to these sensations. Not only the movements of the head and the eyes, but the still more minute changes by which the convexity of the crystalline lens is modified to suit the varying distance of the object, are all effected under the guidance and estimation of muscular sensations, and it is only by means of their acute sensibility that many of the nicest discriminations of the visual faculty are possible.

Movement, moreover, enables us to multiply the experiences of each sense, to vary the relations between the object and the faculty, and to bring the most sensitive part of the latter to bear on the former. Consequently, the sensations which measure movement play an important part in perfecting our knowledge of the properties of matter. Still it is the consciousness of *foreign resistance* revealed in tactual and muscular feelings combined, which forces upon us most irresistibly the reality of the external material world. In this respect the cognitional importance of the united muscular and tactual sense exceeds that of sight and all the other organic faculties together.[9]

Capacity for pleasure and pain.—The muscular feelings may give rise to a good deal of pleasure or pain. When the body is in a healthy condition muscular exercise affords keen enjoyment, as is established by the general popularity of field sports. The proper pain of muscular sensations is fatigue, and this can be very severe when forced activity is maintained under exhausting conditions. Besides these mental states which we have described, the muscles, like other parts of the body, can be the subject of the pains of laceration or disease, but such feelings belong rather to the general group of *organic sensations*.

[9] Amongst the qualities of matter made known by combined muscular and tactual sensations are solidity, shape, size, hardness, softness, elasticity, liquidity, &c. Consciousness of movement and of variation in pressure are the main factors in such perceptions.

Hearing.—*Physical and Physiological conditions.*—This sense is aroused by vibratory movements transmitted from the sonorous substance through the air or other medium to the ear. The organ of hearing consists of three chief parts, the external ear including the *pinna* and external *meatus*, the *tympanic cavity*, drum, or middle ear, and the *labyrinth* or internal ear. The two extremities of the tympanic cavity are connected by a chain of small bones, and the labyrinth consists chiefly of a number of small cavities, and contains a liquid in which the auditory nerve is distributed. The vibrations transmitted from the sounding object are concentrated by the external ear, and passed on through the middle ear by means of the chain of small bones to the liquid contained in the labyrinth. The disturbance of this substance excites the auditory nerve, and this excitation is the immediate antecedent of the sensation of sound.

Musical Sounds.—Sensations of hearing naturally divide into two great classes, those of *musical*, and those of *non-musical* sounds. Another important division is that into *articulate* sounds, or the words of language, and *inarticulate* sounds. When these last are non-musical they are called *noises*. The musical character of the first class of sounds seems to be dependent on the periodical nature of the vibrations which excite these sensations. The chief properties of musical notes besides intensity, are *pitch*, *quality*, and *timbre* or *clang*. The *pitch* of a sound means its altitude on the musical scale, and is determined by the rapidity of the vibration.

The terms *timbre*, *clang*, and sometimes *musical quality*, designate the peculiar feature by which the sound of a note on one instrument differs from that of the same note on another. Thus the *timbre* of the violin differs from that of the cornet and of the human voice.[10] Particular combinations of notes according to certain relations of pitch produce the agreeable effect known as *harmony*. Notes which sounded together produce instead an unpleasant sensation, are said to be *discordant* and *inharmonious*. Under certain circumstances, however, discords may be pleasant. Groupings of musical sound in particular time periods produce the consciousness of *melody*, and skilful combinations of various instruments so as to secure harmony, melody, and agreeable blending of *timbre* conspire to awaken the delightful feelings of a rich symphony.

Non-musical Sounds.—Of the non-musical sounds the number which are classed as mere noises are practically unlimited. The collisions of different bodies, the cries of the various animals, the roaring of the wind and of the ocean, are instances of such. All forms of sound, both musical and non-musical, are susceptible of discrimination in regard to *intensity* and *duration*, as well as in regard to *quality*. It is owing to the very great delicacy of the ear in these several respects that articulate speech is an instrument of such enormous value. More than five successive excitations per second produce a

[10] Helmholtz explains the different *timbre* of different instruments as due to variations in the upper tones which accompany the proper fundamental note. However, this theory cannot, as yet, be held to be established.

continuous sensation in the eye, while the recuperative power of the auditory nerve is so perfect that we can distinguish sixteen impressions in the same length of time. The rapid succession of sensations, frequently discriminated by but slight differences in character and intensity, which present to us without fatigue the long series of syllables constituting a speech, exhibit the wonderful perfection of this sense under these various aspects.[11]

Sounds and Signs.—Sounds of all kinds are highly susceptible of being conserved in the memory and reproduced in imagination, and they are also readily associated with other mental states. To this latter property is due their aptness to constitute a system of symbols. The repeated conjunction of the sound of a name with the perception of its object causes the former to suggest in the mind of the child the idea of the latter. Later on, with the dawn of intellect and reflexion, words come to be used and recognized as signs of things. In acquiring a foreign language, the primary associations are formed, not, as in learning our mother-tongue, between the foreign words and the objects which they signify, but between the former and the corresponding terms in our own language, by the assistance of which we ordinarily think and reason about the objects of

[11] A good *musical* ear is one that possesses a fine sensibility to pitch, to melodious groupings of successive tones, and to symphonic combinations of timbre. A good *linguistic* ear is one finely discriminative of the quality of sounds, and of the varying degrees of intensity which mark intonation or accent. As a consequence the two aptitudes are not always united. The ear well formed to catch the peculiar characteristics of the French, German, or Italian languages, may be insensible to considerable differences in pitch, and therefore unconscious of the discord effected by inharmonious combinations. Perfection in either line implies good individual capacity of retention. Keen susceptibility to differences of pitch, and consequently to musical harmony, may be found where the general power of hearing is comparatively feeble, and *vice versa*. For a good linguistic ear, however, general acuteness of the sense seems requisite.

experience. In commencing to read the connexion is first formed between the visual sign and the oral syllable or word, though gradually the intermediate representation of the word tends to drop out of existence, and in the end the written symbol immediately suggests to us the object signified.[12]

Cognitional importance of Hearing.—Notwithstanding its very delicate sensibility as to differences in quality, intensity, and duration, in addition to the very revivable and associable character of its sensations, which all conspire to give the ear such high intellectual value as a representative faculty, it ranks very low as a direct medium of objective knowledge. Of itself it affords no information of the extension or impenetrability of bodies—the two fundamental properties of matter. Indeed, the attribute which it immediately reveals is of purely secondary and accidental character. Nevertheless, of such a high order are the intrinsic excellences of its sensations, and so admirably are they adapted to compose a perfect system of signs, that, when once a few elementary experiences have been gathered by the other senses, this faculty is enabled, by appropriating them, to put us into a position to take possession of the rich treasures of knowledge acquired by the whole human race.

Capacity for pleasure and pain.—The capacity of the ear for pleasure is large, while its potentialities for pain are comparatively limited. The agreeable feelings awakened by the qualities of musical sound are of the noblest and most refined character. They are rich in variety, they do not pall by long continuance, and they may be frequently renewed. In all these respects they differ from the gratifications of the less refined senses. A far greater part, however, of these higher pleasures are traceable to intellectual and emotional enjoyment

[12] The muscular sensations excited in uttering words either aloud or in a whisper, make a parallel line of association with the aural and visual signs, and in persons in whom the faculty of articulation is more retentive, or more frequently exercised in acquisitions of this sort, thinking and reading in silence tend to be accompanied by movements of the lips. Energetic effort to realize the full import of the visual sign occasions the same phenomenon.

afforded by the general character of a musical composition than to the mere sensuous satisfaction produced by pleasant sound. Cultivation increases the refinement and extends the range of this capacity for happiness, but at the same time rendering the faculty more keenly alive to defects and blemishes it annihilates many minor pleasures possible to the less delicate taste. Discord is painful to the musical ear, and harsh sounds of any kind, as well as intense noises, have an unpleasant effect on all normally endowed persons.

Sight.—*Physical and Physiological conditions.*—The formal object of the eye is coloured surface. According to the now generally accepted undulatory theory, the physical conditions of sight consist of vibrations transmitted to the eye through the intervening ether from the reflecting or self-luminous body. Difference of colour depends on variation in the rate of rapidity of the vibratory movements. The organ of vision is an optical instrument of a very complicated and ingenious construction. The eye-ball is a nearly spherical body containing within it three masses of transparent liquid or gelatinous substances called humours, and so arranged as to form a compound lens. The shape of the eye-ball is secured by an outer coating called the *sclerotic*, which embraces the whole eye with the exception of the circular spot in front, where the transparent *cornea* takes its place. Under the *sclerotic* is a second covering, the dark *choroid coat*, and over the interior surface of this towards the back of the eye is distributed the *retina*. This is a transparent network composed of several layers of fibres and nerve cells, and connected with the *choroid* by a

layer of rods and cones. These latter seem to be the properly sensitive apparatus. In the centre of the retina is the *yellow spot*, which is the most sensitive part of the organ, and here cones without rods are packed in greatest abundance. From the retina slightly to the side of the yellow spot the optic nerve proceeds to the brain. Rays falling on it are unperceived, whence it is styled the *blind spot*. Of the humours filling up the main body of the eye, the middle one, called the crystalline lens, which is of double convex form, is the most important. The shape of this lens is capable of alteration, being rendered more or less convex by the automatic contraction or extension of the ciliary muscle to suit the distance of the object viewed. When something is presented to the eye, the rays passing from it enter the pupil of the eye and are concentrated by the lens arrangements so as to form an inverted image on the retina. From the layer of rods and cones forming the inner stratum of the retina, this impression is conveyed as a neural tremor to the brain, whereupon the sensation is awakened.

Sensations of Sight.—There are attached to the eye both muscular and visual sensations proper. The former, which measure the movement of the eyeball and the convexity of the crystalline lens, contribute very much to the accurate determination of the special relations of visible objects. The visual sensations proper are those of light and of colour. These are susceptible of very delicate shades of difference, and the various hues of colour and

degrees in the intensity of light which can be distinguished in a landscape are virtually innumerable. It has been estimated by means of some ingenious experiments that an increase in the force of a stimulus equivalent to about one in one hundred can, within certain limits, be just discerned by the eye. The principal species of colour generally recognized are the seven hues of the spectrum, red, orange, yellow, green, blue, indigo, and violet. There are a large number of distinguishable intermediate tints between these leading colours, and the terms have therefore not a very exactly defined meaning. These various hues are found to result from the analysis of white light. The ether vibrations which excite visual sensations are of enormous rapidity, and the rate increases from about 390 billions per second, for red rays, to about 760 billions in the case of violet.

Helmholtz and others have traced analogies between the colour spectrum and the musical scale. In point of agreement we find (*a*) a series of seven principal colours, in correspondence with the notes of the gamut, (*b*) both series produced by variations in the rate of the vibratory stimulus, and (*c*) both capable of certain agreeable and disagreeable combinations described as harmonious and inharmonious. The points of difference are however greater. (*a*) The character of each of the tones of the musical octave is so distinct and well marked as to have been recognized from the earliest times; the colours of the spectrum on the contrary are vaguely defined and pass gradually into each other, many intermediate hues having equally good claims to a recognition in the scheme; (*b*) the change in the musical octave advances regularly in one direction, each succeeding note being farther from the first, while in the spectrum the movement is along a curve, and the last colour, violet, returns nearer than either indigo or blue, to the earlier colours red and orange; (*c*) the auditory sensation rises regularly with equal increments in the rate of vibration, whilst large changes produce no

conscious effect in parts of the spectrum; (*d*) the range of vision is exhausted by a single octave, while the ear can span from six to eight.

Composite Sensations.—Although the sensation of white is evoked by a combination of physical stimuli separately productive of other feelings, it is inaccurate, as we have before indicated, to speak of the consciousness of white as being a *compound* or *complex* mental state. The sensation, in itself unanalyzable, must be accepted as such. The true type of the compound or complex sensation is that aroused by a union of different voices or instruments, where attention enables us to discriminate the separate elements of consciousness. The analysis of white light, the existence of various forms of colour blindness, of colour harmony, and of what are called *negative*[13] images, have suggested the hypothesis that the nerves of vision distributed in the retina are of certain different classes adapted to respond to particular elementary forms of colour. The theory has assumed different forms in the hands of different scientists, but as the question is physiological rather than psychological, we need not enter into it here.[14]

Tone and Depth.—The term *tone* is sometimes used to express the position of a colour in the spectrum, while *depth* is dependent on the quantity of pure white light

[13] *After-images, incidental images,* or *spectra,* are of two kinds, *positive* and *negative.* The former term is used to denote the images of sensuous perceptions of objects, which frequently continue to persist for some brief time after the cessation of the stimulus. If after gazing steadily for a few minutes at a coloured object we direct our eyes to a white surface, instead of the *positive* after-image we become conscious of an image of the object, but in the complementary hue. This is termed a *negative* image, and is explained on the above hypothesis as due to the temporary fatigue and consequent obtuseness of the nerves previously excited, which are now unable to absorb their share of the new stimulus.

[14] The survival of these *after-images* was observed by Aristotle and the Scholastics: "Si aliquis videt aliquid lucidum ut solem, et subito claudat oculos, non advertendo visum, sed observando illud directe, primo apparebit ei color rei splendidæ deinde mutabitur in medios colores successive donec veniat ad nigrum, et omnino evanescat et hoc non continget nisi propter simulacra splendidi derelicti in visu." (St. Thomas, *Comm. De Somniis,* lect. 2.)

blended with the colour in question. The word *intensity* is occasionally employed as synonymous with *depth;* properly, however, it should signify the stronger or feebler force of the sensation. In addition to the fineness of the discriminative power of sight in these several respects, visual sensations are in a high degree capable of being retained in memory and recalled in imagination. In fact, so superior in vivacity are the representations of this faculty to those of the other senses, that some writers have been found to deny, but without adequate grounds, the existence of any other kind of images. The eye, though surpassing the other senses, is less delicately sensible to the duration of the stimulus than the ear. The persistence of positive after-images exhibited in the continuous impressions produced by the rapid circular movement of a bright object, prevents us from discerning more than five or six successive excitations in the second.

Cognitional importance.—These numerous capabilities would be sufficient of themselves to secure to sight high cognitional rank, but it is to the fact that the eye affords an immediate presentation of *surface extension*, that its fundamental importance as a source of objective knowledge is due. The apprehension of colour necessarily involves that of space in two dimensions. It is undoubtedly true that originally the single eye, if it remained in a fixed position, could have apprehended but a very limited quantity of surface, that its preception of shape would have been extremely vague, and that it could have afforded no information at all as regards distance; but nevertheless the sensation of colour necessarily implies some perception of extension. The point will be made clearer when we come to treat of the development of sense-perception; here, however, we would note that the means by which our visual perceptions of shape and distance are elaborated, and our apprehension of surface enlarged, are changes in the position and form of the eye made known to us by muscular sensations. The movement of the axis of the eye round the object viewed, the convergence of the two eyes varying with its distance, the self-adjusting

process by which the optical lens is flattened or rendered more convex so as to focus the object upon the retina, are accompanied by faint feelings of tension which play an important part in giving precision to our spatial cognitions. In mature life the "local" sensibility of the retina is very fine. Close to the centre of the yellow spot irritations as near together as ·004 mm. are felt as distinct; but the discriminative power diminishes as we pass towards the circumference. The size of the retinal image, of course, decreases with the distance of the object, still this extreme delicacy of the retina to the local character of the irritation enables the eye to become a very perfect instrument for the accurate appreciation of extension.

Capacity for pleasure and pain.—As a direct source of pleasure or pain visual sensations rank probably lower than those of any other faculty, though indirectly they may contribute much to our happiness. Bright lights and hues are pleasing, and harmonious combinations have an agreeable effect. A strong glare of light is painful, but the feeling is organic rather than visual. Prolonged confinement in the dark produces an intense desire for light and great joy on first restoration to liberty, but the pleasure soon fades. The contemplation of the beauties of nature and art affords rich and refined delight, but here the effect is of an intellectual and emotional character, and not merely an immediate function of the sense.

The Senses compared.—In our last chapter we remarked on the inverse ratio subsisting between the perceptional and the pleasurable or painful capacity of the senses. Glancing back at them now, when they have been separately passed under review, and their chief features described in detail, the truth of that observation will be realized. If we divide our tactual consciousness into the two great groups, the organic sensations, including the feelings of temperature on the one side, and the muscular feelings and sensations of touch proper on the other, and proceed to arrange them first according to emotional, and then in regard

to cognitional rank, we shall find that the two schemes will assume virtually an inverse order. Viewed as direct sources of pleasure and pain, starting from the highest they seem to stand thus: organic sensation, taste, smell, hearing, muscular and tactual states, and sight. But marshalled as instruments of objective knowledge the order is reversed: sight, tactual and muscular sensations, hearing, smell, taste, and lowest, the organic feelings. This classification regards only the immediate or direct emotional and cognitional properties of the consciousness of each sense, and the intrinsic difficulties of all such comparison would probably cause diversity of view about the former scheme; still, estimated from this limited standpoint, it seems to us approximately correct.

Indirectly, indeed, sight is a much more important source of pleasure and pain than the sense of smell, and the knowledge of the universe acquired by hearing far exceeds that gathered from the actual experience of all our other senses combined; but in both cases we have merely appropriation of the results attained by the other faculties, and extension of these results by means of association and inference. Viewed purely as a state of feeling, a sensation of colour or sound can afford much less pleasure or pain than an agreeable odour, or a nauseous stench. Similarly, the sensations of hearing are more precise, more finely discriminable, and more vividly revived in imagination, not only than those of taste and smell, but even than our tactual and muscular consciousness. Yet, inasmuch as they give us immediately no assurance of the *reality*, or of the *extension* of the material world, they must be ranked cognitionally higher than taste or smell, but lower than the combined muscular and tactual sense. Touch, indeed, since it reveals the mechanical properties of the world, has claims to stand even before sight as an instrument of objective cognition, and it is certainly more necessary; still, the immense range of the latter faculty, its perfect presentation of the geometrical relations of the universe, and the delicacy of its other cognitive capabilities have led us to place it at the head

of the list. We need not attempt any further justification of the arrangement adopted, as the reader, by returning on our treatment of the senses separately, may ascertain the various considerations which have led to our conclusion.[15]

The "Law of Relativity."—The quality and intensity of a sensation are affected not only by the character of its own stimulus, but also by the quality and intensity of other simultaneous or immediately preceding sensations. Thus the same water is apprehended as hot or cold if the hand has been previously dipped in a liquid of lower or higher temperature. The same article may feel smooth or rough, heavy or light, according to the opposite character of the previous experience. After tasting a bitter substance water appears sweet. The sudden cessation of a prolonged noise has a startling effect, as when the miller is awakened by the stopping of his mill. A black object produces a stronger impression when seen after or in the midst of a white field, and the several colours are felt more deeply "saturated," that is, come out richer and fuller when observed at the same time or immediately subsequent to those of complementary hue. In general *contrast*, whether simultaneous or successive, intensifies the force of sensation.

On the other hand, the effect of protracted stimulation of a sense diminishes and may finally cease to be noticed. We are ordinarily unconscious of the contact of our clothes, of the pressure of our own weight upon our limbs, of the continuous hum of the city, of the smell of flowers, or of the oppressiveness of the atmosphere in a room where we have been for some time, and, speaking generally, of any constant uniform excitant.

This influence of variation upon consciousness has been called by recent psychologists the "Relativity of Sensation." It is a well-known experience in our mental life, and a considerable factor in our pleasures and pains. It was familiar to Aristotle and the Schoolmen, who, on account of its effects, laid down the rule that to secure correct apprehension the

[15] Balmez, *Fundamental Philosophy*, Bk. II. cc. x. xi. maintains the inferiority of touch to sight and hearing from a cognitional point of view. He does not, however, distinguish sufficiently in this question between the direct or immediate efficacy of a sense and that which is merely mediate. In range and representative power the more refined senses vastly surpass touch, but to a very large extent their wealth is built upon the capital supplied by the more fundamental faculty.

several sensuous faculties must be in a *neutral* or *normal* condition.[16]

But the sweeping generalization erected upon these facts under the title of the *Law of Relativity* is untenable. According to this doctrine, at least as expounded by some of its best-known advocates, *all* consciousness is merely *feeling of difference or change.* Thus Hobbes asserted that "to be always sensible of one and the same thing is the same as not to feel at all." Dr. Bain writes: "The Principle of Relativity, or the necessity of change in order to our being conscious, is the groundwork of Thought, Intellect, and Knowledge as well as Feeling. . . . We know heat only in the transition from cold and *vice versa*. . . : *We do not know any one thing in itself, but only the difference between it and another thing.* . . . The present sensation of heat is in fact a *difference* from the preceding cold."[17]

Criticism.—To us it seems clear that whilst change—*motus de potentia ad actum*, as the scholastics termed it—is an essential element in the *awakening* of sensation, and also an important factor in its *vividness*, it is, nevertheless, the very reverse of the truth to assert that all consciousness is a "feeling of difference." In sensation we are primarily conscious of a positive quality, for instance, of a sound or of a colour, not merely of the relation between two feelings. All comparison presupposes the perception of the terms to be compared, and the primitive act of the sense is not comparative, but simply apprehensive. What man's consciousness would be like if he always had but one unvarying form of sensation we do not pretend to know; but experience shows that we may continue aware of a uniform stimulus, for example, of a musical note for an indefinite time if it be not submerged or crowded out by other feelings.[18]

[16] "Sicut tepidum in comparatione ad calidum est frigidum; in comparatione ad frigidum est calidum. . . . Et oportet quod sicut organum quod debet sentire album et nigrum *neutrum* ipsorum habet *actu* sed utrumque in *potentia*; et *eodem modo in aliis sensibus.*" (St. Thomas, *De Anima*, Lib. ii. lect. 23. Cf. also *De Somniis*, lect. 2.)

[17] Cf. *Senses and Intellect*, p. 321; *Emotions and Will*, p. 550; *Body and Mind*, p. 81; also Höffding, *Outlines*, pp. 114—117, and Wundt, op. cit. pp. 111—119.

[18] Mr. J. Ward has forcibly argued against the supposed law: (1) That the axiom, *Idem semper sentire et non sentire ad idem recidunt*, though a truism in reference to the totality of mental life, or to consciousness as a whole, is false as regards many individual impressions. (2) That the suggested illustrations, *e.g.*, insensibility to continuous motion, temperature, pressure of the air, &c., are cases of *physiological*, not *psychical* habituation, and so are not constant *mental* impressions at all. (3) That "constant impressions" in the form

The actual facts on which the "Law of Relativity" and "Law of Contrast" are based seem to receive a simple physiological explanation in the enfeebling effect of fatigue upon the sense-organ and nerves engaged. These latter become habituated to the stimulus, and react with less energy if the same excitation be prolonged, whilst contrasted feelings employ fresh neural elements or other cerebral tracts. Moreover, from the mental side uniform sensation diminishes in interest, and attention being drawn away by rival novel stimuli, the monotonous experience attracts less and less notice.

The Relativity of Knowledge.—There is another form of the doctrine of the relativity of consciousness, which maintains that all our knowledge is relative to *us*, and that we have accordingly no real knowledge of things outside of the mind. This latter question will be discussed more appropriately after we have dealt with sense-perception, and we shall treat it under the title of the *Relativity of Knowledge* at the end of chapter vii. Both doctrines are erroneous, but many writers maintain the second without adhering to the first, although those who adopt the first naturally adhere also to the second.

The Scholastic Doctrine of the Internal Senses.—In addition to those sensuous faculties by which we are enabled to perceive external objects, the mind is endowed with the capability of apprehending in a sensuous manner, facts of a subjective order. This power or group of powers constitutes those modes of mental life styled by the schoolmen the *Internal Senses*. The Aristotelian doctrine elaborated by the mediæval thinkers distinguishes four such faculties, the *sensus communis*, the *vis æstimativa* or *vis cogitativa*, the *imagination*, and the *sensuous memory*. They were termed senses, or organic powers,

of "fixed ideas" are the very reverse of a "blank." (4) That if every feeling were "two-fold" or a "transition," a man surrounded by a blue sky and ocean, or passing from a neutral to a positive state of consciousness, must be unaware of any impression at all, which is not the fact. (5) There is, too, the old difficulty of Buridan's ass. (6) Moreover differences, which are themselves real presentations or objects of apprehension, are cognized, *e.g.*, degrees of variation in shade, pitch, pressure, &c., and therefore presuppose the perception of the absolute terms. Mr. Ward also rightly traces Dr. Bain's confusion on this subject to his ignoring the difference between the *mere successive or simultaneous occurrence* of two related feelings, and the *intellectual perception of their relation*. ("Psychology," *Encycl. Brit.* 9th Edit. See also Mark Baldwin, *Senses and Intellect*, pp. 58—61; W. James, Vol. II. pp. 6—20; and Farges, *L'Objectivité de la Perception*, pp. 104—115, 202—208.)

because they operate by means of a material organ, and have for their formal objects individual, concrete, sensuous facts. The word *internal* marks their subjective character, and the internal situation of the physical machinery of their operations.

Sensus Communis.—The *sensus communis*, or common sense, has also been styled *the internal* sense and the *central* sense. It has been described by St. Thomas, after Aristotle, as at once the source and the terminus of the special senses. By this faculty we are conscious of the operations of the external sensuous faculties, and we are made aware of differences between them, though we cannot by its means cognize them *as different*. Apart then from intellect, by which we formally compare and discriminate between objects, some central sense or internal form of sensibility is required, both in the case of man and of the lower animals, to account for the complete working of sensuous life. In the growth and development of sense-perception, the action of this internal form of sensuous consciousness is involved. Antecedent to and independent of intellectual activity, the revelations of the several senses must be combined by some central faculty of the sensuous order, and it is this interior aptitude which has been called *sensus communis*.[19]

Vis Æstimativa.—The *vis æstimativa*, or sensuous judicial faculty, was a name attributed to those complex forms of sensuous activity by which an object is apprehended as fit or unfit to satisfy the needs of animal nature. It thus denotes that capability in the lower animals which is commonly described as Instinct. The term *vis cogitativa* was sometimes

[19] It has been held by St. Augustine, St. Thomas (cf. *Sum.* i. q. 78, a. 4. ad 2. and 87. 3. 3), and other philosophers, that no sense can know its own states, and that, not merely for the co-ordination of the different senses, but for the cognition of any single sensation, an internal faculty in addition to the special sense is requisite. Aristotle (*De Anima*, III. l. 2) decides against this view on the intelligible ground that such a doctrine would involve an infinite series of sensuous faculties. Elsewhere, however (*De Somno et Vigilia*, l. 2), he appears to adopt the contrary theory. Suarez argues cogently against this multiplication of faculties as unnecessary, and his teaching appears to us sound. No sense can have a *reflex* knowledge of its own states, but this does not prevent a sense from having concomitantly with the apprehension of something affecting it an implicit consciousness of its own modifications. A being endowed with the sense of touch or hearing ought to be conscious, it would seem, of tactual or auditory sensations without the instrumentality of any additional faculty. (Cf. Suarez, *De Anima*, Lib. III. c. ii. and Lahousse, op. cit. pp. 160—163.)

employed to designate the aptitude for analogous operations in man, at other times to signify a certain mode of internal sensibility operating concurrently with the intellect in the perception of individual objects.[20]

Sentimento Fondamentale.—The term *sentimento fondamentale*, or fundamental feeling, was employed by Rosmini to denote an assumed faculty, or form of sensuous consciousness, by which the soul is continually cognizant of the body in which it is present.[21] The soul, he teaches, and not the living being composed of both soul and body, is the true principle of this feeling. It is by their modification of the *sentimento fondamentale* that the impressions of the special senses reveal themselves to the soul. The fundamental feeling, unlike the *sensus communis* of the scholastics, is held to have been ever in a condition of activity, even antecedent to the exercise of the special senses. "It begins with our life, and goes on continuously to the end of it." Nevertheless, it is rarely adverted to, and considerable power of psychological reflection may be required to discover its existence. By this feeling we have a *subjective* perception of our organism; through sight and touch, on the other hand, we apprehend it in an *extra-subjective* manner. Finally, the union of soul and body consists in an immanent perception of the activity of this faculty.

Sensus Fundamentalis.—Tongiorgi uses the term *sensus fundamentalis* in a kindred meaning to denote an inferior form of the *sensus intimus*. By the *sensus intimus*, he understands a perpetual consciousness both of its own substantial existence and of its acts, with which he maintains the soul to be endowed. This actual cognizance of itself is essential to the

[20] It was urged that intellect, the formal object of which is the *universal*, cannot *directly* apprehend individual substances *as such*. Nevertheless, we have intellectual knowledge of them, for we form singular judgments, *e.g.*: "This plant is a rose," "Peter is a negro." Consequently, it was inferred, there is a special form of internal sensibility through which the concrete object is so apprehended that by reflection upon this sensuous presentation the intellect can cognize the singular nature of the object. St. Thomas thus describes the operation: "Anima conjuncta corpori per intellectum cognoscit singulare, non quidem directe, sed per quandam reflexionem, in quantum scil, ex hoc, quod apprehendit suum intelligibile, revertitur ad considerandum suum actum et speciem intelligibilem, quæ est principium ejus operationis, et ejus speciei originem, et sic venit in considerationem phantasmatum et singularium quorum sunt phantasmata. *Sed hæc reflexio compleri non potest, nisi per adjunctionem virtutis cogitativæ et imaginativæ.*" (*Q. Un. de Anima*, a. 20. ad 1.)

[21] "By the *fundamental feeling* of life we feel all the sensitive parts of our body." (*The Origin of Ideas*, Eng. Trans. § 705.)

soul and independent of all special mental modifications. It is, moreover, *natura* if not *tempore* antecedent to them; yet, as the soul exists always in some particular state, it can never apprehend itself unless as determined by an individual affection. The *sensus intimus* exerts itself in a higher and a lower form, as rational, and as sensuous consciousness. By the inferior order of activity the soul continuously feels its presence in the body which it informs, and thus apprehends the various impressions which occur in different parts of the organism. This sensuous cognizance of the body he styles the *sensus fundamentalis*, inasmuch as it is the common root or principle of the external senses.[22]

Suarez' doctrine.—Accepting the doctrine of Suarez, that there is neither a real, nor formal distinction between the internal senses, it does not appear to us to be of any very profound importance what classification of faculties we select, as best fitted to mark off the various phases of mental life which have been allotted to internal sensibility. Moreover, the brain seems to be the common physical basis for all these different modes of consciousness, so that there is no differentiation of organ corresponding to special operations which might tell decisively in favour of any particular scheme of division.

Internal Sense.—The term *internal sense* has had a variety of significations in the history of Philosophy. In the Peripatetic system, *sensus internus* designated generically the four faculties, *sensus communis*, *vis æstimativa vel cogitativa*, *phantasia*, and *memoria sensitiva;* but also at times it indicated more specifically the *sensus communis*. In the Cartesian school, the *sensus intimus* or *conscientia*, signified all consciousness of our own states, whether sensuous or intellectual; and the latter

[22] St. Thomas applies the term *sensus fundamentalis* to the faculty of *touch*. The *sensus fundamentalis*, as described by Rosmini and Tongiorgi, has been objected to by modern scholastic writers on various grounds. (1) Internal sensibility, since it is an organic faculty apprehending concrete sensuous facts, must, like external sense, pertain not to the soul alone, but to the whole being—the *compositum humanum*. (2) The primary function of internal sense is the apprehension of the modifications of the external senses, its exercise must thus follow, and not anticipate, that of the latter. (3) There is absolutely no evidence for the existence of a perpetual cognition of our own body independent of all special activities. (4) The constitution of the union of body and soul in the perception of the former by the latter would reduce their connection to that of an accidental alliance. (Cf. Liberatore, *On Universals*, Trans. by E. Dering, pp. 130, seq., also *Psychologia*, §§ 27—29; Lahousse, *Psych.* §§ 348—355. Contra: Tongiorgi, *Psych.* 271, 280; Rosmini, *The Origin of Ideas*, Vol. II. Pt. V. c. iii., and *Psychology*, Eng. Trans. Bk. I. c. vii.)

term has retained the same connotation with modern scholastic writers.[23] With Locke, *internal sense* is equivalent to the intellectual *faculty of reflection*, by which our mental states are observed. With Kant, it comprises the sensuous intuition of our mental states, not, however, as they are in themselves, but as modified by the *a priori* form of time. The term *internal sense*, legitimate in its original signification in the Peripatetic system, is very inappropriate in its modern usage as expressing the intellectual activity of self-consciousness. That activity is neither in point of object, of nature, nor of intrinsic dependence on physical organ akin to the senses.

Basis of Division.—The scholastic classification of four internal senses was grounded on the existence of generic differences in the *formal objects* of the several faculties. The *formal object* of the *sensus communis* consists of the actual operations of the external senses; that of the *imagination* is the representation of what is absent; the function of the *vis æstimativa* is the apprehension of an object as remotely suitable or noxious to the well-being of the animal; that of the *sensitive memory* is the cognition of past sensuous experiences. Some writers reduced these faculties to two, others augmented them to six. The nature of the distinction between these senses was also disputed. Suarez,[24] after a careful examination of the various opinions on the point, decides against the existence of either a *real* or a *formal* distinction, and contends that Aristotle is with him in looking on the internal senses as merely diverse aspects or phases of a single sensuous faculty.[25]

Common Sense.—*Common sense* is also a very ambiguous term. (1) In the Aristotelian Psychology, it meant only the internal sense above described. (2) It has been since used to express certain universal and fundamental convictions of mankind. It is in this signification that it has been appealed to as a philosophical criterion of truth by the Scotch school. (3) In ordinary language it implies *good sense*, sound practical judgment. (4) *Common sensibility*, and also *common sense*, have been sometimes used by psychologists to indicate (*a*) the faculty of *touch*, and (*b*) the cœnæsthesis or the vital sense, and the various forms of organic sensibility.

Readings.—On classification of the senses, cf. St. Thomas, *Sum.* i. q. 78. a. 3; *De Anima*, II. ll. 22—24, et III. l. 1; *De Sensu et Sensato*,

[23] Cf. Tongiorgi, *Psychologia*, Lib. III. c. ii.

[24] *De Anima*, III. c. 2.

[25] Cf. also Lahousse, *Psychologia*, §§ 221—223; and on the other side Sanseverino, *Dynamilogia*, cc. 3—6.

l. 1. On the various senses, cf. *De Anima*, II. ll. 13—24, *De Sensu et Sensato*, Lib. I. Pesch gives an exhaustive account of the Scholastic teaching on the external senses (*Instit. Psych.* §§ 521—561.) Cf. also Salis Sewis' *Della Conoscenza Sensitiva.* Of modern works on the special senses, cf. Wyld, *Physics and Philosophy of the Senses*, Pt. III.; Ladd, op. cit. Pt. I. c. v. and Pt. II. cc. iii. iv. *The Five Senses of Man*, by Bernstein, is a good popular treatise in many respects, but the author frequently confuses in a very crude manner the physical and the psychological processes. On internal senses, cf. St. Thomas, *Sum.* i. q. 78. a. 4; *De Anima*, III. ll. 2, 3; Suarez, *De Anima*, III. cc. 11, 30, 31; Lahousse, *Psychologia*, c. v. art. 1; Sanseverino, *Dynamilogia*, cc. iii. v.; Pesch, *Instit. Psych.* §§ 561—623.

CHAPTER VI.

PERCEPTION OF THE MATERIAL WORLD: CRITICAL SKETCH OF THE LEADING THEORIES OF EXTERNAL PERCEPTION.

Psychology and Philosophy of Perception.— How do we perceive the External Material World? and: What are our grounds for believing in its real existence? These are the problems which have most harassed Philosophy since the days of Descartes. The two questions, the *Nature* of external perception and the *Validity* of our belief in a material universe, are most intimately bound up with each other. The worth of every theory of cognition must be estimated by the sufficiency of the account which it gives of the reality that is known. Accordingly, though only the question of the character of the process of apprehension is strictly psychological, while the validity of the act belongs to Epistemology[1] or Applied Logic, we shall find it very advantageous in the interests of our own science to trespass here a little on the domain of

[1] *Epistemology* is that branch of Philosophy which, whether it be allotted to Applied Logic, Rational Psychology, or Metaphysics, investigates the *truth* or *validity* of knowledge in general. It is separated by modern psychologists from their science, which, according to them, has to deal only with the *genesis* and *growth* of knowledge.

another volume of the present series. This impossibility of separating the problems of the genesis and the truth of knowledge shows again the futility of all attempts at isolating Phenomenal Psychology from Rational Psychology and Philosophy proper.

Sceptical Theories.—Let us begin with the more fundamental question: What are our grounds for believing in the existence of a Material World outside and independent of our thought? The answer given by certain philosophers is that there are no real grounds for this belief, and that it is an illusion, or, at any rate, an irrational prejudice. This is *Scepticism*. Now scepticism may be of either of two species: the one, *absolute* or *universal*, which denies or disputes the possibility of attaining certitude by any of our faculties, or in any department of knowledge; the other *mitigated*, *limited*, or *partial* scepticism, which, admitting certain truths as evident, and certain faculties as infallible sources of cognition, yet discredits some convictions of mankind generally deemed to be of vital importance. Against absolute scepticism argument is alike useless and impossible. Its advocate is in an impregnable position, because he puts himself outside the pale of discussion. Nothing can be done for such a man except to leave him alone. Of partial or mitigated sceptics there are many varieties, but our concern here is only with that class, commonly called *Idealists*, who deny the existence of an independent material world. Several of these philosophers will be refuted in detail in our historical sketch in the latter part of this chapter, and an exhaustive treatment of scepti-

cism in general is to be found in the volume of this series on *First Principles of Knowledge*.[2] Accordingly, we will here limit ourselves to a brief enumeration of the arguments establishing the existence of an external material world.

Philosophical proof of Realism.—(1) The reality of other *minds* is admitted, we believe, by every sect of idealists falling short of absolute scepticism. But our assurance of the existence of other minds is only an inference from changes in the *bodies* which they animate. Consequently we cannot deny the existence of the latter outside of our own consciousness and maintain the independent reality of the former. But if we admit the existence of other human bodies, clearly we cannot reject any part of the material universe. (2) The idealist cannot explain the course and development of his own mental life without implying the permanent extra-mental existence of his sense-organs and bodily frame. (3) The established relations between mental states and their neural conditions, and in fact all the chief truths of Physiology become unintelligible absurdities if the permanent existence of a material organism outside of our thought is denied. (4) Physical science in general assumes the existence of an independent material world, and the harmony of its teaching with later results verifies the assumption. (5) The mutual confirmation of our several senses, exhibited in experiences of sight, touch, and movement, similarly demonstrates the existence of a material universe outside of the mind. These

[2] Cf. Pt. I. c. viii. and Pt. II. c. ii.

faculties, which present to us the extensional character of physical objects in widely different terms of consciousness, nevertheless agree unanimously as regards the spatial relations of parts to parts. The diagonal, for instance, bears the same proportion to the sides of the square, whether the lengths of the lines be apprehended by visual, tactual, or motor sensations. Now this unanimity is perfectly accounted for if by our several faculties we perceive a material world which really embodies these spatial relations. But if there does not exist an extended reality outside of our consciousness this agreement in the testimony of different witnesses is inexplicable.

Psychology of External Perception.—*Theory of Mediate Perception.*—The arguments just given will be more fully developed in the historical sketch at the end of this chapter, but their mere summary statement is sufficient to establish the existence of an extended material world of which our body forms part. The psychological question now emerges: How do we *perceive* or *know* this outer universe? Answers to this question, in spite of many important minor differences, may for the present be reduced to two. On the one side the majority of non-Catholic philosophers since the time of Descartes assume that the unextended mind cannot have an *immediate* apprehension of extended reality in any form. It can directly know only its own states. Consequently the chief effort of modern speculation has been, either, assuming the existence of a Material World, to explain how from a knowledge of purely subjective

feelings the mind can attain to the cognition of such an extra-mental reality, or, rejecting the existence of this latter, to account for the universal illusion.

Philosophers believing in some sort of an independent Material World, who maintain that the mind can only attain to a knowledge of such a world *mediately* as an inference from the ideas, or subjective representations, of which alone we are immediately cognizant, have been styled *Representationalists* or advocates of *Mediate Perception*. They have also been called *Hypothetical Realists*, *Hypothetical Dualists*, or *Cosmothetic Idealists*, since they look on the external universe as a necessary hypothesis to account for the ideas of which we have an immediate perception. All these authors err in the one common but groundless assumption that the human mind can immediately know nothing but its own unextended states. Starting from this false hypothesis, their theories give no adequate account of our knowledge of extension, and logically lead to subjective Idealism. We will expose some of their chief defects presently in our Historical Sketch.

Immediate Perception. — In complete opposition to Representationalism are to be found Aristotle, all the leading scholastics,[3] mediæval and modern, and in this country during the past hundred years, Reid, Stewart, and Hamilton. At the present day Drs. Martineau, Mivart, M'Cosh, and Porter, are amongst the best known English-speaking representatives of the same line of thought. All these philosophers, notwithstanding sundry lesser points

[3] See pp. 52, 54.

of disagreement, hold that man, at all events in some cognitive acts, *immediately* apprehends extended material reality. They teach that knowledge is not limited to the perception of mental states, or to the discernment of the relations between ideas. There are outside and independent of the world of thought *real things;* and we can, these writers agree in common with the universal conviction of mankind, cognize at least some of them. This theory has been named by Hamilton the doctrine of *Immediate* or *Presentative Perception,* because it asserts that some objects of knowledge can be immediately present to the knowing subject. Its supporters have also been styled *Natural Realists,* and *Natural Dualists,* because they maintain the existence of extended material reality standing in opposition to the immaterial mind to be a primitive deliverance of our percipient faculties.

We hold the true doctrine to be that of Immediate or Presentative Perception. My present knowledge of an extended material universe independent of my mind is inexplicable unless at least in some of my percipient acts there is contained an immediate apprehension of extension; and this apprehension necessarily reveals a duality or opposition between the simple subject of consciousness and the objective material reality. The growth and development of our several percipient faculties will be described in detail in our next chapter, so that it will be our duty here merely to expound accurately what we consider to be the general philosophical theory of Presentative Perception.

Ambiguity of Terms.—We must begin by clearing up certain confused notions which have often obscured and disfigured the treatment of the problem, not only on the part of our opponents, but even in the hands of some able and vigorous defenders of Immediate Perception, especially among the Scotch school. The exact meaning to be assigned to the terms, *Ego* and *Non-Ego*, Self and Not-Self, Mind and External World, in this controversy is of the very first importance; or rather the vital point is that whatever definite significations are attached to them be adhered to throughout.

Ego and Mind.—Now in the first place by the term *Ego* is to be understood during the present discussion *the entire person*, the whole man made up of body and soul. The *Non-Ego* is, therefore, whatever is not part of my person. In strictness it includes God and the universe of pure spirits; but as the reality of immaterial beings does not enter into our present controversy, we may define the *Non-Ego* as, *the Material Universe distinct from my own animated organism. Self* and *Not-Self* are to be considered as synonymous with *Ego* and *Non-Ego*. The terms, *Mind* and *External*, or better, *Extra-Mental World*, must be carefully distinguished from the former pairs of words. Abstracting from all questions as to the substance of the soul, by *Mind* we here understand the *unextended conscious subject*, the unity of my psychical existence, viewed apart from my body. By the External or *Extra-Mental World*, is meant *all material reality*, including *both* my own body and the extra-organic universe. Mind is thus narrower than Self or *Ego*, and External World is wider than Not-Self or *Non-Ego*.

Man not a Pure Spirit.—In the second place we must make clear our starting-point. Some representationalists often argue as if the mind were *de facto* completely separated from the body, or at any rate standing out of all relations to the corporeal frame. What would be the nature of perception in such a situation we do not pretend to determine: it is not the problem of Human Psychology. We take man as he is; one being made up of mind and body, endowed

with sensuous as well as intellectual faculties, and possessed of a variety of extended sense-organs, the natural instruments by which he acquires knowledge, not only of the surrounding world, but of his own body.[4]

Two Questions.—Now in the problem of the *Perception of the Material Universe*, two points connected with the ambiguous terms just defined, and consequently almost invariably confounded, have to be kept apart. They are, in fact, two distinct questions—the one, my apprehension of extension and extra-mental reality in any form, the other, my cognition of the *Non-Ego* or Extra-Organic portion of the material world. To begin with the first: we hold it to be certain that at all events in the case of its own organism the *Ego* has an immediate perception of extension. In sensations of sight and pressure there is directly revealed space of two dimensions. Whether the cause of the sensation is externalized, projected beyond the surface of the extended organism, or not, the conscious state aroused immediately presents extension. The proof of this lies in the fact that if extension were not so given the perceptions and conceptions of space of which in mature life we are indubitably possessed could never have been generated. If the mind knew only its own simple subjective modifications, our present cognition of material objects would be impossible. No aggregation, composition, or fusion of mental states which individually do not present any element of extension, could produce the notion of extension. If some of our senses have directly revealed space to us, the representations of material objects which we form can be accounted for; if none of them had done so, these representations could never have arisen. This argument will be more fully developed when we come to criticize in detail the theories advanced to explain the genesis of an external world of three dimensions out of simple conscious states.

[4] It may be well to remind the student here that this assumption of an extended human body does not involve us in any *petitio principii*. We are not now *proving* the existence of a material world—that we have done some pages back—but we are explaining *how* man perceives this world.

Immediate perception of Extension.—Next comes the question: Do any of our percipient acts immediately make known to us the existence of a reality *other than ourselves?* It is here precision and consistency in the use of the terms *Ego*, *External World*, and the rest, become vitally important for clearness of thought in the present discussion. We have said that in certain percipient acts, more particularly in those of sight and touch, there is given an immediate presentation of extension: Of what is this extension apprehended to be an attribute? To what is it cognized to belong? In mature life, undoubtedly, we perceive in an apparently instantaneous flash of cognition that the object against which we press is a soft velvet cushion, that what we see is a red-brick house at the far side of a river. But this does not settle the question, for in these acts there demonstrably are involved complex processes of inference or association of ideas. Taking, however, the sensations of vision and pressure in their simplest form, do they immediately give, in addition to the perception of extension, a knowledge of material reality as distinct from the percipient agent? The solution of this question will be found in reverting to our distinctions. In the simplest percipient act which directly reveals extension there is given an immediate apprehension of "otherness," at least in the sense of the *extra-mental*. Extension, whether it pertains to our own sense-organs, or to objects outside of our body, is at all events not an attribute of simple mental modifications. It is opposed to the subjective conscious act. Consequently, although in the earlier stages of life such distinctions may not be explicitly realized, there is given in the immediate presentation of extension—whether this extension be referred to the *Ego*, to the *Non-Ego*, or not determinately to either—an immediate apprehension of what is not the *Mind*. There is thus an *ultimate duality* in our consciousness at least in this signification that some of our faculties are capable of immediately apprehending extension, and extension thus apprehended necessarily stands opposed to the unextended mind.

Perception of extra-organic Objects.—But is *Duality* immediately given in the wider sense? Does the percipient act not only directly manifest to me an extended phenomenon irreducibly opposed to the simplicity of the purely subjective state, but does it also immediately reveal this extended phenomenon as other than my *Ego*, other than my *Self* in the sense of my whole being, body and soul? or is my knowledge of the existence of a *Non-Ego* in the strict sense—of a material world outside of my own body—is this cognition of a more complex, mediate, and possible inferential character? This is certainly a more disputable point. The majority of Natural Realists seem at times to imply that the *Non-Ego* in the sense of Extra-organic material reality is originally presented as extended, distinct from, and opposed to my whole bodily self; but the distinction between the two uses of the term *Ego*—as including and as excluding the organism—is on such occasions rarely kept clearly in view. The second, or qualified form of Natural Dualism, would maintain that, whereas extension, and therefore objective reality, standing in opposition to the mind, is originally immediately given in sensations of my own organism, yet cognition of material reality *as* external to my organism is a result of analysis, comparison, and inference. This view, in fact, holds that our perception of the extra-organic universe, although in the developed intelligence so easy and rapid, is nevertheless a complex process.

It does not appear to us that this second form of the doctrine of Presentative Perception is always realized with sufficient distinctness. The *Non-Ego* may, indeed, be originally and immediately presented in some of the infant's first percipient acts as extrinsic to its organism. But this is not necessary to account for our later knowledge. Fortunately, however, this second stage of the problem of Perception is of little or no philosophical importance; and at any rate the line of demarcation between inference and immediate judgment is not very well defined. It is essential that extension, and consequently, a reality opposed to the unextended subject of consciousness, be directly

presented, but granted such an immediate perception, even limited to the spatial character of my own material organism, our knowledge of the rest of the universe would be easily developed.[5] In the next chapter we shall describe this process of development. Before doing so, however, we shall insert a historical retrospect.

Historical Sketch of Modern Theories of External Perception.

The question of External Perception has played such a large part in modern philosophical speculation that we deem it expedient to attempt a brief sketch of the subject. And we do this all the more willingly because experience has assured us that here, as often elsewhere, the most convincing proof of the true doctrine is to be found in a careful examination of the history of counter-hypotheses.

Descartes (1596—1650), whose philosophical speculations start from the dictum that I have an immediate and infallible knowledge of my own thought and of nothing more, may be justly considered the author of the problem of the bridge from the mind to the material world. It is to **Locke** (1632—1704), however, that the various forms of British scepticism, together with the idealism of *Kant*, are to be traced. Knowledge, Locke repeatedly maintains, consists in the perception of agreement or difference between our *ideas*. We thus immediately apprehend, not an external reality, but our own mental states. Nevertheless, Locke holds that a material world does exist outside of the mind. He is thus a Hypothetical Dualist. We only know psychical representations, but we posit as their cause a physical universe.

Bishop Berkeley (1685—1753) soon made manifest the inconsistencies of Locke's teaching. Berkeley is celebrated chiefly for two contributions to the history of Philosophy, his system of *Phenomenalistic Idealism* and the *Theory of Vision* known by his name. The essence of the latter is contained in the two tenets that the eye of itself can perceive neither (*a*) distance, nor (*b*) surface extension. Visual sensations had originally as little reference to space as sounds or

[5] Thus Hamilton justly observes: "It is sufficient to establish the simple fact, that we are competent, as consciousness assures us, immediately to apprehend the *Non-Ego* in certain limited relations; and it is of no consequence whatever, either to our certainty of the reality of the material world, or to our ultimate knowledge of its properties, whether by this primary apprehension we lay hold, in the first instance, on a larger or a lesser portion of its contents." (*On Reid*, p. 814.)

tastes. By experience and association, the sensations of the eye grow to be symbols of tactual and motor sensations which constitute our knowledge of solid bodies and of space of three dimensions. From this account of the psychology of perception the transition to his metaphysical theory of the nature of the External World is easy. Locke's groundless assumption that we can immediately perceive nothing but our own mental states, is accepted without question. All objects of knowledge are held to be reducible to *ideas* of the senses (sensations), internal feelings such as emotions, and acts of the imagination. Accordingly, we may not assert the existence of an independent extra-mental world. We can know or perceive only what is in the mind. The *esse* of every knowable object is *percipi*. If material substances existed beyond consciousness, they could in no way be *like* our ideas, and cognition of such things by ideas would be impossible. Moreover, matter could not act upon an unextended spirit. Therefore the hypothesis of an inert corporeal world which has existed for a time unperceived must be abandoned. Still, Berkeley vigorously asserted that his theory is in complete harmony with the belief of mankind. The table, chair, or fire, which I perceive, he does not deny to exist; but, adhering to Locke's assumption, he calls whatever is apprehended an *idea*, and going still further he repudiates the hypothetical material cause supposed by his master to have awakened these *ideas*. But whence then do these ideas come, and what happens when I cease to perceive them? Berkeley replies that God, and He alone, is the cause of my ideas. By the Divine agency, and not by any hidden inconceivable material substance, the permanence, regularity, and orderliness of the ideas are sustained. When I no longer think of *ideas* (material objects) they still endure in the Divine mind, and may be apprehended by other men. In Berkeley's system, then, there are held to exist minds or spiritual substances, ideas, and the Divine spirit.[6]

[6] Berkeley's theory may be objected to on various grounds, such as his equivocal use of the terms *idea* and *conceive*, and his unquestioning acceptance of Locke's assumption, but we have never seen any experiential argument which, strictly speaking, disproves the hypothesis of hyperphysical Idealism. God, without the intervention of a material world, could *potentiâ absolutâ* immediately produce in men's minds states like to those which they experience in the present order. The only demonstrative argument against the Theistic Immaterialist is, that such a hypothesis is in conflict with the attribute of veracity which he must ascribe to the Deity. God could not be the author of such a fraud.

David Hume (1711—1776), similarly starting from Locke's principles, pushed Berkeley's Idealism to the most absolute scepticism. All cognitions, or all objects of cognition—for with these writers the terms are interchangeable — are reducible to *impressions* (sensations) and *ideas*, fainter copies of the former. To explain our *belief* in a permanent external reality, as well as to account for our other fundamental convictions, Hume appeals to the laws of the Association of Ideas. Through "custom" by the reiterated occurrence of various impressions we grow to believe in the enduring existence of material things when unperceived. Such belief is, however, an illusion; we only know the transient mental *impressions*. There is no such thing anywhere as an abiding *substance*, the substratum of changing qualities or accidents. We have no "impression" of it, therefore it does not exist. Berkeley got thus far as regards the notion of *material* substance; but Hume logically shows that by the same reasoning the idea of a *spiritual* substance, of a permanent mind amid changing states of consciousness is equally fictitious and unreal. The mind, just as well as the material world, is nothing more than a cluster of transitory impressions. The persuasion that *nothing can begin to exist without a cause* is also due to association. No single experience could give us the idea of *causation;* but the frequent repetition of two successive impressions so welds them together in our minds that we are deluded into the belief of some mysterious causal knot binding them, while there is really no connexion but that of *succession*. This illusory belief in particular instances of causality is afterwards gradually widened into the universal law, that every being which begins to exist presupposes a cause.

We have here all the essentials of later *associationism*. The substantial souls, retained by Berkeley, follow the material world of Locke, and the Divine Spirit also becomes a useless and inconceivable hypothesis. Hume, too, possessed the merit of realizing clearly and frankly admitting, what subsequent disciples of sensism either fail to see, or attempt to ignore, that the groundwork of physical science, and the certainty and exactness of mathematics are fatally destroyed by consistently following out the assumptions of the school. The conclusions of the Scotch sceptic thus constitute a complete *reductio ad absurdum* of Locke's principles.

J. Stuart Mill and Dr. Bain.—The chief modifications introduced into the general theory by more recent sensationalists, are the final dismissal of Berkeley's hypothesis of the Divine action, the greater importance assigned to the muscular sense, and a more elaborate attempt to harmonize

the new conception of the external world with ordinary beliefs. However, the arguments are in the main similar in kind to those urged by the earlier advocates. Thus, it is asserted, that a world existing independently of the mind is *inconceivable.* "To perceive is an act of the mind. . . . To perceive a tree is a mental act; the tree is known as perceived and not in any other way. There is no such thing known as a tree wholly detached from perception, and we can only speak of what we know." Consequently, the hypothesis of an external world existing when unperceived is absurd. "The prevailing doctrine is that a tree is something in itself apart from all perception; that by its luminous emanations it impresses our minds, and is then perceived, the *perception being the effect of an unperceived tree the cause.* But the tree is known only through perception; what it may be anterior to or independent of perception we cannot tell; we can think of it as perceived but not as unperceived. There is a manifest contradiction in the supposition, that we are required at the same moment to perceive the thing and *not* to perceive it."[7]

The "Psychological" or Empiricist doctrine of our belief in matter.—The chief strength, however, of the theory lies in the asserted sufficiency of the account which it professes to give of the material world apprehended by us. Assuming as self-evident the axiom that we can know only our own ideas, the external universe, it is alleged, really means to us nothing more than certain *sensations* plus *possibilities*[8] *of other sensations.* The most objective and real attributes of material things are in common belief their *extension* and *impenetrability.*

[7] Dr. Bain, *Mental Science*, pp. 197, 198. In *Emotions and Will* (3rd Edit.), p. 578, he still denies that "the situation intimates anything *as an existence beyond consciousness.*" This argument in the hands of Dr. Bain, as in those of Berkeley, is based on a deceptive ambiguity in the terms "conceive" and "perceive." We cannot of course *perceive* an *unperceived* world, nor can we *conceive* a world the *conception* of which is not in the mind; but there is no contradiction or absurdity in the proposition: "A material world of three dimensions has existed for a time unperceived and unthought of by any created being, and then revealed itself to human minds." Dr. Bain's description of the "prevailing doctrine" is only applicable to the theory of mediate perception. It does not refer to Natural Realism, which makes the external material reality the *perceived* and not the *un*perceived cause of our cognitions.

[8] It should be carefully borne in mind that in the associationist theory a "possibility of sensation" is not a real actual agent existing out of consciousness. It is *as such*, non-existent. Its only existence is in the *idea* or *conception* by which future experiences are represented. Mill seems frequently to forget this.

Nevertheless, these properties, it is asserted, are ultimately reducible to groups of muscular feelings possible and actual. "The perception of matter, or the *object consciousness*, is connected with the putting forth of muscular energy as opposed to passive feelings. . . . Our object consciousness further consists of the uniform connection of Definite feelings with Definite energies. The effect that we call the interior of a room is in the final analysis a regular series of feelings of sense related to definite muscular energies. A movement one pace forward makes a distinct and definite change in the ocular impressions; a step backwards exactly restores the previous impression. . . . All our so-called sensations are in this way related to movements. . . . On the other hand, what in opposition to sensations we call the flow of *ideas*—the truly mental or subjective life—has no connection with our movements. We may remain still and think of the different views of a room, of a street, of a prospect in any order."[9]

The apparently independent world of every-day experience has not suddenly manifested itself to us after the manner of a transitory hallucination. It is a gradual growth, and it is in tracing the supposed genesis of this illusory belief that Mill best exhibited his psychological and metaphysical ingenuity. Starting with the postulates of expectation, the occurrence of impressions, and the laws of mental association, he professes satisfactorily to explain all our present convictions. We experience, he says, various *sensations*, such as those of colour, sound, and touch. After they have passed away we conceive them *as possible*. These feelings usually occur *in groups*, thus the consciousness of yellow is found in combination with certain sensations of contact, of smell, and of taste, which go to make up our perception of an orange. Similarly, visual feelings precede the tactual sensations which we have come in course of time to call the *table*. By association the groups of states become so knotted together that one of them by itself is able to awaken *in idea* the rest, and to suggest them to us as *possible* experiences. A material object is, in fact, to us at any time one or two *actual* feelings with the belief in a suite of others *as possible*. The actual impressions are *transient;* the possibilities are *permanent*.

In addition to the feature of permanence and fixity among these groups of possible impressions there is the constant and regular *order* which we observe among them. By association this gives rise to the notions of causation, power, and activity; and we gradually come, on account of their permanent character, to look upon the groups of possible sensations as

[9] Bain, *Mental Science*, pp. 199, 200.

the *cause* of the actual feelings. Moreover, finding changes to take place among the possibilities of our impressions independently of our consciousness, we are led by abstraction to erect these possibilities into an entirely independent material world. This operation is completed by the discovery, that *other human beings* have an experience similar to our own, and ground their conduct on the same permanent possibilities as ourselves. Besides the apparent permanence and independence of the material world, its most striking contrast with our sensations lies in its *extension* and *impenetrability*. The latter property, however, is merely the feeling of muscular action impeded. *Space* is similarly an abstraction from motor feelings. Muscular sensations differing in duration "give us the consciousness of linear extension inasmuch as this is measured by a sweep of a limb moved by muscles. . . . The discrimination of length in any one direction includes *extension* in any direction." Not only is the idea of space derived from non-spatial feelings successive in time, but this mode, "in which we become aware of extension is affirmed by the psychologists in question *to be* extension." "We have no reason for believing that space or extension *in itself* is anything different from that by which we recognize it."[10] The synchronous character of space receives its completion from sight, which presents to us simultaneously a vast number of visual impressions associated with possibilities of motor and tactual feelings. Such is the empiricist theory of our belief in a material world.

Criticism.—Phenomenal Idealism as thus advocated has been attacked from many different points of view, but we can here afford space for only a few of the leading difficulties which seem to us absolutely fatal to the hypothesis. (1) In the first place, as we have already indicated, Idealism is incompatible not only with vulgar prejudices, but with the best established truths of science. Astronomy, Geology, Physical Optics, and the rest of the physical sciences, are inseparably bound up with the assumption that matter which is neither a *sensation* nor an *imaginary possibility of a sensation* exists apart from observation. They teach that real, actual, material bodies, of three dimensions, not only exist, but *act upon each other according to known laws* whilst no human mind is contemplating them. Possibilities enjoying no existence beyond consciousness could not attract each other with a force varying inversely as the square of the distance; they could not pass from green forests into coal beds, nor could they refract or interfere with other phenomena so as to determine the character of visual sensations independently of

[10] Mill's *Exam. of Hamilton* (2nd Edit.), pp. 223, 229, 230.

our wills. How, for instance, is the double discovery of the planet Neptune from the simultaneous but independent calculations by Adams, and Leverrier, to be explained, if there are not in the universe besides human minds extended agents which retain and exert their influence when unthought of by any created intelligence.

(2) This irreconcilability between physical science and phenomenal Idealism results in a very noteworthy case of *felo de se* in the hands of Dr. Bain. He commences his works on Empirical Psychology with an elaborate account of the brain, the nervous system, and the various sense-organs. Later on in the same volumes he resolves the material world, including, we presume, the aforesaid objects, into a collection of mental states. Finally, in his book on *Mind and Body*, he resolves the mind, that is, the total series of conscious states, into *subjective aspects* or *phases* of neural currents. Now obviously there is at least one absurdity here. What is the exact meaning of the statement that a mental state is but the subjective aspect of a nervous process, which is itself but a group of sensations? At one time the mind is alleged to be a function of the brain, and elsewhere the brain, with the rest of the physical universe, is analyzed into a plexus of muscular feelings incapable of existing beyond consciousness. These two mutually destructive tenets, Phenomenal Idealism and Physical Materialism, are the logical outcome of the sensist theory of cognition; but unfortunately disciples of that school do not usually reason out on both sides the consequences of their assumptions with the clearness and courage of Dr. Bain. The only subject for regret is that the latter writer neither attempts to reconcile the two repugnant theses, nor frankly avows that they form a *reductio ad absurdum* of his theory.[11]

[11] The defence suggested by some writers, that the scientific psychologist is no more bound to give a metaphysical account of the materials with which he deals than the astronomer, or the geologist, is a mere shallow evasion of the difficulty. Psychology stands here in quite a different position from that of all the physical sciences. Its first duty is to furnish such an exposition of the nature of cognition as will secure an intelligible meaning to the terms employed in all sciences including itself, and assuredly it may not with impunity reduce its own statements to nonsensical absurdities. If it resolves neural currents into modifications of consciousness, it may not then turn round and resolve this consciousness into aspects of the aforesaid currents. If it does so, it is bound at all events to explain the precise significance of the outcome of this interesting dialectical feat. Mill's very just contention against Hamilton is very much to the point here. "When a thinker

(3) Again, the primary assumption on which all phenomenalistic theories since the days of Locke have been based is false. That we can only know our own mental states, that we cannot apprehend material reality as affecting us is neither an *a priori* nor a self-evident truth, and still less can it be established from experience. The fact that we are unable to imagine *how* matter can act upon mind, or *how* mind can become immediately cognizant of something other than itself, is no objection against the clear testimony of consciousness, as manifested after the most careful introspection, that the mind does *immediately* perceive something other than itself acting upon it. Moreover, from this first illegitimate assumption flows the second error, that extension is *identical* with *that by which it is measured*. The *velocity* of a moving locomotive or of a flying swallow is not the same thing as its *force*. Now, our knowledge of extension may receive accurate definition and determination, mainly by means of the muscular sensations, and yet what we call the extension of objects may be not only something different from these sensations, but it may also be immediately apprehended in a less defined manner through some other senses.

(4) Further, we must deny *in toto* that sensations, muscular or any other, viewed in themselves as purely subjective, non-spatial feelings, could ever by any process of addition or transformation be worked up into an apparently extra-mental world. It is only by the surreptitious introduction of extended elements that an extended product can be effected; and the great use made of the muscular sensations in the empiricist theory is due to the fact that the illicit transition from the asserted originally subjective signification of motor sensations to the objective meaning implied in ordinary beliefs is liable to escape notice. If these feelings are steadily remembered to be simple states of consciousness varying only in *duration* and *intensity*, it will be seen that they cannot, any more than sensations of sound or smell, "consolidate" into extended objects. Duration—serial length in time—belongs to *all* sensations, yet many of these afford no knowledge of space, much less constitute it. Sensations may also vary in intensity without evoking the notion

is compelled by one part of his philosophy to contradict another part, he cannot leave the conflicting assertions standing and throw the responsibility of his scrape on the arduousness of his subject; a *palpable self-contradiction* is not one of the difficulties which can be adjourned as belonging to a higher department of science." (*Exam.* pp. 122, 123.)

of *velocity*; this latter cognition, in fact, presupposes the idea of space.

In all associationalist accounts of the genesis of our knowledge of an external world there is a continual equivocation between strictly *mental* existence and that which is *intra-organic* but not purely mental; between the signification of the terms describing the organism legitimate on *their* principles and the alleged erroneous meanings which these words convey to the *vulgar mind*. Notwithstanding all lofty disclaimers to the contrary, sensationalists when tracing the gradual manufacture of the material universe out of simple states of consciousness, really do assume the existence of an extended organism, as known from the first. When Mr. Bain, or Mr. Spencer, describes how muscular feelings, varying in duration and velocity, give rise to the belief in extended space, the explanation seems plausible because the reader almost inevitably passes from the subjective interpretation, which is all that is lawful to the writer, to the objective realistic meaning embodied in common language. The phrases, "range of an arm," "sweep of a limb," and the like, employed by associationists in expounding the supposed origin of the notion of extension, necessarily suggest to the mind real extended objects known as such, and so conveniently hide the true difficulty. Commencing with a knowledge of our own body as extended, the development of our conviction of an independent material world might, perhaps, even on sensationist lines, proceed tolerably enough; but if our body and the rest of space are nothing more than sensations, and if the mind can only apprehend its own subjective feelings, then the first step is impossible. Successive muscular or tactual feelings in the interpretation of these sensations permissible to Mr. Spencer or Mill can no more account for the present appearance of extended objects than experiences of sound, of smell, or of toothache.

(5) The argument from the existence of *other minds* to which we have before alluded may also be here urged with peculiar force against Mill and Dr. Bain. Both of these writers lay stress upon the value of the testimony of other minds in establishing our belief in an independent world. Our knowledge, however, of other minds than our own is only gained by an inference from changes in certain portions of the physical world, assumed to have a real existence beyond our consciousness. Now if the chief premiss is invalidated, if it is demonstrated that we have, and can have no knowledge of anything external to our consciousness, that the seemingly independent human organisms around us are only modifications of our own mind, clusters of our muscular feelings

actual and ideal, then assuredly it is an unworthy superstition to continue to put faith in the external existence of other minds, and still more ridiculous and absurd to invoke their testimony as a leading agency in the generation of our belief in the material world, including of course the bodies from which their existence is inferred.

(6) There remains another fundamental difficulty which goes to the very root of the sensationist philosophy. This genesis of *space* out of *time* necessarily implies, at all events, the existence of a *permanent* mind. Under the pressure of Dr. W. Ward's severe criticism, Mill was obliged in addition to his other assumptions to "postulate" memory. A mere succession of disconnected feelings could never give rise to the notion of *time*, and still less could the possibilities of such successive sensations be condensed by themselves into the simultaneity of space. But *memory* is precisely what the doctrine which reduces the mind to a *series of feelings* has no right to postulate. An abiding subject permanent among our changing states is an essential requisite for the existence of memory. If, however, the notion of time is impossible to the sensationalist, *a fortiori* is that of space.

Emanuel Kant (1724—1804).—A theory of perception equally erroneous with that of Hume's school, but starting from an almost diametrically opposite conception of the nature of the mind and of cognition, is that of Kant. Instead of explaining all mental products as complex results arising out of the aggregation, association, and coalescence of sensations passively received, Kant holds the mind to be endowed from the beginning with certain *a priori* or innate subjective "forms," by which all its experience is actively moulded or shaped. Among the most important of these are the two "intuitions" of *Space* and *Time*. The first is imposed on the acts of *external*, the second on those of *internal* sensibility. The sensations of our external senses are non-spatial in themselves, and they are awakened by a non-spatial cause. It is the subjective co-efficient that shapes the mental act so as to give rise to the perception by which we seem to apprehend extended objects outside of the mind. Similarly our mental states are presented to us by the *internal sense*—inner consciousness—as occurring in *time*. This, too, is an illusion due to a purely subjective factor in cognition. We have no reason for supposing that these states are not timeless *in themselves*. We can only know *phenomena*, or the appearances of things as shaped and coloured, by these subjective conditions; to *noumena*, or things-in-themselves, we can never penetrate. Still the existence of a *noumenon* beyond consciousness Kant maintains as requisite to account for our

cognitive acts. He is thus a Hypothetical Dualist, denying an immediate apprehension of an external reality, but asserting its existence as a necessary supposition.

Criticism.—Deferring to a later chapter the examination of Kant's system as a whole, we may here indicate a few of the objections suggested against his treatment of the subject-matter at present under discussion. In the first place, it has been urged that Kant's attempted proof of the existence of *a priori* ingredients in all our knowledge is invalid. (*a*) "Space," he argues, "is not a conception which has been derived from outward experiences. For in order that certain sensations may relate to something without me . . . and that I may represent them not merely without and near to each other, but also in separate places, the representation of space must exist as a foundation. Consequently, the representation of space cannot be borrowed from external phenomena through experience, but, on the contrary, this external experience is only possible through the said antecedent representation."[12] Space is, therefore, a purely subjective *a priori* form, inherent in the constitution of the mind, and imposed on the material element given in sensation.

This method of reasoning was employed by Plato to show that all knowledge is really innate. It sins by proving too much. If it were true that we could not apprehend an object as extended unless we had a previous representation of extension, then it would seem to follow that we could never cognize a taste, sound, or smell, unless we had antecedently a similar cognition of the nature of the taste, sound, or smell. If there are in existence extended material bodies, and if we are endowed with the faculties of touch and sight, there is no reason why we should not immediately perceive the spatial qualities of these bodies when they act upon our senses. The perception may of course be at first vague, but frequent experience can perfect it.[13]

(*b*) "We never can imagine or make a representation to

[12] *Critique*, translated by Meiklejohn, p. 24.

[13] In maintaining that our developed knowledge of space is a result of experience, a distinction not always realized by Kant should be made between the *abstract concept* or *notion* of space in general and the *concrete perception* of an individual object *as extended*. The former is an elaborate intellectual product reached by abstraction, reflexion, and generalization, and presupposes many individual perceptions of concrete extension. The perception, on the other hand, is given, vaguely indeed at first yet truly, in the immediate experience of an extended surface affecting the sense of contact or of sight.

ourselves of the non-existence of space, though we may easily enough think that no objects are found in it. It must, therefore, be considered as the condition of the possibility of phenomena, and by no means as a determination dependent on them, and is a representation *a priori*, which necessarily supplies the basis for external phenomena." (p. 25.) This difficulty is solved by distinguishing between *actual* or *real* space, and *possible* or *ideal* space. The former is identical with the voluminal distance or interval enclosed by the surface-limits of the entire collection of created material objects, the latter is simply the possibility of extended objects. Now, although all material things were annihilated, the possibility of their existence, and therefore possible space, would remain. Consequently, having once apprehended the extension of existing bodies, we can never think them to be impossible, although we may abstract from their existence. The conception of ideal space, or the possibility of material bodies, is thus indestructible, not because it is merely a condition of thought, but because it is a condition of corporeal being.

(*c*) "Space is no discursive or, as we say, general conception of the relations of things, but a pure intuition. For, in the first place, we can only represent to ourselves *one* space, and when we talk of divers spaces we mean only parts of one and the same space. Moreover, these parts cannot antecede this one all-embracing space, as the component parts from which the aggregate can be made up, but can be cogitated only as existing in it." Again, (*d*) "Space is represented as an infinite given quantity." To these arguments we may again reply that a general conception of the relations of material things, or an abstract notion of the possibility of extended objects, may be formed from many perceptions of different parts of space. The fact that such an idea of possible space represents the latter as infinite, or rather indefinite, one, and all embracing, in no way proves that this representation is given *a priori*.

Kant further holds that the *necessity* and *universality* which characterize geometrical judgments establish the subjective origin of our cognition of space. This must be denied. Objects without the mind may have certain modes or relations of a contingent and others of a necessary nature. But if such were the case there can be no reason why the mind should be incapable of apprehending both with equal truth. The explanation put forward by Natural Realism is that there are certain essential and certain other accidental conditions of material being, and that these are reflected by necessary and contingent features in our thought. This is a simple

and adequate account of the problem without the gratuitous assumption of innate forms.[14]

Still even were it true that our knowledge of external objects in no way represented them, the doctrine of Kant, that our apparent cognition of *our own mental states* as they are in-themselves is deceptive, would be erroneous. In this region, at least, the distinction between *phenomenal* knowledge and *noumenal* existence is utterly invalid. A conscious state cannot have any *existence-in-itself* apart from what it is apprehended to be. Its *esse* is *percipi*. Since, then, mental states are as they are apprehended, and since they are apprehended as successive, they must form a real succession *in-themselves*. They cannot be timeless as they are non-spatial. But if so Kant's "form of the internal sense"—the intuition of time—is extinguished. According to him time, like space, is merely a subjective condition of our internal consciousness imposed on realities timeless in themselves. As, however, there is a *real succession* in our ideas, there is a true correlate to the notion of time. A sequence of changes being once admitted in our conscious states, an analogous succession of alterations cannot be denied to the external reality which acts upon us, and so we are justified in maintaining the objective validity of the notion. The whole growth and evolution of each man's mental life, and its connexion with the development of his organic existence, affords the most cogent conceivable evidence of the real truth of the conception of time.

Further, the arguments already put forward against Phenomenal Idealism show that neither space nor time can be a purely subjective *form*. Physics and astronomy, for instance, are irreconcilable with such a view. Thus, the latter science by a series of elaborate deductions from (*a*) abstract *geometrical* theorems dealing with the properties of *pure space*, and (*b*) *dynamical* laws describing the action of unperceived *forces* in

[14] "Kant's fallacy may be put shortly—What is apodictic (necessary) is *a priori*; what is *a priori* is merely subjective (without relation to 'things-in-themselves'); therefore what is apodictic is merely subjective. The first premiss, however, is wrong if *a priori* is understood in the Kantian sense to mean being independent of *all* experience. Kant wrongly believes that certitude to be possessed *a priori* (independently of all experience) which we really attain by a combination of many experiences with one another according to logical laws; and these laws are conditioned by the reference of the subject to the objective reality, and are not *a priori* forms. He erroneously maintains that all orderly arrangement (both in time and space, and that which is causal) is merely subjective." (Ueberweg's *Logic*, § 28.) Kant has nowhere shown the impossibility of *necessary relations* being disclosed to the mind in real objective experience.

an orderly manner in *time*, foretells a transit of Venus a century hence, and the result verifies the assumptions. Now the introduction of the second element is peculiarly incompatible with the alleged subjective nature of space. A consistent system of pure geometry might perhaps be worked out in such an *a priori* space, but there would be no reason why its theorems should exactly apply to the operations of extra-mental non-spatial agents. Accordingly, the orderliness of the universal force of gravitation, which varies inversely as the square of the *distance*, and produces regular movements in certain *intervals of time*, establishes agreement between the supposed mental forms and the reality beyond consciousness.[15] The physicist also teaches us that the external causes of our sensations of colour and sound are vibratory movements of ether (in extra-mental space) occurring in succession (in extra-mental time). He further informs us that the *quality* of the sensation is determined by the size and rapidity of these waves. Now this teaching is irreconcilable with the view that the supposed space and time are merely subjective forms of outer and inner sensibility. It implies that the so called *noumena*, the extra-mental causes of our sensations of colour, occupy a real space of three dimensions, antecedent to and independent of the observation of the percipient mind.[16]

[15] "Physical phenomena find throughout their most complete explanation in the supposition that things-in-themselves exist in a space of three dimensions as we know it. It is at least very doubtful that any other supposition could be so brought into agreement with the facts. We have, therefore, every ground for believing that our conception of substances extended in space of three dimensions does not in some way *symbolize* things which exist in themselves in quite another way, but truly represents things as they actually exist in three dimensions." (Ueberweg's *Logic*, § 44, note.) The above line of argument is also urged with great force in Ueberweg's *History of Philosophy*, Vol. II. pp. 160—166.

[16] Some defenders of Kant assert that he never really intended to make space and time purely subjective, and Mr. Mahaffy replies rather brusquely to Trendelenburg that Kant "never denied their objectivity unless in an absurd sense." (*Critical Philosophy*, p. 68.) Undoubtedly it is often very difficult to make out Kant's meaning, but if there is a single point on which he seems to be unmistakable it is that *space* and *time* are formal, or purely subjective. Whereas sensations of sound and colour are *given from without*, *space* and *time* he holds to be *subscribed from within*. "Space does not represent any *property of objects as things-in-themselves*, nor does it represent them *in their relations to each other*; in other words, space does not represent any determination of objects as attached to the objects

In addition to these objections a number of other defects in Kant's system have been exposed. He assumes without investigation the false representationalist theory in vogue since the times of Descartes and Locke, teaching that we have no immediate knowledge of things affecting us, but only of our own mental states. He illogically postulates an external *noumenal* world as the *cause* of our conscious states, whereas he has no ground for asserting its existence, especially since he teaches that *causality* is another deceptive intellectual form with no objective value. Finally, he is confused and inconsistent in expounding the nature of the supposed *a priori* forms, frequently appearing to conceive them as complete representations, ready made from the start and fitted with perfect accuracy on to the first act of perception, whilst at other times he seems to look on them as slowly and gradually realized with extended experience.

Mr. Herbert Spencer, starting from the same assumptions as Hume and Mill, nevertheless rejects Idealism, substituting in its place a species of Hypothetical Dualism which he calls *Transfigured Realism.* With him, as with them, we can know nothing but our own feelings; yet he affirms that there is outside of the mind an *Unknowable Reality*, the objective cause of our sensations. But beyond the fact that such a noumenon *exists*, we can assert nothing of it. "What we are conscious of as properties of matter, even down to weight and resistance, are but subjective affections produced by objective agencies, which are unknown and unknowable."[17] His defence of this theory is based on an analysis of our mental operations akin to that of the older Associationists, supplemented by an argument against the Idealism of these writers extending over some nineteen chapters. The chief proofs which he urges

themselves, and which would remain even though all subjective conditions of the intuition were abstracted. . . . Space is nothing else than the *form* of all phenomena of the external sense, that is, the subjective condition of the sensibility under which alone external intuition is possible." (Cf. *Critique. Transcend. Æsth.* § 4.) Such passages could be multiplied indefinitely. It is a summary, but not very convincing disposal of opponents to simply assert that any other view of space than this is absurd. If it is still maintained that Kant allowed the existence of a *noumenal* space which suffices for the demands of physical science, then under the shadow of this obscure and elastic term we have admitted an extra-mental extension of three dimensions conditioning the unobserved causes of our sensations, and the chief contention of the *Transcendental Æsthetic* is abandoned.

[17] *Principles of Psychology*, § 472.

against Idealism are these: (1) *Priority.*—In the history of the race, as well as in the history of every mind, "Realism is the primary conception," and Idealism is merely derived from and subsequent to the former. (2) *Simplicity.*—The chain of reasoning establishing Realism is simpler and shorter than that proving Idealism. The latter, too, depends on the former. (3) *Distinctness.*—The doctrine of Realism is presented in distinct and vivid terms, whilst Idealism can be apprehended only in a vague and obscure manner. (4) Realism is established by the criterion of the *Universal Postulate.* We must accept as true what we are obliged to think, and we cannot think away the existence of the objects which we perceive.

We can only touch on one or two points of this theory here. In the first place, though Mr. Spencer's arguments are undoubtedly valid against the idealist, they are not less efficacious against his own system. All the proofs from simplicity, priority, the application of the Universal Postulate, and the rest, tell equally in favour of *Natural Realism* against *Transfigured Realism* as expounded by himself. In the second place, Mr. Spencer's Transfigured Realism is little, if at all, fitter to meet the demands of science than Kant's non-spatial noumena or Mill's possibilities of sensation. Accordingly, for disproof of the new hypotheses, we refer the reader back to the arguments we have been just expounding. Physical science asserts much about the internal relations of the extra-mental causes of our sensations, which implies the existence of a real time, and of a space of three dimensions apart from our consciousness, yet truly mirrored by the features of that consciousness. Mr. Spencer's own statement, too, that there are variations in the modes of the asserted Unknowable corresponding to our consciousness of changes in space and time, abandons his most important tenet that we can know nothing about the Unknowable except its existence. The same difficulty which proved fatal to the theories of Mill and Kant tell equally against Mr. Spencer. Neither the assumptions nor conclusions of Physical Science can be confined within the territory of phenomena. The notions of "energy" and "force" lying at the root of mechanics and physics, and the laws of their action which science professes to expound, imply that the mind has a real valid knowledge of the supposed *noumenal* or *unknowable* causes of our sensations. Finally, Mr. Spencer's reduction of the material world, which we appear to perceive, into groups of feelings is based, like that of Hume and Dr. Bain, on the false assertion that we cannot have an immediate knowledge of external reality.

Probably the best exposition in English of the above line of argument, based on the conflict between Empiricism and Physical Science, is that to be found in Mr. Arthur Balfour's *Defence of Philosophic Doubt*, chapters ix. and xii. Viewed as an *argumentum ad hominem* against the school of Mill and Spencer, the reasoning there is perfectly valid, and seemingly unanswerable, though in other respects some of the sceptical conclusions appear to us to be overdrawn.

Readings.—The First Principles of Knowledge, by John Rickaby, Pt. II. c. ii.; Dr. Mivart, *Nature and Thought*, c. iii.; *On Truth*, cc. vii.—xi.; Dr. Martineau, *A Study of Religion*, Vol. I. pp. 192—214; Hamilton, *Metaphysics*, Lect. xxv.—xxviii.; Professor Veitch's *Hamilton*, cc. v.—vii.; Dr. M'Cosh, *Exam. of Mill*, cc. 6, 7; Ueberweg, *Logic*, §§ 37—44; R. Jardine, *The Elements of the Psychology of Cognition*, pp. 47—58, 125—148. The whole subject is very ably handled by A. Farges in *L'Objectivité de la Perception des Sens externes et les Théories Modernes* (Paris, 1891). See also J. Mark Baldwin, *The Senses and the Intellect*, pp. 134—138. The ablest treatise however in English on this subject is Professor T. Case's *Physical Realism* (Longmans).

CHAPTER VII.

DEVELOPMENT OF SENSE-PERCEPTION: EDUCATION OF THE SENSES.

Growth of Knowledge.—The true account of our cognition of the external world is that which maintains the doctrine of *immediate perception*—that in some of its acts the mind directly apprehends a material reality other than itself; but there is no incompatibility between this theory and the admission that in the percipient acts of mature life there are involved many results gathered by association, and numerous mediate inferences of a more or less complicated nature. The advocate of immediate perception is not committed to the doctrine that the eye of itself immediately apprehends something presented to its view as a solid brick house situated at a hundred yards distance, nor that touch from the beginning makes known a particular sensation of pressure as due to a squeeze of the foot. The apparently simple cognitions which succeed each other from moment to moment in mature life, contain certain primary data which have been immediately presented to the senses; but a large fraction of the whole is, in most cases, built up out of contributions furnished by imagination and

memory. The variety of the elements involved, and the plurality of the stages comprised in these brief acts of knowledge, have been dwelt on at copious length by many modern psychologists, and elaborate descriptions of the gradual development of apprehension by the "aggregation," "segregation," and "integration" of sensuous "ingredients" into the final product, the perceived thing, are very familiar to the reader of English philosophical literature.

Intellect usually ignored.—In spite, however, of the seeming exhaustiveness of these analyses one all-important factor is almost invariably omitted. *Intellect*, in its old and proper signification, as a higher rational activity superior to sense, awakened, indeed, to exercise by the latter, but transcending its range—Intellect, thus understood, is ignored. Yet it is precisely this faculty which makes intelligible the stream of change disclosed in sensation. The formal object of sense is the concrete quality of the individual thing, and it is percipient of successive changes and co-existing accidents; but it cannot apprehend the *being* or *essence* of things; it is blind to the *causality* of agents, and to the *substantiality* of objects; and of those numerous *relations* of identity, similarity, unlikeness, dependence, and the rest, which form the universal framework, the rational tissue, of our knowledge, it can give no account. A creature endowed merely with sensibility could never come to know itself as a person, to apprehend itself as an abiding *ego*, and to set itself in contrast and opposition to an objective world. Nor could it come to truly cognize any portion of the external universe, any more than itself as a *being*. Now in normal perception these sensuous and intellectual elements are closely interwoven, and it may require careful attention and reflexion to separate them; but none the less are they radically different in kind. As, however, the plan of our work requires us to treat of intellectual activity by itself, we will in the present chapter devote ourselves mainly to the exposition of the development of the sentient factor in the process, although, of course, in man's actual experience sense and intellect are not thus isolated.

Complexity of perceptional process.—Before beginning, an example may be useful to show the

reader unfamiliar with psychological analysis, that seemingly simple perceptions are really complex. Walking in a field, I become suddenly conscious of a familiar sound, and exclaim, "I hear my big, white dog barking in the road on my right about eighty yards away." But a little reflexion will convince me that the sense of hearing contributes only a small share to such a percipient act. Of the distance, direction, size, and colour of the agent which has caused the noise, my ear of itself can tell me nothing. It merely presents to me an auditory sensation of a particular quality, and of greater or less intensity; the remaining elements of the cognition are reproductions of past experiences. Similarly in other cases, unnoticed inferences, and faint associations furnished by the rest of the senses, attaching to the direct testimony of each particular faculty, simulate after a time the character of immediate revelations of the latter. These indirect or inferential cognitions may be styled the *acquired perceptions* of the sense in question. It is the office of the psychologist carefully to analyze these into their primitive elements, to ascertain what are the ultimate data afforded by each sense, and to trace the chief steps in the process by which the elaborate result is reached.

Development of Tactual Perception.—Although in describing the general features of the different senses viewed as mental powers, the order of treatment adopted was unimportant, here in tracing the development of perception it is a matter of great moment to follow as closely as possible the natural order in which

de facto the several faculties come to offer their contributions.[1] Accordingly we will commence with the *sense of touch*, including under it tactual sensations proper, feelings of pressure, and muscular sensations, whether of resistance or of movement. It seems to us a mistake in this connexion to endeavour to separate the consciousness of pressure from that of mere contact. The isolation is purely ideal. The difference between them is one of degree, and in the actual experience of the child sensations of touch, so far as they are of any psychological significance, involve feelings of pressure. The consciousness of resistance to active effort put forth, indeed, implies a new element, and facilitates the apprehension of something other than self given in the recipient sensation of passive pressure, but even this latter state makes us directly cognizant of extra-mental reality. Starting then with the *sense of touch*, naturally the first question which meets us is: How do we come to know the spatial relations of the several parts of *our own person?*

Localization of Sensations.—In mature life we instantaneously localize an impression in the point of the

[1] To start with perception by taste, smell, or hearing, or at all events to take any of these as the true type of external perception, is a complete inversion of what is actually given in nature, and may lead into serious philosophical error. These are precisely the faculties by which originally we do *not* obtain any direct perception of matter. They are wanting in the most important feature of that species of cognition which they are supposed to exemplify. They are originally of an almost purely subjective character, and are therefore but little better suited than imagination or memory to illustrate the manner in which we come to know the material universe. *Hearing*, employed not for the illustration of indirect or acquired perceptions, but as a typical representation of the perceptual process in general, as is often done by psychologists, misleads the reader into the belief that since by far the greater part of the information yielded by this faculty is of a mediate and inferential character, testifying only to possibilities of other forms of sensation, therefore *all* modes of perception are of a similarly subjective character, and no percipient faculty gives us a direct immediate presentation of extended matter. Hearing and smell exhibit abundantly the force of associated or acquired perceptions, but direct perception they do *not* illustrate.

body[2] irritated; and some writers maintain that the affirmation of consciousness is of such a character that this reference of a feeling to the part excited must be a natural endowment possessed from the beginning. But what precisely is meant by saying, "I feel a pain in my foot"? The statement at once calls up a visual image of the member affected; and it further presents this image at about five feet in a nearly vertical line from my eyes. However, as distance cannot be directly apprehended by the eye, but is known primarily through muscular sensations of movement, and as the visual image of my foot is certainly not given in the painful feeling of pressure, the first consciousness of such a sensation could not have been similar to this. We are not born with an innate idea or representation of our person. Aristotle, long ago, taught that all knowledge starts from experience, and the topography of our own body is no exception to the rule. By observation and experiment, and not through any *a priori* endowment, we have come to learn the shape and appearance of our organism, and to know the definite locality on the visual map to which a particular tactual stimulation is to be referred.[3]

[2] This seems true in the case of sensations of surface pressure, not so, however, as regards the organic sensations, or those of the other special senses. We project or externalize the cause of the auditory or visual sensation, but unless the impression is markedly painful we do not in mature life advert to the point of the organism affected by the stimuli of these senses. It is in fact the organic or tactual element involved in these sensations which enables us to localize them in our own body.

[3] Dr. Gutberlet, who maintains the doctrine that an original local reference of a very vague character is attached to sensations of contact, summarizes the arguments against the extreme "nativistic" or *a priori* view: (1) We appear to localize impressions in parts of the body demonstrably incapable of sensations, *e.g.*, in our bones, teeth, hair, &c. (2) We also misinterpret the locus of known impressions, assigning them to wrong places, *e.g.*, pressure of the elbow is felt in the fingers, irritation of the brain is referred to the extremities. (3) Irritation of the stump of an amputated leg causes us to assign the sensation to the locality originally occupied by the lost limb. (4) We sometimes project sensations outside of the body, *e.g.*, the feeling of pressure to the end of a walking-stick or a pen. (5) The definiteness of localization varies considerably

Tactual Cognition of the Organism.—Although the extreme "nativistic" theory is thus erroneous, exaggerated empiricism rushes into an equally false opinion when it refuses to admit the presence of any element of a local character, or any presentation of extension in our primitive sensations of contact. The true doctrine, as usual, lies between the extreme views. Impressions of extended objects are given from the beginning as extended, and bearing a local reference, but of an extremely vague and indefinite character. From the apprehension of purely unextended sensations the notion of extended matter cannot be formed, and in this respect the cognition of the spatial character of our own body stands in the same situation as the rest of the material world. The extended nature of the organ is given simultaneously with that of the extended surface pressing upon it, but as we have said, this primitive presentation is very ill-defined.[4]

Local Signs.—Of the shape or quantity of the surface covered our knowledge is at first almost infinitesimal, whilst of the local relations between the point affected and the rest of our person we necessarily as yet know nothing. Nevertheless the character of an impression is largely dependent on its situation; the pressure, for instance, of the same object across the fingers, the palm, the fore-arm, on the head, and on the calf of the

in different parts of the body, and decreases in proportion as the part affected is beyond the range of the eye and of the hand, *e.g.*, irritation in the back and within the organism. (*Die Psychologie*, pp. 60, 61.)

[4] "There is an element of *voluminousness* . . . discernible in each and every sensation, though more developed in some than in others, and this is the original sensation of space, out of which all the exact knowledge we afterwards come to have is woven by processes of discrimination, association, and selection." (James, Vol. II., p. 135.) Similarly, J. Mark Baldwin: "No purely empirical explanation is sufficient to account for the extensive form of sensation. . . . The power to perceive space is as native as the power to perceive anything else; but this does not mean that space is native to the mind any more than trees are or music. Objects are given to us in space, and space is given to us with objects." (*Senses and Intellect*, p. 122.) The empiricism of the associationists on this question is falling more and more into disrepute.

leg, possesses in each case a certain distinctive feature. Further, this variation in the aspect of the mental state is in proportion, though not in a constant proportion, to variation in locality. Thus, if the same stimulus be applied to two points on the arm, separated by a short interval, the sensations aroused will contain a certain difference of character, which will increase if the intermediate distance be increased; similarly with impressions on the fingers, though here change in the sensation is more rapid in proportion to variation of locality. Assuming the faculty of apprehending extended impressions over the surface of the body, and this "local colouring," which marks the sensibility of the different parts affected, if an object is moved along the skin from one locality to another, the capacity of the intermediate region for tactual sensations is discovered.

The terms, *local sign*, and *local colour*, have been used by Lotze to designate a purely subjective quality varying with the part of the organism affected, and attached to the purely subjective non-spatial presentations of sense. These *local signs* become symbols of the muscular sensations of movement required to pass from one sensitive point to another, and by their means out of mental states, individually revealing no element of extension, the notion of space is alleged to be built up. Lotze thus advanced beyond the empiricism advocated by Dr. Bain, Mill, and other English sensationalists, in admitting the necessity of more than mere tactual and muscular sensations. But the *local signs* cannot *generate*, though they may be of great value in *defining* our notion of space. A direct presentation of extension must be somehow afforded as material to work upon.

Sensations of Double-Contact. — It is probably, however, the experience of *double-contact*, which contributes most to the definition of the relative situation of the several parts of the organism. If a child lays his right hand upon his left there is awakened a double tactual feeling of extension. If he then moves the right palm along the left arm up to the elbow or shoulder he becomes conscious of a series of *muscular sensations* in the right arm, and also of a series of extended *tactual impressions* both in the right hand and along the left

arm, which vary in character as they depart farther from the original sensation in the left hand. This movement may be then reversed and the tactual sensations gone through in the opposite direction; and finally by laying the left arm along a flat surface, or *vice versa*, the series of tactual impressions, formerly given in succession, will now be presented as co-existing outside of each other in space. When these or kindred experiments have been executed a few times, the difference in character of the tactual impressions on two points of the arm awaken by association a representation of the number of tactual sensations and of the duration of the series of muscular sensations required to span the interval, and their relative situations are so far defined. In this way a blind child would rapidly gather by experience a tolerably accurate knowledge of the configuration of its body, and of the relative positions of its varying forms of tactual sensibility. The localization of impressions would become more definite in the parts capable of being easily explored by means of sensations of double contact, while the outlying districts would be known in a less perfect way.

Combination of Touch and Sight.—Still, it is sight which, normally speaking, presents to us the rich realities of space. Apprehending in a simultaneous act a large space of the surface of the body, the eye far surpasses in efficiency the consciousness of double contact, while it supplements the latter experience as a third witness in a multitude of observations. As our education advances the visual image of the point of the organism stimulated becomes more intimately associated with the local colouring of the tactual sensibility of that point, and the map of the sense of touch is translated into that of sight.

Tactual Cognition of other Extended Objects.—Together with progress in our knowledge of our own body proceeds our education as regards the material world outside; every increment of information in the one department is a corresponding gain in the other. Abstracting again from vision, when the child lays his hand flat on some object before him, suppose a book,

he becomes conscious of an extended impression. By moving his hand he experiences two concomitant series of *tactual* and *motor* sensations. When he reaches the edge of the surface the tactual sensations cease, and then reversing the operation he may reproduce them in the opposite order. After a few such experiments, he would come to know in a rough way the number of units of tactual or motor sensations necessary to pass from the first to the last impression of contact, and he would thus have a measure of the *length* or *breadth* of the book. Suppose he then takes the volume between his two hands or fingers, he will discover that it presents several resisting surfaces, and some further experiments in the way of tactual and muscular feelings define his knowledge of its *solidity* and *weight*.

Here, again, as before, to the normally endowed being, the visual images presented by sight of the objects touched and handled enormously facilitate progress, and gradually enable him to infer the temperature, magnitude, solidity, and weight of things at a distance. This mode of education is going on in one shape or another every moment of his waking existence, and consequently his perception of the objects in his immediate vicinity very soon becomes tolerably accurate.

Permanent existence of Material Objects.—The several members and parts of his own body permanently present as the centre of his pleasures and pains, and the subject of his sensations of double contact, are known to be very different from all other objects. These latter by their repeated recurrence to his notice in like circumstances, by the frequently confirmed experience that he can renew his acquaintance with them at will, and by their regularity in producing their effects, whether observed or unobserved, first evoke a dim belief, and then a rational conviction as to their abiding existence when beyond his view. Consequently, at a very early stage in his existence he becomes alive to the fact that his nurse, his bed, his food, and other objects of interest are not annihilated every time he closes his eyes.

Inferential knowledge of other Minds.—Among external objects a class particularly interesting for the child are

organisms like in shape to his own. These bodies, moreover, react by movement in response to stimuli just as he himself does. But in his own case his consciousness assures him that mental states are the effects of similar stimulation and the causes of similar movements. Consequently, by analogy he infers that *mental existences* like his own are present in other human bodies. Language is indeed the strongest evidence for the reality of other human minds, but even when it is absent, as in the case of the lower animals, the argument is felt to be irresistible.

These other human minds can now in turn afford valuable corroboratory evidence concerning the objective existence and permanence of material objects when doubts as to the possibility of illusion are awakened.

Secondary acquisitions.—We have spoken so far of the essential capabilities of touch: a word may be of interest now on the special or accidental acquirements of this percipient faculty. The degree to which the sense of touch can be cultivated, and the fineness of the capacity of both muscular and tactual sensations for being discriminated appear truly amazing when thoughtfully considered. The miller can by the sense of feeling distinguish variations in the quality of flour utterly invisible to the eye. The clothier can recognize subtile differences in the texture of silk, linen, or velvet, of an equally minute character. In such universal attainments as those of speaking, reading, writing, playing the piano, shaving, and indeed in all mechanical arts, the most delicate sensibility is exhibited. These actions involve a complicated series of movements under the guidance of muscular and tactual sensations which are distinguishable by differences so faint that we are fairly lost in astonishment at the infinitesimal forces governing thus infallibly the seemingly easy process.

It is in the blind, however, that this sense reaches its proper perfection. By them space is known and remembered solely in terms of tactual and motor experience. Their attention is concentrated on this field of cognition, and their powers of memory devoted to its service. The increased exercise and cultivation of the remaining senses when sight is in abeyance, has the effect of developing these faculties in an extraordinary manner, and none of them more so than that of touch. The blind, for instance, who have been taught to read, can decipher the contents by passing their fingers

rapidly over type not much larger than the print of the present work, with a facility that seems incredible to their more fortunate brethren who make the attempt. Dr. Carpenter relates of Laura Bridgman, the well-known deaf and dumb mute, that she unhesitatingly recognized his brother "after the lapse of a year from his previous interview by the 'feel' of his hand."[5] She estimates the age and frame of mind of her visitors by feeling the wrinkles of their face, and it is said that she can even perceive variation in intensity and pitch of voice by feeling the throat.[6] John Metcalf, the celebrated blind road-maker, was deemed an excellent judge of horses. When a lad he was a favourite guide through the lanes and marshes of his native county. As a young man he followed the hounds on horseback across country, and on one occasion won a three mile race round a circular course. These latter feats, however, were performed rather by the sense of hearing than of touch. To guide him in the race, he placed a man with a bell at each post; and in the hunting-field the cry of the hounds, the intelligence of his horse, and his knowledge of the country enabled him to keep a leading place.[7]

Visual Perception.—As the formal object of sight is merely coloured surface, the eye cannot originally inform us of distance. This faculty, even more than that of touch, has constituted a battle-ground for the "nativistic" and "empirical" theories. The more thoroughgoing *nativists* have held that the eye, or rather the visual organ consisting of both eyes, has from the beginning the power of immediately or intuitively apprehending the distance and relative situation of objects, just as well as the ability of perceiving differences of colour. Empiricists, on

[5] *Mental Physiology*, § 127.

[6] "Pressing thus on the throat of several persons successively, she sometimes sportively attempts to imitate their voice with her own in a way which shows that she does distinguish differences of both loudness and pitch (paradoxical as the language may be) without any conception or sensation whatever of sound." (Cf. *Mind*, 1879, pp. 166, 167.)

[7] Smiles, *Lives of Engineers*, Vol. I. p 219.

the other hand, deny to the eye all native capacity of cognizing extension in any form. According to their view, it is only by experience and association that ocular sensations, which in themselves bear no more reference to space than feelings of sound or smell, are gradually construed into extended solid objects. Here again, as before, it will be found that truth lies in the mean. The primary perception of the eye is simply *coloured surface;* neither *distance, solidity,* nor *absolute magnitude* is originally presented to us by this sense. These are secondary or acquired perceptions, gained by associating in experience various shades of colour, and degrees of tension in the ocular muscles, with different motor and tactual experiences. But surface space is originally perceived directly.

The original presentation of superficial extension is very vague. The central point of the retina is most sensitive, and the shape of an external surface, *e.g.*, of a triangle, is defined by moving the line of direct vision round its outline. The relative situation of the parts subtending different points on the retina, and the intervals of space between them, vaguely presented by the quantity of intermediate distinct sentient points, similarly receive accurate determination by means of the muscular sensations involved in bringing the central axis of the eye to bear on them. In sight, as in touch, Lotze amends the empirical doctrine by the hypothesis of "local signs." Though the sensations of different points of the retina are qualitatively different, he holds that there is originally no presentation of extension. By association the qualitative mark of any spot awakens a representation of the quantity of muscular sensation requisite to direct the central point towards the object subtended by that spot, and this, he teaches, is all that spatial distance means. Greater or less space is, in fact, merely the possibility of more or fewer muscular feelings. (Cf. *Metaphysic*, Book III. c. iv.)

Here again, as in the development of tactual perception the hypothesis of "local signs" may be accepted as a means

of explaining the determination of the relative positions and comparative magnitudes of objects within the extended field of vision, but it cannot account for the original presentation of extension itself.

Immediate Perception of Surface Extension.—The argument used to establish the direct perception of extension by D'Alembert, Hamilton, and others, has never been really answered. We will adopt Dr. Porter's enunciation of the proof: "If two or more bands of colour were present to the infant which had never exercised touch or movement, it must see them both at once; and if it sees them both, it must see them as expanded or extended; otherwise it could not see them at all, nor the line of transition or separation between them. Or if a disc of red were presented in the midst of and surrounded by a field of yellow or blue, or if a bright band of red were painted so as to return as a circle upon itself, on a field of black, the band could not be traced by the eye without requiring that the eye should contemplate as an extended percept the included surface or disc of red."[8]

[8] *The Human Intellect*, p. 155. Cf. also Balmez, *Fundamental Philosophy*, Book II. c. xii., and Hamilton, *Metaph.* Vol. II. pp. 165, 172. This argument is restated in an effective manner by Mr. Mahaffy, *The Critical Philosophy*, pp. 115—121. It is no reply to say that the extent of colour perceived by a motionless eye is very small and its outline vague. This is true, though not to the extent that Mill and Dr. Bain would make out. It is conceded by them that the retina is extended, and that a small circle of colour can be originally apprehended by sight alone. This admits at once the leading contention of the intuitive school. A circle of the one-tenth of an inch in diameter is as truly extended as the orbit of a planet, while no microscope can reveal space in a sound or an odour, and no summation of these latter sensations can result in a surface or a solid.

Experimental evidence.—This demonstration is reinforced by the direct evidence of a number of experiments tried on persons who had late in life been couched for cataract. The testimony from this line of investigation is unhappily not yet in as satisfactory a condition as could be desired. It is a significant comment on the lofty claims of some physiological psychologists to find that the experiments on Cheselden's patient still receive a leading place among the most recent text-books. In spite of the supposed enormous and fruitful advances of physiological psychology, that venerable and oft-recounted incident, now nearly one hundred and seventy years old, and claimed by both sides, is still amongst the least unsatisfactory cases we possess. The best experiment, however, on the whole, seems to be that of Dr. Franz, of Leipzig (1840). In the operations of both Franz and Cheselden the subjects were intelligent boys of seventeen and eighteen years of age. When, after the cataract had been removed, the eyes of the patients were sufficiently healed to be exposed to the light, a series of observations and experiments were instituted in order to ascertain exactly how much they could directly perceive by their newly-received faculty. The points of importance best established were: (1) that the newly-acquired sense presented to the mind a field of colour extended in two dimensions of space; (2) that it did not afford a perception of the relative distances of objects, all being apprehended in a confused manner as in close proximity to the eye; (3) and that, consequently, no information was given as to the absolute magnitude of things. (4) In Franz's case, where the investigation was more skilfully conducted than on the earlier occasion, the patient recognized the identity between horizontal and perpendicular lines now seen by the eye and those formerly known by touch. He could similarly recognize square and round figures, though he could not distinguish these from solid cubes and spheres.[9]

[9] These two cases, and others of less value during the interval, are reported in the *Phil. Trans. of the Royal Society*. Dr. Carpenter, *Mental Philosophy*, §§ 161 and 167, alludes to some other instances, and others again are cited by Helmholtz, but the two given above are among the best. A large portion of the account of Franz's case is transcribed from the *Phil. Trans.* 1841, into Mr. Mahaffy's *Critical Philosophy*, pp 122—133, and in briefer form into Dr. M'Cosh's *Exam. of Mill*, pp. 163—165. Hamilton's *Metaph.* Vol. II. pp. 177—179, contains the Cheselden case at length. The best summary, however, of all these cases is given in Preyer's *Development of the Intellect* (1896), pp. 286—317. The fact that the most recent case recorded there is that of Franz, already fifty-six years old, is instructive.

Analogical argument.—The force of the evidence in favour of the immediate apprehension of space of at least two dimensions by the human infant is still further increased by the fact that several of the lower animals are now proved to possess a perfect appreciation of even three dimensions of space at birth. Mr. Spalding established intuitive perceptions in the case of chickens by covering their eyes with hoods as soon as they left the shell, and so preventing all visual experiences until they were strong enough for various experiments. When the hoods were removed they immediately showed their appreciation of spatial relations. "Often at the end of two minutes," says Mr. Spalding, "they followed with their eyes the movements of crawling insects, turning their head with all the precision of an old fowl. In from two to fifteen minutes they pecked at some speck or insect, showing not merely an instinctive perception of distance, but an original ability to judge, to measure distance, with something like infallible accuracy. . . . They never missed by more than a hair's breadth, and that too, when the specks aimed at were no bigger, and less visible, than the small dot of an *i*."[10] He shows a similar power of intuitive perception to be possessed by young pigs and some other animals physically well developed at birth. **This evidence of some sort of intuitive apprehension of space of three dimensions demonstrates in a striking manner the absurdity of the implicit assumption in associationist accounts of the subject that immediate vision even of surface extension is *impossible*.**

Mediate perception of Distance and Magnitude.—That the human eye has not originally the capacity of estimating *distance* is shown by such experiments as those just cited; and by the fact that in mature life in unusual circumstances, as for instance, at sea, we feel at a great loss when we attempt to judge the length of considerable intervals of space. The simple experiment of closing one eye, especially when entering an unfamiliar room, also shows how imperfect is our purely visual appreciation of distance. And the various illusions of painting, of the diorama, and of the stereoscope, all go to prove the truth that the apparently immediate apprehension of the third dimension of space

[10] Cf. *Macmillan's Magazine*, February, 1873; James, Vol. II. pp. 394—400; and Preyer, *The Senses and the Will*, pp. 66, 235—241.

by sight is really an acquired perception, which involves a rapid process of inference from numerous visual signs.

In developed perception there are engaged many factors whose presence and action are commonly ignored. Starting from an originally indefinite apprehension of extended coloured surface, we find that different perspective appearances, shades of colour, and degrees of tension in the ocular muscles are associated with longer or shorter distances to be moved through in order to touch the coloured object. After a sufficient number of experiences the visual appearance suggests the appropriate amount of movement, and the former becomes the symbol of the latter. The chief elements in the process seem to be the following:

1. *Focal adjustment.*[11]—The single eye is subject to different muscular sensations according to the varying distance of the object up to an interval of twenty feet. This is due to the self-regulating action of the ciliary muscle, which increases or decreases the convexity of the crystalline lens so as to adjust the focus to a shorter or longer range.

2. *Axial adjustment.* — The muscular sensations awakened by converging the axes of both eyes to meet in a point, vary according as the object is nearer or farther within a space of two hundred yards.

3. *Mathematical perspective.*—The size of the retinal image and the apparent size of an object change with the distance of the latter; consequently, if its real magnitude is already known, we have the means of determining how remote it is. It is for this purpose the painter is accustomed to introduce the figure of a man or of some well-known animal into the foreground of his pictures.

4. *Aerial perspective.*—Finally, changes of colour, and the greater or less haziness in the outlines of objects becomes by experience the signs of a longer or shorter interval between them and us.

Our visual perception of the *magnitude* of an object

[11] Cf. Le Conte, *Sight*, Part II. c. v.

is an inference from its apparent size and presumed distance, and most of the steps just given may enter into the estimate. Thus, in judging the dimensions of an unfamiliar object, such as a rock, or a mound of earth afar off, we are led to form an idea of the length of space intervening by the number and apparent magnitude of known objects between us and the point in question, by the apparent size of other known figures, such as those of men or animals situated in its vicinity, and by the clearness or mistiness of the outlines of the object and of its neighbours. Having thus estimated the distance we infer the real from the apparent magnitude of the object.

Mutual aid of Sight and Touch.—The education of the sense of sight proceeds concomitantly with that of the faculty of tactual and motor sensations. Mutually aiding each other their progress is very rapid. The advantages gained by touch through the consciousness of double-contact are now largely increased by the addition of a power which can apprehend in an instant the entire contour of the body, and the situation of the various agents acting upon it. The length of the sweep of the arm or leg are known not merely in the dim terms of subjective motor feelings, but through the fine visual perceptions of space. The wide range of the eye, and those other numerous excellences which have been detailed in describing this sense, confer upon its acts the power of arousing with marvellous facility and speed the representation of associated tactual and muscular sensations. By this singularly perfect appropriation of the acquisitions of touch, vision is enabled to inform us in an easy, rapid, and admirable manner of a multitude of the tangible properties of things which we could never, or but by an incredible amount of labour, ascertain through actual contact. At the same time, the control of the organ of sight is secured by the ciliary muscles; and while we watch the movement of the arm, the muscular sensations of the eye reveal the quantity of change in its own direction, the degree of convergence of the optic axes, and the increase or decrease in the convexity of the crystalline lens. In

this way by the mutual co-operation of the two faculties our knowledge of the most important attributes of matter is elaborated.

Vision, unlike touch, taste, and smell, does not seem to be capable of much advance in range or refinement beyond what it normally reaches. The skill with which the Indian can follow a trail and the sailor recognize an object at sea seem among the most remarkable effects of special education of this sense. Unlike the other faculties, sight is normally developed almost up to its full maximum efficiency.

Binocular Vision.—A large district of the spatial scene apprehended by sight is common to both eyes, but the outskirts on either side extend beyond the binocular field of vision, and can be reached only by a single organ. In the perception of distant objects within the common field there is ordinarily formed on each of the retinas a similar picture, but things seen in our immediate neighbourhood offer a different appearance to the right and to the left eye. This fact has given rise to the *problem of single vision.* Why with two eyes do we not see two objects instead of one? Various explanations have been suggested. One view supposes that we originally saw double, but by experience have learned to assign the two images to a single cause. Another maintains that the two eyes form really but one organ. There are, it is held, "identical or corresponding points" on the two retinas, and pairs of nerves running from these to the brain coalesce, so that the two stimuli are fused into a single final excitation awakening but one sensation. Other writers have asserted that although the two eyes see different pictures yet, at any given time, we attend only to one.

As regards the last hypothesis it is undoubtedly true that one eye is commonly more active than the other, and most people will find that the right is more efficient than the left; still it is going beyond the evidence to assume that our attention is normally so concentrated upon the activity of one eye that the other may be thrown out of account. In favour of the second view may be urged the authority of several distinguished German physiologists starting with Müller fifty years ago, who consider the anatomical evidence to be on the whole in support of the physical explanation. It is also maintained that if the two retinas were really subjects of two distinct sensations, careful reflexion and examination of our consciousness ought to enable us to distinguish them. Finally, it is held that the analogy in the case of young animals constitutes a forcible argument. If

the two eyes are co-ordinated so as to originate a single perception from the beginning in these latter, as is undoubtedly the case, it is reasonable to suppose, where there is no positive evidence to the contrary, that the same holds for the young infant.

On the other side it is argued: (*a*) That more accurate knowledge of anatomy does not bear out the nativistic position. (*b*) That points physiologically not "corresponding" sometimes give rise to a *single* perception, whilst on other occasions points that ought to correspond excite *double* vision. In abnormal conditions, such as squinting, where the derangement is permanent, vision is single, in spite of the non-correspondence of identical points, and when the irregularity has been removed by surgical means, so that the two axes get into a normal position, double vision arises *for a time*, but by continued experience passes again into single vision. (*c*) Some writers contend that the "conflict or rivalry of the retinas," which takes place when the two eyes are made to contemplate different colours, is in favour of the empirical theory. If there was a real physical fusion of the nerve currents from the retinas to the brain, then we ought to have a sensation of an intermediate character and not, as is the case at present, an alternative struggling sensation of each. A modification of this experiment, however, is held by others to support the nativistic theory.[12] (*d*) It is also urged that the illusion produced by the stereoscope, where two dissimilar pictures presented to the different eyes give rise to the perception of a single object, confirms the empirical theory.[13]

On the whole that view seems to us to be nearest to the truth which, while admitting a certain degree of natural harmony in the structure of the two instruments, yet assigns to experience the development and perfection of binocular vision.[14]

[12] Cf. Wyld, *Physics and Philosophy of the Senses*, pp. 226, 227.

[13] The stereoscope is an instrument, invented by Wheatstone, and improved by Brewster, in which slightly dissimilar pictures, such as would be presented to the right and left retinas by a neighbouring solid object, are simultaneously set separately each before the appropriate eye. The result is an irresistible conviction of a single solid object. The empirical school hold this fact to establish that single vision is really an interpretation of two mental images attained by experience. Their opponents, however, would argue that though illusory in the present case, the single apprehension is due to native disposition and not merely to association.

[14] The reader interested in the question will find the empirical doctrine supported by Carpenter, op. cit. §§ 168—171, and Bern-

The importance of binocular vision in the perception of solidity and distance is very great. The muscular tension involved in the convergence of the axes of the two eyes, and the dissimilarity in the two retinal impressions, confer an immense advantage on the double organ. Somewhat analogously to the case of the two hands in the sense of touch, and to the two ears in hearing, the twin members of the visual faculty, by means of their different standpoints, are enabled to bring forward valuable contributions of a new character. Moreover, though double-contact aids us by two distinct and separable experiences, while ordinarily in sight but one sensation is consciously realized, yet the effect of the second visual organ, whether due to experience or connate aptitude, is such that we obtain an instantaneous perception of the third dimension of space.

Erect Vision.—In addition to binocular vision, a second "anomaly" of sight is found in the perception of objects as *erect* while the image on the retina is *inverted*. Some writers refuse to admit the existence of any special difficulty. We do not, they point out, see the retinal image but the object, and it is simply a law of our nature that an inverted image awakens the perception of an erect object. Others accentuate the fact that during the transmission of the retinal impression to the brain in the form of a neural tremor, the original spatial relations of the parts must be lost, and so there is no reason why the resulting mental state should redistribute them in their old position. The erection of the object will then be due either to innate disposition or acquired habit. Dr. Carpenter holds that "one of the most elementary of our visual cognitions is the *sense of direction*, whereby we recognize the relations of the points from which the rays issue and thus see the objects erect, though their pictures on the retina are inverted."[15] By this "extradition," rays of light falling from above or below will be referred back to their source. He appeals to the operations for cataract as confirming his view. The question is, however, of no great philosophical significance.

stein, *The Five Senses*, pp. 128, seq. On the other side, cf. R. S. Wyld, op. cit. pp. 221—227. P. Salis Sewis, *Della Conoscenza Sensitiva*, pp. 483—486, oppcses the physiological explanation which he traces back to Galen. *La Psychologie Allemande Contemporaine*, pp. 118—145, by M. Ribot, gives an account of the dispute between Nativists and Empiricists in Germany. However, this book, which is written entirely from an empiricist standpoint, is very unreliable.

[15] *Mental Physiology*, § 165.

Auditory Perception.—The ear gives us originally no knowledge of the spatial relations of the external world, nor even of the nature of the objective cause of the sensations of sound. Of the acquired perceptions of this faculty the most remarkable are the sense of the *direction* of a sounding body, and the sense of its *distance*. Both are due to association, and neither of them reach in man a very high degree of perfection. If while our eyes are closed a noise is produced near us by the concussion of two objects, such as keys, we shall find it almost impossible to localize the sound, especially when the experiment is performed above our head or near our feet. In mature life we estimate the distance of a familiar sound by means of its intensity. If it is of a rare character, such as that of thunder or of the explosion of gunpowder, we feel completely at a loss. The discrimination of direction is dependent on the difference in the effects produced in the two ears, and also on the variation in the character or intensity of the sound brought about by moving the head. An object on the right side makes a stronger impression on the right than on the left ear, and the sound is intensified by bringing the head or body to that side, or by setting the ear in a more direct line with the sonorous object. Hares and other animals endowed with large movable ears far surpass man in this respect. Careful cultivation may extend considerably the power of distinguishing faint sounds, and we find certain uncivilized tribes, as well as some species of the lower animals, in which this sense has

been developed to a surprising degree as a means of ascertaining the advent of their foes or their prey. Its imperfection as an informant regarding space is partially redeemed by the fineness of its appreciation of time lengths, and to this quality its value not merely as the musical faculty, but as the instrument of social communication is largely due.

Gustatory and Olfactory Perception.—Neither the sense of taste nor that of smell afforded us originally an immediate perception of external reality. If we make the experiment of tasting a liquid of moderately sweet or sour flavour, which is at the same temperature as the organ, we shall find that even in mature life the resulting sensation is of a vague ill-defined character, and contains little more direct reference to the external world than a headache, or a general feeling of depression. In experience, however, special tastes have been found to be invariably excited by objects possessing particular tactual and visual qualities, and therefore the three classes of sensation come to be associated so that either may recall the others. By cultivation this faculty can be developed in a very surprising degree, and the expert can detect variations in the flavour of tea, wine, and other articles so faint as to be utterly imperceptible to the ordinary mortal. The first odours which assailed our nostrils probably awoke us up to an indefinite pleasurable or painful feeling, and to nothing more. But after a time we grew to associate certain smells with particular objects known by touch and sight, and as the higher activities of the mind unfolded themselves

we began to apprehend the former as the *cause* of the latter. To the circumstance that this sense is stimulated by effluvia of distant bodies, much of its superiority to taste, both in point of refinement and of cognitional importance, is due. As revealing future gustatory experiences, and giving timely warning of poisonous or unwholesome food, olfactory perception becomes an instrument of considerable value. This faculty, like that of taste, is susceptible of a high degree of cultivation, and in the absence of some of the other senses it has reached a remarkable degree of acuteness.

Objections solved.—The account we have just given of the gradual growth of perception obviates various difficulties urged against the doctrine of Natural Realism. Mr. Bain, for instance, objects against Hamilton that the terms "external," "independent," and "reality" "are not simple and ultimate notions, but complex and derived," and consequently that "it is inadmissible to regard any proposition involving them as an ultimate fact of consciousness."[16] Undoubtedly these terms in ordinary language imply a variety of elements which it would be absurd to assert are all given in the "primitive unanalyzable dictum of consciousness." Accordingly, to maintain that the first sensation of pressure or sight revealed to the infant a material world as external, independent, and real, in the full significance of these words, would be as unjustifiable as to hold that the first glance at a triangle or circle presents to us all its geometrical properties. Starting from impressions of sight and touch which vaguely present to us extended reality other than our perceiving mind, our present well-defined knowledge of our own sentient organism, and of objects external to it, became gradually elaborated. The continuous existence of these realities when unperceived, which especially establishes their *independence* of the *Ego*, is guaranteed by memory, reflexion, and inference, and not by direct intuition. Finally, through the same means we learn to distinguish between the illusions of the imagination and the genuine deliverances of the external senses, and so come to comprehend the full meaning of *reality*.

[16] *Mental Science*, p. 120.

The objection that we cannot have an immediate knowledge of an "external reality," that "it is impossible to understand how the mind can be cognizant of a thing detached from itself,"[17] is equally futile. It is at least fully as impossible to understand how the mind can be cognizant of *itself*. *How* mind and body are united, *how* either can act upon the other, or indeed *how* any one thing can *move* another, are to our present faculties insoluble questions; but the *fact* that there is interaction cannot be denied any more than the growth of plants or the existence of gravitation, merely because we cannot imagine how such an event is possible. If the living body is informed and animated throughout its whole being by a spiritual soul, why should not the sentient organism so constituted be capable of responding to a material stimulus by an immediately percipient act? *A priori* dogmas as to what is or is not impossible are here out of place, especially in the hands of empiricists. To experience we must appeal, and this testifies that in sensations of pressure and sight we are immediately percipient of something other than our own mental states, whilst observation of many of the lower animals proves that they can accurately appreciate spatial relations from birth.

Co-operation of External Senses, Internal Sense, and Intellect.—We have endeavoured, in the present chapter, to trace the growth of each of the external senses separately, and we have tried to confine ourselves to the development of the sensuous factor in apprehension. But in real life there is no such isolation. The external senses are all connected with the same brain, and they are all faculties of the same mind. Their several activities are accordingly unified in the same interior sensuous consciousness. In human beings, as well as in the lower animals, the operations of the senses are synthesized by internal sentiency, and apart from all higher rational activity, the sensations of the different senses are obscurely felt as similar or dissimilar.

[17] *Mental Science*, p. 209.

But in man, during mature life, even the simplest acts of perception usually involve intellectual activity, and it is virtually as impossible to assign the exact date of the first awakening of rational cognition as it is to point to the birth of the primitive free volition. In both departments lower grades of consciousness, sentiency and spontaneity, precede as necessary conditions the higher forms of mental life; and to the child during the years of early infancy the existence of the external world is given as an instinctive and indestructible belief, and its reality is for him little more than that of sensations and possibilities of sensations.

Dr. Porter very aptly remarks: "It is quite conceivable, as has been already suggested, that before those percepts (perceived things) and sensations (qualities apprehended by sensations) are connected under the relation of substance and attribute, they should be known as constant attendants, co-existent or successive, and that, simply as conjoined, the presence or the thought (*i.e.* sensuous image) of the one should, under the laws of association, suggest the thought of the other. It is under this relation that things and properties are known to the animal. It is obvious that the animal cannot and does not distinguish the relation of conjunction from that of causation. If he has experienced one sensation or sense-percept in connection with another, the repetition of the one brings up the image of the other, and the pain and pleasure, the hope and fear, which are appropriate to it. The dog connects with the whip in the hand of his master the thought (image) of chastisement and pain; with the sight of his gun or his walking-stick, the excitement of a ramble or of sport." [18]

Intelligent Cognition not mere Instinctive Belief. — It is through a confusion between the spontaneous faith embodied in the primitive percipient act and the rational conviction evoked in the developed consciousness by intellectual perception, that Reid and others were misled into describing our assurance of external reality as an *instinctive*

[18] *The Human Intellect*, § 166.

belief irresistibly suggested by the sensation. *Instinctive belief* stands opposed to *intelligent cognition* as being blind and irrational. No grounds can be assigned for its existence, and no cogent reason can be adduced for its validity. The mere fact that a mental state of this character is indestructible does not alone afford it a sufficient philosophical guarantee, while the appearance of idealist philosophers would seem to imply that such a faith can at all events suffer temporary eclipse. But our knowledge of material objects is not of this kind. However blind and unintelligent may be the trust of the infant or the brute in an external world, developed cognition in man is essentially other than impulsive faith; and his certainty of a material universe, an assurance in which rational intuition, abstraction, reflexion, and inference are involved, and which is based on reasons as solid as those we have already advanced, is most erroneously described as an instinctive belief.

Mental and Cerebral development.—Mental development is marked by growth in power, enlargement in range and variety, and increase in the complexity of our mental activities. Much industry has been recently devoted to the systematic observation of the working of the faculties of the mind from earliest childhood, and although the psychologist's interpretations of the infant's mental states may remain of doubtful value, careful study of facts must ultimately prove fruitful in the interests of truth. Among the results, partly physiological, partly psychological, claimed to be established are the following.

The weight of the human brain at birth is about one-sixth of that of the whole body. The brain more than doubles its size during the first year, after which its increase is much less rapid, and although it continues to grow very slowly to middle life, it has nearly reached its full size by the end of the seventh year. At maturity it averages between one-fortieth and one-fiftieth of the weight of the body, reaching in normal adult Europeans from about forty-six to fifty-two ounces. Whilst during infancy it thus grows rapidly in bulk, it also exhibits increasing distinctness and perfection in its several parts, and its convolutions become deeper and more marked. The sense-organs also, though very imperfect at first, develop still more speedily, and within a few weeks, or at most a few months, they attain maturity. Experiments go to show that the newly-born child is deaf, probably owing to the presence of a fluid in the internal cavity of the ear, which is only gradually replaced by air. At first, sound produces merely a vague shock. The muscular control over the eyes

is imperfect, and according to some observers during the first days of its life the infant merely distinguishes light from darkness, whilst the capacity to discriminate colours remains very feeble for some weeks.[19] The child seems to be unable to distinguish different distances, by means of sight. Although, as we have already observed, this aptitude is enjoyed from the beginning in a completely developed condition by some of the lower animals. Sensations of contact are of a similarly indefinite character. On the whole it is probable that the consciousness of the infant during the first weeks of its life is of a vague, indefinite, drowsy character, in which there is little or no awareness of the various qualities of sensations which will become so widely differentiated later on.[20]

With varied and contrasted experiences, however, the sensibility to different stimuli rapidly improves, and the monotony of the earlier somnolency is more and more broken up. Each stimulation leaves a certain residual effect in the faculty, and repetition of an impression, while strengthening the power exercised, also tends to awaken a faint curiosity and interest, and the infant begins to compare in a semi-conscious way different experiences, and also to recognize them on their recurrence. As definiteness of impressions is increased memory improves, and conscious attention is called more and more into play, and intellect proper begins to exert itself. The primary tendency of all mental activity is objective—self-consciousness coming later. The course and the range of development is determined in part by inherited temperament, in part by surrounding circumstances, physical, intellectual, and moral.

Periods.—The periods of development are variously divided by different writers, but in general the following are recognized as distinct epochs. *Infancy*, reaching to nearly the end

[19] Cf. Preyer, *The Mind of the Child*, Part I. pp. 180—183. Some of his conclusions, however, seem very hazardous and scarcely warranted by the evidence. Their uncertainty illustrates clearly the grave difficulties inherent in the objective method as employed in Comparative Psychology.

[20] "The baby assailed by eyes, ears, nose, skin, and entrails at once, feels it all as one great, blooming, buzzing confusion." (James, Vol. I. p. 488.) J. Ward ("*Psychology*," *Encyc. Brit.*, 9th Edit.) similarly insists that the primitive consciousness must be a sensory *continuum*, a homogeneous mass, as it were of feeling in which the separate elements have to be gradually discriminated and differentiated by subsequent experiences. This is a striking reversal of the old associationist "atomistic" view which conceived mental development as mainly a process of fusion or "chemical combination" of originally distinct impressions.

of the second year, during which the several faculties of sense-perception reach maturity, the power of locomotion is imperfectly acquired, and the first efforts at speech are made. *Childhood* comes next, reaching to the seventh year. Memory and imagination show considerable progress. Curiosity frequently manifests itself, and the so-called "play-impulse" or tendency to spontaneous, random movement is active. A full self-conscious knowledge of his own personality is reached early in this period, although the general tendency of the mind is objective; and the power of voluntary self-control and reflective obedience to rule is ordinarily sufficiently developed before the eighth year to constitute the child responsible for his acts where temptation does not exceed a moderate degree of strength. For this reason moral theologians have fixed on the seventh year as the date about which the "use of reason" is commonly reached.

The next seven years mark the period of *boyhood*, during which the faculty of memory increases in strength and intellectual abstraction comes more into play. Self-control too grows in power, and individual peculiarities reveal themselves. This is especially the plastic period when the foundations of those moral and intellectual habits are to be laid which will in great part determine the quality of the boy's future career. If habits in conflict with truthfulness, generosity, obedience, or purity are in possession at the age of fifteen, it is extremely difficult to dislodge them afterwards.

The period of *youth*, covering the next seven years, marks the final "setting" of the character in various directions. Whilst the memory and imagination continue active, the intellectual faculty of abstract conception, judgment, and reasoning rapidly expands, and the power of introspection also increases. The emotions and passions come into prominence. This is especially the season for building up *ideals*. It is the age of enthusiasm, of poetry, and of fancy, but it is also the epoch during which our most important intellectual convictions and moral habits crystallize and determine for good or ill the course of our whole future life.

Primary and Secondary Qualities of Matter.—Our knowledge of the smell, sound, taste, or temperature of objects differs widely in character from our cognition of their extension, figure, or number. The latter are called *primary*, the former *secondary qualities* of matter. The significance of this difference has played a prominent part in the history of the Philosophy of Perception in

modern times, especially in England, but the distinction was clearly grasped in its most essential bearings by Aristotle and St. Thomas. **Aristotle** distinguished between "common" and "proper sensibles," and further between the latter in a state of formal actuality or energy (ἐν ἐνεργείᾳ, *in actu*), and in a dormant or potential condition[21] (ἐν δυνάμει, *in potentia*). The "proper sensibles" are the qualities in bodies which correspond to the specific energies of the several senses—colour, sound, odour, taste, temperature, and other special tactual qualities. Under the "common sensibles" were included extension, figure, motion, rest, and number. They are perceived through, but simultaneously with, the *sensibilia propria*, and by more senses than one. Moreover, the *sensibilia propria* do not exist in a state of *actuality* except when perceived, but only *virtually* as *dormant powers* of matter. To this latter most profoundly important distinction, erroneously imagined to be a discovery of modern philosophy, we will return again. Aristotle's doctrine on both points was adopted by **St. Thomas,**[22] who reduced the various forms of common sensibles to that of *quantity*. This was conceived to be the most fundamental attribute of matter, and the various qualities which give rise to the special sensations were looked upon as properties inhering

[21] There was also another distinction recognized by the Peripatetic school, that of *sensibile per se* and *sensibile per accidens*. That is *sensibile per accidens* which is apprehended indirectly through being accidentally conjoined with something which is *sensibile per se;* and in this signification individual corporeal substances were said to be *sensibile per accidens*, "ut si dicimus quod Diarus vel Socrates est sensibile per accidens, quia *accidit* ei esse album." (St. Thomas, *De Anima*, Lib. II. l. 13.) Both *sensibilia propria* and *sensibilia communia* were held to be *sensibilia per se;* the former, however, being classed as *per se primo vel proprie*, the latter as *per se secundo*. The several "*proper sensibles*" (per se primo) were defined to be the *formal object*, or appropriate stimulus of the different special senses. The "*common sensibles*" (sensibilia per se sed non proprie), extension, figure, &c., manifest themselves through, but simultaneously with, the *sensibilia propria*. They are thus not mediate acquisitions derived from the former, but forms of reality directly revealed through them.

[22] Cf. *Sum.* i. q. 78. a. 3. ad 2. and iii. q. 77. a. 2.

in it. From this to the modern division into *primary* and *secondary* qualities the transition is obvious.

Descartes, between whom and Locke the credit of the discovery of the ancient distinction has been supposed to lie, taught that the attributes, Magnitude, Figure, Motion, Situation, Duration, and the like, are *clearly* perceived. We have an *idea* of them as they may be in the object. On the other hand, Colour, Pain, Odour, Taste, *et cetera*, are not thus apprehended. We have only a confused and obscure knowledge of something or other in the external body which causes these sensations in us.

Locke, who borrowed from Galileo the terms *Primary* or *Real* and *Secondary Qualities* to mark the old distinction between the *common* and *proper sensibles*, gives solidity, extension or bulk, figure, motion or rest, and number, as included in the first class. These attributes we cannot conceive as separable from matter, and, moreover, they are *like* the *ideas* by which we represent them. The secondary or imputed qualities, colours, sounds, tastes, smells, and the rest, are not essential to the idea of matter. Where present in bodies they exist merely as powers to produce sensations, properties emerging out of occult modifications of the primary attributes, and capable of awakening in us feelings in no way like themselves.

Berkeley and **Hume,** proceeding from Locke's most fundamental doctrine that we can only know our own ideas, quickly demolished the distinction. Hume even demonstrated that, on Locke's principles, the primary qualities, extension, and the rest, are *less* real and objective than the secondary, for the former are merely complex subjective products elaborated out of the latter, and so the purest of mental fictions. In the Kantian philosophy, although the subject is not explicitly treated, the objective significance of the two groups is similarly reversed. As Space is an exclusively subjective form, while the sensations of smell, sound, *et cetera*, have some sort of an external correlate, however remote from them in kinship, the latter would seem to be of a less purely ideal character.

Sir W. Hamilton from a psychological point of view distinguishes three classes: (1) *Primary* or *objective*. (2) *Secundo-primary* or *subjectivo-objective*, and (3) *Secondary* or *subjective* qualities.[23] The *primary* qualities include all the relations of matter to space whether as container or contained. These are (1) Extension, (2) Divisibility, (3) Size, (4) Density, (5) Figure, (6) Absolute Incompressibility, (7) Mobility, (8) Situation. These attributes are completely objective. They are percepts proper, implying no reference to sensation in their

[23] These groups have been also styled the *geometrical*, *mechanical*, and *physiological* properties, and Mr. Herbert Spencer (*Principles of Psychology*, Pt. VI. cc. xi.—xiii.) still further enriches our already exuberantly wealthy terminology by the invention of the terms, *statical*, *statico-dynamical*, and *dynamical*, to mark substantially the same distinctions. In the *dynamical* or secondary attributes the external body is active, the mind is wholly passive. These qualities are objectively occult properties in virtue of which matter modifies the forces brought to bear on it, so as through these forces to awaken sensations. With the exception of taste, they act across a distance; they are accidents cognizable apart from the body, and manifested only incidentally. In experiences of the *statico-dynamical* kind, both subject and object are simultaneously agent and patient. These attributes are known through some objective re-activity evoked by subjective activity. "In respect of its space (*statical*) attributes, body is altogether passive and the perception of it is wholly due to certain mental operations." Unlike the other attributes, "extension is cognizable through a wholly internal co-ordination of impressions; a process in which the extended object has no share." Some distinctive features of the different groups previously recognized are here pointed out, but there are also some errors. The mind is never purely passive, even in sensations like those of colour, taste, *et cet.*, the mental reaction is as real as the physical stimulation. Consequently the distinction between the *dynamical* and *statico-dynamical* fails. Mr. Spencer is right in holding that the *primary* are not the direct object of the special senses in the same manner as the *secondary* qualities. In the words of St. Thomas the *sensibilia communia* do not constitute formal objects of individual senses. Still they are not, as Mr. Spencer's exposition implies, purely subjective products, but forms of reality revealed through, yet concomitantly with, certain of the *proper sensibles*. Surface extension *as such* does not of course stimulate the retina or the nerves of touch; it is made known in experiences of pressure and colour. Still it is not a mediate inference from the latter, nor a complex *integration* of unextended feelings of any kind. Cognition of the third dimension of space results, as we have already described, from a reapplication of the same faculties in a new direction.

meaning, though involving sensation in their first apprehension. They are, he holds, absolutely essential to body; deprived of them matter is inconceivable. The *secundo-primary* qualities comprehend gravity, cohesion, repulsion, and inertia. Viewed as objective they are forces resisting our *locomotive faculty* or muscular energy. As subjective they are revealed through the varying affections of pressure in the sentient organism. Involving in their meaning these subjective sensations, they do not possess the objective independence of the primary qualities. They are, moreover, not essential to matter. The *secundary* qualities are not in propriety qualities of bodies at all. As apprehended they are only sensations which lead us to infer objective properties in the external thing. They are experienced as idiopathic affections of our organism, indefinite in number, and producible by a variety of stimuli. Besides the sensations of the special senses, Hamilton includes in this class a number of other feelings, such as shuddering, titillation, and sneezing. They are of course in no way essential to matter.[24]

Criticism.—The recognition of the distinction in kind between the *primary* and the *secondary* qualities, or between the *common* and *proper sensibles*, is justified metaphysically by the more and less fundamental character of the two classes respectively, and psychologically by the numerous differences in the mode of their apprehension. Among these latter enough attention has not been directed to the ancient distinction based on the fact that *secondary* and *secundo-primary* qualities are disclosed only through a single sense, while the *primary* attributes are revealed through a plurality of independent sources. This circumstance, as well as their more intelligible nature, makes our cognition of

[24] As regards Hamilton's treatment of the subject: (1) There is no warrant either *metaphysical* or *psychological* for the intermediate class. On both grounds it belongs to the third. (2) It is absurd to speak of secondary qualities of matter as not being *properties of matter* at all, but merely conscious states. Hamilton, moreover, is peculiarly inconsistent in this respect, since he elsewhere holds that all our senses make us immediately cognizant of the non-ego.

them clearer, more convincing, and more comprehensive. The perfect identity of ratios subsisting between parts of space, *e.g.*, the relation of the side to the diagonal of the square, known through visual and tactual sensations, the mathematical power of the blind, and the recognition of circular and square figures by those just receiving sight for the first time, present an irresistible testimony to the reality of what is affirmed by such diverse witnesses. In addition to this, the manifestation of extension in the two different experiences of colour and pressure enables us to detach in a singularly perfect manner the common element, and so to form an abstract idea of extension, far surpassing in clearness those derived from any single sensuous channel.

The Relativity of Knowledge.—This expression has been used in a great variety of meanings. (1) The phrase *Relativity of Knowledge*, or rather the *Law* or *Principle of Relativity*, has been used to signify a leading tenet of Bain and Wundt—that knowledge and feeling are possible only in transition, that we can know anything only by knowing it as distinguished from something else, that in fact all consciousness is of *difference*. We have discussed the subject at the end of chapter v. This doctrine, however, is not that ordinarily intended when we speak of the *Relativity of Knowledge*.

(2) The *Relativity of Knowledge* in its most important sense refers not to the nature of the relations between one known object and another, but to that between the known object and the knowing mind. All systems of philosophy which reject the doctrine of immediate perception of extended reality must maintain that our knowledge is relative to the mind in the sense that we can never know anything but our own subjective states. Among these the most consistent thinkers, as we have argued, are the idealists proper. They logically maintain that if we have no knowledge of anything beyond consciousness, it is unphilosophical to suppose that anything else exists. This thoroughgoing view is represented by Hume, and by Mill at times. The great majority of modern philosophers, however, shrinking back from this extreme, have adopted some intermediate position akin to that of Kant or Mr. Spencer. They maintain that while all our knowledge is relative to our own mental states, and in no way represents or reflects reality, yet there is *de facto* some sort of reality outside of our minds. Our imaginary cognitions of space,

time, and causality are universal subjective illusions either inherited or elaborated by the mind; consequently, since these fictitious elements mould or blend with all our experience, we can have no knowledge of things in themselves, of *noumena*, of the absolute. But notwithstanding this, and in spite of the fact that the principle of causality has no more real validity than a continuous hallucination, these philosophers are curiously found to maintain the existence of a *cause*, and even of an external, non-mental cause of our sensations.

(3) *True doctrine.*—Another, and what we maintain to be the true expression of the *Relativity of Knowledge*, and one which is in harmony with the theory of immediate or presentative perception, holds—(A) that we can only know as much as our faculties, limited in number and range, can reveal to us; (B) that these faculties can inform us of objects only so far, and according as the latter manifest themselves; (C) that accordingly (*a*) there may remain always an indefinite number of qualities which we do not know, and (*b*) what is known must be set in relation to the mind, and can only be known in such relation.[25]

So much relativity is necessarily involved in the very nature of knowledge, but it in no way destroys the worth of that knowledge. If knowledge is defined to imply a relation between the mind and the known object, and if the *noumenon* or *thing-in-itself* is defined to signify some real element of an object which never stands in any relation to our cognitive powers, then a knowledge of *noumena* or *things-in-themselves* is obviously an absurdity.[26] But if by *noumena* are understood, as

[25] What is given in one or more relations may necessarily implicate other relations, and these may subsist not merely between the mind and other objects, but between the several objects themselves. Still, mediate cognitions of this sort are knowledge only in so far as they are rationally connected with what is immediately given. Our knowledge of the mutual dynamical influence of two invisible planets, which faithfully reflects their reciprocal relations, is but an elaborate evolution of what is apprehended by sense and intellect in experiences where subject and object stand in immediate relations

[26] "To speak of 'knowing,' 'things in themselves,' or 'things as they are,' is to talk of not simply an impossibility, but a contradiction; for these phrases are invented to denote what *is* in the sphere of *being* and *not in the sphere of thought;* and to suppose them *known* is *ipso facto* to take away this character. The relativity of cognition (*i.e.*, in the sense defined) imposes on us no forfeiture of privilege, no humiliation of pride; there is not any conceivable form of apprehension from which it excludes us." (Cf. Martineau, *A Study of Religion*, Vol. I. p. 119.)

Kant on the one side, and sensationalists like Mr. Spencer on the other seem to mean, hypothetical external causes of our sensations, which yet somehow do not in any way reveal their character through these sensations, then we must, in the first place, deny the assumption that we can only know our own conscious states, and, in the second, we must point out the fundamental contradiction common to both schools of disputing the objective or real validity of the principle of causality, whilst in virtue of a surreptitious use of this rejected principle they affirm the reality of an unknowable noumenal cause.

Cognition of Primary and Secondary qualities compared.—Admitting all knowledge to be relative in the third sense defined, there yet remain grades in the comparative perfection of cognitions gained through diverse channels; and here the distinctions both between sense and intellect, and between the primary and secondary qualities of matter, assume great importance. The doctrine that colours, sounds, and the other secondary qualities do not exist in objects as they are in the mind has been often cited as a modern psychological discovery. This, however, is a complete mistake. The wide difference which separates the *objective* or *material conditions* of sound, colour, and the rest from the corresponding *subjective consciousness*, was as clearly and as firmly grasped by Aristotle and St. Thomas, as by Locke, Hume, Kant, or Herbert Spencer. The acute minds of the sensationalists and sceptics of Ancient Greece had, in fact, raised in one form or another all the most forcible difficulties now urged by their modern representatives, and the Stagirite was necessarily led to answer them. He did this by pointing out the distinction between the *potential condition* and the *completed realization* of the secondary properties. Sound and colour *in apprehension* he describes as having reached their *full perfection*, *actuality*, or *energy*, whilst when unperceived they exist in the object merely in a *potential* or *virtual* state. In this stage he recognized them simply as powers capable of arousing sensation. He even called attention to the ambiguity arising from the frequent use of the same word—*e.g.*, "sound" or "taste," to designate both the *physical property* and the *mental state;* and he employs the two terms, *sonation* and *audition*, to bring out the difference. He thus successfully opposed the scepticism of the ancient empiricists, who denied all reality or differences of colours, sounds, and the rest apart from perception, by admitting their contention as regards the full realization of the qualities of matter, while refusing to allow its truth in reference to the potential conditions of these qualities. Neither light, nor sounds, nor odours would

exist in their proper signification *as actualities* if all sentient beings were withdrawn from the universe; but they would still remain *as potencies* ready to emerge into life when the recipient faculty appeared. Aristotle's treatment of the subject was adopted and elucidated by St. Thomas, and we deem the matter of such importance that we cite a number of passages from both the Greek philosopher and his scholastic commentator below.[27]

Sensuous and Intellectual cognitions compared.—Through its secondary qualities, then, an object is known by any sense only as something capable of producing a particular sensation in me. The primary attributes are, however, of such a kind,

[27] "Sensibilis autem actus et sensus idem est, et unus; esse autem ipsorum non idem. Dico autem ut sonus secundum actum, et auditus secundum actum. Contingit enim auditum habentia non audire, et habens sonum non semper sonat. *Cum autem operetur potens* (id quod potest) *audire, et sonet potens sonare, tunc* secundum actum *auditus* simul fit, et secundum actum *sonus*. Quorum dicet aliquis hoc quidem auditionem esse, hoc verum sonationem." (Aristotle, *De Anima*, Lib. III. Lect. 2.) "Sonativi (rei sonoræ) igitur actus, aut sonus aut sonatio est. Auditivi autem, aut auditus aut auditio est. Dupliciter enim auditus, et dupliciter sonus. *Eadem autem ratio est et in aliis sensibus et sensibilibus* . . . sed in quibusdam nomina quoque sunt posita, ut *sonatio* ac *auditio;* in quibusdam caret alterum nomine; visio enim dicitur actus visus, at coloris (actus) nomine vacat, et gustativi gustatio est, at saporis nomen non habet." (*id. ib.*) "Necesse est quod auditus dictus *secundum actum*, et sonus dictus *secundum actum*, simul salventur et corrumpantur; et similiter est de sapore et gustu, et aliis sensibilibus et sensibus. Sed si dicantur *secundum potentiam*, non necesse est quod simul corrumpantur et salventur. Ex hac autem ratione (Aristoteles) excludit opinionem antiquorum naturalium . . . dicens, quod priores naturales non bene dicebant in hoc, quia opinabuntur nihil esse album, aut nigrum, nisi quando videtur; neque saporem esse, nisi quando gustatur; et similiter de aliis sensibilibus et sensibus. *Et quia non credebant esse alia entia, nisi sensibilia, neque aliam virtutem cognoscitivam, nisi sensum, credebant quod totum esse et veritas rerum esset in apparere.* Et ex hoc deducebantur ad credendum contradictoria simul esse vera, propter hoc quod diversi contradictoria opinantur. Dicebant autem *quodammodo recte et quodammodo non.* Cum enim *dupliciter dicatur sensus et sensibile, scilicet secundum potentiam et secundum actum*, de sensu et sensibili *secundum actum* accedit quod ipsi dicebant quod non est sensibile sine sensu. Non autem hoc verum est de sensu et sensibili *secundum potentiam.* Sed ipsi loquebantur simpliciter, id est sine distinctione, de his quæ dicuntur multipliciter." (St. Thomas, *Comm. de Anima*, Lib. III. l. 2, ad finem). Cf. Hamilton, *Notes on Reid*, pp. 826—830.

and presented to us in such a manner, that our knowledge of them, even when limited to the range of the sensuous faculties, is of far superior importance to that which we possess of the *sensibilia propria*. In themselves the primary attributes consist of extensional determinations universal to matter, and independent of the nature of the sentient faculty. In relation to us the fact of their being revealed through the several channels of ocular, motor, and tactual sensations, gives our sensuous perception of them a clearness and distinctness far surpassing that of the *proper sensibles*.

But it is as affording material for *intellectual* knowledge that their true value is to be estimated. Disclosed through distinct channels the common presentation is instinctively detached by the higher abstractive activity of the mind; and since it is thus given to us unobscured by any subjective affections of sensibility, it is perceived in a very perfect and comprehensive manner. Owing to this fact our simplest intellectual cognitions of spatial relations are enabled to image with distinctness and lucidity the most fundamental laws of the physical world.

Finally, by observation, reasoning, and abstraction we come to discern in these primary attributes universal extensional relations conditioning the mutual connexion and interdependence of material objects apart from their perception by the knowing spirit. We are assured that, although the realization of the secondary qualities requires the presence of the sentient faculty, yet the most important part of the meaning of the primary attributes holds in its absence: we see that while perception is essential to the one, it is accidental to the other. Remote and complicated deductions from a few primary luminous intuitions of space and number, together with certain assumptions as to the action of real force, are found to describe accurately the future conduct of the universe. Astronomy and Physics, the Law of Gravitation as well as the Undulatory Theory of light, imply the extra-mental validity of our notions of space, motion, and real energies, and assume their existence and action apart from observation. The verification which subsequently observed results afford to our reasoned deductions must, consequently, be held to establish that these conceptions are neither "integrations" of purely subjective feelings, nor mental "forms," which in no way represent the hypothetical, unknowable, external *noumenon*, but true cognitions which mirror in a veracious manner the genuine conditions of real or ontological being. Our knowledge, then, of the primary attributes does not relate exclusively to our own mental states, as is asserted in the prevalent creed of relativity. Still in the case

of these, as well as of the secondary qualities, we can never know the object unless in so far as it reveals itself directly or indirectly to our faculties, and in the simplest creature there will always remain beyond our ken an indefinite number of secrets which a higher intelligence might scrutinize, so that the perfection, range, and penetration of knowledge is, in truth, ever relative to the knowing mind.

Readings.—On immediate perception, cf. Farges, *L'Objectivité de la Perception*, pp. 17—36, 83–99, 155—181; also J. Mark Baldwin, *Senses and Intellect*, c. viii.; Dr. Porter, *The Human Intellect*, Pt. I. cc. iii.—vi.; Balmez, *Fundamental Philosophy*, Vol. I. pp. 267—324, 339—360. On the localization of sensations, cf. Gutberlet, op. cit. pp. 59—84; Mercier, *Psychologie*, pp. 132—147; On the Primary and Secondary Qualities of Matter, cf. St. Thomas, *De Anima*, II. l. 13; Hamilton, *Metaph.* II. 108—115; *Notes on Reid*, pp. 825, seq.; On Relativity of Knowledge, St. Thomas, *De Anima*, III. l. 2; Martineau, *A Study of Religion*, Bk. I. c. iv.; M'Cosh, *Exam. of Mill*, c. x. and *Intuitions of Mind*, pp. 340, seq. (2nd Edit.); Dr. Mivart, *On Truth*, c. x.; Mark Baldwin, op. cit. 58—63.

CHAPTER VIII.

IMAGINATION.

Imagination defined. — Imagination may be defined as the faculty of forming mental images or representations of material objects, apart from the presence of the latter. The representation so formed is called in nearly all recent psychological literature an *idea*. This application of a term, which in the old philosophies invariably expressed the universal representations of the intellect, is unfortunate; but it has become so general that there is little hope of restoring the word to its ancient and proper signification. Accordingly, to avoid confusion, when employing the word idea to denote the general concept or notion, we will add the epithet intellectual to mark its supra-sensuous character. The term *phantasm*, by which the schoolmen expressed very concisely the acts of the imagination, has been employed in the same sense by Dr. M'Cosh, and occasionally also by Hamilton and Dr. Porter, and we will use it along with the word *image* to denote this sensuous representation.

Ideas and Impressions.—The idea or phantasm of the imagination differs in several respects from the percept, presentation, or impression, that is the act by which we perceive a real or present object,

such, for instance, as a house. The idea is almost invariably very faint in intensity as compared with the impression. The outlines of the one are obscure and its constituent parts confusedly presented, while the other is realized in a clear and distinct manner. Still more striking is the contrast between the unsteady transitory character of the representation and the permanent stability of the perceived object. The image, too, is normally subject to our control, and can be annihilated by an act of will; the sensation, on the contrary, so long as the sense is exposed to the action of the object, is independent of us. The imagination, moreover, may vary the position of its object, and our own movements do not force us to leave behind us the idea. With the percept of the external sense it is otherwise; every change in our situation produces an alteration in its appearance. Depending on these lesser differences is the distinction most noted of all, the reference to objective reality, the belief in external independent existence which accompanies the act of sense-perception but is absent from that of the imagination. And yet, as St. Thomas pointed out long ago,[1] ideas are confounded with real objects, if not corrected by actual perception or free exercise of intellect.

Scholastic Doctrine.—The *Phantasy* or *Imagination* was classed as an internal sense by the philosophers of the Peripatetic school. This view was based on the facts that the imagination operates by means of a physical organ—the brain; that it represents particular concrete objects; and that these have only an internal or subjective existence. It was accordingly defined to be an internal power of the sensuous order. It was distinguished from the *sensus communis*,

[1] *Qq. Disp. De Malo*, III. a. 3, ad 9.

by the circumstance that while the function of that faculty was held to be the apprehension and distinction of the actual operations of the several senses, and of the qualities of objects *hic et nunc* perceived by them, the imagination forms representations or images of objects even in their absence. Modern writers commonly describe this aptitude of the mind as an intellectual power, but that this opinion is erroneous will become evident later on.

Productive and Reproductive Imagination.—Several forms of the activity of the imagination have been allotted special names. The most commonly accepted division of the faculty is that into Reproductive and Productive Imagination. The former term is employed to designate the power of forming mental pictures of objects and events as they have been originally experienced, while the Productive Imagination signifies the power of constructing images of objects not previously perceived. The term Reproductive Imagination is used by some writers to denote the faculty of memory in general. This usage is objectionable. The *differentia* of memory is not *reproduction*, but *recognition*. All imagination, as we urge above, is essentially reproductive. The chief features in which remembrance differs from mere revival of images are: (1) The freedom of the imagination as to the number and variety of its acts, the limited character of our recollections; (2) the casual and variable order of the former states, the serial fixity and regularity of the latter; (3) the isolated nature of imaginary events, the solidarity or relatedness of remembered occurrences, which are inextricably interwoven with multitudes of other representations; (4) finally, the peculiar reference to my own actual experience involved in the act of identification or recognition, which forms part of the recollection but is absent from the creations of fancy.

The spontaneous action of the faculty is sometimes called the *passive* imagination as contrasted with the *active* or voluntary exercise of its powers.[2] The epithets *constructive* and *creative*, are frequently applied to Productive Imagination, especially when the product is of a noble or beautiful kind. Strictly speaking, however, the imagination does not create or produce anything completely new; it merely combines into novel forms elements given in past sensations. These fresh combinations are effected under the guidance of will and judgment, and accordingly Hamilton has styled this aptitude, the "Comparative Imagination," and the "Faculty of Relations." It has also been asserted that its range is not limited to objects of sense. This view is gravely erroneous. The scope of imagination is rigidly confined to the reproduc-

[2] Cf. Mark Baldwin, op. cit. p. 224.

tion of former *data* of sense, and the congenital absence of any faculty correspondingly limits the field of the phantasy. The imagination, moreover, should not any more than external sense be called a *faculty of relations*, since both alike are equally incapable of apprehending such supra-sensuous realities. It is the intellect which in one case as in the other perceives abstract relations, and it is as serious an error to confuse rational activity with the power of forming sensuous images as with the capability of experiencing sensations.

Functions of the Imagination.—The Imagination plays an important part in artistic and mechanical construction, and in the more concrete branches of physical science. In all forms, however, of constructive imagination the three factors, ***purpose, attention***, and ***discriminative selection*** co-operate. There must be at least in dim outlines before the mind an *aim* or *object* to be realized. Then, as in order to satisfy this vague desire the spontaneous activity of the faculty brings forward its materials, the *attention* is fixed on those likely to fit in to the wished-for ideal. Finally, *selective discrimination* retains those judged to be appropriate and rejects the remainder.

Æsthetic Imagination.—In the creation of works of art the fancy of the poet, painter, sculptor, or musician, is employed in grouping and combining his materials so as to awaken admiration and satisfaction in the mind. At times his aim will be to hold the mirror up to nature, in order to delight by the exquisite skill and fidelity with which he reproduces an actual experience recalled by the memory. At other times he assumes a nobler part, and seeks to give expression to some thought embodying an ideal type of beauty or excellence, which is never met with in the commonplace world of real life, but is dimly shadowed forth in rare moments by our own imagination. *The Beautiful* is indeed the proper aim of the æsthetic fancy, as that of the scientific imagination is *the True*, and so discriminative selection directs the attention towards those elements which when combined will result in an *Ideal*. This function of the Imagination is called *Idealization*. Intellectual and volitional activity, however, are involved in such operations. The ideals formed may be artistic, scientific, ethical, or religious. Analysis of past experience and synthetic recombination of the elements constitute the essential stages of the process in each department. Both operations involve attention, abstraction, and comparison, so that the highest powers of the soul are employed in this exercise.[3] This faculty is said to be rich, fertile, or luxuriant when images of great variety issue forth in spontaneous abundance. Taste, on the other hand, implies judicious or

[3] Cf. Dr. Porter, op. cit. §§ 353—372.

refined, rather than luxuriant fancy. Great genius in any of the branches of art presupposes a fertile imagination, but true excellence is attained only when this power is controlled and directed by good judgment. The importance of Imagination in mechanical contrivance and invention is obvious. The power of holding firmly before the mind a clear and distinct representation of the object to be formed is one of the most necessary qualifications of constructive ability.

Scientific Imagination.—The relations between imagination and science have been the subject of much dispute, some writers holding that a rich and powerful imagination is adverse rather than favourable to scientific excellence, while others consider this aptitude to be "as indispensable in the exact sciences as in the poetical and plastic arts." And that "it may accordingly be reasonably doubted whether Aristotle or Homer were possessed of the more powerful imagination."[4]

Concrete Sciences.—To answer the question we must distinguish different branches of science. In departments of concrete knowledge, such as geology, botany, animal physiology, and anatomy, the imagination is exercised almost as much as in history, oratory, or poetry; and even in astronomy and chemistry it plays an important part. The acquisition of information, and the extension of our command over any of the fields of physical nature involve careful use of our powers of external sense-perception; and progress is measured by the number and quality, the clearness and complexity, the readiness and precision of the ideas gathered. Fresh species, new properties, novel modes of action, must be more distinctly apprehended, more firmly retained, and more easily reproduced in imagination with every successive advance. The native efficiency of this faculty must, consequently, largely determine the rate of improvement and the limit of excellence attainable by each individual. In the region of original research, and especially in the construction of hypotheses, fertility of imagination is an essential element of success; and the leading men in the history of these sciences have almost invariably been endowed with a bold and teeming fancy.

[4] Hamilton, *Metaph.* ii. p. 265.

Scientific Hypotheses.—Discoveries in Science, where they are not directly suggested by some lucky accident, generally start from hypotheses more or less erroneous which are gradually revised and corrected till they embrace all the facts. Scientific hypotheses differ from the guesses we are constantly making in all matters merely in the *clearness* with which they are conceived, and the *rigour* with which they are tested. All guesses involve exercise of the Imagination, and so in proportion to the fertility of this faculty will be the mind's readiness in framing hypotheses of every kind. An efficient imagination contributes much to clearness and precision in the suppositions put forward by the intellect, and if well under control, it facilitates their retention in distinct consciousness and so renders them susceptible of searching examination. The great scientists, such as Newton and Kepler, have been even more remarkable for their rigorous severity in testing, than for their originality in inventing their hypotheses. But the accurate representation of possible causes and effects, the firm and distinct grasp of such conceptions, the anticipation of probable consequences, the comparison of diverse modes of action likely to happen under different contingencies, and the careful following out of trains of reasoning from conditional assumptions are all much facilitated by superior natural aptitude and judicious culture of the imagination.

According as man's memory is well stored with information in any branch of science, his fancy becomes fertile in picturing the action of unobserved causes and agencies, and in proportion as he is familiar with its subject-matter, his imagination will instinctively reject guesses likely to clash with known facts. A certain acquired sagacity controls and directs his conjectures along likely paths and lead him to detect those unobtrusive analogies which are the fruitful parent of so many great discoveries. Mr. Mark Baldwin thus writes: "The imagination is the prophetic forerunner of all great scientific discoveries. The mental factors seen to underlie all imaginative construction are here called into play in a highly exaggerated way. The associative material presented covers generally the whole area of the data of the scientific branch in hand; familiarity with the principles and laws already discovered is assumed and in general a condition of mental saturation with the subject. . . . In most cases the beginning of a discovery is nothing more than a conjecture, a happy supposition. The mind at once begins to search for means of testing it, which itself involves the imagination of new material dispositions. These tests are made more and more rigid, if successful, until the *crucial*

test, as it is called, is reached, which either confirms or disproves the hypothesis."[5]

Abstract Sciences.—When, however, we pass from the concrete to the more abstract branches of knowledge, such as pure mathematics, logic, and metaphysics, we find imagination sinks into a secondary position. The materials with which the mathematician or the metaphysician deals are not representations of phantasy, but of intellect. They are devoid of those impressive concrete qualities which distinguish the sensuous image from the abstractions of thought; and the chief difficulty of the beginner is to turn aside from the obtrusive features of the phantasm, and keep solely in view the delicate but vital relations which constitute the essence of scientific knowledge.

It seems to us, then, to be the very reverse of truth to say that imagination holds a place in abstract science similar to that which it occupies in poetry. As all thought is representative, the abstract thinker must, of course, be capable of forming representations of the subjects of his speculation; and the distinctive characteristic of genius in this direction lies in the power to grasp vigorously some fruitful notion and to concentrate upon it for long periods the whole energy of the mind. Still it is a grave error to confound the rational activity of the intellect with the operations of the sensuous imagination. And it should be borne in mind that although elastic and fertile powers of fancy often accompany great intellectual gifts, and although even in the abstract sciences discovery may be at times materially aided by the power of holding steadily before the mind concrete images; nevertheless it is the intellect and not the imagination that

[5] *Senses and Intellect*, pp. 236, 237. There are many valuable observations in his chapter on this subject.

apprehends the universal relations which form the framework of science.

Dangers of Imagination.—It is needless to point out how easily richness of imagination may prove detrimental rather than beneficial to scientific progress. In Ethics or Metaphysics, no less than in History or Biology, exuberant and prolific fancy when uncontrolled by reason, may divert attention from the essential to the accidental, may pervert and mislead the powers of judgment, and may so confuse the reason that fiction is substituted for objective reality, and brilliant poetic hypotheses are preferred to the prose of commonplace truth.

Fancy.—The term *Fancy* is sometimes used to mark the activity of the imagination as exercised in the production of comic, or even of beautiful images, provided they be of a minute or trivial type. Fancy, too, is confined to the sphere of the unreal whilst imagination may represent the actual. The epithets merry, playful, weird, which are applied to the former, indicate the various kinds of action in which it manifests itself, and it is with that aptitude *wit* and *humour* are mainly connected.

Wit and Humour.—Intellect, as well as imagination, is involved in the exhibition and appreciation of *wit* and *humour*, but the happy suggestions of the fancy are the essential materials which go to make up the amusing picture. Wit and humour agreeing in some respects are distinguished in others. Both aptitudes imply the power of noting and manifesting unexpected points of agreement between apparently disparate ideas; but wit excels in brilliancy and pungency. It is, too, of a more intellectual character, while humour appeals rather to the moral side of human nature. The witty man is quick to perceive incongruous associations of every kind, the humourist

is a close observer of the foibles and weaknesses of his fellow-men. Humour is mainly innate, wit is to some extent amenable to education and culture. Humour, implying the power of sympathy with the feelings of others, is commonly associated with good nature, while wit is frequently sharp and unpleasant. This distinction is admirably expressed in Thackeray's saying that "Humour is wit tempered by love." The most degraded form of wit is exhibited in puns, where commonly there is merely an accidental similarity in oral sound. The felicitous apprehension of a hidden connexion between incongruous ideas, which constitutes the essence of true wit, is almost invariably absent.

Illusions.—As the activity of Imagination is the chief source of certain abnormal mental phenomena of an important character described as *illusions*, *hallucinations*, *dreams*, and the like, this will be, perhaps, the most appropriate place to treat of them. In ordinary language the terms illusion, delusion, and fallacy are frequently used in the same sense to denote any erroneous conviction. In a more limited signification *fallacy* means a vicious reasoning, an intellectual inference of a fallacious character, whilst *illusion* signifies a deceptive or spurious act of apprehension, and *delusion* implies a false belief of a somewhat permanent nature, and of a more or less extensive range. These states of consciousness have in common the note of untruthfulness; and we may, from a psychological standpoint, define a mental act to be untrue, which disagrees from its object as that object is known by the normal human mind. An illusion is thus a deceptive cognition which pretends to be immediately evident, and it can refer to mistaken memories and erroneous expectations, just as well as to false perceptions of the external senses.[6]

Sources of Illusion.—The causes of illusion we may in the first place roughly divide into two great classes, according as they belong to the *subjective* or the *objective* worlds. Our mistakes may arise either from mental influences, or from irregular conditions of the material universe, including among the latter the state of our own organism.

[6] Cf. Mr. Sully's *Illusions*, cc. i. ii. Many of these phenomena are very skilfully analyzed by that writer.

Mental influences.—The wide range of the first group will become evident if we recall the various elements which we have shown in a previous chapter to be involved in apparently simple acts of sense-perception. The material directly presented to us, even by the power of vision, is extremely small. By far the greater part of the information given through each act of apprehension is due to memory, inference, and associated sensations of other faculties faintly revived in imagination. Accordingly, the condition of the mind immediately antecedent to the impression of any particular object has a most important influence in determining how this object will be perceived. If the imagination is vigorously excited, and if we have a lively expectation of beholding some special occurrence, there is a considerable probability that anything bearing even a distant resemblance to it will be mistaken for the anticipated experience. As the physical concomitants of the activity of the imagination are similar in kind to those of real sensation, and as even in normal perception a large part of the mental product is furnished by the phantasy from the resources of previous experiences, it is not surprising that where anticipation of an event is very strong, and its representation very vivid, the mind may perceive an occurrence before it happens, or apprehend an object where none exists. This species of deception, in which a mental state is excited without any external cause, is called a *subjective sensation.* Such simulated cognitions may work very serious effects on the organism. The pain or pleasure, according to the agreeable or disagreeable character of the illusion, may be fully as intense as if the appearance were a reality.[7]

[7] "A butcher was brought into the shop of Mr. Macfarlan, the druggist, from the market-place opposite, labouring under a terrible accident. The man on trying to hook up a heavy piece of meat above his head slipped and the sharp hook penetrated his arm so that he himself was suspended. On being examined he was pale, almost pulseless, and expressed himself as suffering acute agony. The arm could not be moved without causing excessive pain, and in cutting off the sleeve he frequently cried out; yet when the arm was exposed it was found to be quite uninjured, the hook having only traversed the sleeve of his coat." (Carpenter, op. cit. p. 158.)

In addition to expectation, desire, and fear, are the mental states which have the largest share in the production of illusion. The strength of the inclination to believe in that which we like, manifests itself in every department of human life. Yet, paradoxical as it may at first sight appear, dislike can also contribute to the generation of an illusory belief. The most important constituent in the emotion of fear is aversion, but it is a matter of frequent experience that a lively fear of anything tends to create in the mind a counterfeit perception of it. The timid wayfarer, travelling by night, sees a highwayman in every gatepost, whilst the child who has just been listening to ghost stories converts the furniture of his moonlit bed-room into fairies and hobgoblins. Inordinate anxiety generates all sorts of doubts and suspicions, and—

> Trifles light as air
> Are to the jealous confirmation strong.

The mental process in the case of fear is, however, fundamentally akin to that of desire. The immediate effect of both sentiments is intense excitation of the imagination, a lively picture of the desired or dreaded event is conjured up by the fancy, and the vivid image is taken for the reality.

Other influences.—The second group of causes of illusion, which may be roughly described as non-mental, are subdivided according as the deception is due, (*a*) to ill-health either of the particular organ employed, or of the brain and nervous system as a whole, or (*b*) to some irregularity in the composition of the medium intervening between the organism and the object apprehended.

(*a*) *Organic.*—The forms of illusion which may arise from an unsound condition of the organ are very numerous. A sense may be subject to permanent defects such as partial deafness, short-sightedness, and colour-blindness, or it may suffer transient disabilities such as fatigue, disarrangement, and temporary disease of the nerves employed in a particular perception. After steadily gazing at a small disc of a brilliant colour, the

eye will see a similar spot of a complementary hue if directed immediately afterwards towards a plain white surface. Intense stimulation of any of the senses renders it for a time insensible to lesser excitations. Santonin induces colour-blindness to violet, and other drugs deaden other modes of sensibility. The disease of jaundice sometimes gives things a yellow tinge. In certain cerebral and nervous diseases illusions often take a more pronounced and extreme form, and the mind may not only misapprehend real things, but it may even become incapable of distinguishing between actual objects and pure phantoms of the imagination. An aberration of this extreme and permanent kind is commonly termed a *hallucination*. The passenger who, in a London fog, mistakes a lamp-post for a policeman, is said to be under an illusion. The fever-patient who sees his empty room crowded with people, and the lunatic who believes he is the Emperor of China, are possessed by hallucinations. The passage, however, from the one state to the other is gradual, and there is no rigid line of demarcation separating them. The cause of these aberrations seems to lie in the abnormal working of the interior physical processes which usually give rise to sensations, or which have accompanied particular cognitions in the past, and so cause these latter to be reproduced from memory with such vividness as to be confounded with real impressions. The illusions of *delirium tremens*, and of many forms of mental derangement, are probably caused by mistaking internal irritation of the nerves for external natural sensations. And complete lunacy may arise either from disorder of the functions of the cerebrum, caused by the presence of poisonous materials in the blood, or from some organic disease which has already seized on the substance of the brain.

(*b*) *External.*—The deceptions originated by irregular conditions of the environment are very familiar. If we gaze at the sun through a piece of red or green glass, only rays of these colours will be allowed to pass, and its disc will appear of a corresponding hue. A dull wintry landscape observed through a transparent sub-

stance of a slightly yellow tint assumes a golden autumnal appearance. The magic effects of the transformation scene at the pantomime are the result of the skilful management of coloured lights, and spectral apparitions are commonly produced by the manipulation of concave mirrors at the sides of the stage. In operations of this nature, however, the sense is perfectly truthful as regards its own revelations. It responds in an appropriate manner to its proximate stimuli, and the error is due to the abnormal relations between the latter and the remote object which they ordinarily present to the mind.

Illusion in the strictest sense of the term comes into existence when we pass from the immediate data of the senses to their indirect or acquired perceptions. Here, when the customary character of the environment is changed, the imagination excited through past association may induce complete deception. Our estimate of distance and magnitude may thus be altogether invalidated. A figure seen through a fog is enlarged because the vagueness of its outlines causes us to exaggerate its distance. The perspective appearance of landscape paintings and of stereoscopic pictures, as well as the ingenious contrivances to which the diorama owes its success, are designed to awaken through the imagination by means of the laws of suggestion an illusory belief as regards the spatial relations of the several parts of the perceived object. Akin to this class of illusions are some others due to the unusual presence or absence of materials for comparison. The empty rooms of a house in the process of building always look smaller than they really are, because we have not the customary furniture to call our attention to the capacity of the space. Similarly, a disproportionately large table diminishes the size of a chamber. On the other hand, a multiplicity of small objects magnifies a given amount of space. A field with hay-cocks scattered over it, a harbour with ships, or an orchard studded with apple-trees, seems far larger than the same space when empty. The other senses are subject to analogous mistakes. The illusion

produced by an echo is similar to that of the looking-glass. In a rarified atmosphere the force of sound is lowered in a surprising degree. De Saussure judged the explosion of a pistol at the top of Mont Blanc to be about equal to that of a common cracker below. Want of homogeneity, moreover, in the intervening medium can interrupt, reflect, or change the character of sound just as of light.

Dreaming and Reverie.—A specially interesting form of illusion, or rather hallucination, is that exhibited in dreaming. Dreams are mental processes which take place during sleep, and are in some respects akin to states of *reverie* which occur during waking life. In dreaming the imagination assumes the part played in waking life by the external senses. During sleep the activity of these latter falls into almost complete abeyance; volitional control over the course of thought ceases; the power of reflexion and comparison is suspended; and the fancy of the dreamer moves along automatically under the guidance of association. Consideration of these circumstances will help us to partially account for the peculiar features of the dream. Its chief characteristics are, (*a*) its verisimilitude, (*b*) its incoherence and extravagance, (*c*) its possession of a certain coherence amid this inconsistency, and (*d*) the exaggeration of actual impressions.

(*a*) *Verisimilitude.*—The apparent reality of the dream is, in great part, a consequence of the cessation of the action of the external senses. In sleep the images of the fancy which may arise within us are not subject to the correction which the presentations of the senses are ever furnishing during waking life. Even in the most profound reverie, when our thoughts move along at random, there is always, so long as we are awake, a plentiful stream of sensation flowing in upon the mind through the several faculties; and although we scarcely advert to them, these sensations exert a steady counteracting influence on the flights of fancy. The objects which we dimly see around us, the tactual and auditory impressions of which we are vaguely conscious, all conspire to keep us in constant collision with reality; and when we imagine ourselves at the head of an army, or in the jaws of a tiger, the obscurely apprehended table and chairs of our room exert a silent check upon the credence we are inclined to give to all vivid ideas. In sleep it is otherwise; the corrective action of the external senses being cut off, we are completely

at the mercy of the phantasy, and place implicit confidence in each new illusory cognition.[8]

(*b*) *Incoherence.*—The inconsistency of the dream seems to be due to its course being left entirely to the guidance of fortuitous associations modified by the interference of accidental sensations at the moment. The absence of voluntary attention or control over our thoughts disables us from reflecting upon the ideas which arise spontaneously, and prevents us from comparing them with past experience, or with each other. In reverie, on the contrary, this voluntary power rarely sinks into complete abeyance, and on the suggestion of some flagrant absurdity, the mind can exert itself against the illogical train of images, and even if it permits the incongruous series to take their course, at least reserves its assent. The casual entrance of the few external impressions which penetrate to the mind during sleep, and the action of the systemic sensations are probably fertile sources of new lines of thought. But since self-command no longer exists, although we may feel a vague surprise at the chaotic groupings of ideas thus effected, we are yet unable to elicit the reflective act by which the inconsistency may be brought home to us, and accordingly thought follows thought in an arbitrary manner.

(*c*) *Coherence.*—The consistency of the dream, in so far as it occasionally exists, probably results in part from an orderly succession of previously associated ideas, in part from a faint power of selection exerted by a dominant tone of consciousness at the time, which rejects striking eccentricities.

(*d*) *Exaggeration.*—The exaggeration of occasional real impressions is accounted for by the fact that while the great majority of external sensations are excluded, those which do find entrance are thereby in a peculiarly favourable position. They are in novel isolation from their surroundings; their nature is vaguely apprehended;[9] and they cannot be con-

[8] Lewes, following Hartley, explains the apparent reality of the phantasms of the dream, mainly by the suspension of the corrective action of the external senses. Cf. *Physiology of Common Life*, pp. 367—370. Carpenter, *Mental Physiology*, § 482, in accordance with the important part he assigns to Will in mental life, like Stewart, lays chief stress on "the entire suspension of volitional control over the current of thought" during sleep. St. Thomas had anticipated both explanations. He accounts for the illusions of sleep by the suspension of the senses combined with the interruption of the voluntary control of reason. See note on next page.

[9] Mr. Sully (*Illusions*, pp. 147—149) ascribes the magnifying agency of the dream chiefly to the obscure manner in which the nature of the stimulus is apprehended—*ignotum pro magnifico*. The

fronted with other experiences. Accordingly they usurp the whole available resources of consciousness, and so assume an utterly inordinate importance. A slight sensation of cold or pressure, if it accidentally fits in with the current of our dream, may thus give rise to the illusion that we are lost in a snow-storm, or crushed under a falling house. The seeming rapidity of events, which is simply the rapidity of thoughts confounded with reality, is explained in the same way.[10]

In brief, then, as following Aristotle, St. Thomas himself repeatedly teaches, the mind accepts the representations of the imagination as real objects unless it be checked by some other faculty; consequently when, as in sleep, the senses and the free application of the understanding which constitutes voluntary attention are suspended, illusion is inevitable.[11]

Readings.—On the Imagination, cf. St. Thomas, *Comm. De Anima*, Lib. III. Lect. 4—6; Mark Baldwin, op. cit. c. xii.; Carpenter, *Mental Physiology*, c. xii.; Hamilton, *Metaph.* Lect. xxxiii.; Porter, op. cit. Part. II. cc. v. vi.; Gutberlet, *Die Psychologie*, pp. 83, seq. On Illusions, cf. Farges, *L'Objectivite de la Perception des Sens Externes*, pp. 184—237; Baldwin, op. cit. c. xiii. The subject of Dreams is treated by Aristotle in a special tract, cf. St. Thomas, *Comm. De Somniis.* Carpenter, op. cit. c. xv. is good on the same subject.

force of a novel impression even in waking life is usually over-estimated. In sleep the general lethargy of the higher centres engaged in cognition prevents proper recognition of even familiar stimuli, and so converts them into strange or formidable phenomena.

[10] "The only phase of the waking state in which any such intensely rapid succession of thoughts presents itself, is that which is now well attested as a frequent occurrence, under circumstances in which there is imminent danger of death, especially by drowning, the whole previous life of the individual seems to be presented instantaneously to his view, with its every important incident vividly impressed on his consciousness, just as if all were combined in a picture, the whole of which could be taken in at a glance." (Carpenter, op. cit. § 484, note.)

[11] "Quod rerum species vel similitudines non discernantur a rebus ipsis, contingit ex hoc quod vis altior, quæ judicare et discernere potest, ligatur. . . . Sic ergo cum offeruntur imaginariæ similitudines, inhæretur eis quasi rebus ipsis, *nisi sit aliqua alia vis quæ contradicat*, puta sensus aut ratio. *Si autem sit ligata ratio, et sensus sopitus, inhæretur similitudinibus sicut ipsis rebus*, ut in visiis dormientium accidit, et ita in phreneticis." (*Qq. Disp. De Malo*, III. a. 3. ad 9. Cf. *Comment. in Arist., De Somniis*, Lect. iv.)

CHAPTER IX.

MEMORY. MENTAL ASSOCIATION.

Memory.—The term *Memory*, in ordinary language, designates the faculty of retaining, reproducing, and recognizing representations of past experiences. These several features of memory vary in degree of perfection in the same, and in different individuals. Viewed as the capacity for preserving our mental acquisitions this power has been called the *Conservative Faculty*. It is an essential condition of all knowledge. The simplest act of judgment, as well as the longest chain of reasoning, necessarily implies *retention*. But acquisition plus conservation is not enough. During the whole of our life the greater portion of our mental possessions lie below the surface of consciousness, and exist only in a condition of potential resuscitation. It is the power of *recalling* and *recognizing* these dormant cognitions which completes and perfects this instrument of knowledge. The act of recognition is radically distinct from the mere re-apparition of an old mental state; but both have been sometimes comprehended under the *Reproductive Faculty*.

Aristotle distinguishes between *memory* (μνήμη), the passive faculty of retention, and *reminiscence* (ἀνάμνησις), the power of

active search or recall. The division is analogous to that of modern writers into *spontaneous* or *automatic* memory, and *voluntary* memory, or the power of *recollection*. The operation of reminiscence is compared by St. Thomas to that of syllogising, a progress from the known to the unknown, from the remembered to the forgotten. As it involves volitional and rational activity it is restricted to man, whilst memory is common to the brutes. Hamilton confines the name memory to the *retentive* or *conservative* capacity of the mind, whilst under the *reproductive* faculty he includes both reproduction and recognition. The imagination proper, he describes as the representative faculty.

Reproduction.—A brief study of our minds reveals the fact that even spontaneous thoughts and recollections of past events do not occur completely at random. Our fancy can, it is true, move in a very rapid and seemingly arbitrary manner, whilst widely remote actions and episodes often reappear in imagination in an unexpected and disconnected way. Still, closer attention to the reproduced states will usually disclose faint and unobtrusive connexions binding together the links of what looked like a haphazard series of thoughts.

Process of Recollection.—But it is in the act of *reminiscence* or *recollection*, in the sustained effort to recall some past experience, we perceive most clearly that the current of representations which pass before our consciousness do not proceed in an entirely casual and lawless manner. Starting from a vague notion of the event which we wish to remember, we try to go back to it by something connected with it in time, in place, or by any other kind of affinity. We first endeavour to place ourselves in the mental situation of the original incident. Then we notice that by fixing our attention on any particular occurrence we bring it into greater vividness, and numerous attendant circumstances are gradually recalled. Our ordinary procedure is accordingly to seize upon, and intensify by attention,

the force of that one of the newly-awakened recollections which we judge most likely to lead to the desired end. When our gaze is focussed on this fresh centre a new system of objects related by similarity, contiguity, or contrast, begins to emerge from obscurity, and here we repeat our process of choice, picking out again the most promising train. By reiterated selections and rejections of this kind we approach gradually closer and closer to the object of pursuit, until it finally flashes upon us with a more or less lively feeling of satisfaction. Throughout our investigation we must have had some vague idea, some general outline of the experience of which we are in search, in order to direct us along the most likely paths. This is made evident in the final act of recognition, for in this stage we become conscious that the rediscovered fact fits precisely into the vague outline still retained. The accompanying pleasure is due to the perception of agreement between the new and the old, together with the feeling of relief occasioned by having the undefined want satisfied.

Laws of Association.—The study of such an operation as that just described convinces us that our recollections succeed each other not arbitrarily, but according to certain laws. Careful observation of our mental processes have enabled psychologists to reduce such laws to a few very general principles. These principles which condition the reproduction of phenomena of the mind have been called the *Laws of Mental Suggestion* or the *Laws of the Association of Ideas*. The chief of these are:

(1) The *law of similarity* or *affinity in character.*

(2) The *law of contrast* or *opposition in character.*

(3) The *law of contiguity*, comprising association (*a*) in *space*, and (*b*) in *time.*

Similarity.—The *Law of Similarity* expresses the general condition that *the mind in the presence of any mental*

state tends to reproduce the like of that state in past experience; or as it is sometimes enunciated, *mental states suggest* or *recall their like in past experience.* The previous form of expression, however, possesses the advantage of calling attention to a point frequently overlooked by English psychologists, namely, that it is in the mind, and not in the transient phenomena, the binding or associating force dwells. An impression or idea, viewed merely as an individual phenomenon, contains no reason in itself why another mental event like or unlike it should be its successor. It is only the permanence of the Subject which renders association of the states possible. The mind, retaining as habits or faint modifications former experiences, resuscitates on the occurrence of similar or contrasted events the latent state, and recognizes the likeness which subsists between the new and the old. The vicious reasoning of sensationalist writers who explain both the mind and the material world, including the human organism, as a product of the association of ideas is thus obvious.

Examples of association by similarity are innumerable. A photograph recalls the original, a face that we see, a story that we read, a piece of music or a song that we hear, all remind us of similar experiences in the past. Even the less refined sensations of touch, taste, and smell, cause us to recollect like impressions in our previous life. Painting, sculpture, the drama, and the rest of the fine arts, seek to please by their success in imitation. The pleasures of wit and humour, the charm of happy figurative language in poetry or prose, and the admiration won by great strokes of scientific genius, are in the same way largely based on the satisfaction of the tendency by which the mind is impelled to pass from a thought to its like.

Contrast.—The *Law of Contrast* enunciates the general fact that *the mind in the presence of any mental state tends to reproduce contrasted states previously experienced.* Or it may be formulated in the proposition that *mental states suggest contrasted states of past experience.* The idea of prodigal wealth recalls that of needy poverty, cold suggests heat, black white, virtue vice, and so on.

From the beginning, however, this law has been felt to be reducible to more ultimate principles. In fact, to declare broadly that mental states are inclined to revive former perceptions both like and unlike them would approach paradox, if not actual contradiction. The truth is, this law in so far as it is mental and not an effect of organic reaction is a result of the combined forces, similarity and contiguity. This will be made evident presently.

Contiguity.—The *Law of Contiguity* formulates the truth that *the mind in the presence of an object or event, whether actual or ideal, tends to recall other objects and events, formerly closely connected in space or time with that now present.* It is often impossible to draw a rigid line between associations due to close connexion in time and those founded on contiguity in space. When looked at from the mental side, we say the subjective impressions occurred simultaneously, or in close succession; viewed from the opposite standpoint, we say the perceived objects were locally contiguous. Suggestion by contiguity whether in space or time is the most important and far reaching form of association. It is not confined to cognitive acts, but includes emotions, volitions, and external movements as well. It is the principle upon which every system of education both mental and physical is based; and by the sensationalist school in this country it has been erected into an omnipotent agency through which all knowledge and belief regarding space and time, mind and matter, have been created. We have pointed out in treating of sense-perception how the taste, smell, touch, and sight of objects mutually suggest one another. Contiguous association is also a leading source of our pleasures and pains. The process of learning to walk, to speak, and to write, and the acquisition of the various manual arts, rest upon the tendency of acts which are repeated in succession to become so united that each impels to the reproduction of the next. Language is possible because auditory sounds grow to be associated on the one side with the visual image of the object, and on the other with the complex cluster of motor or muscular

impulses involved in the utterance of the name; and literature is intelligible only through the marvellous command which repeated associations have given us over the innumerable combinations of individual letters which cover the page of a book.

Time order.—Although, as we have said, associations in space are often intimately related to connexions in time, there is one important feature in which these latter differ from the former. Owing to the permanent coexistence of the separate parts of an extended object, and to our visual power of simultaneously apprehending these parts, no particular point becomes endowed with any special priority; consequently we can in imagination, as in the previous reality, pass in any order from each point to every other. But in serial states, where each separate impression has dropped out of consciousness before the appearance of the next, the whole force of the association is to reproduce the mental states in their original order of occurrence.

Reduction of these laws.—Contiguous suggestion is an agency of such extensive range in mental phenomena that some psychologists hold similarity, contrast, and all other forms of association, to be merely special applications of this ultimate principle. Others, on the contrary, consider contiguity to be a particular case of similarity—likeness in space or time.

Contrast analyzed.—That the law ot contrast is resolvable we have before stated. *Contraria sunt ejusdem generis.* Contrast presupposes similarity in genus. There is no disposition in the mind to pass from the idea of civilization to that of liquid or of black, because there is no relation of similarity between them. But there is an easy transition in thought from civilization to barbarism, from solid to liquid, and from black to white, because each pair of terms refer to a common class. Still this does not quite complete the explanation, as there may be many species in the class, and there is no special

inclination felt to pass to intermediate objects, such as from white to green or red. It is here the principle of contiguous suggestion supplements that of similarity. We are accustomed to meet in literature, in language, and in daily experience, contrasted terms and objects bound together in pairs; and in fact the entire judicial function of the intellect consists in the discrimination of unlike things, and assimilation of those which are like, so that we naturally acquire a facility for passing from a notion to its opposite.

Attempted analysis of similarity.—The effort to reduce similarity and contiguity to a single principle is not quite so successful, though they are evidently connected. Psychologists who maintain that contiguity is the most general principle, explain suggestion by apparent resemblance as really due to the fact that those features in the present object which also existed in the former object arouse by contiguity the parts which were adjacent to them on that occasion. Thus, when the face of a stranger reminds me by similarity of an old friend, it is held that the process consists of a deeper impression of the common features, which results from the fact of these features having been previously perceived, and then a consequent reinstatement of the lineaments, formerly contiguous, whilst our interest and attention is withdrawn from those adjacent in the present experience.

The following analysis of Similarity is given by the German psychologists Maas and Biunde: Let the face now seen for the first time be called B. Let the former face recalled through the resemblance of B be styled A. Let the points common to both be called *m*. Let the unlike features peculiar to B be named *b*, and let those peculiar to A be named *a*. Now, when B is observed, the familiar but unexpected feature *m* attracts notice, while the less interesting *b* is ignored. But *m* has been formerly frequently joined with *a* constituting the total representation A, and accordingly bringing back its old associate it reinstates A. "When, for example, I look at the portrait of Sir Philip Sydney, I am reminded of its likeness to the portrait of Queen Elizabeth, because of the ruff which is about the neck of each, which in this case is *the only common* feature, and attracts at once the

attention. The ruff brings back everything besides in Her Majesty's portrait—the head-dress, the features, the sceptre, the robes, &c., till the whole is restored."[1] Mr. J. Ward on similar lines contends that it is in previous *contiguity* alone the associative or suggestive force lies, and that *similarity* is only an incidental relation recognized *after* the reproduction is accomplished.[2]

Attempted analysis of contiguity.—Writers who look upon similarity as the ultimate law, describe contiguity as merely a particular case of resemblance. No part of the present representation, it is urged, can be "common" to the previous mental state in the strict sense of being numerically one and identical on the two occasions. Even the mental states aroused by the contemplation of the *same* object now and five seconds ago are two really different conscious acts. But it cannot be denied that an experience—a sensation, an intellectual cognition, or an emotion—often recalls a similar state that occurred amid completely different surroundings at a very distant period. There is, for instance, no connexion of *contiguity* between the present perception of a photograph seen for the first time and a friend's face whom I have not met for twenty years. We must therefore, it is argued, admit as an ultimate fact this tendency of the mind to reproduce past experiences connected with the present by likeness alone. Moreover, cases described as contiguous associations are merely particular forms of similarity—likeness in space or time. When, for example, a bridge recalls the image of a house that used to stand hard by, the association is said to be one of a partial resemblance between the present and past mental states. The mind is at present in a state *like* that in which it was before.

Herbert Spencer makes similarity the sole ultimate principle: "The fundamental law of association is that each (mental state), at the moment of presentation, aggregates with its *like* in past experience. . . . Besides this there is no other; but all further phenomena of association are incidental." Similarly Höffding: "Every association by contiguity presupposes an association by similarity, or at least an

[1] Porter, op. cit. § 247. [2] "Psychology," *Encycl. Brit.*

immediate recognition. When the apple before me carries my thoughts to Adam and Eve, this is because first—perhaps so quickly that I am hardly conscious of it—I have thought of the apple on the tree of knowledge. The association by similarity lying at the root of association by contiguity may easily escape our attention. But it is a link which cannot be dispensed with." (Op. cit. p. 158.)

Hamilton originally accepted the analysis of Maas, and enounced as the one comprehensive principle of Association the Law of Redintegration or Totality: *Thoughts suggest each other which have previously constituted parts of the same entire or total act of cognition.*[3] Moreover he traced the recognition of this principle back to St. Augustine,[4] and even to Aristotle. Subsequently, however, in his work *On Reid*, Note D,*** Hamilton abandoned this view, and acknowledged both *Similarity* and *Contiguity* as irreducible. He thus formulates the two principles: (1) The LAW of REPETITION, or of DIRECT REMEMBRANCE:—*Thoughts co-identical in modification (i.e. similar as acts of the mind) but differing in time, tend to suggest each other.* (2) The LAW of REDINTEGRATION, of INDIRECT REMEMBRANCE, or of REMINISCENCE:—*Thoughts once co-identical in time, are however different as mental modes, again suggestive of each other, and that in the mutual order which they originally held.* The terms *Direct* and *Indirect* mark the fact that a mental state immediately or directly recalls its *like* in the past, and mediately the unlike states formerly *contiguous* to this restored element. This latest position of Hamilton is akin to that of St. Thomas, as will be seen later.

Criticism.—It seems to us that similarity and contiguity, though they are usually allied in their operation, contain each a separate element of its own. On the one hand, it is a fundamental irreducible law that present mental states tend to awaken representations of their *like* in past life. On the other, these reproduced representations usually call up *unlike* adjacent elements, which formerly co-existed along with them. The second fact cannot be really resolved into the first, nor the first into the second. We may of course manage to include both forms of suggestion in one verbal statement, but their radical difference will still remain. Though the adjectives "similar" or "same" may be used to mark agreement of date as

[3] *Metaph.* Vol. II. p. 238. [4] *Confessions*, x. c. 19.

well as likeness of quality, we must not forget that *coincidence in time* is something essentially different from *affinity in nature*.

Physiological hypothesis. — It is suggested that the physiological counterpart of the law of suggestion by *contiguity* lies in the tendency of *groups* of cerebral nerve elements which have acted *together* in the original experience to do so again whenever any portion of the group is stimulated. The hypothesis seems plausible though, of course, there is no direct evidence on the point.

The physical correlate of the law of *similarity* is supposed in the same way to consist of a certain "sympathetic" power of a present neural excitation to re-awaken to activity nervous elements formerly excited in a *similar* way. The neural tremor accompanying the original cognition left it is assumed in the cerebral substance, an abiding disposition to repeat itself; and the present *similar* excitation—presumably in different cellular matter—it is supposed, may by a sort of sympathetic influence evoke a rehearsal of the old movement. This we confess seems to us much less satisfactory. In what sense is the cerebral neural tremor corresponding to the retinal image of a six-inch photograph peculiarly *like* that excited by the original—a six-foot man—seen three months ago? How is this "sympathetic affinity" to be conceived? It seems to us that suggestion by *similarity*—where this cannot be reduced to *contiguity*—involves the higher supra-sensuous activity of the mind, to which the appropriate cerebral action is unimaginable. Hence the difficulty.

Co-operative Associations.—The terms *compound*, or *complex* associations, are used to designate those forms of suggestion where two or more distinct lines of connexion co-operate in the reproduction of a mental state, or series of mental states. The word *co-operative* appears to us to describe more accurately the nature of this process in which several separate strands join together to intensify the force of association. The phrase, *conflicting associations*, will then designate with precision those contrasted phenomena in which the lines of suggestive force are divergent. Instances of co-operative association are abundant; in fact, we rarely find suggestion acting along a solitary isolated path. The recollection of a poem may be effected partly by auditory associations of rhyme and metre,

partly by the succession of connected thoughts, and partly by the visual picture of the page on which the verses were printed. Most familiar acquisitions such as walking, speaking, writing, brushing our hair, playing the piano, are the result of the co-operation of parallel series of tactual, motor, and visual or auditory series of associated sensations; and the great assistance which local associations afford in resuscitating forgotten events where the other links have become attenuated is well known.

Conflicting Associations.—Conflicting or obstructive associations illustrate the incidental disadvantages which we so frequently find attached to the working of a generally useful law. Just as a desired recollection may be facilitated by several convergent associations of similarity or contiguity, so may it be impeded by their divergence. A verse, or a word, which is connected in a poem or speech with more than one context, frequently tends to shunt us off the right track. The aim of the riddle or conundrum is this very result. The recollection of a name of which we possess the first letter may be similarly obstructed; and the accidental presence of any strong counter-association connected with a present idea, may temporarily interfere with our power of reminiscence. The best method of procedure in such cases, experience teaches us, is to secure a new unprejudiced start by turning away from the subject altogether for awhile, until the vivacity of the connexion between the obstructive word or idea and the divergent series has diminished, or until we can hit upon some independent line of suggestion when the pursuit may be resumed with better prospects of success. The sudden revivals of lost ideas, whilst we are immersed in a new occupation, after a vainly protracted search, are in this way explained. Psychologically misleading associations were in the ascendant during our futile struggles, and physiologically the perturbed state of the brain rendered the reproduction of the neural correlate of the desiderated representation impossible. But the subsequent readjustment gave rise to the particular set of conditions psychical and physical which made resus-

citation feasible, and which, either automatically or influenced by a lingering semi-conscious volition, disinterred the lost thought.

Secondary Laws.—In addition to these primary laws of association or suggestion, there are certain other general conditions determining the efficiency of memory and recollection. Some, or all of these, have been variously expressed under such titles as, the *law of preference*, the *secondary laws of suggestion*, and *general conditions of acquisition and reproduction*. However they be described, they serve to explain the varying force of associations not accounted for by the other group. The leading principles in this secondary class are: (1) *Vividness of impression;* (2) *Frequency of repetition;* and (3) *Recentness*.

Vividness.—Assuming the action of the other laws to remain constant, the deeper, the more intense, or the more vigorous the original impression, the more permanent is its retention, and the easier its reproduction. The vividness of an impression is itself dependent *objectively* on the inherent attractiveness or force of the stimuli, and *subjectively* upon the energy of our *voluntary attention*. The novelty, beauty, or overwhelming power of a single experience may give it life-long permanence; and deep interest or intense application of attention may largely compensate for the absence of the other conditions of reproduction. To awaken and sustain interest must therefore be always a chief aim of the teacher, as whatever is learned by this motive is both acquired with greater facility and retained with greater tenacity.

Frequency.—The influence of repetition need not be dwelt on. By reiteration, especially at short intervals, the feeble association created by the first contiguous occurrence of two events becomes gradually converted into an almost irresistible suggestive force,

and a frail link of similarity is changed into an iron bond. It is by repetition that in the last resort all other imperfections of memory must be made good.

Recentness.—The third law is also familiar. The shorter the time that has elapsed and the fewer the intervening impressions, the more easily a past thought or series of thoughts is recollected. Consequently it is important that the first lessons in a new subject be repeated at brief intervals, otherwise the effect of each impression will have completely faded away before the next effort. The co-operation of one or more of these laws with one or more of the others will account for variations in the suggestiveness or suggestibility of particular mental states.

Order of reproduction.—Of two associated terms, such as a name and its object, a sign and the thing signified, a means and its end, one may have far more power of recalling the other than *vice versa*. This may be due either to the customary movement of our attention in a regular order, as in the case of repeating the alphabet, or to the direction whither our interest naturally tends, as where symbols or means point to the ultimate object. It may also be due to the circumstance that one of the terms has been met with more frequently, or more recently than the other, or to the fact that it is connected with a larger number of co-operative threads of association now present.

Retention.—The problem of the *conservation* of experiences has been as keenly discussed as that of reproduction. That cognitions do *de facto* persist in some form, whilst not realized in consciousness, is indeed only a hypothesis, but yet one which is irresistibly forced upon us. We have continuous evidence that we can recall familiar past events, and we are consequently convinced that they have dwelt within us during the interval. The theory offered by Aristotle and the schoolmen on this

subject was summed up in the phrase which describes the memory as *thesaurus specierum*. By *species*, as we have already stated, the scholastic philosophers understood modifications which reflect in a psychical manner external objects, and which have been excited in the soul by the action of these objects. These *species* or cognitional acts were classed as sensuous or intellectual according as they pertained to intellect or sense, and the mediæval psychologists taught that when experiences have disappeared from consciousness the soul is endowed with the capacity of retaining these modifications as faint dispositions or habits. But the retention is not solely mental; the organism co-operates. The soul is not a detached spirit, but an informing principle dependent on the body which it animates. Consequently the latter co-operates in conservation and reproduction, just as in the original perception. The physical impression, like the mental act, must persist in a habitual manner ready to be recalled into activity on an appropriate occasion.[5]

Ultra-Spiritualist theory.—Modern writers who have departed from this view have commonly erred by

[5] Cf. St. Augustine (*Epist.* ix. ad Neb. n. 3). "Itaque, ea quæ ut ita dicam, vestigia sui motus animus figit *in corpore*, possunt et manere, et quemdam quasi habitum facere, quæ latenter, cum agitata fuerint, et contractata secundum agitantis et contractantis voluntatem ingerunt nobis cogitationes, et somnia." Also St. Thomas: "Dicit (Aristoteles) manifestum esse quod oportet intelligere aliquam talem passionem a sensu esse factam in anima et *in organo corporis* animati, cujus quidem animæ memoriam dicimus esse quemdam quasi habitum, quæ quidem passio est quasi quædam pictura. . . . Dicit autem in anima et *in parte corporis*; quia cum hujusmodi passio pertineat ad partem sensitivam quæ est actus organici corporis, hujusmodi passio non pertinet ad solam animam sed ad conjunctum." (*Comm. De Memoria*, i. l. 3.)

accounting for memory as a property of the soul alone or of the body alone. Sir William Hamilton looks on all physiological hypotheses on the subject as unphilosophical, and as affording no insight into the nature of memory, and he asserts that "all of them are too contemptible even for serious criticism."[6] This remark is perfectly just if the physical theory *by itself* be advanced as an adequate explanation of memory, that is, apart from any retention by the permanent mind; but otherwise it is untenable.

Physiological basis proved.—That there is a subsidiary concomitant process of organic conservation, on which the mind is at least partially dependent, is rendered probable by a multitude of facts. (1) In youth, while the organism is most plastic, we are capable of acquiring easily the most enduring habits and recollections. (2) The faculty becomes impaired in later life as the organism grows less pliable. (3) Injuries of the brain, fevers, and cerebral diseases, frequently act in a striking manner on memory whilst the other cognitional faculties remain unaffected. Determinate periods of life, special kinds of experience, classes of words, particular languages, certain parts of speech, and even individual letters, have been suddenly erased by physical derangements of the cerebrum. (4) Moreover, these losses have often been suddenly restored on the recurrence of abnormal cerebral conditions. (5) Finally, in ordinary experience health, vigour, and freshness of the brain are found to be most important conditions of the acquisition of knowledge.

Hamilton's own theory is that of Herbart and many German spiritualist philosophers. He explains memory, in accordance with the doctrine of latent or unconscious mental modifications, as a result of the self-energy of the mind. Presentations or cognitions are not passive impressions, but spontaneous activities of the soul, exerted on the occasion of external stimuli. As modes of a subject one and indivisible they cannot be destroyed—a part of the *ego* must be detached or annihilated if a cognition once existent be again extinguished. The real problem with Hamilton, then, is not that of remembrance, but of obliviscence; and this he explains as due to the gradual enfeeblement and

[6] *Metaphysics*, Vol. II. p. 211.

obscuration of former states owing to the rise of successive activities into the limited sphere of consciousness. This delitescence or subsidence of the old energies is continuous, but they are never completely obliterated.

Regarding this doctrine we have room here only to point out the erroneous idea involved in conceiving a past act of perception as persisting in a merely lowered degree of activity. In such a view consciousness would be but an accident of cognition. This error is traceable to the literal interpretation of metaphorical language regarding the *surface* of consciousness. A cognition cannot whilst retaining its reality as a cognition, sink into unconsciousness, just as a balloon or a diving-bell descends into denser or more profound strata. The true conception of retention is the old one, *per modum habitus*. An act of knowledge when it has passed out of thought is no longer an activity or energy; as an *act* it has perished, but during its existence it wrought an effect on the soul in the shape of a habit or disposition, which on the recurrence of suitable conditions is capable of giving rise to a representation of the former state.

Purely Physical theory.—Far more seriously erroneous, however, is the theory which, exaggerating the capacity of the organic factor, would explain memory in purely materialistic fashion. Dr. Bain, Mr. Spencer, Dr. Maudsley, and M. Ribot, are well-known representatives of this view. Memory is in this hypothesis, "*per se* a biological fact—by accident a psychological fact."[7] To each cognitive act, sensuous or intellectual, there corresponds a definite disturbance of some group of nerve-fibres and nerve-cells in the brain. Such a cluster of neural elements vibrating or acting together in any way retain a tendency to act in a similar way again. Lines of least resistance are formed, and every repetition of a conscious act with its re-grouping of the appropriate collection of cells gives greater stability to the cerebral registration. These organic modifications are, however, according to the

[7] Ribot, *Diseases of the Memory*, p. 10.

more recent exponents, to be viewed, not so much in the light of mechanical impressions stamped upon the substance of the brain, as "dynamical affinities" or alliances, created between separate centres of activity by means of which simultaneous re-excitations of the original groupings may be secured. The revival of the old neural tremor affords then, it is supposed, an abundantly sufficient explanation of the phenomenon of recollection. "Memory is, in fact, the conscious phase of this physiological disposition, when it becomes active or discharges its functions on the recurrence of the particular mental experience." [8]

Recognition.—The weak point of this theory when put forward as a *complete* explanation of memory is that it simply ignores the essence of the problem—the *act of recognition*. Apart from the insuperable difficulty due to the physiological law of metabolism—the fact of perpetual change going on in the material substance of the body—this hypothesis fails to distinguish between the *reproduction* of states *like* former ones and the *identification* of this similarity. The problem to be solved is how some striking experience, such as the sight of Cologne Cathedral, the death of my father, a friend's house on fire, the first pony I rode, can be so retained during a period of fifty years that, when an old man, I feel absolute certainty of the perfect agreement in many details between the representation of the event now in my mind and the original perception. The circumstance that the passage of a neural tremor through a system of nerve-fibres may leave there an increased facility for a similar perturbation in the future, in no way indicates how this second excitation or its accompanying mental state is to *recognize* itself *as a representation* of the first. To account for the facts there is required a permanent principle distinct from the changing organism, capable of retaining the old states in some form or other, and also in virtue of its own abiding identity, capable of *recognizing* the resuscitated image as a representation of the former cognition. Given such a principle, the persistence of physiological "traces" or "vestiges"

[8] Dr. Maudsley, *The Physiology of the Mind*, p. 513.

may facilitate its powers of reproduction, and may serve to account for differences in individual endowments; but without such an abiding mind the plastic properties of the nerve are useless to explain the phenomenon.

The fact of *recognition* is invariably overlooked in this point of the controversy by the adversaries of mental retention. Thus Mr. Mark Baldwin asserts that a cognition is "a mental product dependent upon a (cerebral) process, and in the absence of this process it *simply ceases to exist.* The true answer to the question, as to where the presentation is in the time between perception and memory (reproduction) is *no where.*" (Op. cit. p. 156.)

To this it may be objected that it is by no means easy to define precisely *where* the cognition is even when *revived.* There is probably a commotion in some part of the cerebrum, but obviously *that* is not the "mental product." Secondly, Mr. Baldwin is quite right in urging that the presentation no longer exists in an *actual* condition. Certainly not, after the Herbartian view, "sunk in sub-consciousness like a stone in a lake." Still, the fact of recognition implies more than an abiding modification of brain substance to connect the two mental events. The act of recollection is not simply the production of a mental state *like* the former due to the repetition of a similar cerebral process. It is not merely "a really new presentation" resembling the old image. It involves a *recognition* of agreement between the present state and the previous experience possible only if that experience has been retained in some form or other by the agent who identifies them; and this agent is not merely an aggregate of cellular matter. Whether we choose to speak of the retention as accomplished through *species*, or "modifications," or "dispositions" wrought in the mind, the persistence of the effect of the former mental act in the *mind*, and not merely in the *brain*, is the only means by which we can rationally account for the subsequent identification of the present with the past experience.

Reminiscence. — Besides recognition, however, the special form of active or voluntary memory termed *recollection*, or *reminiscence*, refutes the materialistic hypothesis. In this operation the mind controls and directs the course of its ideas. The process involves reflexion, comparison, and active intellectual cognizance of relations, whilst the free acceptance or rejection of selected

lines of thought constitutes its most essential feature. Now, at the very most, the purely physical theory might account for the awakening of representations of former experiences by the accidental action of some external stimulus which sets the group of nerves engaged vibrating in the old way. But if there be no such external stimulus how is the recollection to be explained? Undoubtedly, faint sense impressions coming from without sometimes resuscitate involuntary memories, but our every-day life assures us that long past occurrences are also *deliberately* recalled by the mind itself. It tells us that we can employ the laws of association to reproduce at choice special series of events, and that according as they arise we can again select particular individuals from these series to form new starting-points. But clearly the mere persistence of modifications in the cellular substance of the brain could not account for this operation.

It has been well said: "The sensory cell is not *self-acting;* it does not of itself originate sensation. . . . And if it be not, we need, in default of impulse from without, impulse from an inner sphere of experience, where intellectual activity proceeds under laws quite different from those which apply in connection with purely sensory action."[9]

Intellectual and sensuous memory.—This third element of memory involved in the act of recognition introduces us to the question: Is memory a sensuous or an intellectual faculty? Although recollection in man commonly involves intellectual activity, we have discussed memory here along with the sensuous powers of the mind because a large portion of the phenomena of this faculty do not transcend the order of sensuous life; and it is of the utmost importance that mere increase in refinement or complexity should not cause sense to be confounded with intellect, a mistake which is so often made in English philosophical literature.

Dr. Bain, for instance, of his large volume on *The Senses and the Intellect*, devotes the half entitled *Intellect* to expounding the association of mental states. Now, in our view, this is in the main what intellect is *not*. The laws of suggestion or association are best exhibited in the purely automatic working

[9] Calderwood, *The Relations of Mind and Brain*, p. 282.

of reproduction, and they account for the various operations of animal consciousness; but they are in no way characteristic manifestations of the superior rational activity which constitutes *intellect*, though of course cognitions of an intellectual order may suggest each other.

Neither the acquisition, nor the retention of sensuous impressions, nor even their automatic reproduction under the laws of suggestion, exceeds the range of sense. Nay, there is nothing incompatible with the nature of an exclusively sentient mind in the presence of a feeling that a revived image is familiar or has been presented to us before. A man whose intellectual activity is completely absorbed in some abstract train of thought may make a complicated journey through a city, or perform any other familiar mechanical operation, guided by sensuous memory and the hardly noticed impressions of various well-known objects. But besides such processes as these, man can acquire, retain, and reproduce rational cognitions; he can recall past acts, sensuous or rational; he can formally or explicitly compare the present representation with the past experience, and recognize identity or difference between them; he can form the notion of time; and he can by a reflective process of reminiscence localize an occurrence at a determined date in the past. In all these operations intellect is essentially implied, and consequently we must admit a rational as well as a sensuous memory.

Scholastic controversy. — There has been much subtle discussion among the schoolmen as to the forms and modes of memory which are to be deemed sensuous or intellectual. St. Thomas, in a well-known passage[10] says: "Cognoscere præteritum *ut præteritum* est sensus," but the "ut preteritum" may have more than one signification. Suarez maintains that "intellectus rem cognoscit cum affectionibus seu conditionibus singularibus perfectius multo quam sensus;" also that "Sensus novit præteritum tantum materialiter, intellectus vero formaliter." Amongst recent text-books of note, Lahousse asserts, "Absurdum est (dicere) memoriæ sensitivæ proprium esse apprehendere *præteritum determinatum, uti est præteritum*," and he urges, "Ens præsens non apprehenditur a sensu tanquam præsens; apprehendi enim deberet ratio præsentiæ ut sic, quæ ratio abstracta non attingitur a sensu." Sanseverino defends a somewhat different view. St. Thomas appears at times to say that past events are cognized as past *per se* by sense, and only *per accidens* by intellect; elsewhere, however, he explicitly distinguishes between the remembrance of a past object and of the percipient act by which it was apprehended. The memory of the former he considers as

[10] *Qu. Disp. de Verit.* q. x. a. 2, c.

per se sensuous, though *per accidens* it may belong to intellect. The proper object *per se* of intellect is the essence or nature of things without reference to present, past, or future. Time is a particular determination merely incidental to an object, and is apprehended by the universal faculty only indirectly through reflexion. As regards a previous percipient act, however, it can be known *as past* by the intellect not merely thus *per accidens*, but *per se*. Still even here the definite chronological situation, like every other individual determination, is only indirectly apprehended by intellect through reflexion, and is accordingly merely *per accidens* the object of that faculty. St. Thomas thus seems to teach that the occurrence of a sensuous impression of an object may carry with it the feeling that this object has been apprehended before, and this feeling may even refer the occurrence to a definite point of the previous time series, just as an external sense may localize a body in space. The formal recognition, however, of agreement between a present representation and a past object or state must, on St. Thomas' principles, be deemed an act of intellect. This is the feature of memory most in Suarez' mind, and Dr. Gutberlet would apparently account for some of the differences of opinion on the subject by the term "memory" being used by other writers mainly to signify reproduction apart from recognition. The reader wishing to study the question at length may consult St. Thomas, *Sum.* i. q. 79. a. 6, *Qu. Disp. de Verit*, q. x. a. 3, c, and *De Mem. et Rem.* l. 2; Suarez, *De Anima*, IV. c. x.; Lahousse, *Psych.* III. c. x. a. 5; Sanseverino, *Dynam.* c. vi. a. 2; Liberatore, *Psych.* c. i. a. 7; and Gutberlet, op. cit. p. 108.

Qualities of good memory.—The estimation of time, the localization of events in the past, expectation and some other operations connected with memory, will be more conveniently treated in a future chapter. But we may add a word here on the qualities of a good memory and the aim of the teacher with respect to this faculty. Excellence of memory is measured by facility of acquisition, tenacity, and readiness of reproduction. These properties frequently exist in the same person in inverse degrees of excellence. The lawyer and the actor attain great perfection in the rapidity with which they can commit to memory the facts of a new case or a part in a new play, but in a short time the whole subject is again erased from the mind. The capacity of memory varies much in different individuals, and

history affords us many examples of powers that seem to the ordinary mind marvellous.

Thus Ben Jonson, it is alleged, could repeat all that he had ever written, and most of what he had said. Scaliger learned by heart the *Iliad* and *Odyssey* in three weeks, and the whole of the Greek poets in three months. Pascal, it is said, could remember anything he had ever thought. Lord Macaulay could after a single attentive perusal reproduce several pages of a book, and discovered by accident that he could repeat the whole of *Paradise Lost*. Cardinal Mezzoffanti knew forty-eight different languages and many dialects.[11]

Training of the memory forms an important part of the first stages of all systems of education. The teacher must here carefully distinguish between instruction or the storing the mind with useful information and education proper or the development of mental faculty. Accordingly, although many of the earlier educational exercises aim primarily at the acquisition of certain necessary items of knowledge such as the alphabet, parts of speech, meanings of words, tables and the like, which must be learned by sheer force of repetition, nevertheless the teacher's chief aim must be to cultivate in the pupil a habit of *judicious*, not of mere *mechanical* memory. That is, he must accustom the child to exercise remembrance by means of the internal or rational connexion of ideas rather than by mere contiguous association. He must see that the subject-matter is *understood* and not merely reproduced *by rote*. Further, he should profit by the teaching of physiology and psychology: (1) to avoid over-estimating the feeble powers of the very young; (2) to allot the period when the brain is physically in the best condition for the work of learning by heart; (3) to exercise the mind in frequent repetition at short intervals in order to deepen the first impression before it has faded away.[12]

[11] Cf. Hamilton, *Metaph.* ii. pp. 225—227.

[12] St. Thomas' rules for the cultivation of memory are a practical embodiment of the *Laws of Suggestion* and admirably adapted to the development of *judicious* memory. They are thus well summarized in B. Boedder's *Psych. Rat.* § 249:—I. (*Similarity*). *Similitudinibus convenientibus* minus consuetis res abstractas tibi declara. II. (*Conti-*

Historical Sketch.—The phrase, *Association of Ideas*, has played such an important part in the history of English Philosophy that it appears to us advisable to make a few additional remarks on the subject. The reality of *association* as a principle governing the faculty of recollection is undeniable, and has been recognized by philosophers from the time of *Aristotle*. In the light, however, of a hypothesis put forward to account for certain peculiar intellectual states, it seems to have been first advocated in this country by *Hobbes*, and later on with far greater ingenuity by *Hume*. It is in this second sense that Associationism has become the central tenet of the English school of thinkers which has thence received its title.[13]

Mental Association, as the universal condition of memory, was distinctly expounded and reduced to the three general laws of *similarity*, *contrast*, and *propinquity* in time, space, or some extrinsic relation, by **Aristotle**. In a very erudite article,[14] Hamilton vindicates for the Greek philosopher the honour of having first discovered and formulated these laws. We can only afford to cite a few sentences freely translated by Hamilton, but the whole chapter of the *De Memoria et Reminiscentia* dealing with the subject is well worthy of study. "Reminiscence," says Aristotle, "takes place in virtue of that constitution of our mind, whereby each mental movement (modification) is determined to arise as the sequel of a certain other. . . . When, therefore, we accomplish an act of reminiscence, we pass through a certain series of precursive movements, until we arrive at a movement on which the one we are in quest of is habitually consequent. Hence, too, it is that we hunt through the mental train excogitating what we seek from (its concomitant in) the *present* or *some other* (*time*), and from its *similar* or *contrary* or *coadjacent*. Through this process reminiscence is effected, for the movements (*i.e.*, mental modifications) are in these cases sometimes the *same*, sometimes at the *same time*, sometimes parts of the *same whole*, so that (starting thus) the subsequent movement is already more than half accomplished."[15]

St. Thomas, in his *Commentaries*, developes the doctrine of Aristotle in a manner which exhibits close study of the nature of mental association. The ultimate *cause* of remembrance,

guity). *Cum ordine* dispone quæ memoria tenere cupis. III. (*Attention*). *Sollicite et cum affectu* addisce, quæ cupis rememorari. IV. (*Repetition*). Quæ rememorari tua multum interest ea *frequenter meditare*. (*Sum.* 2a 2æ, q. 49. a. i. ad 2.)

[13] On this distinction, cf. "Mental Association," by Croom Robertson, *Encyc. Brit.*

[14] *On Reid*, note D**, [15] *On Reid*, pp. 899, 900.

he repeats, lies in the native tendency of the mind to reproduce representations in the order of the original impressions.[16] He then passes on to amplify Aristotle's treatment of the *mode* of reminiscence, and to expound more fully the general laws governing reproduction. The process of recollection may advance, he observes, along a time series of events, from the recent to the most distant, and *vice versa;* or starting from a known object it may be guided by any of the three indicated relations. At times remembrance is awakened by force of *similarity*, as when thinking of Socrates we are reminded of Plato, who resembled him in wisdom. At other times the bond of connexion is *contrariety*, as when the thought of Hector recalls that of his opponent Achilles. Finally, the third principle of suggestion is *vicinity* in space, or time, or some other form of propinquity. After illustrating by examples these three general laws, he goes on to indicate in a much clearer manner than Aristotle their further analysis and reduction: In all three forms of suggestion the ultimate ground of reminiscence lies in the connexion of the previous "movements" of the soul. Association by similarity is due to *identity* in mental modification subsisting between the similar experiences. Contrast is based upon the *simultaneity* of the two terms in apprehension. Local propinquity and other modes of contiguity are merely cases of partial *similarity;* impressions produced by adjacent objects overlap, and the common part in the revived state reproduces its ancient collateral features.[17] We have thus co-identity in *nature* and

[16] "Causa autem reminiscendi est ordo motuum, qui relinquuntur in anima ex prima impressione ejus, quod primo apprehendimus . . . reminiscentiæ contingunt per hoc quod unus motus natus est post alium nobis occurrere." (*Ibid.*)

[17] "Hoc autem primum, a quo reminiscens suam inquisitionem incipit, quandoque quidem est *tempus aliquod notum*, quandoque *res aliqua nota*. (1) Secundum tempus quidem incipit quandoque a nunc, id est a præsenti tempore, procedendo in præteritum, cujus quærit, memoriam. . . . Quandoque vero incipit ab aliquo alio tempore . . . et procedit descendendo. . . . (2) Similiter etiam quandoque reminiscitur aliquis incipiens ab aliqua re cujus memoratur, a qua procedit ad aliam, *triplici ratione* · (*a*) Quandoque quidem *ratione similitudinis;* sicut quando aliquid aliquis memoratur de Socrate, et per hoc occurit ei Plato, qui est similis ei in sapientia. (*b*) Quandoque vero *ratione contrarietatis;* sicut si aliquis memoretur Hectoris, et per hoc occurrit ei Achilles. (*c*) Quandoque vero *ratione propinquitatis cujuscunque;* sicut cum aliquis est memor patris, ei per hoc occurrit ei filius. Et eadem ratio est de *quacunque alia propinquitate, vel societatis, vel loci, vel temporis;* et propter hoc fit reminiscentia, *quia motus horum se invicem consequuntur.* (*a*) Quorundam enim præmissorum *motus sunt idem*, sicut præcipue *similium;* (*b*) quorundam

in *time*, or what Hamilton calls the laws of *direct* and of *indirect* remembrance, laid down by St. Thomas as the two general principles of association. Accordingly, notwithstanding the contempt which writers of the Associationist school have invariably exhibited towards the schoolmen, we find in these terse remarks of St. Thomas, now over six hundred years old, a statement and analysis of the Laws of Association virtually as complete and exhaustive as that given by any psychologist from Hobbes to Mr. Herbert Spencer.

Of the later scholastics, **Vives** goes most fully into the treatment of this subject, and it is scarcely too much to say that there is no form of association viewed as a condition of memory which he has not expounded and illustrated.[18]

The chief interest, however, in the history of the doctrine of mental association centres in modern psychology; and it is there that we find association advocated not only as a general condition of reproductive memory, but also as a philosophic principle adequate to explain the constitution of numerous important mental states. **Locke**, in the *Essay*, in 1685, contributed the phrase *Association of Ideas*, as the title of a chapter dealing with peculiarities of character, but did little more on the subject. **Hobbes** had previously made occasional observations on the power of association, but it is clear from the terms and phrases which he employs, that, in spite of his vigorously expressed contempt for the schoolmen, he silently borrowed from them on this topic.

In this country, nevertheless, it was not till Berkeley's writings appeared (1709—13), and still more decidedly in **Hume's** *Essay on Human Nature* (1728), that mental association was insisted on as a virtually omnipotent principle in the genesis of knowledge. But on the Continent, already in the middle of the seventeenth century, Pascal, and after him Malebranche, had indicated the extensive influence of mental association; and even Condillac was as early as **Hartley**, who

autem *simul*, scilicet *contrariorum*, quia cognito uno contrariorum simul cognoscitur aliud; (*c*) quandoque vero quidam motus habent *partem aliorum*, sicut contingit in quibuscunque *propinquis*, quia in unoquoque propinquorum consideratur *aliquid quod pertinet ad alterum*, et ideo, illud *residuum*, quod deest apprehensioni, cum sit parvum, *consequitur motum prioris*, ut apprehenso primo consequenter occurrat apprehensioni secundum." (St. Thomas, *De Mem.* l. v.)

[18] Cf. Vives, *De Anima*, Lib. II. c. *De Mem. et Rem.* We have not space to quote, but the reader will find a number of passages cited from him in Hamilton's *Notes on Reid*, pp 892, 893, 896, 898, 902, 908. A very little study even of these extracts will show how familiar to scholastic philosophers were many of the supposed discoveries of Hobbes, Hume, and later associationalist writers.

is the recognized founder of the Associationalist school in this country. In his *Observations on Man* (1748), in connexion with a theory of neural vibrations, Hartley expounded a system of mechanical association, in which imagination, memory, judgment, reasoning, emotions, and passions, are all reduced to associations of sensations. Later on in the century, Associationism was advocated by Tucker in the science of Ethics, and by Alison in the sphere of Æsthetics. Approval and remorse, good and evil, beauty and ugliness, were all analyzed into pleasant and painful sensations associated in experience with certain actions and objects.

At the beginning of the present century **James Mill,** in his *Analysis of the Phenomena of the Human Mind* (1829), re-expounded the doctrines of Hartley and Hume, and may be styled the second founder of the school. Sensations, and ideas, which are merely faint reverberations of defunct sensations, worked up in various ways by force of association, and especially by that form of suggestion included under the *law of indissoluble association*, account for the sum-total of our mental possessions. Sensations or ideas, repeatedly recurring together or in close succession, and never apart, tend to combine in such an *indissoluble* or *inseparable* manner that one necessarily or irresistibly suggests the other.[19] By a species

[19] The terms *indissoluble* and *inseparable* are defective even as expressions of the associationist view. It is not maintained that the associated states are absolutely inseparable, since a reversal of previous experience is always possible. The *law of irresistible suggestion*, advocated as a better title by Mr. Murray, would be a less objectionable phrase to indicate the element of truth contained in the doctrine. The powerful influence of continuous association is indisputable, and the acquired perceptions of the senses which we have discussed in an earlier chapter illustrate its action; but mere association is utterly unable to account for the unity of the mind, or for the necessity of mathematical or metaphysical truths. The phrase, *mental chemistry*, is also inappropriate and misleading. The chief forms of mental action to which this name has been applied are: (*a*) The asserted subjective creation of an imaginary material world by the agglutination, solidification, and externalization of sensations and ideas; (*b*) the production of the alleged illusory *necessity* pertaining to certain judgments, *e.g.*, mathematical axioms. (*a*) Now, subjective feelings do not solidify or crystallize into a simulated material object. The true process, as we have shown in chapter vii., is one of *growth* in the perfection of our knowledge of real things. Successive sensations reveal new qualities of the object, and gradually elaborate cognition. The object, vaguely and obscurely apprehended in the primitive tactual or visual sensation, receives more complete determination by each subsequent impression. (*b*) That necessary judgments cannot be a result of association will be shown in a future chapter.

of "mental chemistry" the contiguous states fuse or combine, so as to generate products utterly unlike the constituent elements. The visual appearances of objects come thus to suggest irresistibly their distance, and we imagine we *see* an object to be hard, soft, hot, cold, rough, or smooth. By this means are created such universal illusions, as the necessity of mathematical judgments, the unity of the mind, and the externality and permanence of a material world.

John Stuart Mill and **Dr. Bain** develope the same principles, and enrich their treatment with numerous ingenious illustrations. The effect of hostile criticism from various standpoints has been to modify very considerably the treatment of Psychology by the more recent representatives of associationism. Dr. Bain's chief contribution to the resources of the school was the allotment to the mind of a reservoir of spontaneous activity continually fed by the accumulation of superfluous muscular energy. By judicious management of this new fund, many deficits in the sensist theory of both the cognitive and volitional departments of mental life could, it was believed, be made good.

In still greater contrast to the views of James Mill and the earlier writers of the school, is the exposition of the Associationist system offered by **Mr. Sully** in his *Outlines of Psychology*. (Cf. cc. ix. x.) The old doctrine of a purely passive mind, wherein sensations through a process of agglutination coalesce into all kinds of intellectual products, is virtually abandoned, and instead we have ascribed to the mind active powers of attention, comparison, and judgment. This last act, too, is not, as with Mr. Bain, the "fact of similarity or dissimilarity"—the capability of experiencing like or unlike feelings—but the intellectual faculty of cognizing this relation of likeness or unlikeness. These considerable improvements, which bring the sensist theory of mental life more into harmony with the results of actual observation, and help to obviate some of the most telling objections urged against the unreformed doctrine, are, on the other hand, very dearly purchased from a logical point of view. It is difficult to see how the fundamental article of the Sensist school—the tenet that the mind is nothing more than a cluster or series of feelings—can be harmonized with the imported doctrine, which attributes to this "mind" the active power of discriminating, combining, and organizing these states. The truth is, the best part of Mr. Sully's description of mental operations belongs to an alien conception of the mind, and is not easy to reconcile with his general position as a sensist philosopher. The elder Mill, Condillac, and the other earlier advocates of Sensism, possessed at least the merit of under-

standing and frankly attempting to face the real problem for their school. Postulating only those assumptions which were legitimate to them, they sought to explain how, out of sense impressions passively received from without, our illusory belief in a permanent human mind, as well as in a material world, could be produced. The result was, as is virtually admitted by their descendants, a miserable caricature of the observed facts. The modern representative of the school, while accepting their fundamental doctrine that the mind is nothing but an aggregate or series of feelings externally awakened, nevertheless ascribes to this mind inherent activity. Such a procedure, however, as was felt, I believe, by the earlier associationists, is incompatible with the essential principles of their system.

Obliviscence.—From the laws of memory the general conditions of forgetfulness can be easily deduced. The converse of the primary laws of suggestion may be formulated in the statement that *events unconnected by either similarity or contiguity with present mental states usually lie beyond the sphere of recall.* The correlative of the secondary law is expressed in the proposition that *the tendency of an experience to lapse out of memory is in proportion to the feebleness of the original impression and the infrequency of its repetition.* The third law of obliviscence enunciates the general fact, that *a mental impression becomes obliterated in proportion to the length of time, and the number and vivacity of the other mental states which have intervened since its last occurrence or reproduction.*

The phrase, *Law of Obliviscence*, is also employed by J. S. Mill to describe an important element in the law of "inseparable" association, viz., the general fact that "when a number of ideas suggest one another by association with such certainty and rapidity as to coalesce together in a group all the members of the group which remain long without being attended to have a tendency to drop out of consciousness."[20] The evanescence of the separate letters and words of a printed page leaving us in possession only of its general purport is the favourite illustration. The phenomenon is merely an instance of the law of inattention. The amount of mental energy, and consequently the depth of the impression, devoted to the individual units is reduced to a minimum, as the whole force of our thought is concentrated on the meaning of the entire paragraph.

Readings.—On Memory, cf. St. Thomas, *Comm. in Arist. De Mem. et Reminisc.;* also *Sum.* i. q. 79. a. 6 and 7; Suarez, *De Anima*, Lib. IV. c. 10; Hamilton, *Metaphysics*, Lect. xxx. xxxi.; Carpenter, *Mental*

[20] *Exam.* c. xiv. p. 259.

Physiology, c. x. On the Physiology of Memory, cf. Carpenter, op. cit. pp. 436—448; Ladd, op. cit. Pt. II. c 10, §§ 15—21; Farges, *Le Cerveau et l'Ame*, pp. 322—328. Some good remarks on the Materialist theory are to be found in Professor Calderwood's *Relations of Mind and Brain*, pp. 272—84. On Mental Association, cf. Hamilton, *On Reid*, notes D**, D***. On the Validity of Memory, J. Rickaby, *First Principles*, Pt. II. c. vi. On Memory and Empiricism, cf. Ward, *Philosophy of Theism*, pp. xiv.—xvii. and 64—67. For a collection of curious anecdotes illustrating various aspects of those faculties, see Abercrombie *On the Intellectual Powers*, Pt. III. sect. 1.

CHAPTER X.

SENSUOUS APPETITE AND MOVEMENT.

Sensuous Appetency.—In our classification of mental activities we have marked off as standing in strongest opposition to the cognitive operations of the mind the class of states embracing appetites, desires, impulses, volitions, emotions, and the like. There is no accepted English term which accurately expresses what is common to them all. The designation *active powers*, employed by Reid and Stewart, ought obviously to include the intellect. *Orectic* faculty—the literal transcription of the Aristotelian term—is too unfamiliar. Hamilton gave currency to the epithet *conative*, which emphasizes the idea of effort prominent in some of these acts; whilst others prefer the title *appetitive* faculty. These two last names seem to us on the whole exposed to fewest objections; however, it should be borne in mind that the phenomena of appetency include not only states of yearning for absent pleasures, but also the enjoyment of gratifications attained.

Appetite.—The term *appetite* was used in a very wide sense by mediæval writers to denote all forms of internal inclination, comprehending alike the natural tendencies or affinities (*appetitus naturalis*) of plants and inorganic substances, which impel them towards what is suitable to their nature, and the feelings of conscious attraction (*appetitus elicitus*) in sentient and rational beings. The formal object

of the appetitive faculty in this broad signification is *the good*. Under *the good* is comprised, not merely *the pleasant*, but everything in any fashion convenient to the nature of the being thus attracted. Continued existence, felicity, development, and perfection, together with whatever is apparently conducive to these ends, are all in so far good, and consequently a possible object of appetency; whilst whatever is repugnant to them is a mode of evil, and therefore a ground for aversion or the negative activity of the same faculty.

Of conscious appetite the schoolmen recognized two kinds as essentially distinct—*rational* and *sensitive*. The former has its source in intellectual, the latter in sensuous, apprehension. The two faculties, however, do not act in isolation; desires and impulses in the main sensuous often embody intellectual elements, and we therefore deem it best to postpone the chief portion of our treatment of appetency to Part II. of the present book.

The scholastics also divided conative states into *appetitus concupiscibiles* and *appetitus irascibiles*. The appetitive side of the soul was investigated by mediæval writers mainly from the standpoint of Ethics or Moral Theology. The modern branch of study known as Æsthetics, the analysis of the mental states aroused by the contemplation of the beautiful and the sublime, and the dissection of our emotions, which take up so much room in psychological treatises of the present day, found little or no space in their speculations.

Modern writers commonly confine the term *appetite* to certain organic cravings. These arise from the physical condition of the body; they are mainly of a periodically recurrent character, and they are essential to the preservation of the individual or the species. The chief forms usually enumerated are those of hunger, thirst, sleep, exercise, and sex. All these activities are of the lower order of mental life, and have their source in sensation. Thus hunger springs from the uneasy feelings of the alimentary canal arising from privation of the nutriment on which its appropriate functions are exercised. The craving for sleep or physical activity is similarly awakened by fatigue or the consciousness of an accumulation of surplus energy. Besides these peculiarly organic appetites there are tendencies in all sentient beings towards objects and actions in harmony with their nature or some part of it. The appropriate satisfaction of such inclinations commonly awakens pleasure, whilst excess or defect causes pain, and thus brings into play two great protective agencies which guard the life of the individual and the race. The gregarious instinct, maternal affection, feelings of anger, jealousy, and fear, may also belong to the purely sensuous

order of conscious life provided they contain no element of reflective activity, and it is in this form they are exhibited by lower animals.

Movement. — Appetency expresses itself in motion. The tree pushes out its roots and opens its leaves in search of nutriment. The animal, stirred up by feeling, creeps, walks, runs, swims, or flies in pursuit of its food. And man, too, is constantly moving one or other of his limbs, or organs, to gratify some need or desire. In later life, the instant a volition is exerted, the appropriate movement or chain of movements necessary for its satisfaction follows with precision. Yet this has not been always so. We know that our skill in handwriting, cricket, or skating, is the outcome of many unsuccessful efforts; and we have only to watch a child of eighteen months toddling from one chair to another to realize that even our most natural movements have been very gradually acquired.

Voluntary movement analyzed.—If we analyze any complex deliberate action of mature life, such as tying our shoe-lace, putting a book on a shelf, or trying to hit a ball at tennis or at cricket, we shall discover that several distinct elements are involved. First, a visual image of the contemplated act, its extent, direction, and velocity, is formed. Accompanying this, especially if the operation be unusual, there is a motor representation, a faint imaginary rehearsal of the movement, in which there is an estimate taken of the quantity and quality of muscular effort to be employed. Finally there is, at least in volitional acts, the *fiat*, or *act of the will*, that discharges the motor energy into the selected channels causing the imagined action to be realized. The Will, of course, does not consciously pick out the particular muscles to be exerted. It is only late

in life that the mind learns the existence of such muscles. But past experience has revealed to us different kinds of *muscular feelings*, and the will selects which of these shall be re-exerted. The entire consciousness arising out of volitional effort and muscular strain has been called the *feeling of innervation*, and there is much dispute as to its nature. Whatever be its physiological accompaniments and the ingredients of which it is composed, it is by controlling and varying this innervation under the guidance of incoming sensations muscular, tactual, and visual, that the direction, range, and rapidity of the movement is determined. But how is this intelligent control of motor energy evolved? How does the infant come to be able to select, not the right *muscles*, of which it may never know anything, but the right muscular *feelings* to be stirred up in order to accomplish a particular complex operation? This is the question of the development of the *power of locomotion*. In order to answer it we must distinguish several kinds of movements.

Automatic movements.—In the first place we find that all living animal organisms perform certain vital actions, independently of stimulation from without. The pulsations of the heart and the circulation of the blood are perhaps the best illustrations of this class of movements. They are called *automatic*. They are the unconscious outcome of the living mechanism.

Reflex action.—There is another class of actions which differ from the former in that they are occasioned by peripheral stimulation. These are movements in response to sensory impressions without the intervention of any conscious effort—the involuntary reflexion of an afferent impulse back along an efferent nerve, *e.g.*, winking, sneezing, swallowing. (See p. 46.) Such movements are styled *reflex;* but they often gradually fade into the other groups, especially in acquired habits. Original reflex actions are unlearned and involuntary, though they may sometimes become subject to the will, as in the act of coughing.

Impulsive action.—Yet another class of movements are apparently common to man with all the

lower animals from birth. They differ from automatic movements in their irregularity, and from reflex action in seeming to be occasioned not by external stimulation, but by internal *feelings*. They are *impulsive* actions, and chiefly out of these voluntary movements are developed.

Origin of voluntary movement.—How then are the first impulsive acts of the infant converted into the freely directed complex operations of later life? Broadly speaking, two theories prevail among modern psychologists. Primitive impulsive action is of two kinds—*random* and *instinctive*. One theory derives all voluntary action from the former, the other insists on the important part played by the latter combined with reflex movements.

Theory of random action.—Dr. Bain insists upon the existence of a fund of spontaneity in the infant organism. There are exhibited, he urges, in children and young animals a quantity of movements of an aimless character. Apart from external stimulation and reflex action, when fresh and healthy the young animal exerts its limbs, and frisks and gambols in a purposeless manner. The living engine, in fact, generates a surplus of motor power, which tends to relieve itself in action of any kind. This is the source of the *play-impulse*. Under the so-called "Law of Self-conservation," formulated in the statement that *pleasure is accompanied with heightened energy, and pain with lowered energy*, this original haphazard action assumes definite lines. Amongst the fortuitous movements some result in a pleasant experience, and in consequence of the heightened energy tend to sustain themselves, whilst painful actions, by the consequent lowering of activity, become suppressed, "as when an animal moving up to a fire encounters the scalding heat with its depressing (*sic*) influence, and therefore has its locomotion suspended."[1] By repetition the lucky movements become associated with the pleasure attained, and after a time the mere *idea* of this pleasure is able by force of this association to excite the appropriate action to obtain it. When this stage is reached we have, according to Dr. Bain, *free voluntary control*.

Objections to the theory.—Opponents object: (1) That both the statement and application by Bain of the alleged Law are untenable. Whilst pleasure commonly awakens desire for a renewal or continuance of an act, it often tones down general vitality. Pains, on the other hand, augment activity. Punishment is a universally recognized means of stirring up energy;

[1] *Mental Science*, p. 80.

whilst intense pleasures are frequently exhausting. (2) Even granting the Law, as expounded by Dr. Bain, the fortuitous pleasant and painful experiences arising out of random action would be far too few to account for the rapidity of acquisition, and for the complex character of many of the acts of very early life both in animals and children. (3) Further, *instinct*, it is urged, is proved to be as primordial a phenomenon as random action, and if admitted to be a *vera causa* of complex movements in the lower animals, it is unscientific to reject it as an explanation of *similar* acts in man. (4) To us the most serious error is the identification of voluntary—*i.e.*, freely willed movement with impulsive action merely moulded into a definite shape by the strongest pleasure. Complex movements of a well-trained dog are in this view the type of voluntary action.[2]

Theory of instinctive action.—The opposite school insist much on *reflex action*, and, since evolution and the doctrine of heredity have become popular, still more on *instinct* as contributing the chief materials towards the voluntary movements of later life. Amongst the impulsive actions both of the lower animals and of the human infant are to be found, they urge, a multitude of movements which exhibit a striking *uniformity* or *regularity* throughout the species. They involve greater *complexity* than in the case of merely reflex action. They manifest an *unconsciously purposive* character. Finally, they are "*unlearned*," or at least so rapidly acquired when the organism is sufficiently mature as to be justly considered *innate habits*. These constitute instinctive actions properly so called. Thus ducklings, on leaving the nest, take to the water and swim; young swallows fly, and chickens, just out of the shell, peck at insects with perfect accuracy. Similarly, young pigs just born trot about, and calves and lambs scramble to their legs after a few failures, and find their mother's udder.[3] To the human infant potentially endowed with reason, and designed to be reared and instructed by intelligent parents, fewer definite instincts are allotted by nature than to the young animal, and nearly all these which he receives need a longer time to develop. Still, recently more exact and scientific observation of children has, it is maintained, established a sufficient quantity of instinctive action to account for the growth of voluntary complex movement.

The most complex operation in the power of the infant possessed at birth is the act of sucking. In addition to this

[2] See Martineau, *A Study of Religion*, Vol. II. pp. 206—224; Sidgwick, *Methods of Ethics*, Bk. II. c. v. § 4.

[3] For a fuller treatment of this subject see the section on *Instinct* in the supplementary chapter on *Comparative Psychology*.

there are enumerated as instinctive movements, though some of them require from three to twelve months to manifest themselves, the actions of grasping and pointing at objects, of carrying objects to the mouth, of biting and chewing, of crying and smiling, of turning the head aside with a frown, of holding the head erect, of sitting up, of standing, of creeping, and of walking. For many of these the appropriate muscles and nerve-centres need time to mature, but when this period has arrived, it is maintained, that the impulse to creep, stand, or walk, shows itself with striking suddenness, and the new aptitude is often perfected with a rapidity quite incompatible with the associationist theory of fortuitous successes.

Imitation.—The instinct to utter sounds is present from the beginning, but the impulse to *imitate* sounds, as well as other actions, appears later, and often quite abruptly. The instinct of imitation, which exhibits itself in smiling, frowning, laughing, and other gestures, in the dramatic impulse, and the make-believe games of childhood, in the force of fashion, and in the contagion of enthusiasm and panic, is one of the greatest educative forces in human life. These various forms of instinctive movement, it is argued, account sufficiently for man's acquisition of a complete command over his power of movement without appealing to the hypothesis of random action.[4]

Growth of control of movement. Probable theory.—It seems to us that the arguments adduced in support of the latter view prove the insufficiency of the "random" theory. The fact that all men walk upright is the outcome not of fortuitous action in all directions, but of an instinctive impulse hereditary in the human race. Yet such evidence does not exclude the agencies of pleasure and pain, nor the effect of casual or undesigned experience in developing our powers to perform definite movements, as is indeed fully admitted by the leading advocates of Instinct. Voluntary action is freely *desired* action. But desire implies a striving towards a *known* good, towards a *preconceived end.* Voluntary movement therefore pre-supposes a representation of the movement, or of its separate parts, not merely in terms of *visual*, but of *motor* sensation. In order to

[4] See James, Vol. II. pp. 403, ff.; Bain, *Emotions and Will*, II. c. i.; Preyer, *The Mind of the Child*, Part I. cc. xi. xii.; Baldwin, *Emotions and Will*, c. xiii.; Höffding, pp. 308—312.

pronounce a word, or to swim, it is not enough to be able to imagine the sound of the word, or the picture of a man swimming, we must be acquainted with the muscular feelings involved in such actions, and these must necessarily, on their first occurrence, have been not anticipated.

The child, subject to obscure feelings and cravings, seeks relief in movements, some of a purely haphazard, others of a vaguely purposive, or instinctive character. Part of these actions turn out pleasant, whether accidentally or because they satisfy an instinct, matters not; part of them result in pain. Whatever be the true expression of Dr. Bain's *Law of self-conservation*, and whatever be the real effect of pleasure and pain on general vitality, there is indisputably a tendency in the living organism to prolong and repeat movements which afford satisfaction, and to check those which prove disagreeable. The infant rejoices to reiterate the same sound, and the same movement of its arm or leg again and again. With each successive repetition the force of association between the muscular feeling and the pleasant result increases, and each tends more and more to suggest the other.[5] However, the motor feeling is less easily pictured by the imagination, and much less interesting in itself than the agreeable result. Accordingly its force in consciousness diminishes, and after a time the wish for the effect results in the per-

[5] As suggestion acts in the order of the original experience, it has been objected that an agreeable effect cannot suggest the action which caused it. But the original tendency to *reiteration* solves the difficulty. Thus, suppose an impulse (*a*) finds vent in a motor feeling (*b*) which causes an agreeable experience (*c*) auditory-tactual, gustatory, or visual. If the process is repeated in succession a few times (as when an infant cries la, la, la) we have (*a*) (*b*) (*c*) (*a*) (*b*) (*c*), &c., in which, at every repetition, the agreeable effect (*c*), *precedes* (*a*), and so tends in the future to suggest it. That is, the representation of the pleasant effect will excite the impulse which will in turn awaken the motor feeling, and so on, until a new presentation intervenes, and inhibits the process. The tendency to repetition may be due physiologically to the facility of adhering to a nervous path once opened, or to the lively sensibility and unstable condition of nerve-centres recently excited. Cf. Martineau, Vol. II. pp. 208, 209; and James, Vol. II. pp. 582—592.

formance of the action without any advertence to the muscular feelings.

The earliest motor exertions will, of course, be very simple, and the connexion between action and the pleasing effect immediate. The child touches a smooth object, and finds the experience agreeable; or he utters a cry, and rejoices in the discovery of his power of noise. Later on his vague tentative efforts will result in the combination of two or more actions, and, encouraged by his successes, he will gradually come to perform more and more complex operations, to conceive more distant ends, and to be incited by the anticipation of more remote results. As Professor Dewey remarks: "The infant begins with a very simple and immediate idea. His first efforts are limited to movements containing very few elements, and the end of which is directly present. The consciousness of an end which is remote, and which can be reached only by the systematic regulation of a large number of acts, cannot be formed until the combination of motor impulses has realized some such end."[6]

Voluntary Action.—Freedom, however, means more than complexity. So long as we merely have feeling tending to issue into action, even though that action be complex and towards a pre-conceived object, we have not *voluntary* action strictly so called.[7] Under the influence of such unreflecting desires the somnambulist, and in simpler cases the lower animals, perform elaborate operations which are nevertheless *involuntary*, not *free*. In the earlier years of childhood all action is, of this kind, completely determined by feelings and temperament. But later on, as experience extends and intellect is developed, conflicting motives and rival courses of possible action emerge into consciousness. The child finds himself able to inhibit particular impulses. The power of reflexion awakens within him, and he becomes aware that he can *choose* or *decide* which of the impulsive tendencies he will *approve*, which of the competing desires within him he will adopt and identify with

[6] *Psychology*, 3rd Edit. p. 381.

[7] That is in the modern sense—deliberate or free action.

himself.[8] When this stage is reached, we have *voluntary action* in the true sense. But it should not be forgotten that in such voluntary action the physical movement is really carried out by the mechanism of the organism working substantially in the same manner as in purely impulsive or automatic action, save in so far as the discharge of physical energy is initiated or modified by volition. Bodily movement is, in the language of the schoolmen, *actus imperatus*, not *actus elicitus*—action *commanded* or *sanctioned*, but not actually *exerted* by the will.

A kindred treatment of this subject is thus summarized by Professor Ladd: "The *voluntary* movements of the body presuppose the *impulsive*, and yet they reach far back into the obscurity of the earlier development of consciousness. Strictly speaking, they imply the presence in consciousness of two or more different or conflicting ideas of motion, one of which rather than the others is realized as a sequence of an act of conscious *choice*. They imply then a considerable development of the activities of ideation and volition. Moreover, those movements, which are ordinarily called voluntary, are really so only with respect to certain of their elements; they also contain elements which must be classed as reflex, centrally coordinated, and impulsive. The term 'voluntary' fitly lays the emphasis upon the conscious act of choice; and this in turn implies ideas of various possible forms of bodily motion gained by previous experience with the correlated states of conscious feeling and conditions of the body as giving rise to or modifying these states."[9]

We may therefore classify movements according to their origin, their voluntariness, and their conscious or unconscious character thus:

[8] Lotze accurately observes: "An action is 'voluntary' in case the interior initial state (impulse) from which a motion would originate as a result does not merely *take place*, but is *approbated*, or *adopted*, or *endorsed*, by the will. Every action is 'involuntary' which mechanically considered issues from the same initial point, and wholly in the same manner, but without having experienced such *approbation*." (*Outlines of Psychology*, p. 87.)

[9] *Elements of Physiological Psychology*, p. 528.

Movement.
- (*a*) *Automatic* (unconscious and uncontrollable) — *Involuntary.*
- (*b*) *Reflex* (uncontrollable) — Unconscious / Conscious — *Involuntary.*
- (*c*) *Impulsive* or *Instinctive* (conscious) — Uncontrollable / Controllable — *Involuntary.*
- (*d*) *Volitional* (conscious and controllable) — *Voluntary.*

Secondary Automatic action or Acquired Reflexes.—Voluntary actions, at first painfully learned, may now through frequent repetition cease to require any conscious effort for their performance, or at least for their continuation. They thus become assimilated to *reflex* or *automatic* action. The child learning to play the piano has at first to make a separate volitional effort to apprehend each note and to press each key. Next, each movement suggests its successor without any separate effort. Later on, even the intervening sensory impressions drop out of consciousness; and the process has passed into the condition of *reflex* action. Nay, he may come to be able to play at sight a piece in which his fingers execute extremely rapid combinations of movements in response to the visual impressions of the notes, whilst his attention is distracted by other thoughts. The tendency of repetition to convert *volitional* into *reflex* action is one of the most important agencies in the economy of our nature. The whole effect of education depends upon it, and our entire life is an illustration of it. In walking, speaking, reading, writing, in the various accomplishments, games, handicrafts, in by far the greater part of the operations of our daily life, from making our toilet in the morning to undressing at night, we are ever performing inadvertently complex operations, involving the delicate coordination of many muscles, which at first were accomplished with difficulty and perhaps after many unsuccessful efforts. From the similarity of these mechanical modes of action to unconscious vital movements and sensori-motor actions they have been styled *secondarily automatic*, and also *acquired reflex actions*.

Ideo-motor action.—Not only can movement be initiated by volitional effort, by sensory impressions and by associated movements; it can also be excited by the mere *idea* of the action itself. Though advocated as a modern discovery, this truth was not unfamiliar to the schoolmen.[10] We have seen that in the deliberate performance of a movement we first form a representation of that movement. Now it is a matter of common experience that in proportion as the image—

[10] See Père Coconnier, *L'Hypnotisme Franc*, p. 346.

especially the motor image—becomes more lively, it tends of its own accord without any effort of will to pass into reality. *Vivid ideas tend to realize themselves.* The physiological explanation suggested is that the same nerve-centres which are engaged in the actual sensation or movement are also the seat of the representation, but excited in a feebler manner. The thought of past sea-sickness awakened by the peculiar smell of the ship's cabin has sometimes realized itself before the ship has left the harbour. The sight of an object on the floor moves an absent-minded man to stoop and pick it up. Most of the movements in reverie, dreaming, somnambulism, and the hypnotic state, are the outcome of motor ideas. The overpowering force of the vivid idea of falling down from a precipice or high building has probably been the cause of many seemingly deliberate suicides. The temptation sometimes awakened by express prohibitions and the fascination exerted by great crimes, and by the horrible, or the disgusting, is similarly explained by the absorbing force of a vividly suggested idea.

Expectant attention.—Intense anticipation causes us to rehearse in imagination the movements as well as the sensations to which we look forward. Some at least of the phenomena of "thought-reading" are thus explained. The "subject" endeavouring to "will" or intently realize the word or the action unconsciously guides the hand of the "reader," or in some other way gives external expression to the idea absorbing his mind. *Mono-manias* are often due to the "possession" or "obsession" of the mind by some "fixed idea" which, arising perhaps out of a morbid condition of the brain, inhibits the corrective influence of other intellectual acts and suspends volitional control. The patient is often aware of the folly or the wickedness of the insane impulse, yet feels unable to extinguish the craving to carry out the suggestion.

Here, as in the case of *sensori-motor* action, the facility of the transition from the mental state to the physical act increases with repetition; and in familiar acts the passage from the idea to its realization is so easy and smooth that some psychologists have made it a ground for denying that voluntary or appetitive activity is ultimately distinct from cognition. It is quite true that the will very frequently effects its object indirectly by increasing the strength of an idea through *attention* until this idea prevails over all other ideas in the field of consciousness and then realizes itself in movement. But the *striving*, the *tension* in appetency is different in kind from the activity of cognition; and the *fiat* or *veto* which consents to or rejects a solicitation is quite

distinct in nature from mere increase or diminution of attention to the thought *as a thought*.

The question *how* an unextended volition can move a material limb brings us in face of a final inexplicability. That the soul is endowed with a locomotive faculty is simply an ultimate fact. Our life-long experience assures us that mind and body do interact, but *How* we cannot tell.

Readings.—On Appetite, cf. St. Thomas, *Sum.* i. q. 80; Suarez, *De Anima*, Lib. V. cc. 1—4; Joseph Rickaby, *Moral Philosophy*, Pt. I. c. iv.; Farges, *Le Cerveau et l'Ame*, pp. 404—411; Dr. Stöckl, *Lehrbuch d. Phil.* §§ 18—20. On Movement, Farges, op. cit. pp. 233—273; Mercier, *Psychologie*, pp. 264—280; Pesch, *Institutiones Psychologicæ*, §§ 667—671; Dr. Gutberlet, *Die Psychologie*, Pt. I. c. iii.; Ladd, op. cit. pp. 526—531; Carpenter, *Mental Physiology*, pp. 17—23, 70—80, 100—107.

CHAPTER XI.

FEELINGS OF PLEASURE AND PAIN.

Feeling.—A large portion of modern works on Psychology is usually devoted to the treatment of the phenomena allotted to the *Faculty of Feeling*. The words, *emotion*, *passion*, *affection*, *sentiment*, and the like, are employed to denote the acts of this third mental power. We have deemed it on the whole convenient to retain the term in common use, though we deny the necessity of assuming the existence of another ultimate faculty generically distinct from those of cognition and appetency.

Terms defined.—The word *feeling* is used in several meanings: (1) To denote certain kinds of cognitive sensations, especially those of the faculty of *touch*. (2) To express the pleasurable or painful *aspect* of all species of mental energy. (3) To signify complex forms of mental excitement of a non-cognitive character. (4) As equivalent to a particular kind of rational cognition of an obscure character in which the mind has vivid certainty without knowledge of the grounds of this conviction. *Emotion* is employed as synonymous with *feeling* in the second and third meanings, more especially in the latter. *Passion* signifies an appetitive or emotional state, where the excitement reaches an intense degree. *Affection* usually denotes emotional states in which the element of liking or dislike is prominent; with some writers the term is confined to acts having persons for their objects. *Sentiment* signifies an emotion of an abstract or highly developed character. In ordinary language, especially in the adjectival form, it is contrasted with reasoned conviction and practical activity.

In dealing with this department of mental life we believe that our best course will be to give here a short treatment of feeling understood as the *pleasurable* or *painful tone* of mental activities generally; and in a later chapter we shall examine in particular a few of the more important states usually classed as emotions.

Aristotle's Theory of Feeling.—The subject of the nature and conditions of pleasure and pain, like so many other psychological problems, was grasped by Aristotle, over two thousand years ago, with such clearness and treated with such fulness that little of substantial importance has been added by any modern thinker. The doctrine of Hamilton or Mr. Spencer, for instance, is merely the old theory in new phraseology. We shall, therefore, adhere closely to the account of the subject given by the Greek philosopher.

(1) *Nature of Pleasure.*—In opposition to Plato, who held that all pleasure is merely a transition, a passage from pain, and consequently of a *negative* or *relative* character, Aristotle teaches that there are *positive* or *absolute* pleasures. Admitting that the satisfaction of certain bodily cravings, such as hunger and thirst, produces agreeable feeling, he argues: "This does not happen in all pleasures; for the pleasures of mathematical studies are without (antecedent) pain; and of the pleasures of the senses those which come by smelling are so; and so are sounds and sights, and many recollections also, and hopes. By what then will these be generated? for there have been no wants of anything to be supplied."[1] Pleasure, in fact, he repeatedly asserts, is a positive concomitant or resulting quality of the free and vigorous exercise of some vital energy. It is the efflorescence, the bloom of healthy activity. To each faculty, whether sensuous or intellectual, belongs an appropriate pleasure. Vision, hearing, and the activities of the other senses, are all productive of agreeable feeling, but still more so is intellectual speculation.

(2) *Intensity.*—The intensity of the pleasure depends

[1] *Ethics*, Lib. X. c. 3.

partly on the state of the faculty or habit which lies at the root of the activity, partly on the nature of the object which forms the stimulus. In proportion as the energy of the faculty is greater, and its object more fitted to elicit lively response, so is the pleasure the keener. The most perfect pleasure results in the greatest delight. Furthermore, pleasure is not merely an effect of the exertion of the mental power: it reacts upon the energy from which it springs, stimulates that energy, and perfects its development. Agreeable feeling, in fact, is at once the result and the final complement of vital energies.

Aristotle thus reasons: "Since every sense energizes with reference to its object, and that energizes perfectly which is well disposed with reference to the best of all the objects which fall under it, . . . this must be the most perfect and the most pleasant; for pleasure is attendant upon every sense, as it is also upon every act of intellect and contemplation; but the most perfect is the most pleasant, and the most perfect is the energy of that which is well-disposed with reference to the best of all the objects that fall under it. Pleasure, therefore, perfects the energy. But that there is a pleasure in every act of the perceptive faculty is evident; for we say that sights and sounds are pleasant; and it is also evident that this is most so, when the perceptive faculty is in the most efficient condition, and energizes on the most suitable object."[2]

(3) *Duration.*—The duration of a pleasure is similarly determined by the nature of the stimulus and the condition of the faculty. So long as a harmonious relation subsists between them—so long, in fact, as the faculty is fresh and vigorous and the action of the stimulus suitable—the energy will be agreeable. For, there will then be an easy spontaneous activity in harmony with the nature of the mental power. But no human faculty is capable of incessant exertion, and when an energy becomes relaxed or fatigued, the corresponding pleasure decreases, and will soon pass into the state of pain.

(4) *Variation.*—Hence the utility of change. It is

[2] *Ethics*, Lib. X. c. iv.

the decay of vital force during incessant action which explains the charm of novelty. Whilst an experience is new, the efficiency with which our mental powers are applied to it is at a maximum, but as time goes on vigour diminishes, and the operation becoming less perfect, the pleasure proportionately declines. Agreeable feeling is, therefore, the concomitant of the exercise of our faculties, as long as that exercise is spontaneous and unimpeded.[3]

(5) *Quality*.—Pleasures, Aristotle further teaches, may be held to differ in *kind* in so far as they are perfections of specifically different energies. Intellect and the several senses are essentially different faculties, their operations must similarly differ, and consequently the pleasures which result from and perfect these latter must also differ in kind. Conflicting pleasures, or rather the pleasures of conflicting energies, neutralize each other, and may even result in positive pain. This follows inevitably from the nature of pleasure. For when several faculties interfere with each other, their energies are deteriorated, just as if they were improperly exerted or acted upon by an unsuitable stimulus. But when our activities are exhausted and impeded, the resulting state is necessarily disagreeable. The moral rank of the feeling is determined by that of the faculty to which it belongs, superior energies begetting nobler pleasures.

Nature of Pain.—From this analysis of pleasure we derive at once a correlative doctrine of pain. The latter mode of consciousness arises by excess or defect in the exercise of a faculty, or by imperfection or

[3] St. Thomas thus paraphrases Aristotle: "Quælibet operatio sensus maxime est delectabilis *quando* et sensus est potentissimus, id est optime vigens in sua virtute, et quando operatur respectu talis objecti, id est maxime convenientis. Et *quamdiu* in tali dispositione manet et ipsum sensibile et animal habens sensum, *tamdiu* manet delectatio. . . . *Tamdiu* erit delectatio in operatione *quamdiu* ex una parte objectum quod est sensibile vel intelligibile est in debita dispositione, et ex alia parte, ipsum operans, quod est discernans per sensum vel speculans per intellectum. . . . Et nullus continue delectatur, quia *laboret* in operatione quam consequitur delectatio." (*Ethics*, Lib. X. lect. 6.)

unsuitability in the nature of the object. Excess and defect may refer either to the duration or to the degree of the excitement. Both states are also dependent on the natural scope and efficiency of the faculty, its acquired habits, and its actual condition of health and energy.[4]

Laws.—The above results may be enumerated in the following general statements: (1) *Pleasure is an accompaniment of the spontaneous and healthy activity of our faculties, and pain is the result of either their restraint or excessive exercise.* (2) *Pleasure augments with increasing vigour in the operation up to a certain normal medium degree of exertion, and progressively diminishes after that stage is passed: farther on the pleasure disappears altogether, and beyond this line pain takes its place.*

The reader can easily justify for himself the general application of this law by reflecting on various activities, such as those of physical pursuits, of the senses, of the imagination, and of intellect. The most striking exception is found in the case of a few experiences—*e.g.* disagreeable tastes and smells—which appear to be unpleasant even in the faintest degree. This circumstance is ascribed to the fact that some stimuli have an essentially noxious or corrosive effect on the sense-organ. The excessive or painful limit is thus virtually identical with the threshold of consciousness. The number, however, of such excitants is probably much less than is commonly supposed. This is shown by the fact, that several of our worst smelling and tasting substances—certain acids, for instance—in diluted forms contribute to the production of very agreeable mixtures.

The laws just stated are supplemented or qualified by other subsidiary principles: (*a*) *The Law of Change—variatio delectat.*—Change is agreeable. There is a certain degree of relativity in most of our pleasures. The hedonic quality of an activity is increased by contrast with a previous state of consciousness. The pleasures of existence are augmented by alternations of rest and exercise. Nature has given a certain rhythmic constitution to our conscious life and the

[4] "Operationes sunt delectabiles, in quantum sunt *proportionatæ* et *connaturales* operanti: cum autem virtus humana sit finita, secundum aliquam mensuram operatio est sibi proportionata; unde si excedat illam mensuram jam non erit sibi proportionata, nec delectabilis, sed magis laboriosa et attædians." (*Sum.* I-II, q. 32. a. 1. ad 3.)

temporary repose of each faculty, or its cessation from one form of exercise gives fresh zest for another activity. (*b*) *The Law of Accommodation.*—Continuous or frequent exercise dulls and blunts the faculty. It becomes habituated to its stimulus, unless prolongation of the stimulation results in inflammation or some new disorder. The nervous reaction grows feebler and the feeling of pleasure diminishes. Fortunately sensibility to pain is also deadened. This is particularly observable in sensations of taste. With frequent use stronger condiments and stimulants are required to produce an equal effect. (*c*) *The Law of Repetition.*—Whilst in accordance with the principle just stated, continuous or frequent exercise tends to diminish the pleasure of an activity, on the other hand repetition of a neutral or even painful experience often endows it with a new pleasure. Sometimes, indeed, the reiteration of an action originally disagreeable creates a habit that results in a strong craving for its exercise.

Feeling not a third faculty.—The explanation we have given of the nature of pleasure and pain, enables us to see the error of assuming a third faculty radically distinct from cognition and appetency, in order to account for the phenomena of *feeling* in this sense. Pleasure and pain are not special products of a new activity. They consist in the harmonious or inharmonious, the healthy or unhealthy working of any and every mental power. We cannot separate the agreeable or disagreeable character of our various operations from these operations, and then set it up as an act of a fresh faculty. Pleasure and pain are merely *aspects* of the fundamental energies of the mind. We are warranted in postulating a special perfection in the soul as a ground for tactual or gustatory consciousness, but we may not gratuitously call into existence additional faculties to inform us of the varying perfection of these activities. The pleasure which passes into pain with increase of stimulation, is but the *tone* of the function, not the manifestation of a new power.

Theories of Pleasure and Pain.—The ancient Greek views on this subject, though often criticized as vague and imperfect, contain, as we have observed, the main features of all subsequent theories. Among modern writers, **Spinoza** insists on the *relative* side of the phenomena, for him pleasure is progress—"the *transition* from a less to a greater perfection."

Kant inclines still more to the Platonic doctrine. He defines pleasure as "a feeling of the furtherance or promotion of the life-process;" whilst pain is "the feeling of its hindrance." But as such promotion implies hindrance to be overcome, pleasure, he holds, always presupposes previous pain. **Schopenhauer** and modern pessimists dwell much on this negative aspect of pleasure. According to them all, agreeable feeling is merely escape from pain by the satisfaction of some want.

On the other side, **Descartes,** followed by **Leibnitz,** teaches that pleasure consists in the consciousness of perfection possessed. **Hamilton,** adhering more closely to Aristotle, defines pleasure as "the reflex of the spontaneous and unimpeded activity of a power of whose energy we are conscious;" and pain as "the reflex of over-strained or repressed exertion." **Bain** formulates his doctrine in the "Law of Self-Conservation:" *Pleasure is the concomitant of an increase, pain of an abatement of some or all vital functions.* Recent physiological psychologists adopt the Aristotelian conception of pleasure and pain, but emphasize in their definitions what they assume to be the underlying organic process — the integration or disintegration of the neural elements employed, and the adjustment or maladjustment of the organ to the stimulus or general environment. Thus **Grant Allen** describes pain, as "the subjective concomitant of destructive action or insufficient nutrition in any sentient tissue;" and pleasure, as "the subjective concomitant of the normal amount of function in any such tissue." Whilst **Herbert Spencer** would enlarge the generalization and adapt it to the evolutionist hypothesis.[5] With him pleasure is the outcome of *organic equilibrium*, harmonious functioning. It is the accompaniment of normal medium activity of an organ, and is, consequently, beneficial. Excessive or defective exercise, on the other hand, results in pain and so tends to cause a return to equilibrium. The protective influence of pleasure and pain is, therefore, he maintains, an agency of the first importance in the struggle for life.

Criticism.—Whilst fully acknowledging the value of any light to be gathered from physiology concerning the organic conditions of pleasure and pain, especially of the sensuous faculties, the psychologist may yet fairly object that the account of the phenomena given by Aristotle in terms of consciousness is both more appropriate in this science and more defensible in itself, than these later physiological theories on

[5] Cf. Baldwin, *Emotions and Will*, c. v. and Spencer, *Principles of Psychology*, Vol. I. Part II. c. ix.

the subject. Aristotle's doctrine receives immediate support and confirmation from introspective observation, whereas these "scientific" descriptions are still, to say the least, in great part hypothetical. It is far from being proved that even sensuous pleasure is invariably accompanied by integration or nutrition of the nervous mechanism, and that pain always means physiological waste and injury. A large class of pleasant stimulants may be injurious to vital functions; several kinds of agreeable food are not wholesome, or at all events not so in proportion to their pleasantness. Many exciting pleasures are not beneficial, and they would seem to involve disintegration and injury of neural tissue rather than its reparation; whilst other experiences and exercises not immediately pleasurable are found to be wholesome. The cerebral conditions of the higher rational and æsthetic feelings are still more obscure. When the generalization is enlarged in the interests of the theory of evolution, the exceptions become still more numerous, and the asserted coincidence between immediate pleasure and ultimate profit in the struggle for existence can only be maintained by the introduction of so many qualifications to meet each conflicting instance, that our confidence in the universality of the alleged law, and in the deductions derived from it, is seriously diminished. Still the broad fact observed by Aristotle, and reiterated by Christian philosophers from the earliest times, that pleasure in general accompanies energies in harmony with the well-being of the organism whilst pain results from what is injurious cannot be gainsaid.

Readings.—For Aristotle's theory of Pleasure and Pain, see his *Ethics*, Lib. X. cc. 1—5; St. Thomas, *Comment.* ll. 1—9; Farges, *Le Cerveau, &c.*, pp. 412—419; and Hamilton, *Metaphysics*, Lect. xliii. The fullest exposition of the scholastic doctrine is given by M. J. Gardair, *Les Passions et la Volonté*, pp. 117—190. On Feeling, cf. Jungmann, *Das Gemüth*, §§ 53—60, 83, seq.

PSYCHOLOGY.

Book I.

Empirical or Phenomenal Psychology.

Part II.—Rational Life.

CHAPTER XII.

INTELLECT AND SENSE.

Erroneous Views.—Hitherto we have been treating mainly, though not exclusively, of the sensuous faculties of the mind; we now pass on to the investigation of its higher activities, and we at once find ourselves in conflict with a number of philosophical sects, ancient and modern, variously described as Sensationists, Associationists, Materialists, Phenomenists, Positivists, Empiricists, Evolutionists, who differing among themselves on many points agree in the primary dogma that all knowledge is ultimately reducible to sensation. According to them the mind possesses no faculty of an essentially supra-sensuous order. All our most abstract ideas, as well as our most elaborate processes of reasoning, are but sensations reproduced, aggregated, blended, and refined in various ways.

Terms explained. — These several names emphasize special characteristics which are, however, all consequences of the chief doctrine. The word *sensationalism*, and its cognates, mark the attempted analysis of all cognition into sensation. *Materialism* points to the fact that on the sensist hypothesis we can know nothing but matter, and that there is no ground for supposing the human mind to be anything more than a function or a phase of an organized material substance. *Phenomenism* calls attention to the circumstance that by sense alone, and consequently according to the sensational theory of knowledge, we can never know anything but phenomena—the sensuous appearances of things. This is the fundamental tenet of *Positivism*. We must cease from all aspirations after Metaphysics or knowledge of ultimate realities and confine our efforts to *positive* science—that is the ascertainment of laws observable in phenomena. *Empiricism* (ἐμπειρία, experience) accentuates the assumption of this school that all our mental possessions are a product of purely sensuous experience. The stress laid by its leading representatives in this country on the principle of *mental association* has caused them to be styled the *Associationalist* school. All psychologists who assume the *Evolutionist* hypothesis to apply to the human mind without qualification or reserve, as *e.g.* James and Mark Baldwin, even if they differ in some points from the older sensationists, are practically at one with them here.

Intellect essentially different from Sense.—In direct opposition to this theory we maintain that the mind is endowed with two classes of faculties of essentially distinct grades. Over and above Sensibility it possesses the power of Rational or Spiritual Activity. The term *Intellect*, with the adjective *Intellectual*, was formerly retained exclusively to denote the cognitive faculty of the higher order. The word *Rational* also designated the higher cognitive operations of the mind, but it frequently expressed all forms of spiritual activity, as in the phrases *Rational Will* and *Rational Emotions*. The term *Reason* is used sometimes to signify the total aggregate of spiritual powers possessed by man,[1] sometimes to mean simply the intellectual power

[1] In this general sense the possession of *reason* is said to separate man from the brute. Kant means by Reason (*Vernunft*) the power of immediately apprehending truth by *intuition*, whilst Understand-

of understanding, and sometimes to express the particular exercise of the understanding involved in the process of ratiocination, or reasoning. *Reasoning* and *Understanding* do not, however, pertain to different faculties. The former is but a series of applications, a continuous exercise of the latter. The *Rational Appetite* or *Will* is itself a consequence of the same power, so we must look upon Intellect as the most fundamental of the higher faculties of the soul. The words *Intellect* and *Intellectual* we intend to retain exclusively for this superior grade of mental life, and we shall thus avoid the lamentable confusion caused by the modern use of these terms as signifying all kinds of cognition, whether sensuous or rational.

So far, however, we have merely asserted a difference in kind between Sense and Intellect; it is now our duty to prove our doctrine. By affirming the existence of a faculty specifically distinct from that of sense, we mean to hold that the mind possesses the power of performing operations beyond the scope of sense. We maintain that many of its acts and products are distinct in kind from all modes of sensibility and all forms of sensuous action whether simple or complex; and that no sensation, whatever stages of evolution or transformation it may pass through, can ever develope into thought. We have already investigated at length the sentient life of the soul, and to it we have allotted the five external senses, internal sensibility, imagination, sensuous memory, and sensitive appetite. The superiority of the spiritual life over these sensuous activities will be established by careful study of the nature and formal object of its operations.

Proof of doctrine.—Intellect we may define broadly as the *faculty of thought.* Under thought we include attention, judgment, reflexion, self-consciousness, the

ing (*Verstand*) is for him the source of the *generalizations of thought.* Such a usage is still, however, contrary to ordinary language in this country. The verb *to reason* and the participle *reasoning* show that this term denotes not the contemplative, but the discursive activity of the intellect. First truths are apprehended by the *understanding.*

formation of concepts, and the processes of reasoning. These modes of activity all exhibit a distinctly supra-sensuous element; and in order to bring out the difference between intellect and sense, we shall say a few words on each of these operations. We shall begin with some observations on *attention* as the most convenient introduction to the study of intellectual activity in general, although the strictly supra-sensuous character of Intellect is more clearly presented in some of the other functions, especially in that of conception. We shall however undertake a fuller investigation of attention in a future chapter.

Attention.—By *attention* is here meant the special direction of the higher cognitive energy of the mind towards something present to it; or in scholastic language *applicatio cogitationis ad objectum*. The word is sometimes used in a vague sense to signify the fact of being more or less vividly conscious of the action of any stimulus; but in its strict signification it implies a secondary act, an interior reaction of a higher kind superadded to the primitive mental state. When from a condition of passive sensibility to impressions we change to that of active attention, there comes into play a distinctly new factor. In the former state the mind was wholly excited and awakened from without, in the latter it presents a contribution from the resources of its own energy. In this exercise of attention an additional agency which reacts on the existing impressions is evoked into life, and aspects and relations implicit in the orginal impressions are apprehended in a new manner. The mind grasps and elevates into the region of clear consciousness hitherto unnoticed connexions which lie beyond the sphere of sense. It fixes upon properties and attributes and holds them steadily up for separate consideration, while the uninteresting qualities are for the time ignored.

This complementary phase of attention by which the neglected features are ignored is called by modern writers *abstraction*. It is the necessary counterpart of the former. By the very act of concentrating our mental energy on certain aspects of an object we turn

away from others. Both the positive and the negative side of the activity manifest its difference from sense. Thus, suppose an orange has been lying on the table before me. I have for some time been conscious of its presence, but I have not specially directed my attention towards it. Now, however, some circumstance or other, a thought originating within the mind or a movement without, awakens the intellect, and immediately the object has a new reality for me. I advert to the shape of the fruit, and, abstracting from its remaining properties, I notice its likeness to other objects described as spherical. Again my attention centres on its colour, and I compare its similarity in this respect with other things present or absent. In like manner I may think of its weight, its probable taste or smell, and compare it under any of these respects with other fruits, neglecting for the time all the rest of its attributes, or I may consider the object as *a unity*, *a whole*, *a thing* distinct from other beings. Further, whilst attending to one attribute apart I am fully aware of the existence of others in the concrete object present to my mind. I am quite conscious that the separation is purely mental, and that the object of my thought does not exist in this ideal and abstract manner in itself, or *a parte rei*. Now in all these operations something more is implied than sensation. A sensation can neither attend to itself nor consciously abstract from particular attributes, and it can still less apprehend relations between itself and its fellows.

Comparison and Judgment.—But when exercised in explicitly *comparative* and *judicial* acts, the supra-sensuous nature of attention is even more clearly manifested. We fix upon a certain attribute of two or more objects, and comparing the objects pronounce them to be alike or unlike in this feature. This judgment is evidently distinct from the sensation or image of either object, though it presupposes sensations or images of both. It implies, in fact, a mental act distinct from the related impressions by which the relation subsisting between them is apprehended in an abstract manner. To affirm that the taste of a

certain claret is like that of sour milk, or that the earth resembles an orange, there is required in addition to the pair of compared ideas a superior force which holds them together in consciousness, and discerns the relation of similarity between them. Neither the mere co-existence, nor still less the successive occurrence of two impressions, could ever result in the perception of a relation between them, unless there be a third distinct activity of a higher kind to which both are present, and which is capable of apprehending the common feature.[2] A change in our feelings or sensuous consciousness is possible, and as a matter of fact, often takes place without the act of intellectual attention which gives rise to the judgment. For the consistent sensationalist, who necessarily dissolves the mind into a series of conscious states devoid of all real unity, not only is the conviction of personal identity throughout our life a hallucination, but even the simplest act of comparison effected between two successive ideas is a sheer impossibility.

Necessary Judgments.—Among judgments in general, which exemplify the activity of a higher power than sense, there are a special class commonly spoken of as *necessary judgments*, which demonstrate with peculiar cogency the working of intellect. The mind affirms as *necessarily* and *universally* true, that "two things which are equal to a third *must* be equal to each other," that "nothing can begin to exist without a cause," that "we ought never to do evil," that "two straight lines *can never* enclose a space," that "three and two *must* always make five," and so on of a variety of other necessary propositions. A careful examination of judicial acts of this kind will manifest that they express truths of a different nature from that contained in the assertion or denial of the existence or occurrence of a particular concrete

[2] "A feeling qualified by a relation of resemblance to other feelings is a different thing from an idea of that relation, different with all the difference, which Hume ignores, *between feeling and thought*, between consciousness and self-consciousness." (Cf. Green, *Introduction to Hume's Treatise on Human Nature*, § 213.) The confounding of the sensuous capacity of *experiencing* like or unlike impressions with the intellectual power of *recognizing* their likeness or unlikeness was formerly a universal characteristic of the sensationist psychologists of this country.

fact. These truths hold necessarily and universally. They are moreover objectively valid: they are independent of my perceiving them. Their contradictory is absolutely unthinkable. It is not merely that I cannot *conceive*—in the sense of being able to *imagine*—the opposite. It is not that I am under a powerful persuasion, an irresistible belief on the point. It is not that one idea inevitably suggests the other. There is something distinctly over and above all this.

The blind man cannot conceive colour. A few centuries since most people would have found it hard to believe that people could live at the other side of the earth without tumbling off. On the other hand, a man's name, or his voice, irresistibly revives the representation of his face; and the appearance of fire inevitably awakens the expectation of heat. Yet in the former cases the mind after careful reflexion does not pronounce the existence of an absolute *impossibility*, nor does it assert in the latter a *necessary* connexion. We cannot affirm them to be impossible or necessary, because the intellect does not clearly apprehend any such impossibility or necessity. But it is completely different in the class of the judgments we have indicated above. The moral law must hold for *all* intelligence; the principle of causality and the axioms of mathematics, must be *necessarily* and *everywhere* true. Now this necessity cannot be apprehended by sense. The sensuous impression is always of the individual, the contingent, the mutable. It informs us that a particular fact *exists*, not that a universal truth *holds*. Snow may perhaps be black, ground glass may be wholesome and nutritious, and a number of the laws of physical nature may be changed every twelve months in distant stellar regions; but the truths of arithmetic and geometry, the principle of causality, and the moral law are as immutable there as with us. This immutability is distinctly realized by the mind, and such realization is certainly not explicable by mere sense.

Universal and Abstract Concepts.—It is, however, in the formation of abstract and universal concepts, which prescind from the particular determinations of space and time, and thus completely transcend the scope of sense that the spiritual activity of the Intellect is best manifested.[3] Abstract and universal concepts we assuredly possess. They are the necessary materials of science. Judgments, whether contingent or necessary,

[3] "Differt sensus ab intellectu et ratione quia intellectus vel ratio est *universalium*, quæ sunt ubique et semper; sensus autem est *singularium*." (St. Thomas, *De sensu et sensato*, l. 1.)

presuppose them. Without them general knowledge would be impossible; consequently we must be endowed with some power capable of forming such ideas. But in the sensationist catalogue of faculties no such power is to be found. Ergo, that inventory is incomplete.

By no one has the inability of the imagination to form universal notions and concepts been better shown than by the writers of the sensationalist school itself. Berkeley in a well-known passage clearly states the nominalist argument declaring that whatever we imagine must have some definite size, colour, shape, and the rest. Therefore it is concluded we cannot form any truly abstract or universal concept.[4] The legitimate inference, however, is something very different —to wit, that the sensist assumption regarding the nature of mental life is false. Since *de facto* we do possess these abstract and universal ideas, and since the sensationist view of the mind cannot account for them, that conception of the mind must be wrong. There is some faculty omitted from its list.

To establish the existence of these intellectual Concepts or Ideas and their difference from sensuous Images we can only indicate the marks by which they are distinguished, and then appeal to each man's

[4] "Whether others have this wonderful faculty of *abstracting* their ideas, they best can tell; for myself I find I have a faculty of imagining or representing to myself the ideas of those particular things I have perceived, and of variously compounding and dividing them. I can imagine a man with two heads, or the upper parts of a man joined to the body of a horse. I can consider the hand, the eye, the nose, each by itself abstracted and separated from the rest of the body. But, then, whatever hand or eye I imagine, it must have some peculiar shape and colour. Likewise the idea of man that I frame to myself, must be either of a white, or a black, or a tawny, a straight or a crooked, a tall or a low, or a middle-sized man." (*Principles of Human Knowledge.*) The passage is directed against a confused paragraph in Locke's *Essay*, Bk. IV. c. vii. § 9. Berkeley confounds the *phantasm* of the imagination with the intellectual *concept*. We cannot form an abstract or universal phantasm; but the intellect most certainly does apprehend universal ideas, which abstract from varying accidental qualities. The ethical thesis, "Man is responsible for his acts," or any other such general scientific proposition, involves a notion equally applicable to the straight or crooked, black, or white.

internal experience. The *concept* represents the nature or essence, *e.g.*, of man or triangle, in an *abstract* condition, ignoring or prescinding all accidental individualizing conditions. The *image*, on the contrary, reproduces the object clothed with these *concrete* determinations. The *concept* is *universal* (unum in pluribus), capable of representing with equal perfection all objects of the class—because it includes only the essential attributes contained in the definition of the object. The *image*, whether it be distinct or obscure, can truly picture only *one* individual object of some particular colour, shape, size, and the rest. The *concept* since it merely includes the essential attributes is something fixed, immutable, *necessary*. If changed in the least element its nature would be destroyed. For the same reason it is said to be *eternal:* not of course as a *positively* existing being, but *negatively* as an intrinsic possibility. It abstracts from all time, and there never was an instant when it was impossible. The *image*, on the other hand, is unstable, fluctuating with respect to many of its component elements, and contingent. Blurred representations of this kind have been styled "generic" images, but they are in no true sense universal. They are merely individual pictures of an indistinct or obscure character. That these distinctions are real, will become clear to each one who carefully examines his own consciousness. When we employ the terms man, triangle, cow, iron, virtue, *we mean something*. These expressions have a *connotation*, a *meaning* which is more or less perfectly apprehended by the mind. Now that *connotation as thus grasped in a mental act* is the *general concept*.

There commonly accompanies the use of these words a sensuous image, picturing some individual specimen, or a group or series of specimens; but it is neither about these individual examples, nor about the oral sound that our judgments are enunciated. When we say, "The cow is a ruminant," "The whale is a mammal," "The sum of the angles of a triangle is equal to two right angles," "Truth is a virtue," we speak not of the particular phantasm in the imagination, whether it be definite or hazy, and still less of the vocal word. We do not mean *this* triangle, whale, or cow,

but *every* triangle, *every* whale, and *every* cow. Whilst the fancy *pictures* an individual the intellect *thinks* the universal, and this *thought* is the *general notion* or *concept*. The statement of certain nominalists that we have nothing in our mind but a *particular* image *made to stand for any individual of the class* practically concedes the whole case, whilst slurring over the concession in the phrase which we have italicized. The intellectual operation by which the essential features in the particular specimen are *apprehended* and *conceived as standing for "any individual" of the class* is precisely what constitutes the *universal conception*. Exactly herein lies the *abstraction* and *generalization* productive of the *intentio universalitatis*—the universal significance of the general notion. The higher faculty seizes on the essential attributes forming the common nature of the class, and our consciousness of this common nature as separately realizable in each member of the class is the universal idea.

It was long ago justly insisted on by Plato, and before him by Parmenides, that mere sense could never afford general knowledge, and that without universal concepts science is impossible. Pure and mixed mathematics no less than chemistry and biology logically lose their rigorous precision and universality as well as their objective validity if the reality of general conceptions be denied. The penetrating mind of Hume, the acutest thinker of the sensist school, clearly saw this, and accepted the conclusion that even the mathematical sciences can only afford approximate truth.[5] The existence of universal ideas or concepts we must thus consider as established.

Reflexion and Self-consciousness.—Lastly, the act of reflecting upon our own conscious states is essentially beyond the sphere of sense. We find that we can observe and study our own sensations, emotions, and thoughts. We can compare them with previous

[5] "When geometry decides anything concerning the proportions of quantity, we ought not to look for the utmost precision and exactness. None of its proofs extend so far. It takes the dimensions and proportions of figures justly, but roughly, and with some liberty. Its errors are never considerable, nor would it err at all did it not aspire to such absolute perfection." (Cf. *Treatise on Human Nature*, p. 350; also §§ 273, 274.) Mill and later disciples of the school, whose scientific faith is stronger than their regard for consistency, try to give mathematics a more respectable appearance. On the value of that attempt, cf. Jevons, *Contemp. Review*, Dec. 1877; Ueberweg's *Logic*, § 129, and Appendix, § 15; and Courtney's *Metaphysics of Mill*, c. viii.

states, we can recognize them as our own; and we can apprehend the perfect identity of the subject of these states with the being who is now reflecting on them, the agent who struggles against a temptation, and the agent who knows that he is observing his own struggle. Every step of our work so far has involved the reflexive study of our own states, and consequently the exercise of an intellectual power. To analyze, describe, and classify mental phenomena an activity distinct from and superior to sense is required, and it is only because we are endowed with such a supra-sensuous faculty that we can recognize ourselves as something more than our transient states. The teaching of the sensist school from Hume to Mill is logical at least on this point. They fully admit that if their assumption is true, if the only cognitive faculty possessed by the mind is sensuous in character, then it follows that the mind must be conceived as nothing more than sensations and possibilities of sensations.

Intellect a spiritual faculty.—These various forms of mental activity, attention, abstraction, the perception of relations, comparison, judgment, the formation of universal and abstract conceptions, the intuition of the necessary character of certain judgments, and reflexive observation of our own states, demonstrate the existence in the mind of a higher cognitive faculty than that of sensuous knowledge. This superior aptitude of the soul is what the scholastic philosophers styled the *intellect;* and they described it as a *spiritual* or *non-organic* faculty in opposition to *sense*, which they affirmed to be *organic*, *corporeal*, or *material*. By these latter epithets, however, they did not mean to imply that sensuous life is similar in kind to the forces or properties of matter, or to the physiological functions of the organism. They merely intended to teach that all sensuous states have for their proper objects material phenomena, and are exerted by means of a bodily organ. External and internal sensibility, imagination, and sensuous memory are all essentially or intrinsically dependent on the organism. Thus sensations of touch, or phantasms of colour, are possible only to a soul that

informs a body, and can only be elicited by modification of an animated system of nerves. It is, therefore, legitimate to say that the eye sees, and the ear hears, or better, that the soul sees and hears by means of these instruments. On the other hand, by describing the activity of intellect as spiritual or non-organic, the scholastics implied that it is a function of the mind alone; that unlike sentiency it is not exerted by means of any organ.

Unity of Consciousness.—It seems to us incontestible that when properly understood this is the true doctrine. It is false to say that the brain thinks, or even that the mind thinks by means of the brain, although we may allow the phrase that it sees by the instrumentality of the eye or hears by that of the ear.[6] To establish this it is only necessary to revert to the points already considered. First, as regards self-consciousness, the subject of this activity must be of a spiritual or incorporeal nature. For in such an operation there is realized a species of perfect identity between agent and patient which is utterly incompatible with any form of action that pertains to a corporeal organ. Thus, I find that I can not only think or reason about some event, but *I*, the being who thinks, can reflect on this thinking; and, moreover, *I* can apprehend myself who am reflecting, and who know myself as reflecting, to be absolutely identical with the being who thinks and reasons about the given event. But, evidently, such an operation cannot be effected by a faculty exerted by means of a material organ. One part of matter may act upon another, it may attract or repel it, it may be "reflected" or doubled back upon it: but the same atom can never act upon, or reflect upon itself. The action of a material atom must always have for its object something other than itself. This indivisible *unity of consciousness*, exhibited in the act of knowing myself, is therefore possible only to a *spiritual* agent, a faculty that does not operate by means of a material organ.

Apprehension of the abstract and universal.—Again, the characteristic notes of the organic or sensuous state consist

[6] "When *organs of understanding or of reason, instruments of judging and thinking* are spoken of, we confess that we have no idea either what end such theories can serve, or what advantage there could be for the higher intellectual life in all this apparatus of instruments. None of these relating energies (rational activities) from whose inexhaustibly varied repetition all our knowledge is derived can be in the smallest degree promoted by the co-operation of corporeal force" Cf. Lotze, *Microcosmus* (English Trans.), p. 323.

in its representing a concrete material phenomenon, and in its being aroused by the impression of the object on the organ. The intellectual act, on the contrary, whether it manifests itself in the shape of the universal concept, of attention to abstract relations, or in the apprehension of necessity, does not represent an actual concrete fact, and is not evoked by the action of a material stimulus. The formal object of *sense* is the concrete individual: that of *intellect* is the abstract and universal. An organic faculty can only respond to definite corporeal impressions, and can only represent individual concrete objects. But universal ideas, abstract intellectual relations, and the necessity of axiomatic truths do not possess actual concrete existence, and so cannot produce an impression on any organ. Yet consciousness assures us that they are apprehended by us; consequently, it must be by some supra-organic or spiritual faculty. We have thus proved the existence of a supra-sensuous or spiritual form of life in the cognitive region of the mind: later on, when dealing with Free-will, we shall establish in the sphere of appetency a similar truth.

Intellect mediately dependent on the brain.—In asserting that the intellect is a spiritual faculty, we do not of course imply that it is in no way dependent on the organism, any more than in maintaining the freedom of the will we suppose this latter faculty to be uninfluenced by sensitive appetite. It is indisputable that exhaustion of brain power accompanies the work of thinking; but the fact that the exercise of imagination or of external sense forms a *conditio sine qua non* of intellectual activity, accounts for such consumption of cerebral energy. Although intellect is a spiritual faculty of the mind, it presupposes, so long as the soul informs the body, the stimulation of the organic faculty of sense. This was expressed in the language of the schools by saying that intellectual activity depends *extrinsically* or *per accidens* on the organic faculties. The universal concept, the intellectual judgment,

the act of reflexion, are not, like sensation, the results of the stimulation of a sense-organ, but products of purely spiritual action. The inferior mode of mental life is awakened by the irritation of sentient nerves, the superior activity is due to a higher reaction from the unexhausted nature of the mind itself; and the ground for this reaction lies in the fact that the same indivisible soul is the root of both orders of faculties. Intellectual cognition always involves *self-action* on the part of the mind, but the conditions of such self-action are posited by impressions in the inferior recipient faculties. The nature of the process will be more fully described in chapter xv.

Balmez and Lotze on Sensationism.—The doctrine expounded in the present chapter is of such vital importance, yet so completely unfamiliar to the student whose reading has been confined to the current psychological text-books of this country, that we deem it well worth while, for the better enforcement of our teaching, to cite a few passages from foreign philosophers of note. We shall select for our purpose Balmez, the brilliant and original Spanish metaphysician of the first half of last century, and Lotze, the ablest recent representative of the combined Hegelian and Herbartian schools, who in addition holds high rank in physiological science.

In Chapter ii., Book iv., of his *Fundamental Philosophy*, **Balmez** examines the sensational psychology of Condillac, and his criticism of that author applies with equal justice to the entire empirical school of this country from Hume and Hartley to Bain and Sully. In the conception of the mind held in common by all these writers sense is the sole parent and source of all knowledge. There is no rational activity essentially distinct from, and superior to, that of sense. The formation of concepts, the operations of comparison and judgment, and the application of thought in the act of attention, are merely sensations coalescing or conflicting in a fainter or more vivid stage. Balmez' observations on the system of the original parent of French sensism will, consequently, be very much to the point. After a brief account of

Condillac's hypothetical statue, which, at first endowed with a single mode of sensibility, gradually developes higher forms of mental power, the Spanish philosopher lays bare the deficiencies of the sensist doctrine:

Attention.—"Condillac calls *capacity of feeling*, when applied to an impression, *attention*. So if there be but one sensation there can be but one attention. If various sensations succeeding each other leave some trace in the memory of the statue, the attention will, when a new sensation is presented, be divided between the present and the past. The attention directed at one and the same time to two sensations becomes *comparison*. Similarities and differences are perceived by comparison, and this perception is a *judgment*. All this is done with sensations alone; therefore attention, memory, comparison, and judgment are nothing but sensations transformed. In appearance nothing clearer, more simple, or more ingenuous; in reality nothing more confused or false. First of all, this definition of attention is not exact. The capacity of feeling, by the very fact of being in exercise, is applied to the impression. It does not feel when the sensitive faculty is not in exercise, and this is not in exercise except when applied to the impression. *Consequently attention would be nothing but the act of feeling; all sensation would be attention, and all attention sensation;* a meaning which no one ever yet gave to these words. *Attention is the application of the mind to something;* and this application supposes the exercise of an activity concentrated upon its object. Properly speaking, when the mind holds itself entirely passive it is not attentive; and with respect to sensations, it is attentive when by a reflex act *we know* that we feel. Without this cognition there can be no attention, but only sensation more or less active, according to the degree in which it affects our sensibility. If Condillac means to call the more vivid sensation attention, the word is improperly used; for it ordinarily happens that they who feel with the greatest vividness are precisely those who are distinguished for their want of attention. Sensation is the affection of a *passive faculty;* attention is the exercise of an *activity*."

Judgment.—The difference between a sensation of more or less vivacity and the intellectual act of attention is here clearly exhibited, but the distinction between sense and thought is made still more evident, when the Spanish philosopher passes on to Comparison and Judgment: "Is the *perception of the difference* of the smell of the rose and that of the pink a *sensation?* If we answer that it is not, we infer that the judgment is not the sensation transformed; for it is not even a sensation. If we are told that it is one sensation,

we then observe that if it be either that of the rose or that of the pink, it follows that with one of these sensations we shall have comparative perception, which is absurd. If we are answered that it is both together, we must either interpret this expression rigorously, and then we shall have a sensation which will at once be that of the pink and that of the rose, the one remaining distinct from the other, so as to satisfy the conditions of comparison; or we must interpret it so as to mean that the two sensations are united; in which case we gain nothing, for the difficulty will be to show how *co-existence* produces *comparison*, and *judgment*, or the *perception of the difference*. The sensation of the pink is only that of the pink, and that of the rose only that of the rose. The instant you attempt to compare them you suppose in the mind an act by which it perceives the difference; and if you attribute to it anything more than pure sensation you add *a faculty distinct from sensation*, namely, that of comparing sensations, and appreciating their similarities and differences. This comparison, this intellectual force, which calls the two extremes into a common arena without confounding them, discovers the points in which they are alike or unlike each other, and, as it were, comes in and decides between them, is distinct from the sensation; *it is the effect of an activity of a different order*, and its development must depend on sensations as exciting causes, as a condition *sine qua non;* but this is all it has to do with sensations themselves; it *is essentially distinct from them, and cannot be confounded with them without destroying the idea of comparison, and rendering it impossible.* No judgment is possible without the ideas of identity or similarity, and these ideas are not sensations. Sensations are particular facts which never leave their own sphere, nor can be applied from one thing to another. The ideas of similarity and identity have something in common applicable to many facts. . . . Nor can memory, properly so called, of sensations be explained by themselves; and here again Condillac is wrong. The statue may recollect to-day the sensation of the smell of the rose which it received yesterday, and this recollection may exist in two ways: first, by the internal reproduction of the sensation without any external cause, or relation to time past, and consequently without any relation to the prior existence of a similar sensation; and then this recollection is not for the statue a recollection properly so called, but only a sensation more or less vivid; secondly, by an internal reproduction *with relation to the existence of the same or another similar sensation at a preceding time, in which Recollection essentially consists;* and here there is something more than sensation—here are the ideas of succession, time,

priority, and identity or similarity, all distinct or separable from sensations. Two entirely distinct sensations may be referred to the same time in memory, and then the time will be identical and the sensations distinct. The sensation may exist without any recollection of the time it before existed, or even without any recollection of having ever existed, consequently sensation involves no relation to time."[7]

Lotze.—We shall now turn to the German philosopher. In one of the best pieces of Psychology which he has written —the chapter on the "Mental Act of Relation,"[8] Lotze remarks: "The view which regards Attention as an activity exercised by the soul and having ideas (*i.e.*, sense-impressions, images, &c.) for its *objects*, and not a property of which the ideas are *subjects*, was right. The latter notion was the one preferred by Herbart (and by the sensist school). According to him (and them), when we say that we have directed our attention to the idea *b*, what has really happened is merely that *b*, through an increase of its own strength, has raised itself in consciousness above the rest of the ideas. But even were the conception of a variable strength free from difficulty in its application to ideas, the task which we expect attention to perform would still remain inexplicable. What we seek to attain by attention is not an equally increasing intensity of the represented content just as it is, but a growth in its *clearness;* and this rests in all cases on the *perception of relations* which obtain between its individual constituents. Even when Attention is directed to a perfectly simple impression, the sole use in exerting it lies in the discovery of relations. . . . If we wish to tune a string exactly, we compare its sound with the sound of another which serves as a pattern, and try to make sure whether the two agree or differ. . . . *On the other hand*, there are moments when we cannot collect ourselves, when we are wholly occupied by *a strong impression*, which yet does not become distinct, *because* the excessive force of the stimulation hinders the exercise of the constructive act of comparison."[9]

In an earlier part of the same chapter he establishes still more clearly the supra-sensuous nature of Attention, as manifested in comparison and judgment: "The consciousness of the relations existing between various single sensations (among which we reckon here the sum formed by the sensations when united) is not given simply by the *existence* of these relations considered simply as a fact. So far we have considered only single ideas, and the ways in

[7] *Fundamental Philosophy*, Vol. II. §§ 7—13.
[8] *Metaphysics*, Bk. III. [9] § 273.

which they either exist simultaneously in consciousness, or else successively replace one another; but there exists not only in us this variety of ideas and this change of ideas, *but also an idea of this variety and change.* Nor is it merely in thought that we ought to distinguish the apprehension of existing relations which arises from an act of reference and comparison, from the mere sensation of the individual members of the relation; experience shows that *the two are separable in reality*, and justifies us in subordinating the conscious sensation and representation of individual contents to the referring or relating act of representation, and in considering the latter *to be a higher activity,—higher in that definite sense of the word according to which the higher necessarily presupposes the lower, but does not in its own nature necessarily proceed from the lower. Just as the external sense-stimuli serve to excite the soul to produce simple sensations, so the relations which have arisen between the many ideas, whether simultaneous or successive, thus produced, serve the soul as a new internal stimulus stirring it to exercise this new reacting activity.*[10] When two ideas, *a* and *b*, have arisen as the ideas 'red' and 'blue,' they do not mix with one another, disappear, and so form the third idea, *c*, of 'violet.' If they did so we should have a change of simple ideas without the possibility of a comparison between them. This comparison is itself possible only if *one and the same activity* at once holds *a* and *b* together and holds them apart, but yet, in passing from *a* to *b*, is conscious of the change caused in its state by these transitions, and it is in this way that the new idea (concept), γ, arises, the idea of a definite degree of *qualitative* likeness or unlikeness in *a* and *b*.

"Again: if we see at the same time a stronger light, *a*, and a weaker light, *b*, of the same colour, what happens is not that there arises in place of both the idea, *c*, of a light whose strength is the sum of the intensities of the two. If that did arise it would mean that the material to which the comparison has to be directed had disappeared. The comparison is made only because *one and the same activity*, passing between *a* and *b*, is conscious of the alteration in its state sustained in the passage; and it is in this way that the idea γ arises, the idea of a definite quantitative difference. Lastly: given the impressions *a* and *a*, that which arises from them is not a third impression=*2a*; but the activity, passing as before between the still separated impressions, is conscious of having sustained no alteration in the passage: and in this

[10] Lotze's doctrine here is in strikingly close affinity to the scholastic teaching on intellectual activity. Cf. also *Microcosmus*, Bk. II. c. iv. § 1. The italics throughout are our own.

way would arise the new idea γ of *identity*. We are justified in regarding all these different instances of γ as *ideas (concepts) of a higher or second order.* They are not to be put on a line with the ideas (images) from the comparison of which they arose." (§ 268.)

Again: "My immediate object is to indicate what happens at least with such clearness that every one may verify its reality in his own internal observation. It is quite true that, *to those who start from the circle of ideas common in physical mechanics*, there must be something strange in the conception of *an activity*, or (it is the same thing) *of an active being*, which not only experiences two states *a* and *b* at the same time without fusing them into a resultant, but which passes from one to the other and acquires the idea of a third state γ produced by this very transition. Still this process is a *fact;* and the reproach of failure in the attempt to imagine how it arises after the analogies of physical mechanics, *falls only upon the mistaken desire of construing the perfectly unique sphere of mental life after a pattern foreign to it.* That desire I hold to be the most mischievous which threatens the progress of Psychology." (§ 269.)

The Controversy concerning Universals.—Different views as to the nature of sensuous and intellectual cognition gave rise to the great philosophical disputes as to the existence, origin, and validity of General Concepts. These problems ramify into Logic and Metaphysics as well as into Psychology. The two former sciences are mainly concerned with determining the objective counterpart of such ideas; the last with their subjective reality and their origin. The solidarity of these distinct questions, and the mutual interdependence of the particular solutions advanced in regard to each, are, however, only one more proof of the impossibility of isolating psychology from philosophy. Modern writers often express surprise at the intense interest these discussions once aroused. But the reason is obvious to any one who understands their real significance. They are of vital importance to epistemology, or the theory of knowledge, and consequently to every system of Metaphysics and Theology.

Extreme Realism.—One school, represented by **Plato** in ancient Greece, taught that universals (*unum in pluribus*) existed *formally as universals* outside of the mind; that corresponding to every general idea, such as *genus*, *species*, *triangle*, *animal*, *man*, *truth*, &c., there exists somewhere beyond this world of changing phenomena, a reality which is formally and actually abstract and universal—*universalia separata*. This doctrine was refuted by Aristotle and rejected by St. Thomas and the vast majority of the schoolmen. But

a kindred theory, maintaining that universals exist really in things—formally as universals—antecedent to and independent of our minds, was advocated by **William of Champeaux** (died 1121), and by a few other scholastic philosophers. In this view, numerically one and the same essence is common to all the individuals of a species—the humanity of Peter is identical with that of Paul. This form of exaggerated realism was seen to lead inevitably to Pantheism; and so it soon fell into disrepute. It has not been explicitly defended by any school for some centuries past, yet certain forms of modern German idealism have very close affinity to it.

Nominalism.—At the extreme opposite pole of philosophical thought is Nominalism, the logical outcome of sensationism. For it the only universality lies in the word. Outside of the mind there exists nothing but singular concrete objects. Groups of these resemble each other in certain qualities, and we ticket them with a *common name*. They are apprehended in individual sense-impressions and represented by individual pictures of the imagination. These latter vary in distinctness, but whether clear or obscure, vague or definite, fluctuating or comparatively stable, each such image at any given time is capable of representing but one object. It is necessarily singular; the word or common name alone is universal in that it impartially stands for any member of the class. This theory—that universals exist neither in material things nor in the mind, that they are mere words, *flatus vocis*—formulated in the eleventh century by **Roscellinus** has been the common doctrine of sensationist psychologists, from Hobbes to Bain and Sully.

Conceptualism.—In opposition to Nominalism, Conceptualism maintains that the mind has the power of forming genuinely universal concepts; that is, ideas capable of truly representing every member of a given class. The Conceptualist agrees with the Nominalist in denying the existence of any form of universality outside of the mind; but on the other hand he teaches that the mind has the power to construct truly universal notions, quite distinct from the images of the imagination; and in proof of the existence of such universal notions, he employs most of those arguments which we ourselves adduce, although he does not follow some of them out to their legitimate consequences. Conceptualism has varied much in the hands of different writers, from **Abelard** (1079—1142) to Kant and Lotze, and from these to more recent representatives like Mr. Stout and Dr. J. Ward; but they all agree in rejecting that mechanical view of the mind which lies at the basis of sensism and nominalism, and which conceives all cognition as the product of the automatic composition and

conflict, agglutination and counteraction of sensuous impressions, and they ascribe to the mind, under one form or another, an inherently active power of co-ordinating and combining individual sense impressions by means of these universal notions which it constructs. For our own part, whilst we gladly acknowledge the good work which Conceptualism has done by its criticism of both Nominalism and Ultra-Realism, we must insist on its deficiency in failing to recognize *in rerum natura* real *objective foundation* for our universal ideas. The *a priori* element in knowledge is exaggerated. The universal concept is, in most of these systems, conceived as a too purely subjective creation of the mind—a mental abstraction devoid of a true foundation in external reality. All knowledge becomes in their view essentially relative and limited to our own mental states.

Moderate Realism. — There remains the doctrine of Moderate Realism, taught in ancient times by **Aristotle**, and in the middle ages by **St. Thomas** and the vast majority of the schoolmen. This theory is generally ignored by modern writers, who almost invariably represent the Scholastic Philosophers as adhering *en masse* to the extravagant realism of Plato or of William of Champeaux. Yet the well-known fact that Aristotle ruled supreme in the schools from the twelfth to the sixteenth century ought to have preserved even those who never read a scholastic work from so egregious an error. Moderate Realism holds with Conceptualism against Nominalism that not only the common name of the members of a class is universal, but that there are truly *universal concepts*, not mere sensuous images or phantasms, whether of a singular or confused generic type. Secondly, it teaches against both Conceptualism and Nominalism that there is a real objective foundation for this universal concept, in the perfectly similar natures of the members of the same class. The essence, the constituent features, the nature, type, or ideal plan, of man, triangle, silver, is repeated and contained equally in each concrete sample of the class, however much these may accidentally differ. It is, of course, numerically different, and individualized by particular determinations in each instance. But considered in the abstract apart from these individual determinations it might equally well be realized in any member of the class. The essence is thus said to be *potentially* universal, and the concept of such an essence can be employed to represent truly all the possible members of the class. It is upon the perfect similarity of natures in all the members of a class thus grasped in a universal concept that the objective validity of science rests. General notions are therefore not purely mental figments;

they are intellectual constructions, but reposing on objective foundations in the real order of things. Moderate Realism accordingly agrees with Nominalism and Conceptualism in condemning the extravagant realism which maintained the existence of universals *formally as universals* outside of the mind. Universal ideas are *abstractions*, but still they have a genuine basis in reality, and it is for this reason that mathematics and the other sciences have real validity. Such is the doctrine of Moderate Realism advocated by Aristotle and St. Thomas,[11] the only theory, we believe, at once in harmony with introspection and capable of affording an adequate groundwork for mathematics and the other sciences.

It is so satisfactory to find our teaching confirmed by such a prominent and thorough-going sensationalist as G. H. Lewes, that we shall cite him at length. We do this all the more gladly as he acknowledges that the nominalist view of Mill and Bain would render mathematical science indistinguishable from a series of worthless propositions deduced from a collection of artificial definitions and arbitrary postulates: "To the geometer the circle is not a round figure visible by his eye, but a figure visible by his mind in which all the radii from the centre are *absolutely* equal; it is not this particular circle, it is the *ideal* circle."[12] Again: "The objects of mathematical study are *reals* in the same degree as that in which the objects of any other science are reals. Although they are *abstractions*, we must not suppose them to be imaginary, if by imaginary be meant *unreal, not objective. They are intelligibles of sensibles; abstractions which have their concretes in real objects.* The line and the surface exist, and have real properties, just as the planet, the crystal, and the

[11] "Unitas sive communitas naturæ humanæ non est secundum *rem*, sed solum secundum *considerationem*." (St. Thomas, *Sum. Theol.* I. q. 39, a. 3.) "Universalia secundum quod sunt universalia non sunt nisi in anima. Ipsæ autem naturæ, quibus accidit intentio universalitatis sunt in rebus." (St. Thomas, *De Anima*, lib. ii. lect. 12.) "Ipsa natura cui accidit vel *intelligi*, vel *abstrahi*, vel intentio universalitatis non est nisi in singularibus. Sed hoc ipsum quod est *intelligi* vel *abstrahi* vel intentio universalitatis, est in intellectu. . . . Humanitas quæ intelligitur non est nisi in hoc vel illo homine; sed quod humanitas apprehendatur sine individualibus conditionibus, quod est 'ipsam abstrahi,' ad quod sequitur intentio universalitatis, accidit humanitati secundum quod percipitur ab intellectu." (*Sum. Theol.* I. q. 85, a. 2, ad 2.) "Humanitas enim est aliquid *in re*, non tamen ibi habet rationem *universalis* quum non sit extra animam aliqua humanitas *multis communis*; sed secundum quod accipitur in intellectu, adjungitur ei per operationem intellectus intentio secundum quam dicitur *species*." (*Id.* I. Dist. 19, a. 5, ad 1.)

[12] *Problems of Life and Mind*, Vol. I. p. 344.

animal exist and have real properties. It is often said, 'The point without length or breadth, the line without breadth, and the surface without thickness are imaginary; they are fictions, no such things exist in reality.' This is true, but misleading. These things are fictions, *but they have a real existence, though not in the insulation of ideal form*, for no idea exists out of the mind. These abstractions are the limits of concretes. Every time we look on a pool of water we see a surface without thickness, every time we look on a parti-coloured surface we see a line without breadth as the limit of each colour. Both surface and line as mathematically defined are unimaginable, for we cannot form *images* of them, cannot picture them detached; *but that which is unpicturable may be conceivable, and the abstraction which is impossible to perception and imagination is easy to conception.* It is thus that *sensibles* are raised to *intelligibles*, and the constructions of science—conceptions—take the place of perceptions. But the hold on reality is not loosened by this process. When we consider solely the direction of a line we are dealing with a fact of Nature, just as we are dealing with a fact of Nature when we perform the abstraction of considering the movement of a body irrespective of any other relations. . . . Not only is it misleading to call the objects of Mathematics imaginary, it is also incorrect to call them *generalizations*. They are abstractions of intuitions. Any particular line we draw has breadth, any particular circle is imperfect; consequently generalized lines and circles (*scil.*, by imagination =generic images) must have breadth and imperfection. Whereas the line or circle which we intuit mathematically is an abstraction from which breadth or imperfection has dropped. and the figures we intuit are these figures under the form of the limit." (*Id.* 420.)

The student will find further information on this question in our historical sketch in the next chapter.

Readings.—On the essential difference between Intellect and Sense, cf. St. Thomas, *De Anima*, Lib. III. l. 7; *Contra Gentiles*, Lib. II. c. 66; Boedder, *Psych. Rat.* §§ 106—112; Mivart, *On Truth*, c. xv.; Balmez, *Fundamental Principles*, Bk. IV.; Kleutgen, *Phil. d. Vorzeit*, §§ 33—39. The universal concept is admirably treated both by Abbé Piat, *L'Idée*, pp. 50—64; 180—220; and by Père Peillaube, *Théorie des Concepts*, cc. 2, 3; see also *Logic* (present series), cc. 7, 8. Green's Introduction to Hume's *Treatise on Human Nature* contains an able examination of Sensism. See also "Idea" and "Intellect," by the Author, in the *American Catholic Encyclopedia*.

CHAPTER XIII.

CONCEPTION. ORIGIN OF INTELLECTUAL IDEAS. ERRONEOUS THEORIES.

Origin of Ideas.—We have shown in our last chapter that certain mental products are essentially distinct from those of our sensuous faculties and must be due to some higher power of the soul. The question next arises: How are these supra-sensuous results effected? This is the problem of the *Origin of Intellectual Ideas.* Epistemology, or the branch of Philosophy which investigates the *validity* of human knowledge in general, is peculiarly interested in this question. For upon the answer given by the Psychologist as to *how* our conceptions have *originated* may seriously depend the Philosopher's decision as to their *worth* and *truth.* The chief solutions advanced are, (1) the hypotheses of Innate Ideas, and *a priori* Mental Forms; (2) Empiricism or the sensationalist theory; and (3) the Peripatetic doctrine. The first exaggerates the contribution of the mind to a maximum. The second reduces it to a minimum. The third whilst deriving all knowledge from experience insists upon the important part played by the rational activity of the mind in

the elaboration of knowledge. It will be dealt with in the next chapter.

Furthermore, either in connexion with the doctrine of innate ideas, or independently of it, some modern philosophers have sought to solve the problem of knowledge by metaphysical hypotheses concerning the relations subsisting between the human mind and the Deity. The chief of these have been the theories of Divine Assistance, Ontologism, Pre-established harmony, and Monistic Pantheism. We shall give a brief sketch of each.

Theory of Innate Ideas.—A common characteristic of many philosophers who justly insist on the spirituality of the soul is to unduly exaggerate the opposition between mind and body, and some of them are inclined to adopt an extravagant *dualism*, denying the possibility of any mutual interaction between the spiritual and material substances. Supra-sensuous mental products, such as the ideas of being, unity, the true, the good, necessary truths, and the like, cannot, these philosophers maintain, have been originated by sensuous observation; they are presupposed in all experience and transcend it. They must consequently have been *innate* or *inborn* in the mind from the beginning, antecedently to all acquired knowledge. Such, in a word, is the case for this theory.

Disproof.—There are numerous fatal objections to it. *Firstly*, it may be rejected as a gratuitous hypothesis. Unless it be demonstrated that some portion of our knowledge cannot be accounted for by the combined action of sense and intellect, the assumption of such a native endowment is unwarranted. But this demonstration is impossible. Moreover, the genesis of vastly the greater portion of our knowledge can be traced to experience, and there is every reason for supposing that the residual fraction has arisen in the same way. *Secondly*, by the very nature of the case there can be no evidence of the existence of any ideas antecedent to

experience. *Thirdly*, all our earliest ideas are of objects known by sensible experience, it is about such sensible material objects our first judgments are elicited, and to these we always turn to illustrate our loftiest and most abstract conceptions. The words, too, employed to express supra-sensuous realities are primarily drawn from sensible experiences and material phenomena. Moreover, persons deficient in any sense from birth are deprived of a corresponding class of ideas. But these facts are obviously in conflict with the supposition of a supply of ready-made supra-sensuous cognitions from the beginning. *Lastly*, we may add that the tendency of physiological science is to make the doctrine of the mutual independence of body and soul less tenable every succeeding day.

Kant's doctrine and the other theories which we have mentioned must be dealt with separately.

Empiricism.—The Sensationist or Empiricist theory of knowledge stands in the completest opposition to the views of Kant, and of the supporters of innate ideas. Starting from the assumption that sensuous and intellectual activity are essentially the same in kind, the aim of the former school is to make it appear that universal and abstract concepts, necessary judgments, self-consciousness, and all our higher spiritual cognitions are merely more complex or refined products of sense. The logical corollary of this theory, though not usually brought prominently into notice, is the repudiation of the spirituality of the soul, or at all events the denial of all rational grounds for belief in this most important doctrine. If all mental operations are of a sensuous organic nature, then evidently there is no reason for asserting that the soul of man is a spiritual principle of an order superior to that of the brute. The method of the empiricist is, on the one hand, to depreciate the value of those peculiar characteristics which mark off our intellectual acts; and, on the other, to exaggerate the capabilities of sense. Universal concepts are either confounded with the concrete phantasms of the imagination, or their existence is boldly denied. The necessity of axiomatic

judgments is explained as the effect of customary experience; and the notion of Self is analyzed into a cluster of conscious states. All our cognitions, in fact, are merely more or less elaborate products evolved by the automatic action of association out of sense impressions and their reproduced images. As the mind itself is only the resulting outcome, the aggregate of sensuous states, it can of course be endowed with no superior active force capable of uniting, comparing, or in any way working upon the materials of sense. This indeed is the fundamental defect of empiricism. It ignores the active energy of intellect with which the mind is endowed, and consequently it can give no adequate account of those higher intellectual conceptions on which we dwelt in the last chapter.

Historical Sketch of Theories of General Knowledge.

The advantage to the student of Psychology of even a rough idea of the history of speculation on the subject of Intellectual Cognition justifies us, we believe, in giving a compendium of the leading theories on the question, together with a few brief critical remarks on the most important points.

Innate Ideas: Reminiscence: Ultra-realism.—The originator of the hypothesis of Reminiscence was **Plato.** The sensible world is for him no true world at all. It is merely a congeries of transient phenomena which *changing* from moment to moment never really *are.* The real world, that which alone truly *is* and does not pass away, is disclosed to us in our intellectual ideas. Such universal concepts as *being*, *unity*, *substance*, *the beautiful*, reveal to us, obscurely indeed, but still with truth, the immutable and the necessary. Now these spiritual notions cannot either directly or indirectly be derived from sensuous perception; they are natural endowments of the soul, retained by it from a previous existence. Truth, goodness, humanity, beauty, and the rest, however, do not possess merely a subjective existence, as abstract concepts in the mind. They formally exist *as universals* in the genuinely *real* world of which the present material universe is only a faint imperfect reflexion. In that celestial land the human spirit formerly dwelt, and there contemplated these ideas or abstract essences as they exist in themselves. For some crime, now unknown, it was evicted from its true home and incarcerated in the prison of the body. Although

much the greater part of its ancient knowledge was obliterated, there yet remained in a dormant condition traces of the mental acts by which the soul in its previous life contemplated the real ideas. These imperfect mental states are the universal ideas of our present experience, and they awake on the occasion of sensuous perceptions. They are not, however, in any way produced by, or elaborated out of these latter. They are merely evoked from the inner resources of the mind on the occurrence of corporeal phenomena, which in a shadowy manner resemble the original types—the Real Universals.

Criticism.—We have here the doctrine of exaggerated realism. In this form it implies two distinctive tenets: (*a*) the reality of universals *as such—Universalia extra rem vel ante rem;* and (*b*) the existence of innate ideas by which these are revealed. The former is a logical or metaphysical problem, and for a complete discussion of the subject we refer the reader to other volumes of the present series.[1] The second is properly a psychological question. Plato is undoubtedly right in accentuating the vital importance of the intellectual elements of knowledge, but the assumption of a pre-natal existence is arbitrary and untenable, whilst the doctrine of *real* universals is laden with absurdities. The only proofs urged in favour of the hypothesis of innate ideas are the peculiar supra-sensuous character of intellectual representations, and the fact that the answering of children to judicious interrogation seems to show that they are possessed of such ideas before they can have formed them from experience. The first argument, however, has no force against the Aristotelian theory, which accounts for supra-sensuous ideas, as the result of the higher spiritual faculty of the mind apprehending the universal nature of real sensible objects. The second difficulty founded on the "heuristic" method of instruction is also ineffective, for this regulated process of interrogation is either virtually a means of teaching and communicating the idea in question, or the latter is of such a simple character as to be formed in at least a vague manner in our earliest experience.

Descartes (1596—1650). Instead of explaining innate ideas as "reminiscences" of cognitions of a previous life, Christian philosophers conceived them as inscribed by God on the soul at its creation. The earliest important thinker among modern philosophers supporting the hypothesis of innate ideas was Descartes. For him soul and body are two

[1] Cf. *Logic*, c. viii. and the *First Principles of Knowledge*, Pt. II. c. iv. A good sketch of Plato's Philosophy is given in Stöckl's *History of Philosophy*, §§ 29, 30.

substances connected, indeed, at one point in the brain, as the soul is situated in the pineal gland, but mutually independent of each other. They are completely opposed to each other in nature and have nothing in common. The soul is *simple;* its essence is *thought.* The essence of matter is *extension.* Accordingly real interaction between them is impossible; and their seeming mutual influence can only be explained by Divine intervention, though this consequence became clearer in the hand of Descartes' followers. He divides ideas into three classes, *adventitious ideas* gathered by sense-perception, *factitious ideas* constructed by the imagination, and *innate ideas* possessed by the mind from the dawn of its existence. Without these latter science would be impossible. Among them are the ideas of the *infinite*, of *myself*, of *substance*, and, in fact, all universal notions expressive of metaphysical realities. These ideas are in no way caused by external objects, but merely wake up into life on the *occasion* of the sensuous perception of the latter. Yet, they truly represent the essences of such objects, since God has ordained them for that purpose. These innate ideas are at times described as real representations, "entities," effected by God; though later on, under the exigencies of controversy, they were reduced to mere dispositions or tendencies of the mind. The former tenet is, however, more conformable with his general view. Even the "adventitious" ideas are not the result of the immediate action of material objects on the mind. Soul and body are so contrasted in Descartes' view that, as we have observed, interaction seems impossible, and his theory of sense-perception is therefore confused and inconsistent. At times he conceives the act of apprehension as a mental state excited by God on the *occasion* of the physical impression reaching the brain, whilst elsewhere he seems to consider the perception as an intellectual inference from a subjective effect to an objective cause.[2]

[2] Descartes is remarkable not so much for his treatment of the *origin* of knowledge as for his attempted proof of its *validity*. To build philosophy on a secure basis he starts with a process of *methodical* or *simulated doubt*. I can doubt, he says, the veracity of my senses, mathematical axioms, the existence of the external world, &c., &c.; but I cannot doubt that I think, and to think I must exist. *Cogito ergo sum*, is thus the first fact and the last truth in Philosophy. To advance further a criterion or rule of certainty is required, and by studying the one unassailable truth, this criterion is discovered to consist in a peculiar *clearness* of apprehension. I am indubitably certain of my own existence, because I *clearly* perceive that my doubt or thought involves it. Whatever, then, I have a *clear idea* of, is to be considered true. The next

Geulincx (1625—1669), a disciple of Descartes, frankly faced the difficulty resulting from this extravagant *dualism*, and formally advocated the doctrine of "*occasionalism*" or "*Divine assistance.*" He boldly denied the possibility of efficient action between body and mind. Changes in the one are but the "occasions" of the production by God of appropriate changes in the other. Our ideas of external objects are excited not by the objects, but by God Himself. Similarly in the case of all other secondary causes the Divine intervention or assistance is the only real efficient agency.

Ontologism.—The consequences of the Cartesian opposition between soul and body developed by Geulincx, were carried still further in **Malebranche's** (1638—1715) mystical theory of a *Vision en Dieu*. Corporeal objects cannot effect impressions on an unextended mind so as to generate ideas of themselves in the latter. But as it is a limited being, the mind cannot derive such ideas from itself. It therefore beholds them in another spirit—the Infinite Being. God contemplates all creatures reflected in His own essence. All created beings have their types and exemplars in the Divine ideas which are identified with the essence of God. Malebranche thus improves on Plato. The *ideas* are no longer separate entities; they are one with the mind and nature of God. Since we exist in God as in *the place of spirits*, there is no reason why we should not have an immediate knowledge or intuition of Him. "*Dieu est très étroitement uni à nos âmes par sa présence, de sorte qu'on peut dire qu'il est le lieu des esprits,*

step is to guarantee the validity of this criterion. I find within me a *clear idea* of an Infinite Being. Whence is this? (*a*) *Clearly* not from a finite creature; and moreover (*b*) the idea of an Infinite Being involves all possible attributes including existence. Ergo, such a Being really exists. The idea of infinite also *clearly* implies perfection and veracity; but a veracious God cannot have created me for perpetual and necessary deception. When, therefore, I have a *clear idea*, I must be in possession of truth. Scientific certainty is now restored, and the construction of a bridge from the subjective to the objective world effected. I have a *clear idea* of mathematical axioms, of the physical universe as extended, &c., &c.

There are several fatal objections to the doctrine of Descartes. 1) The system of Methodical Doubt leads logically to absolute scepticism. We cannot prove the veracity of our faculties: if we start with even fictitious doubt we can never recover certainty of any value. (2) The criterion of "clear" ideas is vague, indefinite, and worthless. (3) His attempted justification involves a vicious circular argument. The existence and veracity of God are proved by my possession of a *clear idea*, and again the *validity* of my clear ideas is itself established by the veracity of God. For a full treatment of Descartes' System, cf. Rickaby, *First Principles*, c. ix.

de meme que les espaces sont en un sens le lieu des corps." (*Recherche de la Vérité*, Lib. III. Pt. 2, c. 6.)

We have not, however, a complete *comprehension* of the Infinite Being. Nor do we behold Him *absolutely* as He is *in Himself*, but only as He is in relation to creatures. (This thought was developed by later ontologists, as in Gioberti's teaching that the primary act of intelligence is the apprehension of God as creating existences; and Rosmini's virtual identification of our intuition of the ideal, or possible being, with that of the Infinite Being.) The Divine ideas, in fact, mediate between our minds and material objects: *We see all things in God.*

Criticism.—The doctrine that the Infinite Being is the immediate and proper object of human cognition, and the source of our knowledge of all other things, is called *Ontologism*. It is exposed to several fatal objections: (1) The most careful reflective examination of our consciousness fails to detect the alleged intuition of God. (2) The intuition of God as having relation to creatures would involve an immediate apprehension of His essence. (3) All our knowledge starts from the sensuous perception of material objects, and from these our analogical conceptions of immaterial beings are formed by abstraction and exclusion of imperfections incompatible with supernatural existence. Moreover, we invariably turn back to sensuous cognitions to illustrate our more abstract notions, which would not be the case if the Infinite immortal being were the primitive and proper object of our intellect. (4) The theory rests on a false assumption of a mere accidental union existing between soul and body, and is in conflict with the intimate relations subsisting between our sensuous and intellectual knowledge. (5) All forms of ontologism which teach that the immediate objects of our perception are not material creatures, but the ideas or the essence of God incline on the one hand towards the idealism of Berkeley, and on the other towards the pantheism of Spinoza, as they tend to identify the visible universe with God Himself.

In favour of ontologism it is urged that it accounts for the universality, necessity, and eternal character of our intellectual ideas, as they possess these properties in God; and, in addition, it explains the presence of the conception of the Infinite Being in our minds. The answer is, that these facts can also be accounted for by intellectual abstraction and reflexion exercised on the data supplied by sense, without gratuitously assuming an immediate vision of God.

Christian Philosophy has always taught that the essences of created beings are faint infinitesimal reflections of archetypal ideas in the Divine Mind. The eternal intrinsic possibility of each object, the ideal plan which when actualized

makes up its essence, has its ultimate foundation in the eternal essence of God, contemplated by the Divine Intellect as imitable *ad extra*. It is realized in the physical order by the creative act of the Divine Will; and it is discovered by our intellect in the creature, as we perceive the plan of the artist in his work. Ontologism thus inverts the true order of knowledge. We do not descend to a knowledge of the thing through the Divine Idea, but we ascend to the Divine Idea from the thing.

Pantheistic Monism.—Notwithstanding his exaggerated dualism, Descartes' inaccurate definition of *substance* as, "that which so exists that it stands in need of nothing else for its existence," his denial of all real causal action by creatures, and his reduction of the essence of matter to extension, and that of the soul to thought, contain the germs of the pantheistic *Monism* developed by the Jew, **Baruch Spinoza** (1632—1677). The fact that the exposition of mental life given by various popular writers on empirical psychology at the present day admittedly results in Spinoza's monism, is our excuse for devoting here some space to the founder of modern pantheism.[3] His system is elaborated in his chief work, the *Ethica*, in geometric fashion from a few definitions and axioms: *Substance* is "that which exists in itself, and is conceived by itself, *i.e.*, the conception of which can be formed without the aid of the conception of anything else." It follows from this definition that there can be only *one* substance, self-existing and infinite. *Attribute* is "that which the mind perceives as constituting the essence of substance." A *mode* is "the accident of substance, or that which is in something else through the aid of which it is conceived." The one absolutely infinite *substance* is constituted by innumerable relatively infinite *attributes*, of which only two are known to us. These are *extension* and *thought*. They manifest themselves in finite *modes* which comprise the universe of physical things and minds with which we are acquainted. Every particular existence is only a modification, an individualization of the universal substance. Neither human souls nor material objects are self-subsistent; they are merely transitory modes, or as recent writers say, "aspects" of the one infinite being. This one eternal, absolute substance is God. This God is the immanent indwelling, self-evolving cause of the totality of things. It is neither intelligent nor free. All things are identified in it. God and the universe differ merely as *natura naturans* and *natura naturata*. The Divine substance evolves itself according to the inner necessity of

[3] Cf. Sully, *The Human Mind*, Vol. II. p. 369; Höffding, *Outlines of Psychology*, p. 68.

its being, and this is the only "freedom" which it possesses. The laws of nature are absolutely immutable. They proceed from the essence of God with the same necessity as its geometrical properties flow from the essence of the circle or triangle. Divine action is not in view of ends; there are no final causes.

Thought never acts on the extended, nor matter on mind. Both harmoniously develop their serial changes in parallel lines, but in mutual independence. The dualism of Descartes is thus retained, but only to be unified in the identity of the infinite *substratum*. The soul is the "idea"—the subjective aspect—of the body. They are really one individual thing differently conceived. Both are merely modes or phases of the Divine substance; the one of the attribute of thought, the other of extension.[4] All things are animated, though in varying degrees of perfection. The supposed freedom of the human will is an illusion. Every incident in the history of the universe is necessarily evolved out of the infinite substance, and so has been inexorably predetermined from all eternity. *Good* is that which is useful to human well-being; *evil* is the reverse. Since the soul is merely an aspect of the body, immortality in the form of a continuity of personal life after dissolution of the body is of course impossible. The individual will be re-absorbed in the omnivorous infinite substance. We are only "tiny wavelets on the great ocean of substance, we roll our little course, and sink to rise no more." Such is the philosophical conception of the human soul, of God and of the universe, to which much of the current psychology is designed to conduct the reader. It, therefore, seems desirable that the student should clearly understand whither he is to be led by the "new Spinozism."

We cannot enter into a criticism of pantheism here. It suffices to say that Spinoza's theory is entirely built up out of his definitions and axioms, and that these have been shown to be inaccurate and untenable by many writers; whilst even in his demonstrations the author does not consistently adhere to them.[5] The identification of God with blind necessarily-evolving all-devouring substance is little, if at all, preferable to bald and naked atheism. The fatalism involved in the

[4] "Mens (humana) et corpus unum idemque sunt individuum, quod jam sub cogitationis, jam sub extensionis attributo concipitur." (*Ethica*, Pt. II. Prop. 21.)

[5] Cf. Boedder, *Natural Theology*, pp. 200—205, and 449—460; Martineau, *Types of Ethical Theories*, Vol. I. pp. 234—370; Saisset, *Modern Pantheism*, Vol. I. pp. 92—160. Ueberweg's *History of Philosophy*, Vol. II. pp. 55, seq., also contains some good criticisms of Spinoza's system.

system is subversive of the notions of responsibility, merit, duty, and sin, good and evil, together with all moral ideas. Finally, the belief of mankind in a future life is an idle dream.

Leibnitz (1646—1716).—In marked opposition to the sensationism of Locke on the one hand and to the monism of Spinoza on the other stands the German Leibnitz. Agreeing with the Cartesian view of the soul as essentially active, he defended the existence of innate ideas against the English empiricist; whilst instead of the one universal substance of the Jewish pantheist he substitutes an infinite number of individual substances, *monads*. Retaining the excessive dualism of Descartes, with its inevitable denial of interaction between soul and body, yet seeking to avoid alike the continuous series of miracles required by the doctrine of "Occasionalism," the mysticism of the *Vision en Dieu*, and the fatalistic Pantheism of Spinoza, Leibnitz invented the ingenious theory of *Pre-established Harmony*. The universe he holds to be composed of an infinite number of *monads*. These monads are simple unextended substances, energetic atoms, endowed with forces analogous to the ideas or emotions of the mind. A *law of continuity* in the form of a continuous gradation in stages of perfection holds universally throughout creation from the lowest and most imperfect to the highest created monad. God is the primitive, uncreated, infinite monad. Spirits and human minds are single monads of high rank. Material substances, including the human body, consist of aggregates of inferior monads. There is no real *transient* action between different monads. The existence of each is made up of a series of *immanent* changes developed in harmony with those of the rest of the universe of monads. The states or "ideas" of each monad reflect, more or less clearly in proportion to its rank, the condition of all other monads. Each monad is thus a mirror of the universe—a *microcosm* imaging the *macrocosm*. The soul and body of man have been so created and mated by God as to run, like two clocks started together, through parallel series of changes. Since all monads have been originally created with appropriate initial velocities and corresponding rates of development, Leibnitz holds that all the phenomena of perception and volition are adequately accounted for. Such is the theory of Pre-established Harmony.

The *principle of sufficient reason*, that nothing can happen without a sufficient or determining reason, plays an important part in his scheme. The Divine and the human will alike require a determining ground for every act. The creation of the present out of all possible worlds which hovered eternally

before the mind of God, is optimistically explained by its being the absolutely best. Its evolution is the gradual realization of a Divine plan.[6] Descartes' mechanical doctrine of inert matter, Locke's conception of a purely passive recipient mind, and the pantheistic monism of Spinoza in which all existing beings are resolved into mere modes of one infinite substance, are thus replaced by a system in which all reality, whether spiritual or material, is transformed into a hierarchical multiplicity of living forces. To Locke's aphorism, *Nil est in intellectu quod non fuerit prius in sensu*, Leibnitz replied, *Nisi intellectus ipse*, defending the inherent activity of the mind, and ascribing to it an original fund of native endowments. Intellectual ideas and fundamental principles must be innate, for they could not have been generated by sensuous experience. We find them within us as soon as we attain to perfect consciousness; and they have the character of *universality* and *necessity*, while sense discloses only the particular and the contingent. We possess the ideas of God, of our own *Ego*, and, consequently, of duration and of change, none of which are in any way derivable from experience. Still, like Descartes, Leibnitz at times tones down the theory of innate ideas until it almost vanishes. The ideas do not exist as actual cognitions from the beginning; neither quite as pure potencies. They are best described, *comme des inclinations, des dispositions, des habitudes, ou des virtualités naturelles, et non pas comme des actions*. They exist merely as *unconscious perceptions* until they are evoked into the stage of *apperception;* that is, until

[6] Hence Leibnitz is commonly spoken of as an *Idealist*. The ambiguity of this word should be carefully borne in mind by the student. *Idealism* or *rationalistic idealism* in one usage is equivalent to *Teleologism*, and denotes the view that the world is governed by an *idea* or plan. Aristotle and theistic philosophers are *idealists* in this sense, though they may believe in the existence of a real material world. A special form of this teleological idealism is *optimism*, which maintains the *ideal perfection* of the world. *Idealism* in another signification, or *Phenomenal Idealism*, as we have explained in a previous chapter, means the theory which denies all *material reality*. We can only know *ideas*, viz., sensations, phenomena, &c. Hume and Dr. Bain are idealists in this sense. *Idealism* in the first signification is opposed to a purely *mechanical theory* of the genesis and conservation of the world; in the last to *realism*, or the assumption of the existence of a *real* extra-mental world. The term *Realism* is also ambiguous. It is employed (1) in the sense just mentioned to signify the doctrine of a real independent world, and (2) as opposed to *Nominalism* and *Conceptualism* to denote the theories (exaggerated and moderate realism) which maintain the objective validity of general notions. Cf. *First Principles*, Pt. II. cc. ii. iv.

they are formally realized in consciousness. However, although there appears to be placed a distinction between the origin of intellectual ideas and the acts of sensuous apprehension, the theory of Pre-established Harmony necessarily makes them both equally the result of a purely subjective evolution of the native possessions of the mind.

Criticism.—The system of Leibnitz is a beautiful and ingenious creation of a great intellect, but fanciful and incredible in the highest degree. As regards the special question of perception, the hypothesis of a universe of isolated monads working out independent lines in pre-established harmony is gratuitous, incapable of proof, and impossible to reconcile with the veracity of God or the Freedom of the Will. The sole ground of the creation of this world is, Leibnitz teaches, its superior rationality, its absolute consistency, and inner perfection. Yet when examined, it turns out to be a gigantic sham. "While none of its members condition each other, everything goes on as if they did."[7] With all the semblance of real unity and interaction, the parts possess no more genuine connexion than the incidents of an unreal dream. As regards the wavering exposition of the nature of innate ideas by both Descartes and Leibnitz,[8] it may be observed, that, if all which is claimed to be innate is the capability of forming ideas out of materials presented by sense, then the doctrine is correct; but if instead it is held to be purely out of the mind's own resources, apart from any real co-operation of external objects, that our ideas are evolved, then all the objections to the innate theory already indicated stand. There can, moreover, be advanced no reason, which does not involve flagrant *petitio principii*, for asserting that innate ideas truly represent the objective world; and the logical outcome is therefore subjective idealism. For Leibnitz, especially, it is peculiarly indefensible to assume the real existence of the material world which, in his view, effects no real change in our mental states. Nay, were it annihilated it would not be missed! This amazing consequence is worth remembering in view of the frequent advocacy at the present day of theories of *psycho-physical parallelism*, which similarly deny all interaction between mental and bodily processes.

Rosmini (1797—1855) reduced the stock of innate cognitions to the single conception of *ideal being*, which he considers to be a mental form, a condition of knowledge, and the light

[7] Cf. Lotze, *Metaphysic*, § 79.

[8] Cf. Liberatore *On Universals* (Trans.), pp. 78, 90—102; also Stöckl, *Geschichte der Neueren Philosophie*, Vol. I. § 78.

of reason. This idea is involved in every other idea and judgment, and so must precede them all. By the application of this innate form to our sensations sensuous apprehension is converted into the intellectual perception of objective existence. Against this single idea, all the old objections to the larger hypothesis still hold. Moreover, the alleged combination of the intellectual *form* with the sensation presents to us a very obscure and dubious conception, and affords an extremely unsatisfactory account of the objective reality of our knowledge of being. The inference from the universality of the idea of being in our cognitions to its innate origin is unwarrantable. Every perception contains this idea, because every external object apprehended involves this attribute. It is a *form* of all knowledge, a *datum* of all cognition, but not therefore an *innate form*, a *subjective* datum. This idea is generated at the dawn of intellectual life, though at first it is presented in the vaguest and most ill-defined form. Finally, if this idea which is predicated of all real objects be, as Rosmini in his later writings implies, an intuition of the Infinite Being, the doctrine leads to Pantheism.[9]

Innate a priori Mental Forms.—Excited by the thoroughgoing scepticism of Hume, which destroyed the possibility of knowledge, **Kant** (1724—1804) attempted to elaborate a theory of cognition which, combining the elements of truth possessed by Locke, Descartes, and Leibnitz, would afford a solid basis for science. The chaotic and conflicting systems of speculation with which Germany has been deluged during the past century are very significant evidence as to the amount of success attending Kant's effort.

His chief works are the *Critique of the Pure Reason* and

[9] Besides the arguments in favour of innate ideas indicated in the brief accounts given of the above writers, it has been urged: (1) that thought is essential to the human mind, and so must have been ever present; (2) that at all events the desire of happiness, which involves many ideas, is innate; (3) that axioms or first principles, intellectual and moral, are known by all from an early age, and must therefore be implanted from the beginning. It may be replied: (1) that the *faculty* of thought is essential to the soul, and possibly the exercise of its vegetative or sentient functions may be continuous, but there is absolutely no evidence that *actual thought* is essential; (2) that the aptitude or disposition to seek happiness when occasions are presented to us, is indeed innate; but this is quite different from innate actual desires or cognitions of particular forms of happiness; (3) that such universal cognitions are also merely the result of our common faculties. Given certain experiences, the intellect of man is at an early age capable of discovering by observation, comparison, and reflexion, simple and obvious truths.

the *Critique of the Practical Reason*. The former treatise comprises an examination into the origin, extent, and limits of knowledge. The first step in Philosophy must be *criticism* as opposed to *dogmatism* on the one side, and to *scepticism* on the other. By *criticism* Kant means an attempted scrutiny into the range and validity of our knowledge. *Dogmatism*, he maintains, assumes while *scepticism* rejects, alike unwarrantably, the veracity of our faculties. Kant's *criticism* results in the denial of real knowledge of everything transcending experience. There is a purely subjective or mental co-efficient in all cognition which destroys its validity. This is especially illustrated in *synthetic a priori* judgments. Judgments are either *synthetic* or *analytic*. The latter, always necessary in character, are formed by mere analysis of the subject, *e.g.*, the whole is greater than a part. Synthetic judgments may be either *a posteriori* and contingent, *e.g.*, England is a naval power; or *a priori* and necessary, *e.g.*, Nothing can begin to exist without a cause, Two straight lines *cannot* inclose a space. How are these *synthetic a priori* judgments possible? Whence is their peculiar necessity and their universality? This is the problem attacked by the Kantian philosophy. These judgments are not, it is asserted, derived from mere experience; for mere empirical generalizations can never attain this absolute kind of certainty. Yet they are not purely analytical or verbal propositions. *Synthetic a priori* judgments are effected, Kant answers, by the action of certain innate mental forms which condition all our knowledge.[10] Whatever is presented to the mind is moulded by these forms of the Ego, and unified in the *transcendental unity of apperception*, that is, in the permanent activity of the pure original unchangeable self-consciousness. Human cognition is an amalgam of two elements, a product of two co-efficients—the form (*die Form*) due to the constitution of the mind, and the matter (*der Stoff*) due to the action of the external object. We can only know the phenomenon—the mental state resulting from both factors. To the *noumenon*, *the Ding-an-sich*, the thing in

[10] Kant thus agrees with Descartes and Leibnitz in maintaining that universal and necessary axioms cannot be gathered from external experience, but must have their source in the original furniture of the mind itself. Whilst, however, the latter philosophers ascribe to these cognitions, in spite of their subjective origin, real or ontological validity, Kant more logically renounces this tenet. Previous to Kant *a priori* knowledge meant *knowledge of effects from their causes*. He has arbitrarily changed the meaning of the phrase to mean knowledge the necessity of which he asserted to be due solely to the mind, and so to be independent of experience. Cf. Ueberweg's *Hist. of Phil.* Vol. II. pp. 161, 162.

itself, we can never penetrate. It is only revealed to us as shaped by the *a priori form* of the mind.

In *Perception* the *a priori* element is exhibited, as we have described at length in chapter vi. in the sensuous intuitions of *space* and *time*, which mould our external and internal sensibility.[11] The acts of the *Understanding*, which unify the chaotic manifold presented by sense, are conditioned by another class of twelve purely mental forms called *categories*. These notions are *a priori*. They "lie ready in the understanding from the first." Things in themselves have not unity, plurality, substantiality, causality, and the rest. These categories are true not of the *noumenon*, but only of the phenomenal object—that which appears in consciousness. We are subjectively necessitated to think of change as under the law of causation, of accident as inhering in substance, and so on; but we have no ground for supposing such to be the case with the *Ding-an-sich*. With respect to General Notions, Kant's doctrine involves a form of *Conceptualism* maintaining in opposition to *Nominalism*, the truly universal character of concepts; whilst on the other hand it denies the extra-mental validity ascribed to them by *Moderate Realism*.

Finally, the activity of the Reason which still further unifies the data offered by Sense and Understanding is also conditioned by three purely subjective *Ideas*. They are the *psychological idea* of the Soul, as the thinking substance; the *cosmological idea* of the universe as a totality; and the *idea* of God. These *a priori* conceptions apply to corresponding real objects no more than the other forms and categories. They are the source of inevitable illusions occasioning "paralogisms" and "antinomies," or contradictions of the pure reason itself. In particular the empty idea of the Ego is the basis of the deceptive pseudo-science of Rational Psychology. The conclusions of this science are all based on the illegitimate application of the purely formal or subjective notion of *substance* to the Ego as a *noumenon*. In deducing the attributes of simplicity, identity, individuality, we invariably fall into a paralogism confounding the Ego as *logical subject* of a proposition with a *real substance*. We mistake the merely *formal*, subjective unity of Self for that of a *real* indivisible being. The aspiration to reach a knowledge of things-in-themselves is doomed to failure: we can only know *phenomena*

[11] The *a priori* form of *space* generates the necessity and universality of all geometrical judgments, the form of *time* does the same for arithmetical propositions—such at least is Kant's view as interpreted by Hamilton, Mansel, Kuno Fischer, and others. Mr. Mahaffy, *Critical Philosophy*, p. 64, contends that both sciences were in Kant's opinion based on the intuition of space.

—things when shaped and coloured by mental forms. The outcome of the criticism of the Pure Reason then is the repudiation of knowledge regarding whatever transcends experience.

The *Critique of the Practical Reason* contains Kant's moral system—stoicism of a rigorous type. He there seeks to restore in the form of *belief* what he has previously demolished as *rational cognition*. Though the existence of the Deity, the immortality of the soul, and the freedom of the will are incapable of proof, if not also replete with contradictions, yet their admission is exacted by the needs of our moral nature.

Criticism.—(1) It has been forcibly urged against Kant's system as a whole that the central problem of the *Critique*—the question whether our faculties can attain real truth—is based on an erroneous view of the proper aim and method of Philosophy. The dogmatical standpoint is the only one which can be consistently maintained. We must from the beginning, under penalty of absolute scepticism and intellectual suicide, assume the capacity of the mind to attain real truth. Every attempt to demonstrate the veracity or the mendacity of our faculties must involve either a vicious circle or a contradiction. Thought, as Hegel argued, can only be scrutinized by thought, and to require a criticism of thought antecedently to the acceptance of its validity is like refusing to enter the water till we are able to swim.[12]

(2) The proof of the subjectivity of the *categories* and *ideas* rests largely on the analogy which holds between them and the *forms* of sensibility, Space and Time, the subjective nature of which is supposed to be already established. For a refutation of this latter point we refer the reader back to pp. 118—121. Kant's various illustrations of *synthetic a priori* judgments are reducible either to contingent *a posteriori* generalizations or analytical truths. For a brief treatment of this question we refer the reader to the volume of this series on *Logic*, pp. 61—67. An elaborate justification of our assertion will be found in Balmez, Bk. I. c. xxix., and Harper's *Metaphysics of the School*, Bk. IV. c. v.

(3) Kant's argument against Rational Psychology is based on his peculiar theory of knowledge and the assumption of his complex scheme of forms, categories, and ideas intervening between the mind and its cognition of itself. Accordingly it shares the fate of that theory. But even if the mind enjoyed only a mediate or representative perception of

[12] Cf. Lotze, *Metaphysic*, §§ 8, 9. For a general justification of the doctrine of Philosophical Method asserted here, see Rickaby, *First Principles of Knowledge*, cc. vi. vii.

external reality its knowledge of its own states and of itself as existing in these states is *immediate*. We do not deduce the substantiality of the soul from an *a priori* conception of substance; nor is our conviction of its simplicity, abiding identity and individual reality based on a paralogism. We have an immediate intellectual apprehension of the mind *in its own operations*. Self-consciousness combined with memory reveals the mind to us as an indivisible reality which remains the same amid a succession of varying feelings, which is the connecting-point of all thoughts, the subject of real activities and modifications, and knowing itself distinguishes itself from all other beings. The unity of the mind is not merely *formal*. This mind, self, or ego cannot be an empty illusory idea, or a pure nothing. The nature of self-consciousness will be carefully investigated in a future chapter.

(4) Kant's assumption of the existence of an external *noumenon* in any shape, is inconsistent with the reduction of the principle of causality to an *a priori* form. We are justified in believing in an external reality as the *cause* of our sensations only if the principle of causality is *really valid*, applicable to *noumena*, and not a purely subjective illusion.

(5) Finally, as a barrier against the scepticism of Hume, and as a solid basis for science, the *Critical Philosophy* is a complete failure. Hume analyzes all knowledge into transitory mental states; and necessary truths into irresistible subjective beliefs generated by customary associations. The substitution by the German philosopher of *necessary* but still *purely subjective* laws or forms of thought for such beliefs, does not really touch the sceptic. Inasmuch as these laws inhere in all human minds and condition all experience, Kant calls them at times *objective* and *universal* as opposed to individual variability, but still they are merely mental. They might, it is true, explain the harmony of the activity of human minds, were these isolated from the physical universe and occupied solely in deducing mathematical theorems from abstract axioms. But Astronomy, Geology, Physics, Chemistry, Physiology, assume and verify the reality of laws other than the creations of the mind. They assert unmistakably that there are *real powers* acting upon us and upon each other in space and time, according to laws which we know: they show us that different minds agree in their representations of such modes of action: and they demonstrate that these regular modes of action continue unchanged in the absence of all human minds. Science, in fact, assumes, and the verification of its predictions justifies the assumption, that the laws of cognition mirror the laws of real existence. Kant denies this, and his substitution of innate and necessary but still purely

subjective forms of knowledge for the subjective beliefs of Hume, does not afford a whit more solid ground for science.[13]

Later German Idealism.—That the intermediate position between *dogmatism* and *scepticism* assumed by the Critical Philosophy is untenable was speedily demonstrated by the logic of history. Like every system of partial scepticism it inevitably leads to universal doubt and only awaited the thinker sufficiently consistent and audacious to draw the final conclusion. If such irresistible convictions as those of the reality of space, time, causality, unity, personal identity, and the rest are to be deemed illusions, then not only the instinctive beliefs and yearnings on which Kant would rest the existence of God and a future life, are worthless, but also our persuasion of the extra-mental existence of things-in-themselves is unjustifiable. **J. G. Fichte** (1762—1814) boldly took this last step, and even in Kant's lifetime logically deduced from his master's principles consequences from which the author of the Critical Philosophy shrank as false and pernicious.

If the *formal* element of cognition, space, causality, and the rest be a purely subjective creation, argued this uncompromising thinker, why may not the *matter* of knowledge, and consequently the *noumenon* itself be also a mental fiction? Accordingly he concluded as the simplest explanation that both *matter* and *form* of knowledge are the product of the activity of the Ego. The manifold contents of experience, just as well as the *a priori* intuitions and categories of cognition are furnished by a creative faculty within us. Only the Ego is; what seems the non-ego is only its own self-limitation. Each human mind, or finite ego is, however, merely a mode of the Absolute Ego which is ever opposing itself to itself.

Empiricism.—In complete opposition to Kant and the defenders of innate ideas stands the Empiricist school. Previous to Kant and Hume, in his *Essay on the Human Understanding* (1690), **John Locke** sought "to inquire into the origin, certainty, and extent of knowledge, and the grounds of belief, opinion, and assent." This work is the fountain-head of modern sensism, empiricism, materialism, and

[13] *Readings on Kant*, Kleutgen, op. cit. §§ 337—368; Balmez, op. cit. Bk. I. c. 29, Bk. III. cc. 16, 17, Bk. VII. cc. 12—14; Martineau, *A Study of Religion*, Vol. I. pp. 70—80; T. Pesch, S.J., *Kant et la science moderne*; Peillaube, op. cit. Pt. II. c. 2; Piat, op. cit. pp. 140—180; Ueberweg, *Logic*, §§ 36—44; *History of Phil.* Vol. II. pp. 159, seq., especially the notes; Dr. Stöckl, *Geschichte*, Vol. II.; and Dr. Gutberlet, *Logik und Erkenntnisstheorie*, pp. 185—204.

phenomenal idealism.[14] Locke starts with the rejection of innate ideas or innate principles in any form. The mind is originally a *tabula rasa*, a clean slate on which nothing is written. The sources of all our knowledge are external sense-perception and reflexion or internal perception. *Nil est in intellectu quod non fuerit prius in sensu.* Knowledge consists in the perception of agreement or difference between our ideas. The ultimate elements of knowledge are ideas received through the senses. These aggregated in various ways form *compound* or *complex* ideas, which are divided into three classes, *modes*, *substances*, and *relations*. Ideas of *primary qualities* of bodies—extension, solidity, figure, &c., are like their objective correlates, but ideas of *secondary qualities*, taste, colour, &c., are not. By reflexion or internal sensibility we know our volitions and feelings. By internal and external sense combined, we form ideas of power, unity, and the like. *Substance*, the self-subsisting substratum which we imagine to be the support of the qualities of bodies, is a mental fiction. It cannot be apprehended by internal or external sense; but, as we are unable to imagine that the ideas we perceive by our senses inhere in nothing, we suppose the existence of a substratum which binds them together.

Influence.—Locke's influence in Philosophy has been great mainly in two directions. On the one hand he gave a powerful impulse to Empirical Psychology, and on the other his defective analysis of our mental endowments resulted in a sensationalism which rapidly developed into materialism and scepticism. The stimulus given to the study of mental phenomena should within its own sphere have been a real gain to Philosophy, but occurring unfortunately at an epoch when Metaphysics had fallen into discredit, the use and value of this method in the treatment of metaphysical questions proper became absurdly over-estimated. Accordingly, most modern thinkers from Berkeley, Hume, and Kant, to Mill and Mr. Spencer, have been led to devote a prodigious amount of labour to the obscure question of the origin of knowledge, and then, on the strength of some very dubious

[14] The student is sometimes confused by the assertion that a particular tenet leads both to *idealism* and to *materialism*. The explanation is that the one is a deduction of *Epistemology*, the other of *Rational Psychology*. The former refers to the nature and validity of *knowledge*, the latter to the constitution of the *soul*. Thus, as we show elsewhere, the sensist philosopher in expounding his theory of cognition must dissolve the material world into a series of conscious ideas, whilst in dealing with Rational Psychology, he must reduce the mind, that is, this series of conscious states, to an aspect or function of nerve matter.

solutions therein adopted, to determine authoritatively the validity or invalidity of all our cognitions and beliefs.

As regards particular tenets of Locke we have only space to remark: (1) that his conception of the mind as a passive recipient tablet, and his non-recognition of its supra-sensuous activity, are fatal blemishes to his psychology; (2) that as a consequence he can give no adequate account of all our most important notions, such as those of God, self, substance, and the various intellectual operations insisted on in a previous chapter; (3) that his view of knowledge as the perception of agreement or disagreement between ideas and not things, and his doctrine of mediate perception leads inevitably to subjective idealism. If we can only know our mental states, then we have no knowledge of the existence of a material world beyond these states. (4) His use of the important word *idea* is fatally ambiguous throughout his whole work, and he similarly confounds *mental* with merely *intra-organic* phenomena. The vital deficiencies in his doctrine of sense-perception and in his conception of intellect were evinced in the next generation by the Idealistic and Sceptical deductions of Berkeley and Hume on the one hand, and by the Sensualism of Condillac, Helvetius, and the French Materialists on the other.[15] Both Berkeley and Hume ignore the essential difference between sense and intellect, but as we have already sketched their systems (pp. 108—110), we must omit them here. The most thoroughgoing disciple of Locke in this direction was the French philosopher Condillac. He omits Locke's second source of experience, *reflexion*, altogether, and endeavours to build up the edifice of knowledge by external sense alone. Hartley, in this country, similarly conceived the mind as a passive recipient something, in which by association our sensations and phantasms combine, coalesce, and become refined into spiritual cognitions. It will, however, be most useful to pass on to the latest representatives of the Sensist school, and we shall take Bain and Sully as its leading present advocates.

Recent Nominalism.—The following account of Conception and Judgment is given by **Dr. Bain**: "We *feel identity* among stars in spite of their variety, the things thus identified make a class, and the operation is called classifying." "We are able to *attend*[16] *to the points of agreement* of resembling things

[15] The best examination in English of Locke's system is, perhaps, that from the Neo-Hegelian standpoint, contained in Green's Introduction to Hume's *Treatise on Human Nature*. Cf. also Stöckl's *Geschichte*, §§ 32—45.

[16] True, we are capable of attention, but this implies more than sensibility. Again, what are "points of agreement"? Clearly not

and to neglect the points of difference, as when we think of the roundness of round bodies . . . this is named the power of abstraction." Nevertheless "abstraction does not consist in the *mental separation* of one property of a thing from the other properties, as in thinking of the roundness of the moon apart from its luminosity, . . . *such a separation is impracticable.*" We merely "imagine a thing in company with others having the attribute in question, and affirm nothing of the one concrete thing which is not true of all the others." We sometimes seem to approach to an abstract idea, but it is really impossible. Even in *geometry* the concrete lines and figures are a necessity. "Length is the name *for one or more things* agreeing in the property so called, and the property is nothing but this agreement." "*The only generality possessing separate existence is the Name.* General ideas separated from particulars have no counterpart in Reality (as implied in Realism), and no Mental existence (as affirmed in Conceptualism). . . . Neither can we have a mental Conception of any property abstracted from all others; we cannot conceive a circle except as of some colour and some size; we cannot conceive justice except by thinking of just actions." Logically enough, then, following out the principles of sensism, he holds also that "the existence of a supposed external and independent material world is the crowning instance of the abstraction converted into the separate entity."[17]

Criticism.—Such is Bain's psychology of universal concepts, and we shall now comment on it. The expressions, "feeling" or "sense of difference or identity," are inaccurate if used of the comparative act in the same meaning as when applied to the consciousness of the original sensations. The perception of agreement or difference is an intellectual cognition. If "we are able to attend to the points of agreement of resembling things, and to neglect the points of difference," then it is not true that "we cannot make a mental separation of one property of a thing from other properties." Attention to one particular aspect of objects and neglect of the rest constitutes precisely the mental separation of the former

a concrete quality, like a taste or smell, capable of stimulating a sensuous faculty. "Agreement" is a *relation between perceived things*, and, consequently, its apprehension requires the exercise of an additional activity superior to that engaged in the two or more existing impressions. This activity must hold the two separate impressions together and discern the relation of likeness or unlikeness between them.

[17] *Mental Science*, Bk. II. c. v.

property; and in this the essence of abstraction consists. It is, moreover, on the exercise of this intellectual faculty that the science of geometry, and, in fact, all general knowledge depends. We attend to those features of our figure which are common to all the class, and we omit the rest. Our demonstration proceeds solely from the attribute or group of attributes which are contained in the concept of the species of figure with which we deal; and if we allow any accidental qualities to intrude, our proof may become at once vitiated. It is, of course, indisputable that we cannot *picture by the imagination* length separated from the line, or surface from the plane; but this does not prevent us from *thinking* the length whilst we ignore the other qualities. When I prove a thesis in geometry regarding the length of some line, I fix my attention solely on the length of the imperfect line before me, although of course my senses must apprehend it as possessing breadth. Now, this act of attention is a *thought*, a *cognition* presenting to me that something which forms the subject of my elaborate demonstration—*a universal idea:* and the denial either of its abstract character or of its real objective foundation annihilates the science of Geometry. (See p. 250.)

Dr. Bain's definition of length as "the name of one or more *things* agreeing in this property," illustrates well the violence that must be done to common language and common thought in order to adapt them to the needs of the Sensist Psychology. *Length* is not the name of *things*—the fishing-rod, the piece of string, and the River Thames—any more than *motion* is the name of the steam-engine, the swallow, and the perambulator. It is simply the name of a common property which the mind can consider and reason about "irrespective of any other relations." It is quite true that we cannot form a *sensuous image* or phantasm of a circle except of some particular colour, size, &c., and it is also true that the intellect cannot elicit a *universal idea* without the presence of a concrete image; but given this latter, we can contemplate in *thought* the specific or universal features abstracting from those which are individual.

The comparative or judicial activity of the mind Dr. Bain resolves into the *Law of Relativity*. (See p. 91.) He holds that "the really fundamental separation of the Intellect is into three *facts* called (1) Discrimination, the sense, feeling, or consciousness of difference. (2) Similarity, the feeling or consciousness of agreement, and (3) Retentiveness, or the power of memory or acquisition. These three functions, however, much as they are mingled in our mental operations, are yet totally distinct properties, and each the groundwork

of a distinct structure. . . . They are the Intellect, the whole Intellect, and nothing but the Intellect."

The attempted reduction of Intellect to a mere phase of the Law of Relativity lies open to the fatal objection that it confounds in the crudest manner two essentially distinct things—capacity for *discriminable* feelings, and the power of *discriminating* between them. Bain's language concerning the so-called "facts" of discrimination ignores the radical diversity between the mere occurrence of unlike feelings and the comparative act of the higher faculty by which that unlikeness is cognized. Transition from one feeling to the other, change from one state of consciousness to another, is very different from the intellectual act of attention by which we may and do at times recognize that transition, and compare those states. Among low stages of animal life we frequently find the keenest susceptibility to different sensations. But the intellectual perception of them *as different* is wanting. The same objection applies to his treatment of the "fact" of agreement.

With regard to the third "fact" or "function" he is even less happy. "Retentiveness" strictly understood means simply the persistence in the mind or body of a disposition towards the re-excitation of a state which has once occurred. Now this capability of conservation or resuscitation is not a specially intellectual or cognitive property at all. If, however, it is to be interpreted more largely as involving *recognition* and equivalent to "memory," then it is clearly not simple or ultimate in Dr. Bain's sense, but is in part made up of the other "fact" or cognition of agreement.

Dr. Sully, who is at present probably the most popular representative of the Sensist school, seems to have felt the inadequacy of the account of our knowledge given by his predecessors. In chapters ix. x. of his *Outlines of Psychology*, he analyzes and describes the process of thinking. Some of his remarks there appear to us accurate enough; but usually when this is the case they seem to be inconsistent with his Sensationalist assumption that "all mental activity is of one and the same kind throughout its *manifold phases*." (p. 26.)[18]

[18] The phrase "manifold phases" is happily vague; but in substance Mr. Sully adopts the sensist principle that at bottom *all mental life is essentially of one kind*—sensuous consciousness. How the admission of a power of "active self-direction" (p. 73) and of those various activities involved in comparison of impressions, cognition of *relations*, and *reflexion* on states of self (cc. ix. x.) is to be reconciled with this view, he does not attempt to explain. For our own part, we cannot easily imagine a more fundamental difference in kind than that between the sensibility exhibited in

We can only cite a few typical phrases which will nevertheless sufficiently justify our observations: "All thinking is representation like imagination, but it is of a different kind." "Thinking deals with abstract qualities of things—that is, aspects common to them and many other things, *e.g.*, the possession of life."

These statements are true, but directly opposed to Nominalism, involved in Sensism, and frankly accepted by Dr. Bain. If "thinking is representation like imagination, but of a *different kind*," and if "abstract qualities of things, that is, aspects *common* to them and many other things," can be thus represented in thought, then evidently the Sensist tenet that there can be no really general notions or concepts, and that the only thing which is universal is the word or name, is abandoned. Again: thinking, "like the simpler forms of cognition, consists in discrimination and assimilation, in detecting differences and agreements," but "it is of a *higher kind* involving much more activity of mind. . . . All thinking involves comparison. . . . By an act of comparison is meant the voluntary direction of the attention to two or more objects at the same moment, or in immediate succession, with a view to discover differences or agreements." This power he holds to be beyond that of even intelligent brutes. Here, again, the description is correct, but utterly incompatible with the empirical conception of the mind as a mere collection of impressions.

Generic Images.—In treating of the nature and origin of universal ideas, Dr. Sully adheres to *Nominalism*. He seeks, indeed, to improve that doctrine, which has suffered somewhat severely under recent criticism, but yet accepts the old sensist view, which confounds the phantasm of the imagination with the intellectual concept. He defines the concept as "the representation in our minds answering to a general name, such as sailor, man, animal." But, "what is in the mind is a kind of *composite image* formed by the fusion or

passive sensations awakened by the reception of concrete impressions, and the active and reflective energies exerted in reflective attention to, and comparison of, these impressions. If there is a mind in the sense of a *real* unit, an *abiding energy*, endowed with intellectual or spiritual as well as sensuous powers, then it is conceivable that such a mind should be capable of reacting through its superior faculty, and of attending to, comparing, and reflecting upon the sensuous impressions which it has received. But if all mental life is essentially one in kind, and the mind itself but the series of sensuous states, then, where this active self-direction and this reflective comparing force is to come from, we confess ourselves unable to conceive.

coalescence of many images of single objects, in which individual differences are blurred, and only the common features stand out prominently. . . . This may be called a typical, or *generic image*."

The Generic Image, like a composite photograph, is, in fact, the residual effect of a series of impressions of similar objects; the common lineaments are deepened whilst the marginal and accidental variations annul each other, leaving a vague outline. Dr. Sully believes that this generic image offers "a way of reconciling the opposed views. As *generic* it differs in an important way from the detailed particular image. As an *image* it meets the contention of the nominalist that all ideation is at bottom imagination." (*The Human Mind*, p. 346.)

Criticism.—(1) This remark suggests the impression that Dr. Sully has missed the significance of the controversy. Whichever side be right, the dispute between Nominalists and their opponents is by no means so puerile. The difference between the Sensationist conception of mental action and that of the Kantian, Aristotelian, and other schools, which maintain the reality of universal concepts, is of too fundamental a character to be so easily bridged over. The hypothesis that the universal concept is a decayed, worn-down image, instead of being a distinct and definite phantasm, as implied by earlier empiricists, is not likely to win realist converts. (2) As a matter of fact, this "generic" image is as far removed from the universal concept proper as is a vivid definite image. It is merely a confused fluctuating phantasm with the individualizing characteristics partially obliterated; a sort of mean or average picture, somewhat as a figure seen in a fog. But though imperfect and indistinct, it is still a representation of a *particular* character. When the mathematician proves a theorem concerning the triangle, whether the diagram on the black-board be clear and distinct, or faded and obscure, it is in itself equally *individual;* but it assists the intellect to hold before its gaze throughout the process the complexus of attributes which constitute the essence and nature of triangle—the *concept* of triangle. The phantasm of the imagination, whether vivid and definite, or vague and "generic," performs a similar function, but in itself it is as individualistic as the figure on the black-board.[19] The concept alone is truly universal, since it alone really and completely applies to all

[19] "L'image *générique* d'homme, représente des traits qui ne sont pas communs à tous les hommes; tous les hommes n'ont pas un âge moyen, une taille moyenne. Les enfants et les vieillards les grands et les petits des deux sexes sont des hommes, et la représentation qui les embrassera tous pourra seule être appelée générale et universelle ou simplement *concept*." (Peillaube, op. cit. p. 66.)

possible members of the class. The concept too may be quite distinct while the image is confused; and the former is stable whilst the latter varies from moment to moment. (See above, pp. 237.) (3) Furthermore, it may be urged that the generic image hypothesis is in conflict with the results of more careful investigation into the working of the imagination. It is clear from Galton's inquiries that people vary enormously with respect to the vividness of their power of imagination and visualization of past experiences. The best images which many can form of absent individual objects, such as their breakfast-table, their bed-room, or their father, are of the vague "generic" type; whilst others profess to be able to call up representations of these objects which rival the original perceptions in liveliness and accuracy of detail. When men think or reason about general classes of objects, the indistinctness of their images naturally varies with their individual powers of visualization. Some men apparently employ much more distinct and vivid phantasms than others; but the concept may be equally perfect and universal in both. It can hardly be maintained that hazy images or confused perceptions conduce to greater perfection of scientific notions, yet this seems to be the logical consequence of the recent theory which would reduce the general concept to the vague and generic rather than to the clear and distinct phantasms of the imagination. The truth is, it is radically different from both.[20]

[20] Mr. G. F. Stout argues very effectively against the "generic" image theory: "We may fairly say that *all* images, as compared with percepts, are vague, and it does not appear that the images which are treated as representatives of a *class*, are more obscure than others, or that they have a different kind of obscurity. If I trace in my mind's eye the course of a river, or a particular walk which I have taken, and if I do not make any extraordinary effort to recall details, the images which pass through my mind are mere outline sketches, in which certain characteristic features of objects have a certain prominence, whilst the rest is left vague. Yet the ideal train is wholly concerned with *particulars*, and not with universals as such. Suppose that, on the contrary, I desire to bring before my mind the *general characters* distinctive of the kind of substance called "chalk." . . . I find that the kind of image which suits my purpose best, is one which is more definite and detailed than those which serve my turn in recalling a series of particular facts. On the whole, the obscure and fluctuating character of a mental image seems rather to unfit it as a vehicle of generalization. . . . The marginal obscurity makes the whole picture evanescent and fluctuating. In many instances a percept better fulfils the function of a class-type than a pictorial representation." (*Analytic Psychology*, Vol. II. pp. 180, 181. Cf. Peillaube, *Théorie des Concepts*, pp. 57—68; also Clarke, *Logic*, c. 7; and Kleutgen, op. cit. § 802.)

Positivism.—Sensationism and Empiricism, as we have seen, lead as surely to phenomenism, or the denial of all knowledge of things in themselves, as Kantianism. This doctrine of nescience, which is now the creed of a large number of scientists as well as professional philosophers, received its most formal enunciation in the *Positivism* of **Auguste Comte** (1798—1857). This is the substance of the French philosopher's teaching: Metaphysics, or the investigation of the first cause of things, of their inner nature and last end, is a chimerical science. Human reason can never learn anything about God, the soul, man's origin or destiny: consequently Natural Theology and Rational Psychology are alike illusory. *Agnosticism*, in fact, describes the true philosophical attitude. The absolute in every form is unknowable; cognition is limited to the relative, the phenomenal. Theism, atheism, pantheism, materialism, and spiritualism, are equally irrational and indefensible. All attempts to search after the ultimate causes of phenomena must be condemned as worse than useless. All metaphysical entities, such as substance, cause, faculty, force, should be banished from our minds as empty and unreal phantoms. The aim of the human intellect must henceforth be to observe, analyze, and classify facts, to register the succession and coexistence of phenomena, and then to generalize by induction so as to formulate their laws; but never may it seek in its reasonings to transcend the field of experience. Laws of phenomena constitute the goal of human science. Phenomena alone are real, useful, *positive*. Positive science is therefore the science of phenomena; and the function of the Positive Philosophy consists in the classification and methodizing of the sciences.

The sciences Comte arranges according to their complexity after a hierarchical plan. Ascending in serial order from the simpler, more abstract and prior in order of time, they are thus placed: mathematics, astronomy, physics, chemistry, biology, and sociology. Each depends upon all the others which precede it. Psychology is merely a branch of biology, to be investigated by objective methods (see pp. 21, 22); whilst ethics is a department of sociology.

The other leading feature in Comte's system is the historic conception of the three states. The human mind in its development necessarily passes through three stages: the *theological*, in which it explains natural phenomena by the interference of personal agents—supernatural beings: the *metaphysical*, in which it accounts for phenomena by metaphysical entities, occult causes, and scholastic abstractions—such as substances, forces, faculties, and the like; finally, the

positive period, at last happily arrived, in which man abandons all such futile investigations and confines himself to formulating the laws which connect phenomena.

Later on Comte, acknowledging the necessity of an object to satisfy the religious instincts of man's nature, crowned his system by the invention of a curious species of religion—the worship, with an elaborate ritual, of Humanity in general. This last production of his speculative genius, however, met with acceptance among very few of his followers. Indeed, here in England the Positive Philosophy has experienced very severe criticism at the hands of Spencer, Huxley, and others who themselves profess many of its chief doctrines. In morals Comte insisted much on *altruism*—aiming at the happiness not of self but of others—as the ethical end of life. Christianity fosters selfishness, and so the disappearance of Christian and Theistic belief will lead, he prophesies, to great purity and perfection of general morality.

Criticism.—We have to deal only with the psychology of Positivism. It is needless to do more than recall the utter failure of Comte's attempt to discredit introspection and to degrade the science of the mind into a branch of cerebral physiology. The practical outcome of his teaching is materialism. As to Comte's oft-repeated assertion, reiterated by his followers, that we can never know anything of the *absolute*, but only of the *relative;* it is a piece of dogmatism deriving its chief plausibility from an ambiguity we have before alluded to, in such terms as absolute, noumenon, phenomenon, and relative. (See pp. 158, 159.) If by "absolute" or "noumenon," be meant some element of reality which never stands in any relation to our faculties, and so never reveals itself to the mind, then it is obvious we can never know that "absolute" or "noumenon." But, if under the term "absolute" be included, as these writers intend, active essences in the world around us, agents which really *cause* and do not merely precede events, an abiding being which is the real subject of our evanescent conscious states as well as the truly absolute, the primary cause and last end of finite perishing creatures; then, assuredly, the human mind can attain knowledge of the "absolute." Reason knows the absolute by the very fact that it cognizes the relative *to be relative.* Knowledge of the relative, *as such*, involves as its necessary consequence knowledge of the absolute. It is because it recognizes the creatures and events of the physical world along with its own states and acts as relative that the mind is led to the discernment of the absolute author in the one case, and the permanent ground in the other. The phenomenal, the changing,

the relative are all unthinkable without the real, the permanent —the *absolute*, if we choose to call it.[21]

The prohibition of Positivism to search for knowledge of anything beyond the region of sensible experience is arbitrary and vain, whilst Comte's prophecies regarding the quiescence of the human mind in the positivist creed are already notoriously falsified. The *principle of causality* appeals to the reason both as an objective, transcendental law, embracing all contingent existence, and as an imperative, insatiable impulse in the quest of truth. The instinct to seek out the ultimate *why* as well as the *how* is the essential outcome of the rational constitution of the human mind. It is this inappeasable curiosity which most of all distinguishes man from the brute animal; and has been the motive power which has effected every great advance in the extension of human knowledge. The view, therefore, that the highest development of human reason can content itself with the mere accumulation, registration, and generalization of sensible facts, and can remain in stolid indifference to all those great problems which have engrossed the loftiest intelligence from Plato and Aristotle to St. Thomas and Dante, and again from these down to Newton and Leibnitz, is possible only to a mind blinded by anti-theological prejudice.

The Origin of Axioms and Necessary Truths: Associationist Theory.—Besides universal concepts, *necessary* truths, and especially those which have been called *synthetic a priori* judgments, have been advanced in proof of the existence of a supra-sensuous faculty. Examples of these are the axioms of mathematics: "Two things which are equal to a third are (necessarily) equal to each other;" "Equals added to equals give equals;" "Two straight lines cannot inclose a space;" the principle of causality: "Nothing can begin to exist without a cause;" and also self-evident ethical maxims: "Right ought to be done;" "Ingratitude is wrong," and so on. These judgments, we maintain, affirm necessary and

[21] On the distinction between the Absolute *simpliciter*—God, and the absolute *secundum quid*, or in a certain respect, that is, finite substances viewed as wholes in themselves apart from particular sets of relations, see Kleutgen, op. cit. § 542; also Vallet, *Le Kantisme et le Positivisme*, c. iv. Martineau's *Types*, Vol. I. Bk. II. contains one of the best reviews of Comte in English. The reader will find a good account of Positivism in *Auguste Comte, sa Vie, sa Doctrine*, and *Le Positivisme depuis Comte*, by P. Grüber, S.J. A. J. Balfour's *Defence of Philosophic Doubt* and *Foundations of Belief* contain admirable criticism of the methods, assumptions, and consequences of Positivism.

universal truths. They *must* hold *always* and *everywhere*, even in the most distant parts of the universe. God cannot infringe them. The peculiar *necessary* character of these propositions **Kant** sought to explain, as we have seen, by the hypothesis of subjective forms or laws inherent in the constitution of the mind. *Empiricism* endeavours to account for this necessity by mental association. The axioms are, it is asserted, mere generalizations from continuous experience. They have been reached by observation and comparison of the empirical facts around us, and they may be legitimately extended by inference throughout the world of our experience, but beyond this we cannot assert that they must hold. In distant stars 2+3 may equal 4.

Historically, **Hume** was the first to try to systematically account for the necessity of these judgments by sensuous experience. Our conviction as to the necessity of the principle of causality, and our belief in the reality of some sort of influx of the cause into the effect, he explains as the result of *custom*. Reiterated observation of one event following another begets the delusion that there is some sort of *nexus* between them; while there is really nothing but *succession*. Later sensationalists with much ingenuity extended the application of this principle; and the Law of Inseparable, Indissoluble, or Irresistible Association was claimed to be an instrument capable of accounting for all our most important intellectual principles. The leading modern representative of the school on this question is **J. S. Mill.** In his *Logic*, and in his *Examination of Sir W. Hamilton's Philosophy*, he propounded and defended the doctrine that all so-called necessary truths, mathematical axioms among the rest, are merely generalizations from sensuous experience, and their seemingly necessary character is only an instance of inseparable or irresistible association between the ideas of the subject and predicate which is created by their repeated conjunction. Dr. Bain adopts the same view, and speaks in the most confused manner of the various doctrines opposed to the Empirical theory.[22]

[22] *Mental Science*, Bk. I. c. 6. He there confounds in an astonishing fashion the hypothesis of *innate* ideas, the Kantian system of *a priori* forms, and the *intuitional* theory as held by writers like Drs. W. Ward, M'Cosh, and the great majority of modern anti-phenomenists. The *innate* hypothesis maintains that the mind is endowed from its birth with a disposition to evolve these cognitions *purely* from its own nature. External occurrences may be the *occasion*, but they really contribute nothing towards the genesis of these principles. Innatism differs from the Kantian view by ascribing real extra-mental validity to these first truths. The *intuitional*

The Associationist doctrine will be best exhibited by a few citations from Mill, on Mathematical truths: "What is the ground for our belief in (mathematical) axioms? What is the evidence on which they rest? They are experimental truths, generalizations from experience."[23] Accordingly it follows "that demonstrative sciences (*e.g.*, Geometry) are all without exception inductive sciences; that their evidence is that of experience." They cannot be legitimately extended to "distant stellar regions," for we are not justified in assuming the uniformity of nature far beyond our experience, and axioms based on such experience are limited to the regions where we know such uniformity to prevail.[24] The "feeling of necessity" with which mathematical and metaphysical axioms are affirmed, is a product of association. To say that a proposition is necessary is another way of saying that its contradictory is inconceivable; and this is precisely the effect to be expected from association. "We should probably be able to conceive a *round* square as easily as a *hard* square or a *heavy* square, if it were not that in our uniform experience at the moment when a thing begins to be round it ceases to be square, so that the beginning of one impression is inseparably associated with the departure of the other. . . . We cannot conceive two and two as five, because an inseparable association compels us to conceive it as four. . . . And we should probably have no difficulty in putting together the two ideas supposed to be incompatible (*e.g.*, round and square, &c.), if our experience had not first inseparably associated one with the contradictory of the other."[25] Many such inseparable

theory teaches, indeed, that the mind is endowed with a native faculty for the apprehension of such verities, but it denies that they are purely subjective contributions. They have their origin in experience, but neither their *necessity* nor *universality* are based upon mere reiteration of experience. The human intellect, when an appropriate object is presented to it, perceives certain necessary relations holding between subject and predicate. It then affirms the proposition as necessary, because it is compelled not by any *a priori form*, or *innate idea*, but by the *objective necessity* of the relation which is seen to hold in the *reality*.

[23] Cf. *Logic*, Bk. II. c. v. § 4. It should not be forgotten that the *genesis* and *validity* of a belief are different questions. Still, as we have before urged, they are often intimately connected, and the range and application of a conviction may vitally depend on the mode of its origin—a truth which the reader will perceive by comparing the Kantian, Empiricist, and Intuitional theories.

[24] *Logic*, Bk. III. c. xvi. § 4.

[25] *Exam.* (2nd Edit.) pp. 68, 69.

associations are, he argues, effected by experience. Darkness is *necessarily* associated in the minds of children and timid persons with terror. We cannot revisit the scenes of particular events without recalling them. The ancients could not *conceive* people living at the Antipodes, from their habitual experience that objects so situated would fall off. Now, mathematical axioms and the other primary truths are perpetually forcing themselves on our notice, and are consequently eminently calculated to generate subjective necessities of the character ascribed to them. It is, therefore, illogical to postulate any other origin for these truths, since, like all the rest of our knowledge, they can be accounted for by association and sensuous experience. We have stated the doctrine of Associationism upon this subject at length, because it was considered for a number of years to be the greatest achievement of the Sensist school, and because its untenability, in spite of all the ingenuity devoted to its elaboration, shows the utter insufficiency of the Empirical theory of knowledge.

Criticism.—(1) In the first place the term *inconceivable*, as has been pointed out by every successive writer on the subject, is grievously abused. This word may signify among other meanings, (*a*) *unpicturable* by the imagination, *e.g.*, red by the blind; (*b*) *incredible*, though not intrinsically impossible, *e.g.*, a race of horned horses; (*c*) *positively unthinkable*, in the sense that the proposition so characterized is seen to be necessarily false. Now, throughout Mill's whole treatment of the question, even after hostile criticism had forced him to advert to the ambiguity, he confounds these various meanings of the term in a manner which fatally vitiates his reasoning. Frequency of association may beget in the mind an incapacity to separate two states of consciousness, and long continued experience or absence of experience may make something inconceivable in the sense of (*a*) or (*b*), which is not so in that of (*c*). In affirming that two things, each equal to a third, must always and everywhere equal each other, that $2+3=4+1$, or, that whatever begins to exist must have a cause, we enounce a judgment the reversal of which is not merely inconceivable through an incapacity of the mind: it is *positively* perceived to be absolutely impossible. On the other hand, it was always easy to *imagine* men at the opposite side of the earth, but unfamiliarity with the notion of its rotundity, or of change in the direction of gravitation, rendered the suggestion very difficult, though not impossible, to *believe*.

(2) To the assertion that the "peculiar feeling of necessity" which marks these axioms is just what would be produced by association, we reply that it is not a matter of subjective

feeling at all, but an intelligent insight of objective necessity. In my present mental and bodily constitution I am necessarily pained by extreme heat or cold. I am forced to feel certain tastes as agreeable or the opposite; and I cannot *imagine* sensations afforded by a different set of faculties from those with which man is endowed. But reflexion tells me that this necessity or incapacity is subjective. The facts might be reversed. On the other hand, in contemplating the proposition that two things which are each equal to a third must be equal to each other, I am conscious not merely that I must believe this truth, like any contingent experience, but also that it must objectively and necessarily be so; that it can never be reversed.

(3) Again, many of these necessary truths are perceived to be such too early in life and too rapidly to be explained by accumulated experience. Mill was driven illogically to abandon the doctrine that it is by *real experience of external nature* we are gradually convinced that two straight lines cannot inclose a space, and to adopt the intuitional theory that by reflexion on the ideas of straight lines we can form that judgment. His attempted justification was that the clearness with which the imagination can depict geometrical figures rivals that of actual experience; but this certainly does not hold for many arithmetical and algebraical judgments.[26] The proposition that $4+5=6+3$, when once clearly comprehended in a single experiment, is cognized to be necessarily true, though we may never have noticed the fact, or juxtaposed these ideas before in our life. Similarly, the still more universal truth $x+1+y-1=x+y$. The proposition that a trilateral figure must be triangular, is also seen to be necessarily true, as soon as it is reflected upon, although these ideas may never previously have been compared.

(4) On the other hand, there are numerous cases where two facts have been uniformly conjoined throughout our entire experience, and yet they are not apprehended by the mind as necessarily connected. I have, for instance, always found fire possessed of the property of warmth, yet I can easily believe that this property can be suspended or separated from it, "while by mere consideration of the ideas," without having once experienced some particular mathematical truth, such as that $2+9=3+8$, "I am convinced that not even Omnipotence could overthrow that equality; . . . that which I have *never* experienced I regard as *necessary;* that which I have *habitually and unexceptionally* experienced, I regard as *contingent*. Most certainly, therefore, mere constant uniform

[26] Cf. Dr. Ward's *Philosophy of Theism*, Vol. I. pp. 55, seq.

experience cannot possibly account, as Mr. Mill thinks it does, for the mind's conviction of self-evident necessity."[27]

Evolutionist Theory.—The Sensist teaching on the origin of necessary truths has assumed a fresh shape in the hands of those writers of the school who maintain the human intellect to have been evolved from that of a non-rational animal. In its present garb the theory claims to possess the combined merits of the hypotheses of *innate ideas*, of *a priori forms of thought*, and of *inseparable association*, while it escapes their deficiencies. Mr. Herbert Spencer is the leading advocate of the new form of the old creed. In his view axiomatic truths, both scientific and moral, are products of experience extending back through the history of the race. The so-called necessities of thought have been produced by association working not merely through the short life of the individual, but away back through the millions of generations of ancestors which have intervened between man and the original protozoa. Mental associations contracted in the experience of each individual modify his organism. These modifications are transmitted by heredity, and appear in the offspring as mental tendencies or predispositions. They continue to accumulate and increase in every successive generation, until the intellectual deposit takes final shape as a *necessary law of thought* or a *form* of the mind. Space, time, causality, duty, are complex notions which have been elaborated during the long ages of ancestral experience. "They have arisen from the organized and consolidated experience of all antecedent individuals who bequeathed their slowly developed nervous organizations . . . till they (*i.e.*, mental acquisitions embodied in nervous modifications) practically became *forms of thought* apparently independent of experience."[28]

[27] Ward, *Ibid.* p 49. Cf. M'Cosh, *Exam. of Mill*, c. xi.

[28] See Spencer, cited by Bain, op. cit. p. 722. Comparison of the evolutionist doctrine with other theories concerning the *origin* and *nature* of these primary truths is interesting: A. The *Evolutionist* maintains, (1) the existence of obscure innate ideas or cognitions, as (2) an *organic* inheritance, (3) from a *lower* form of life, (4) acquired by *sensuous* experience, during a vast period (5) and *therefore* of eminent validity within the field of possible experience: B. *Plato* upheld (1) innate ideas or cognitions, as (2) faint *spiritual* vestiges (3) of a *previous* life, of a *higher* grade, but (4) not derived from *sensuous* experience, (5) and *therefore* of eminent validity: C. *Descartes* and *Leibnitz* defended (1) innate ideas or cognitions, as (2) *divinely* implanted in the mind, (3) and *therefore* of eminent validity: D. *Kant* held (1) innate forms, (2) antecedent to and conditioning *all* experience, (3) and *therefore* subjectively

Criticism.—The eagerness with which the new theory has been received by disciples of the Sensist school shows how utterly inadequate the old Associationist view was felt to be, even among the circle of its own advocates. Yet careful examination of the subject has convinced us that the solitary argumentative superiority the new doctrine possesses over its parent is that of removing the question from the region of rational discussion, and situating it where proof and disproof are alike impossible. This, however, is hardly an excellence which the empiricist can consistently admire. The only criterion which he recognizes is that of experience; the first condition of a hypothesis, capability of verification. Now, there is no theory, however wild, that has yet been broached on the subject—not even that of the ante-natal existence of the soul conjured up by the poetic fancy of Plato—which is more utterly beyond the possibility of scientific proof than the new doctrine. If it has to be admitted by positivist psychologists that it is practically impossible to get reliable evidence concerning the earlier mental states of the infant, it can hardly be disputed that the nature and development of the intellectual and emotional faculties of our remote ancestors of pre-human times are completely shut out from our ken.[29] Geology and Palæontology may throw light on the anatomic structure of the earlier forms of animal life, but their mental endowments cannot be deduced from their fossil remains. Consequently, any hypothesis put forward as to the character and growth of the notion of space, time, causality, and morality in the alleged transitional species of past ages is as much outside the pale of science, as are the habits and customs of the natives of Sirius. The earlier sensationists, defective though their system was, at all events appealed in great part to a tribunal before which evidence could be tendered, and they at least professed to base their creed upon the facts of human consciousness; but, as Dr. Martineau forcibly urges, "their modern followers take refuge from this strong light in an earlier twilight where nobody can tell exactly what goes on. . . . If Hobbes, as often happens, gives us a piece of droll psychology, every one who knows himself can tell whether it is true or false, and lay his finger on any distortion it contains. If Darwin describes the inward conflict of an

necessary within the field of possible experience, but (4) of *no real validity* as applied to *things-in-themselves*: E. *Associationism* denies innate ideas in any form, and ascribes the *necessity* of these cognitions to the constant experience of the individual's own life.

[29] Cf. Croom Robertson, "Axioms," *Encycl. Brit.* (9th Edit.), also Sully, *Sensation and Intuition*, pp 10—13.

extinct baboon, he paints a fancy picture of what remains for ever without a witness."[30]

Furthermore, the doctrine of transmitted hereditary experience as applied to *necessary* truths rests on a profound psychological misinterpretation of their character. It is credible that an instinct, or a tendency towards a particular species of emotion or action can be inherited; but the intuition of necessary truths is something essentially different. We have before pointed out that we do not apprehend the necessity of an axiom from any blind incapacity or negative limitation of thought; on the contrary, it is the translucent self-evidence of the truth itself which extorts assent. We may in our present constitution be *necessarily* pained by extreme cold and heat, we may *necessarily* relish honey, or enjoy the scent of the rose, yet that these things are *necessarily* so for all consciousness we do not judge; but, that two things each equal to a third are equal to each other, we not only necessarily affirm, but affirm *as* necessarily holding in *all being*, and *for all intelligence*. Assent to self-evident axioms is, then, not a blind instinct due to habit either inherited or acquired, but a rational apprehension of intelligible relations objectively true.

Again, the hypothesis is exposed to the objection, *quod nimis probat nihil probat*. If it is true that ancestral experience has been transmitted in this way, we ought to find (*a*) innate cognitions of a large number of other phenomena, and (*b*) a more perfect knowledge of space and other native endowments in the human infant than in young animals of inferior species. Now as regards (*b*), although we do not see sufficient evidence for denying to babies an intuitive though vague perception of extension, it would seem to be certainly established that chickens and young pigs apprehend space from the first with an accuracy scarcely attained by the fully developed man. As for (*a*), if it is true that the peculiar feature of necessity pertaining to these truths is due to the uniform experience of our ancestors, registered and transmitted in nervous tissue, it is not easy to see why such judgments as that "fire burns," "stones fall to the ground, and sink in water," "timber floats," "night follows day," and the like, have not a similar character. These propositions must represent a pretty uniform experience of our ancestors for a long way back in the series, while the number of occasions on which it was cognized that $7+5=3+9$, or the number of times when the idea of "trilateral" was compared with that of "triangular" and found to be conjoined in

[30] *Types of Ethical Theories*, Vol. II. p. 340.

experience, cannot in the pre-mathematical age have been very frequent; yet the former are perceived to be *contingent*, the latter *necessary*.

Another difficulty may be urged as to the nature of that experience which generates these mental *forms*. What is the "environment," the "cosmos," that has been gradually creating these necessities of thought? All forms of sensism logically reduce space and extension to muscular feelings. Such a "cosmos" is, however, obviously of too shadowy a character for the needs of evolutionism. Mr. Spencer, indeed, here postulates an infinite unknowable energy as eternal; but other disciples, such as Mr. Sully, though sympathetic on many points, look upon this assumption as a surviving relic of the vulgar anthropomorphic instinct.[31] Anyhow the difficulty remains: do these necessities which get translated into our consciousness condition that objective energy *in itself?* If so, then we would seem to have got the admission of objective necessary truth which holds for all being, and which reveals itself to the mind.[32] If not, what right is there for assuming that the action of this eternal energy was universally uniform throughout all past time? There remains, finally, the insuperable objection that the soul being a spiritual principle, as we shall prove hereafter, cannot have been inherited from non-rational animals.

Intuitionalist Doctrine. — The true view lies between Innatism and Empiricism. Although all knowledge starts from experience, it is false to assert that all axioms are mere *formulæ* summing up a gathered experience, whether of the individual or of the race, and that our knowledge is limited to the range of such experience. *Necessary* truths may be either self-evident or deduced from such by demonstration. The former are called *Axioms*. Of these the most universal and fundamental is the Principle of Contradiction: *Nothing can both be and not be at the same time.* To the ordinary human mind[33] the theorems of Euclid are examples of the second class.

[31] Op. cit. pp. 20—22. [32] Cf. Martineau, *Ibid.* pp. 356—358.

[33] *Necessary truths* were termed by the Schoolmen *per se notæ;* and were held by them to be *analytic* in a broad sense. That is, of such a nature that a full analysis of the subject and predicate reveals their mutual implication. When this implication is not immediately obvious, as, *e.g.*, in the proposition, "The square of the hypothenuse must equal the sum of the squares of the sides of a right-angled triangle," it was said to be *per se nota quoad se*, in contrast to self-evident *axioms*, which are *per se nota quoad nos*. Thus St. Thomas: "Quælibet propositio, cujus predicatum est de ratione subjecti, est immediata et per se nota quantum est de se. Sed quarundum propositionum termini sunt tales quod sunt in notitia

The self-evident necessary truths which comprise the various axioms are discerned by *rational* or *intellectual intuition:* that is, by simple consideration of the terms that is of the objects of thought about which they are affirmed. Just as we are capable of perceiving contingent impressions by sense, we have also the power of apprehending the *natures* of things, and the *necessary relations* which these involve by the intellect. These intellectual intuitions start from sensuous-perception of single objects, and it is only later on by a deliberate reflex act that the universal truth which these particular cases contain is formally generalized. Thus when Aristotle says that Axioms—*Dignitates*, as the schoolmen quaintly translate them—are reached by *induction*, he does not mean that they are generalizations formed by prolonged and reiterated comparison of individuals, but that experience of some particular examples is needed to enable the intellect adequately to comprehend the two terms. When this is effected, the necessary and universal judgment emerges spontaneously as an *intuition*. We are not endowed at birth with a collection of these simple general *cognitions*, but with an intellectual *aptitude* for their easy and rapid discovery in concrete cases. This natural aptitude, universal in the human race, the scholastics called the *Habitus principiorum*. Thus, to take a particular example, I do not begin life by an intuitive recognition of the abstract universal truth, *What is greater than the greater is greater than the less;* but, observing A to be greater than B, which latter I also know to be greater than C, I intuitively recognize as a self-evident necessary truth that A must be greater than C, becoming at the same time implicitly aware of the universal principle exemplified. Afterwards, by a deliberately reflexive act, I elevate this implicit cognition to the rank of the explicit or formally universal truth—*every* such A must be greater than C. I have thus reached the Axiom without a protracted comparison of a large number of A's with C's. The process is similar in the discovery of the *Principles*

omnium, sicut *ens* et *unum*, et alia quæ sunt entis in quantum ens. Nam ens est prima conceptio intellectus. Unde oportet quod tales propositiones non solum in se sed etiam quoad nos, quasi per se notæ habeantur; sicut quod *non contingit idem esse et non esse*, et quod *totum sit majus sua parte*. Unde et hujusmodi principia omnes scientiæ accipiunt a metaphysica, cujus est considerare ens simpliciter et ea quæ sunt entis." (*Post Analytic*, I. lect. 5.) He also points out that cognition of such necessary principles varies with the actual development of individual minds: "Intellectus principiorum consequitur ipsam naturam humanam quæ æqualiter in omnibus invenitur . . . et tamen secundum majorem capacitatem intellectus, unus magis vel minus cognoscit veritatem principiorum, quam alius." (*Sum.* 2-2æ, q. 5, a. 4, ad 3.)

of Contradiction and *Causality*. Neither is a mere generalization from a multitude of observations, and neither is held in an abstract form by the child. But having intellectually apprehended in particular sensuous experiences the notions in the one case of "being" and in the other of "thing beginning to exist," there is needed only an easy effort of reflexion upon the notions employed in the singular comparison to intuitively recognize the Axiom.[34] Afterwards in complicated reasonings I may recur to the general rule to justify a particular step about which I am dubious, but the relation is first apprehended in the singular experience.[35] Truths of this character are rightly termed *transcendental*. They are not limited to the field of observed phenomena. They underlie and extend beyond experience; and they constitute a body of knowledge of an entirely distinct order from that comprised in the experiential sciences.

Readings.—Perhaps the best history of Theories of Knowledge is that contained in the first volume of *Erkenntnisslehre*, von Al. Schmid (Munich). The literature on the nature and origin of Necessary Truth is abundant. Essays 1, 2, 4, and 5, in Dr. Ward's *Philosophy of Theism*, Vol. I. are exhaustive. See also Kleutgen, op. cit. §§ 288—309; Dr. M'Cosh, *Exam. of Mill*, cc. xi. xii. and *Intuitions of Mind*, passim; and Mr. Courtney's *Metaphysics of Mill*, cc. vii. viii.

[34] "Intellectus principiorum dicitur esse habitus naturalis. Ex ipsa enim natura animæ intellectualis convenit homini quod statim, cognito quid est totum et quid est pars, cognoscat quod omne totum est majus sua parte; *et simile est in ceteris*. Sed quid sit totum et quid sit pars, cognoscere non potest nisi per species intelligibiles a phantasmatibus acceptas, et propterea, Aristoteles in fine Posteriorum ostendit quod cognitio principiorum provenit nobis ex *sensu*." (1-2, q. 51, a. 1.) Just as *being* stands first, according to St. Thomas, in the order of conception, so is the principle of contradiction—the opposition of *being* and *non-being*—primary in the judicial order: "In prima quidem operatione (apprehensio) est aliquod primum quod cadet in conceptione intellectus, scil. hoc quod dico *ens*, nec aliquid hac operatione potest mente concipi nisi intelligatur *ens*: et quia hoc principium: *Impossibile est esse et non esse simul*, dependet ex intellectu *entis*, sicut hoc principium: *Omne totum est majus sua parte*, ex intellectu totius et partis, ideo hoc etiam principium est naturaliter primum in secunda operatione intellectus, scilicet componentis et dividentis. Nec aliquis potest, secundum hanc operationem intellectus, aliquid intelligere nisi hoc principio intellecto." (*Metaphys.* Lib. IV. lect. 6.)

[35] Cf. M'Cosh's *Intuitions of Mind*, Bk. i. Pt. I. c. ii. §§ 3, 4. The Aristotelico-Scholastic doctrine concerning the nature and origin of axiomatic truths is admirably expounded by T. de Regnon, S.J., *Métaphysique des Causes*, Livre I. cc. 2, 4, 5.

CHAPTER XIV.

CONCEPTION: ORIGIN OF INTELLECTUAL IDEAS (*continued*).

Summary of past Chapters.—In chapter xii. we proved that sensuous and intellectual activity differ in *kind*. We defined intellect as the "faculty of thought," including under *thought*, conception, judgment, reasoning, supra-sensuous attention and self-consciousness. In chapter xiii. we have sketched at considerable length the attempts made by the chief modern schools of psychologists to explain the relations between sensuous cognition and thought, and to trace the origin of the latter. It will be now our own duty to face this latter question, and examine more closely the nature of our intellectual operations.

Thought an Activity.—If we analyze a process of thought, we shall observe, in the first place, that it is in a marked manner an *activity*. Even in simple sensations, such as those of sight, there is genuine psychical activity of a certain kind; for the mind truly reacts to the physical stimulus by a conscious state. Still, compared with thought, sensuous life is relatively recipient and passive. In thinking, however, as in recalling a train of reasoning, in following an argument or in solving a mathematical problem, we are conscious of the mind as *active*. It attends to certain objects and abstracts from others; it brings together different ideas and compares

them; it resolves complex conceptions into simpler elements; it judges, infers, and generalizes; and throughout all these operations, even when proceeding automatically or without voluntary effort, this rational consciousness is of an eminently active character.

Thought Universal.—But a far more important feature of thought is that it deals with general relations and abstractions. Whilst sensuous apprehension is confined to the individual and concrete, thought can lay hold of the abstract and the universal, or of the general aspects of things. Images and representations of particular objects, it is true, accompany our thinking; and when the subject of consideration is singular, or when a train of thought consists mainly of the reminiscence of concrete experiences, the intellect indirectly apprehends singular events.[1] Still the direct object of intellectual activity, even in particular experiences, is the universal and abstract. Introspection informs us that in all thinking operations the mind seizes on general features of things, their agreements or differences, the relations of cause and effect, of substance and accident, of unity, plurality, and connexions in space or time. The study of thought expressed in language makes this clear, for the common nouns, adjectives, and verbs, as well as prepositions and adverbs, all symbolize universal notions and abstractions—but abstractions having their foundation in reality.

Take, for instance, a newspaper article, and analyze it. You will find that it is composed of reasonings or arguments. These are resolvable into several separate judgments enunciated in propositions; and these last are ultimately reducible to terms and single words expressive of general ideas or concepts. When thus analyzed the proposition—*e.g.*, "Liberty is a natural right," yields four such universal notions, and "Bread is cheap," gives three. It is the function of Psychology to study the nature of these intellectual processes; and, accordingly, in this chapter we purpose to treat of the formation of universal notions or concepts.

Conception: Two Questions.—When investigating the formation of concepts, it is important to distinguish two separate, though connected questions:—How are they elaborated? and How

[1] "Intellectus noster *directe* non est cognoscitivus nisi *universalium*. *Indirecte* autem et quasi per quamdam reflexionem potest cognoscere *singulare*." (St. Thomas, *Qq. disp. De verit.* q. 8, a. 14.)

are they originated? The former may be stated thus: Given the most rudimentary and indeterminate acts of intellectual apprehension, what is the process by which these are developed and elaborated into the clear and distinct universal concepts, the specific ideas, and scientific notions of later life? The other is:—How are these primitive intellectual data themselves obtained? Or: How is the rational faculty of the mind evoked into activity and made cognizant of the object which stimulates the sense? [2]

Elaboration of Universal Concepts.—*Intuitive Abstraction and Generalization:* In mature life the perception of a single specimen is often the occasion of our forming a truly universal idea. For instance, whilst visiting the Zoological Gardens, an unfamiliar object presents itself to my senses and awakens an act of intellectual attention. I at once apprehend it as a large-dark-hairy-skinned-hump-backed-long-necked-four-footed-self-moving *thing*. The complex idea thus awakened in my mind was termed by the schoolmen a direct or potentially universal concept. Considered abstractly in itself it is neither universal nor singular. The same holds true of any simple idea given in an act of any direct perception, such as that of colour or taste.[3]

[2] The above distinction may be useful to the reader of the Scholastic manuals. Under the heading Origin of Ideas, these works discuss the second question, whilst English text-books of Psychology confine themselves exclusively to the first.

[3] "The conception of an abstract quality is, taken by itself, neither universal nor particular. If I abstract *white* from the rest of a wintry landscape this morning, it is a perfectly definite conception, a self-identical quality which I may mean again; but as I have not yet individualized it by expressly meaning to restrict it to this particular snow, nor thought of the possibility of other things to which it may be applicable, it is so far but a floating adjective." (James, Vol. I. p. 473.) Compare St. Thomas: "Si quæratur utrum ista natura (natura *humana* considerata modo absoluto ut abstracta) possit dici una vel plures, *neutrum concedendum est*, quia utrumque est extra conceptum humanitatis, et utrumque potest sibi (humanitati) accidere. Si enim pluralitas esset de ratione ejus nun-

I may now, by an act of reflective consciousness, turn my attention back from the *thing* to the *idea*, and whilst considering the idea advert to its susceptibility of being realized or reproduced in an indefinite number of similar beings. In this second stage the idea has become a perfectly general concept, called by the schoolmen a *reflex universal*. The object before me may happen to be a unique monster; but, nevertheless, it suffices for the formation of the logically-universal concept.

It is not necessary for me to see and compare several examples of the class. I have not to await the automatic evolution of a generic image by the fusion of a succession of impressions. The mind's spontaneous power of abstraction and generalization, when once awakened, can itself construct the universal notion. The single experience reveals to me the union, and, therefore, the compatibility of the collection of notes which constitute the concept; I perceive its internal possibility, and advert to its susceptibility of multiplication. The idea, however, thus rapidly formed may not represent accurately any existing class of object; it most probably does not correspond to an actual species. The colour or the size, for instance, which enter into my representation may be accidental or even peculiar to the particular animal before me. The idea is truly *general*, but the generalization is precipitate, and probably false if supposed to represent the actual order of the physical universe. It possesses what Abbé Piat calls *l'universalité de droit*, but not yet *l'universalité de fait*. It is a logical, not a scientific universal. It has to be perfected by protracted experience, which involves, on the one hand, a diligent observation of new examples, and on the other, reiterated reflective consideration and readjustment of the idea, so as to adapt it more closely to the facts.[4]

quam posset esse una, quum tamen una sit secundum quod est in Socrate. Similiter si unitas esset de intellectu et ratione ejus, tunc esset una et eadem natura Socratis et Platonis, nec posset in pluribus plurificari." (*De Ente et Essentia*, c. IV. Cf. Rickaby, *First Principles*, p. 316.)

[4] "Considérons par exemple la couleur d'une boule d'ivoire. Par elle-même cette couleur est la qualité de *cette* boule, un mode indissolublement lié à cette boule, n'existant et ne pouvant exister qu'en elle. Mais qu'une fois cette couleur soit le terme de mon intelligence que je n'en aie pas seulement la sensation, mais encore l'idée, aussitôt et par le fait même, avant de savoir si cette qualité se

Furthermore, in the act of apprehension, which seemed so rapid, we cognize the object as *dark-coloured*, *hairy-skinned*, *self-moving*, and the like. But each of these adjectives expresses a universal notion, and the complex conception of the camel is thus easily attained, only because we are already in possession of the more elementary ideas of which it is constituted. In mature life cognition is often a process of *re*-cognition, perception an exercise of apperception; we comprehend an object by bringing it under a class, or a system of intersecting classes with which we are already familiar. But we must not be misled by this fact into the error that *all* cognition is classification.[5] The notion of *being*, which is the most primitive, the most indeterminate, and the widest of all ideas, and which, moreover, enters into all our intellectual cognitions, is not the outcome of a process of *comparison*, but of intellectual *intuition*.[6] The same is true of simple ideas presented in direct acts of apprehension, though the exigencies of language force us to express the experience in the form of classification. In the mental act itself, we may simply intuit an object or attribute, which may or may not be familiar; but if we seek to put the thought into words, it must be in terms symbolic of recognized classes—*e.g.*, "That is scarlet," or "This is painful." Moreover, the nature of mental action must be the same in *kind* throughout man's life, although intellectual activity is very faint and feeble in the early stages of its exercise; at all events, any con-

rencontre ailleurs dans la nature, je la vois applicable à une infinité d'autres boules d'ivoire et peut-être aussi à une infinité d'autres corps. Il en est de même de toute substance, de tout mode, de tout rapport, de tout ce que nous connaissons. Un objet quelconque qui pénètre dans notre conscience empirique, acquiert sous le regard de notre conscience rationelle et du premier coup une sort *d'universalité* qui va jusqu' à l'infini. Dans tout individu donné, l'intelligence découvre une *essence* et dans cette essence la possibilité de se réaliser dans tous les temps et tous les lieux autant de fois qu'on le voudra. Au-dessus de *l'universalité de fait* il-y-a *l'universalité de droit*, dont le propre est d'être essentielle à l'idée, logique, absolue." (*L'Intellect Actif*, p. 82.)

[5] Herbert Spencer's laboured assault on the possibility of a notion of the absolute (*First Principles*, pp. 79—82) is based on this fallacy. "God being unclassable," is not thereby "unknowable." We can conceive Him as a unique Being, possessed of intelligence, power, and holiness without limit; and our conception, though inadequate, is good so far as it goes.

[6] "In his autem quæ in apprehensione hominum cadunt quidam ordo invenitur nam illud quod primo cadit in apprehensione est *ens* cujus intellectus includitur in omnibus quæcumque quis apprehendit." (St. Thomas, *Sum. Theol.* 1-2, q. 94, a. 2.)

jectures we make as to the development of rational cognition in childhood must be based on what we know of the working of the human mind at a later period—but, of course, corrected and qualified by all relevant facts that we can gather from a diligent study of infant life.

Intellectual Apprehension.—At what age intellectual cognition proper begins it is impossible to determine. The sensuous faculties must, however, have attained a certain maturity before the higher functions of the mind are evoked into activity. Careful observation seems to establish that the primitive consciousness of the infant is an ill-defined sensory continuum, a mass of obscure homogeneous feeling in which there is little advertence to differences of objects or sensations. (See p. 151.) With frequent exercise and varied experience in the manner already described, the sensuous powers develop until they are sufficiently perfect to minister to intellectual cognition. When this stage is reached the intellectual act elicited must be the same in *kind* as that which the mind exerts in later life. It must be an act of intellectual *apprehension*, but of course of the vaguest character. The widest and most indeterminate conception under which we can cognize any object is that of *being* or *thing*. The earliest intellectual cognition elicited by the child is, therefore, the apprehension of an object as a *being*, or rather as an *ens extensum*—a stretched-out-thing, whilst vague intuitions of moving-being, coloured-being, resisting-being, are almost simultaneously reached. It takes in objects as confused *wholes* before it discriminates their separate *parts*. It perceives them as totalities before distinguishing their various attributes. But the process by which the vague notions thus reached are contracted and enriched, are analyzed, clarified, and perfected is merely the reiterated exercise of this same intellectual power of apprehensive attention.

Comparative Abstraction.—Attention is especially awakened by *repetition* of an experience, especially if this be connected with the child's own physical comfort or pleasure. The frequent re-appearance of

some object excites interest. The sensuous perception becomes more perfect; the image produced in the imagination more distinct. Suppose, for instance, that some agreeable phenomenon, as, *e.g.*, a bright red garment or a cup of milk breaks in from time to time upon the drowsy consciousness of the infant; the pleasure occasioned will stimulate attention to the object; the recurring incident or group of incidents will be noticed, and observation will be concentrated upon them. This focussing of attention on part of an experience has as its counterpart *abstraction* or *precision*, that is, the temporary withdrawal of our mental gaze from the elements unattended to. Still, the contraction of our attention to one object or part of an object is not so complete as to result in the entire ignoring of its surroundings. Indeed, with repetition of the experience the surroundings themselves become matters of interest, and the variations which accompany the constant factor begin to be discerned more and more clearly. Whilst some attributes presented in the original vague act of apprehension recur regularly, others are intermittent or disappear. The red garment first observed when stretched-out is afterwards noticed folded in various ways, and its *shape* is different. The milk is now hot, now cold, sometimes sweetened with sugar, sometimes not, and the like. The notion of *sameness* amid change is being evoked, and this leads the child to compare.

Comparison and Discrimination.—Comparison plays a considerable part in the elaboration of our concepts; but it implies their previous existence in at least a vague form. The mind cannot compare unless by an act of apprehension it is already in possession of the terms to be compared. Partial variation accompanying partial sameness in the objects of experience stimulates the judicial activity of the mind, which at first acts feebly, but with increasing firmness and distinctness as the faculties develop. *Discrimination* involves *analysis*, the splitting-up of the perceived object into its constituent elements; whilst this very process of separation pre-supposes an intuitive *synthetic* grasp of

the object as *a whole* in the original conception, which is now realized with greater distinctness. The shape, colour, temperature, and softness of the garment, and the sweetness, temperature, and colour of the milk are distinguished as *attributes* of the perceived *object*, and the child is perfecting its notion of *unity* and coming to realize the difference between *substance* and *accident* in the original vague *ens extensum*. It should not, however, be forgotten that the recognition of *sameness* involves *memory;* and that although the natural tendency of the mind is in the beginning altogether objective, there must be an implicit awareness of its own enduring existence, developing in the consciousness of the child concomitantly with its cognition of the persistence of external things.

But the infant's experience is not limited to the recurrence of the same individual objects. He perceives different beings *resembling* each other in fewer or more features; and his attention is called to the recurrence of a common element in quite different situations. Thus, after he has grown familiar with the red garment, he observes a red table-cover or a red neck-tie, and adverting to the similarity not unfrequently manifests his satisfaction at the discovery. This is an important epoch in the elaboration of the general concept, for such an experience stimulates in a lively manner the abstractive power of the intellect, and incites the infant mind to consciously consider and dwell upon the conception *redness* in a completely *abstract* state.

Generalization.—The transition to the perfectly general concept, the formally *reflex universal* idea, is now very rapid. The child having observed this red colour in different objects, and conceived it in the abstract by a further reflective act, considers it as capable of indefinite realization in other objects. The mind exerts its synthetic power and constructs new specimens, all embodying this attribute, and consciously adverts to the fact that it may be predicated of them all.

As we have already pointed out, the formation of a

general concept is quite possible in mature life after a single perception; and the operation may be similarly within the power of the child at a very early date. Nevertheless, it seems to us more probable that the reflective consideration of the concept involved in the act of formal generalization is ordinarily excited in the infant by the comparison of different objects and the discovery of a common attribute in several individuals. But the view of the older empiricists that generalization is simply the outcome of an accumulation of experiences is utterly erroneous. The active generalizing impulse is innate in our rational nature. Nay, experience is needed not to stimulate and excite, but to check and moderate this generalizing tendency. The chief use of reiterated observation is rather to correct and verify than to generate universal conceptions.

Precisely the same functions of the intellect—attention, abstraction, analysis, synthesis, comparison, and discrimination—are employed in fashioning the notions of science and those of ordinary life; and their work in both cases is the same—to correct, adjust, and verify the vague idea generated spontaneously by the mind's own activity operating on concrete individual facts. Science is, after all, but a further elaboration and systematization of our ordinary cognitions, employing more careful methods of observation.

Let us, for example, trace the growth of the idea of *cat*. By its repeated appearance before the infant pussy excites attention, and is apprehended as a *white-four-legged-self-moving-thing*. On subsequent occasions it is observed standing, moving, sometimes mysteriously crumpling itself up and sitting down, sometimes lying seemingly dead on the hearth-rug. The *image* of pussy is by this time very distinct, but the concept is still very imperfect. It is merely that white-four-legged-self-moving-thing-which-does-curious-acts. Still the mind can and probably does generalize it. The child is quite prepared to apply the notion to an indefinite number of white, self-moving quadrupeds. Later on a black cat intrudes, and the general likeness in form, movement, and habits, is recognized, whilst the mind is disconcerted by the startling dissimilarity in colour. The notion of *cat* has now to be *enlarged* to accom-

modate itself henceforth to all hues. Next day the child observes a St. Bernard's dog, and manifests his appreciation of the similarity in this new self-moving quadruped. For him it is a *big cat.* If a second dog now appear, the original idea is seen to embrace two classes of objects. The concepts of dog and cat are *distinguished* and *contrasted;* attention is directed to their points of agreement and difference, and both notions become speedily well defined. The shape of the cat, its furry skin, its stealthy movement, its peculiar cry, are combined and held together by a synthetic intellectual act, and the concept of cat is formed and ready to be contrasted with the idea of dog, or sheep, or to be inductively applied to all future cats. The child's comparatively clear conceptions of these domestic animals are thus elaborated out of the primitive, ill-defined, and obscure apprehension of four-legged-self-moving-being. Increasing experience continues to perfect these conceptions of the nature of common objects until the average knowledge possessed in the child's social environment is reached, when progress ordinarily stops, and his ideas become practically fixed. Thus, the conceptions of cat and dog, bread and butter, are approximately the same among most people of the same degree of culture.

Commonly, however, when a special branch of science is undertaken, there is at once a new start, and an enlarged field of possible knowledge concerning the things of which it treats opens out before our minds. Still, the process is fundamentally of the same kind, and the clear, distinct, and rich conception which the chemist possesses of the nature of *water*, as composed of oxygen and hydrogen and exhibiting a thousand affinities and properties which distinguish it from other species of things, is only a better elaborated form of the infant's idea of the disagreeable thing in which he is daily washed.[7] In fact the growth of our intellectual

[7] Mercier justly insists: "Nous n'arrivons pas subitement à *l'essence spécifique* des choses: nous commencons par saisir leurs qualités, comme quelque chose de concret et de subsistant, nous ne distinguons pas de prime abord, entre la *substance* comme telle et les *accidents* qui l'affectent et y sont inhérents, entre les qualités *contigentes* et les caractères *necessaires*, c'est-à-dire, les *propriétés naturelles* ou les notes *essentielles* du sujet que nous voudrions pouvoir définir. . . . Ce n'est que plus tard, par voie de *comparaison* et au moyen de l'induction . . . . que nous approchons d'une manière *mediate*, de la connaissance de *l'essence specifique* des êtres et de ce *premier fond substantiel* qui demeure invariable chez eux à travers les variations

knowledge is a continuous descent down *Porphyry's tree*. Each step augments what logicians call the *comprehension* or *connotation* of our subjective conceptions; that is, it increases our knowledge of the essential attributes of the being represented by our idea, whilst on the other hand it lessens the *extension* or field of objects to which the idea can be applied.

Thought and Language.—*Naming.*—The group of attributes summed up in a concept thus formed could, however, neither be retained in the memory nor communicated to others unless they were embodied in some definite sign. Hence we mark them with *general names*. This is the final act of *denomination*, the importance of which in the growth of knowledge and the elaboration of our concepts of specific essences, it would be difficult to exaggerate. The recurrence of the name will awaken in the future by association sensuous images of the individual objects perceived in the past, but its essential functions are to hold together and express the nucleus of attributes which constitute the common nature apprehended in the universal concept. Hamilton has characterized words as the "fortresses of thought," and the phrase very fitly indicates one of their most important duties. They establish our command over conceptions which have been gained by a protracted experience and might otherwise be soon lost. By definition a term is made to signify a determinate group of properties which we have frequently found together. It *registers* the result of a long series of observations; it is readily represented in imagination, and serving as a general symbol, it is handled with the greatest ease in our reasoning

incessantes de leurs accidents." (*Psychologie*, p. 345.) Similarly Coconnier: "Examinez les idées que vous faites des différents êtres, et vous verrez que vous les avez toutes constituées à l'aide des notions transcendentales et *communes* de l'ontologie, notions générales d'être, de substance, de qualités, de cause, d'action, de space, etc. D'après cela nos idées des choses matérielles sont comme autant de faisceaux, de concepts additionés, réunis et groupés en autant de diverses manières que nous connaissons d'êtres matériels différents." (*L'Âme humaine*, p. 130. Cf. Peillaube, *Théorie des Concepts*, pp. 302, 303, 326, 332—335.)

processes. These great advantages of language in relation to complex ideas are conspicuously illustrated in sciences like Botany and Chemistry, the nomenclature and terminology of which have been formed on systematic principles.

Communication of Ideas.—But the value of words is even more obvious as instruments of communication, for which purpose, indeed, they were primarily invented. Here the condition of the child who comes into the possession of a language already made is obviously very different from that of a human being building up a system of speech for himself. The former receives an enormous gratuitous gift of precious conceptions to be appropriated with the least possible labour. The child born into the inheritance of a cultivated language starts from a level which has required numberless generations of great minds to build up; and just as cities, roads, railways, and machinery are contributions of the labours and the genius of past centuries towards his material welfare, so the vocabulary of which he is put in possession with almost equal facility is an accumulated legacy of incalculable worth in the enrichment of his intellectual life.

Ideas prior to Words.—Useful, however, as language is for the development and perfection of thinking, there is no evidence that it is absolutely necessary to thought. The idea precedes the word; the latter is invented to express the former. The child is possessed of many simple ideas before he can give utterance to them by oral sounds. Deaf mutes are proved to have performed many intellectual operations before they employ any kind of signs to express them. Nevertheless, it is probable that in normal life no lengthy chain of thought is carried on without the mind assisting itself by the use of words which, in the case of the dumb, are replaced by movements, images, or physical symbols of some other sort.[8]

Second Question.—*Origin of Ideas.*—Having thus described at length what seems to us to be the most common process by which the primitive vague intellectual apprehensions of *being*, *extended being*, *moving being*, *coloured being*, and the like, are contracted and

[8] Max Muller, who argues for the inseparability of thought and language, gives a history of the dispute in his *Science of Thought*, pp. 32—64. Cf. also Mivart, *On Truth*, c. xvi.; James, Vol. II. 355—358.

elaborated into the specific ideas and scientific conceptions of later life, the question still remains: How are these most indeterminate notions themselves originally obtained? What are the relations between the sensuous and the rational functions of the mind in the initial act of intellectual cognition? Some able scholastic psychologists reply that the operation is incapable of further analysis. Consciousness assures us that the intellect lays hold of the abstract and universal aspect in the concrete sensible phenomenon; but we cannot penetrate beyond this ultimate fact.[9] The schoolmen, however, in general, answered this question by the theory of the *Intellectus Agens*, therein developing the Aristotelian doctrine of the abstractive activity of the intellect. This theory is thus an attempt to explain *how* intellectual activity is evoked, and *in what way* the primitive abstractive operation is exerted. It is therefore a hypothesis put forward to give a fuller account of certain well established facts; and its value is to be measured like that of any other hypothesis by its success in explaining the phenomena. It accordingly stands on quite a different level from that of the tenet that intellect is a spiritual abstractive faculty essentially different from sense. This latter doctrine we believe to be a demonstrated truth, whilst the former can only claim to be a probable or plausible theory; and it seems to us very important to recognize clearly the relatively subordinate character of this very

[9] Dr. G. Hageman thus writes: "The soul must be endowed with the faculty of *abstraction*. The mind immediately abstracts the essence of the object. just as in sense-perception the soul immediately apprehends the stimulus. But we are just as incapable of obtaining an *insight into the process of the spiritual abstractive activity* as of deducing the nature of sensuous activity from the essence of the soul." (*Psychologie*, §. 93, Sechste Auflage, 1897.) Similarly Abbé Piat: "Notre avis à nous, est que l'acte original par lequel l'intelligence opère sur les données empiriques, résiste, comme l'émotion ou l'acte libre, à toute definition vraiment positive; il y reste *un résidu impénétrable.*" (*L'Idée*, p. 244; cf. *L'Intellect Actif*, pp. 134, 135.) "Patet nil certum remansisse apud Scholasticos in hac difficili quæstione, nisi solam formationem harum idearum *per vim abstractivam intellectus* . . . Quicunque enim per vim intellectus abstractivam idearum originem explicat, *vere intra scholam manet.*" (P. J. Mendive, S.J., *Psychologia*, p. 301.)

speculative discussion. Modern writers with the most superficial information regarding mediæval thought, are wont utterly to mistake the weight assigned to different questions; and they would fain identify the fate of the grand fabric of the whole scholastic system with a few ingenious and very speculative solutions of subtle metaphysical problems of comparatively inferior significance. Accordingly, with fair warning to those not familiar with the Scholastic Philosophy that this is amongst the most obscure and difficult of the discussions of the schoolmen, we shall give an exposition of the subject for the sake of those who may wish to go deeper into mediæval metaphysics.

Aristotelico-Scholastic Theory of Abstraction.—This starts from the truths already established, that in mature life the mind is in possession of truly abstract and universal ideas which transcend the range of the lower or organic faculties, and thus force upon us the admission of a higher, supra-sensuous power. These ideas represent under an abstract and universal form the essence or nature which exists individualized by material conditions in sensible objects. We have thus two grades of cognitive faculties, sense (*αἴσθησις*), the lower; and intellect (*νοῦς*), the higher or spiritual power.

1. *Formal objects of Intellect and of Sense.*—The formal object of sense—that which it is ordained to apprehend—is some particular phenomenon, some concrete quality or material thing. The formal object of intellect is *being* in general, the *essence* or *quiddity* of things in its widest sense.[10] Within the

[10] The student must be constantly on his guard against interpreting "essence" to imply all that is contained in "specific nature." Amongst its synonyms in scholastic literature are: *Quod quid est;* or, What any thing is; the Quidditas, Whatness, *Washeit*, *τὸ τί ἦν εἶναι;* or the nature of an object, the *ratio interna*, *la raison intime*, the realized idea or plan, the actualized internal possibility of a thing, the sum of the notes which constitute it. Every positive answer to the question, What is that? reveals the essence. The answer may vary in definiteness from: "It is something," to "It is a dark-extended-four-footed-long-necked-hump-backed-hairy-skinned-self-moving-being." The former expresses the essence in its most indeterminate form; the latter approximates towards the conception of the specific essence of a camel. Some of the above synonyms—*e.g.*, *nature*, are more frequently used to designate the specific essence; but there is no fixed usage. When it is said that the intellect abstracts the essence, this term must be understood in its widest sense; the more determinate specific essence, as before stated, is attained by observation, comparison, and induction.

sphere of *being* is included substance and accident, body and spirit, creator and creature, actual and possible reality; in fact, everything capable of being in any measure understood. It is under this aspect that every object of thought is apprehended, it is the simplest and widest of notions, and into it all notions are finally resolved. But, although the formal object of intellect embraces all forms of *being*, yet the *human* intellect has for its connatural, immediate, or proportionate object, the abstract and universal essences of sensible or material things. The *connatural* object of a faculty signifies that towards which it directly tends, as opposed to that which it can cognize only mediately and indirectly, or by analogy. God and other pure spirits are thus not the connatural object of the human intellect. They are known not by intuition, but by inference and analogy; whilst our earliest intellectual ideas are all of sensible objects.

2. *All knowledge starts from experience.*—At the beginning of life the mind is in a purely potential condition with respect to knowledge. There are no *innate* cognitions, whether sensuous or intellectual. The mind is described as a *tabula rasa*—a clean tablet on which nothing is yet written—although this term is not completely appropriate, since such a tablet is entirely passive, whilst the intellect is endowed with an innate, or *a priori* active power of modifying itself, so as to generate abstract or immaterial representations of sensible objects. In order to apprehend any of these objects, there must be wrought in the mind a form, modification, or determination by which it is assimilated to the object. This modification or form, is called the *species impressa*, and we have described in chapter iv., how material objects acting upon the senses produce modifications by which the lower faculties are determined to the sensuous apprehension of these objects. But for intellectual cognition the higher faculty must be similarly determined by a form of a higher order—a *species intelligibilis impressa*—to elicit a conception of the universal nature or essence of the object.

3. *Intellectus Agens.*—The action of the material object awakens sensuous perception, which results in a concrete phantasm of the object in the imagination from which the intellectual concept is derived. But neither this sensuous perception of the object nor the resulting phantasm can directly effect the *species intelligibilis impressa* or generate an intellectual concept. They only contribute the "material" elements or conditions to the elaboration of the concept. For neither the physical thing nor the phantasm can directly reveal itself to the cognitive intellect. Both are individual, concrete, material, whilst the object of the intellect is

universal, abstract, and immaterial. They contain, indeed, a universal essence, but individualized in its material determinations. It is in this state only fundamentally universal, and therefore not apt to be immediately taken up into the intellect. It is, according to the scholastics, as yet only *potentially intelligible*, somewhat as red or green is only *potentially sensible* in the dark; it needs to be made *actually intelligible*, in order to be apprehended by the intellect. It has to be *abstracted*[11] from its individualizing corporeal conditions. Indeed, it was the conviction of this incapacity of the sensible material thing to directly manifest itself to the intellect and thus modify the spiritual faculty that induced Plato to assume the existence of real abstract immaterial essences separate from sensible phenomena.

It is in order to account for this modification of the spiritual faculty, or, which is the same thing, for the excitation of the intellect to the generation of the abstract representation of the essence existing individualized in the phantasm that the schoolmen ascribe to the intellect not merely the capacity of being modified so as to represent the various objects in an abstract or spiritual manner, but also an *active energy* or *force of its own*, which is chief agent in the production of this modification. The only other alternative

[11] It should be noted that the schoolmen employed the words *abstraction*, and, *to abstract*, in the converse signification of that which has prevailed since Kant. With modern writers intellectual abstraction primarily signifies the ignoring or omission of the attributes *not* attended to; with the schoolmen it was understood to primarily mean the positive side of the operation—the assumption by the mind of the part selected, of the attributes which *are* attended to. A process of abstraction, therefore, formerly signified the *taking up* of something: now it would signify the *neglect* of something. (Cf. *Logic*, present series, pp. 102.) Still, by the "abstraction" of the essence or species from the sensuous representation, the schoolmen did not mean the physical extraction of certain parts of the latter, but the reproduction of its essential features in an abstract manner in a higher form of consciousness. Thus, Suarez: "Observandum est, speciem non dici *abstrahibilem*, vel *abstrahi*, a phantasmatibus, quasi ipsa species prius esset immixta phantasmatibus, unde postea separetur ab intellectu agente, ac transferatur in possibilem; hoc enim puerile esset cogitare. . . . Intellectum ergo *abstrahere speciem*, nil est aliud quam virtute sua efficere speciem spiritualem repræsentantem eandem naturam, quam phantasma repræsentat, modo tamen quodam spirituali; illaque elevatio a materiali repræsentatione phantasmatis ad spiritualem repræsentationem speciei intelligibilis dicitur *abstractio;* ex quo aperte constat abstractionem non esse actionem distinctam a productione speciei." (*De Anima*, Lib. IV. c. 2, § 18. Cf. *Sum.* 1. q. 85, a. 1, ad 3, 4.)

is to assume that the intellect is determined to apprehend its object by an external spirit, angelic or divine. This, however, is a fanciful and gratuitous hypothesis incapable of proof, and in conflict with much of the evidence adduced against the doctrines of innate ideas and of ontologism. We are, they argue, thus compelled to attribute the generation of intellectual ideas to an inherent force of the intellect itself, which, reacting on the occasion of sensory stimuli, effects in itself the modification by which the object is apprehended under a universal aspect. This force is the *active intellect*, the *Intellectus Agens*. They define it as: *A certain instinctive spiritual force or energy of the mind, which acting spontaneously on the presentation of objects in the imagination, generates "species intelligibiles" of them*, or, *an active faculty whereby the intellect modifies itself so as to represent in a spiritual or abstract manner what is concretely depicted in the phantasm.*

The argument is put briefly by other scholastics thus: Neither the object itself, the sensuous impression, nor the phantasm can generate *species intelligibiles*, by which the intellect is determined to cognize the object, for this modification is a spiritual accident, and none such can be produced by material agencies. It is a fundamental axiom, that no being can effect in another what is not contained in itself, either formally or eminently, and a spiritual accident is contained in a corporeal agent, neither formally nor eminently. Therefore, the modification of the intellectual faculty must be immediately due to a spiritual, not an organic agency.[12]

4. *Intellectus Possibilis.*—The mind's capability of being modified so as to express the essence of the object in a concept is termed the *intellectus patiens vel possibilis*. It is the *intellectus patiens* which formally understands. The *intellectus agens* must be conceived as instinctive or blind; its "abstractive" action is *productive* of intelligence, not formally intelligent itself. Its function is to *effect* the modification by which the act of intellectual consciousness is immediately awakened.[13] It may be here asked if the action of the *intellectus agens* be instinctive, why does it issue into the precisely appropriate activity? Why does it effect exactly the right modification to represent the object of the sensuous impression

[12] Cf. Kleutgen, op. cit. §§ 18—32, 45—49, 776, 777; also Peillaube, op. cit. pp. 294—300.

[13] The different functions ascribed to the *intellectus agens* and *patiens* illustrate the scholastic distinction between an *active* and a *passive* faculty. Both together constitute the actually intelligent mind; but the former *actuates* its object, makes it pass from a potential or virtual condition to one of *actualization*, whilst the latter *is actuated* by its object.

when the latter cannot directly act upon it? The answer lies in the fact that both sense and intellect have their source in the same indivisible soul, which is so constituted that on the stimulation of the former the latter sympathetically responds by a higher reaction of its own—somewhat as the appetitive faculty, which conceived as such is blind, tends towards an object apprehended by a cognitive faculty as good. In both cases it is the soul itself which acts through the faculty.

Distinction between the Active and Passive Intellect.—It was disputed among the schoolmen, in what way and to what extent the *intellectus agens* is to be distinguished from the *intellectus patiens*. The Arabian philosopher Avicenna and certain of his disciples interpreted Aristotle's somewhat obscure language on the point, to mean that the *intellectus agens* is "separate" not merely from the human body, but also from each individual soul. They, accordingly, conceived this power, after a pantheistic fashion, as one universal spirit, which in some mysterious way operates upon the passive or recipient intellects of all men. This gratuitous and fanciful hypothesis was unanimously rejected by the schoolmen, who all deny to the *intellectus agens* any existence separate from the individual soul. But here the agreement ends. The majority conceive the *intellectus agens* and *intellectus patiens* as two real subjectively distinct faculties of the soul, on the ground that they are opposed as agent and patient, mover and moved. The function of the one, it is urged, is to effect the *species impressa*, whilst that of the other is, when thus modified, to apprehend the object. Other scholastic philosophers, however, argue very forcibly against this multiplication of faculties as excessive. They object that the hypothesis of two intellects is unnecessary, and they maintain that these terms only designate different aspects or aptitudes of the same power. The name, *intellectus agens*, denotes the mind as capable of modifying itself, whilst the *intellectus patiens* signifies the same mind considered from the other standpoint as capable of being modified. In this view they are subjectively merely virtually distinct powers.[14]

5. *Species Intelligibiles: Verbum Mentale.* The modification of the mind viewed as wrought in the *intellectus patiens* by the *intellectus agens*, constitutes the *species intelligibilis impressa*. The union of this *species impressa* with the *intel-*

[14] "Intellectus agens *realiter* a passibili non distinguitur. Nam intellectus dicitur *agens*, quatenus actionem cognoscitivam producit; *patiens* vero, quatenus hanc ipsam actionem in se recipit hæc autem duo munera ad unam et eandem potentiam pertinent." (J. Mendive, S.J., *Psychologia*, § 514. Cf. Boedder, op. cit. §§ 162, 163; Pesch, op. cit. § 838.)

lectus patiens results in the conception of the abstract essence, the generation of the abstract idea of the object, which is called the *species intelligibilis expressa*, inasmuch as it is the intellectual expression of the object. The same act looked at under a somewhat different aspect as the realization or utterance of the thought of the object by the mind to itself is called the *verbum mentale*, or mental word.[15] Finally, this same product considered as the intellectual expression of the essence of the object abstracted from the individualizing notes which accompany it in the physical world is called the *direct*, or *potential* universal. It is not as yet an *actually* or *formally* universal concept. It prescinds alike from universality and individuality. It merely expresses in an indeterminate manner the essence of the object, omitting all individualizing conditions. Moreover, it is not the *object* of cognition, but the *instrument* or *means* by which the intellect apprehends its object. It is the *medium quo*, not the *medium quod percipitur*.

Formally Universal Ideas.—It is only by subsequent *reflexion* that this potentially universal concept, thus reached by the spontaneous, direct, abstractive action of the intellect is elaborated into the reflex or *formally universal concept* of the logician. The schoolmen, as we have already observed, are extremely brief on this latter part of the process; but under the term "reflexion," they must intend to include conscious abstraction,[16] ideal comparison, involving analysis and synthesis, and also generalization. For, in the reflective operation by which the primitive abstract conception is

[15] The allusions of modern writers to the *verbum mentale* of the schoolmen exhibit an amusing ignorance of the meaning of the term. The phrase simply signifies with mediæval writers, the *mental act* corresponding to a common noun—*e.g.*, triangle, man, responsibility. These words, it may be presumed, have a *meaning* or *connotation*. The *thought* by which the mind comprehends that meaning is the *verbum mentale*, just as the vocal sound by which it communicates this thought to another mind is the *verbum orale*.

[16] The reader must be careful to distinguish two forms of "abstraction" in the scholastic account of the process. The first consists of the initial act spontaneously exerted by the *intellectus agens*. It is *instinctive* being preceded by sensuous but not by intellectual cognition. It is called "abstraction," because it *effects* the *abstract* representation of the concrete object. It is not preceded by but productive of the abstract concept. In the second stage the intellect already in possession of this representation consciously adverts to the essential features contained in it, whilst it deliberately ignores or withholds attention from concomitant accidents. The first stage is an act of *instinctive election* by the intellect, the second is one of *conscious selection*. (Cf. Peillaube, *ibid.* pp. 293—300, also Boedder, op. cit. §§ 159—163.)

formally universalized, it must be held before the mind by a deliberate act of attention. The collection of notes, which constitute its internal possibility, must be consciously realized, and then it must be judged capable of representing an indefinite number of ideal or imaginary individuals, or of being actualized in the various possible members of a class. But such ideal comparison and generalization is the natural outcome of our rational nature; it may take place with great rapidity, and the constant check of careful observation and experiments is needed to secure that our conceptions and generalizations are in harmony with reality, after the manner described in the earlier part of this chapter.

Summary.—The scholastic theory, then, may be thus briefly stated: An object produces an impression on a sensitive faculty. This results in a sensuous phantasm in the imagination, and here the work of the lower power ends. Since, however, in man the sensuous faculties of cognition have their source in a soul also endowed with intellectual aptitudes, the latter now issue into action. The presence of the phantasm forms the condition of rational activity, and the intellect abstracts the essence; that is, by its own active and passive capabilities generates the concept which expresses in the abstract the essence of the object. By a further reflective act it views this abstract concept as capable of representing any member of the class, and thus constitutes it a formally universal idea.[17]

[17] Mercier formulates the scholastic doctrine in the three following propositions: (1) "*L'intelligence est originairement en puissance à l'égard de son acte de pensée;* pour qu'elle soit en état d'accomplir son acte, il faut qu'elle soit informée par une espèce intelligible (*species intelligibilis*), substitut de l'objet à connaître. Aussi l'entendement, s'appelait-il, dans l'école, *intellect possible* ou *potentiel.* (2) *La formation de l'espèce intelligible demande une double cause,* l'image (le *phantasma*) fournie par l'acte de l'imagination, et une force d'abstraction appelée *intellect actif* or *intellect agent,* capable de dégager l'image de ses caractères d'individuation et de rendre ainsi l'objet assimilable par la puissance cognitive de l'entendement. L'image est ainsi la *cause instrumentale—i.e.* la cause efficiente subordonnée; l'intellect actif, la *cause principale* de la production de l'espèce intelligible. (3) Lorsque la puissance intellectuelle est informée par une espèce intelligible appropriée à sa nature et qui lui rend l'objet présent, elle *passe de la puissance à l'acte,* elle se dit à elle-même ce que la chose est (*quod quid est*); en un mot, *elle connaît.* La connaissance ou la pensée n'est pas, en effet, autre chose que cette *parole mentale* qui nous dit ce que quelque chose est." (*Psychologie,* pp. 321, 322.) The phantasma is rather *causa formalis vel exemplaris* than *efficiens.* The true *causa principalis* is the *soul,* or rather the *man;* but the *intellectus agens* may fairly be described as the *chief active energy* (agens principalis) in the process. (Cf. Boedder, op. cit. §§ 167.)

Doctrine of St. Thomas.—For the convenience of the student desirous of a better understanding of the scholastic philosophy, we shall here give a selection of extracts from St. Thomas bearing on this abstruse and difficult question. We shall mark them with numbers corresponding to the paragraphs in our own exposition. It will, however, be useful to premise them by the explanation of certain scholastic terms and phrases.

The *Intellectus Agens* is said: (1) to *convert* or *direct itself* towards the phantasm (*se convertere ad phantasma*), and (2) to *abstract* from it the essence (*abstrahere essentiam*), or, (3) to *illuminate* and make *actually intelligible* what is *potentially intelligible* in the phantasm; moreover, (4) throughout the process the *intellectus agens* is chief agent (*agens principale*), while the phantasm is viewed merely as an instrumental agent (*agens instrumentale*). This metaphorical language is used in order to elucidate by analogies what is involved in the single instantaneous act: (1) Indicates that the concept formed by the *intellectus agens* is of the object represented by the phantasm. The intellect is likened to a painter who turns towards the object he is about to copy. (2) Since the concept formed by the intellect expresses the essential attributes of the phantasm they are said to be *abstracted* from the latter. (3) Here the *intellectus agens* is likened to the sun *illuminating* colours indiscernible in the darkness though *potentially* distinguishable. The phantasm contains *potentially* universal relations individualized in concrete material conditions, and the activity of intellect evokes them into the light of actual consciousness. (4) The *intellectus agens* is termed *agens principale*, inasmuch as it plays the most important part in the operation, being *causa efficiens*.

Extracts.—1. Id quod est primo, et per se cognitum a virtute cognoscitiva, est proprium ejus objectum. (*Sum. Theol.* 1, q. 85, a. 8.) Primo autem in conceptione intellectus cadit ens, quia secundum hoc unumquodque cognoscibile est in quantum est actu unde ens est proprium objectum intellectus, et sic est primum intelligible, sicut sonus est primum audibile. (1, q. 5, a. 2.)

2. Intellectus autem humanus, qui est infimus in ordine intellectuum, et maxime remotus a perfectione divini intellectus, est in potentia respectu intelligibilium; et in principio est *sicut tabula rasa, in qua nil est scriptum*, ut Philosophus dicit. (1, q. 79, a. 2.)

3. Hoc quilibet in se ipso experiri potest, quod quando aliquis conatur aliquid intelligere, format sibi aliqua phantasmata per modum exemplorum, in quibus quasi inspiciat, quod intelligere studet. . . . Particulare autem appre-

hendimus per sensum et imaginationem, et ideo necesse est, ad hoc quod intellectus actu intelligat suum objectum proprium, quod *convertat se ad phantasmata* ut speculetur naturam universalem in particulari existentem (1, q. 84, a. 7.):

Phantasmata et *illuminantur* ab intellectu agente, et iterum ab eis per virtutem intellectus agentis species intelligibiles *abstrahuntur;* illuminantur quidem, quia sicut pars sensitiva ex conjunctione ad intellectum efficitur virtuosior, ita phantasmata ex virtute intellectus agentis redduntur habilia, ut ab eis intentiones intelligibiles abstrahuntur; abstrahit autem intellectus agens species intelligibiles a phantasmatibus, in quantum per virtutem intellectus agentis accipere possumus in nostra consideratione naturas specierum sine individualibus conditionibus secundum quarum similitudines intellectus informatur. (1, q. 85, a. 1, ad 4.)

4. Necessitas ponendi *intellectum possibilem* in nobis fuit propter hoc, quod nos invenimur quandoque intelligentes in potentia, et non in actu. Unde oportet esse quandam virtutem, quæ sit in potentia ad intelligibilia ante ipsum intelligere, sed reducitur in actum eorum cum sit sciens, et ulterius cum sit considerans. Et hæc virtus vocatur intellectus possibilis. (1, q. 54, a. 4.)

5. Quicumque autem intelligit, ex hoc ipso, quod intelligit, procedit aliquid intra ipsum, quod est *conceptio* rei intellectæ, ex vi intellectiva proveniens, et ex ejus notitia procedens. Quam quidem conceptionem vox significat et dicitur verbum cordis significatum verbo vocis. (1, q. 27, a. 1.)

Species intelligibilis non est objectum *in quod* feratur cognitio. . . . Dicenda est species intelligibilis se habere ad intellectum, *ut quo* intellectus intelligit. . . . Sed quia intellectus supra seipsum reflectitur, secundum eandem reflexionem intelligit et suum intelligere et speciem, qua intelligit; et sic species intellecta est secundario *id quod* intelligitur; sed id, quod intelligitur primo, est res, cujus species intelligibilis est similitudo. (1, q. 85, a. 2.)

Readings.—The most complete treatment of the whole subject is to be found in Peillaube's *Théorie des Concepts, Existence, Origine, Valeur.* Piat's *L'Intellect Actif* and *L'Idée* contain valuable matter; the latter work largely repeats the former. Mercier's *Psychologie,* pp. 300—350, is good. Cf. Liberatore *On Universals* (Trans.), Op. II., and *Psychologia,* c. iv. art. 6, and Boedder, *Psychologia,* c. iii. The recent able work by Rousselot, *L'Intellectualisme de St. Thomas* (Paris, 1908), is valuable and suggestive on sundry points.

CHAPTER XV.

JUDGMENT AND REASONING.

UNDER the term *thinking*, besides the formation of concepts, there are included the operations of *judgment* and *reasoning* or *inference*. These several processes are, however, merely different exercises of the same faculty, the *intellect*. As we have already in chapter xiii. dwelt on some of the most important aspects of judgment, we shall handle this subject briefly here. We shall also in the present chapter examine the special features of the form of judicial activity exhibited in belief and conscience.

Definition of Judgment.—A judgment is that mental act which is signified in an oral proposition, such as, "Gold is heavy." It has been defined as *the mental act by which we perceive the agreement or disagreement between two ideas*, and also as *the mental act by which something is asserted or denied*. St. Thomas himself defines it as *an act of intellect whereby the mind combines or separates two terms by affirmation or denial*. If the first definition is employed, it should be remembered that the word "idea" here means, not the state of consciousness, but the *objective* concept (*conceptus objectivus*), the attribute in the external thing corresponding to the subjective idea. Locke and some other modern writers have taught that the formal object of the judgment is the agreement or disagreement, the congruence or conflict of two subjective notions. This is an error based on a false view

of the nature of cognitive consciousness. The most essential feature of all knowledge, except of course that which is reached by introspection, is its objective import. But in man the judicial act is the type of perfect knowledge, and accordingly carries in its constitution in an especial manner this reference to external fact. In the assertions, "Water rusts iron," "Some sausages are not wholesome," "Trilateral figures are triangular," very little reflexion reveals to us that we do not merely allege a relation between the two conceptions juxtaposed in the mind. We mean to affirm that something does or does not hold without the mind, in *rerum natura*.[1] Furthermore in asserting that something holds objectively, we implicitly affirm that our subjective mental act truly mirrors this external situation. It is in this concomitant affirmation of conformity between the judicial act and its objective correlate that formal truth or falsity lies. For this reason truth and falsehood in the strict sense belong only to judgments and not to mere conceptions.

Analysis of the Judicial Process.—In the formal act of judgment we can distinguish several elements or stages, though it would not be possible to separate all of them: (1) The apprehension of the thing or object about which the judgment is made; (2) the separation or separate grasp of the two terms—the two aspects or phases of the thing which are to be compared; (3) their juxtaposition; (4) the perception of the agreement or disagreement of the juxtaposed concepts; and (5) the concomitant awareness that the mental juxtaposition of ideas corresponds to the objective reality. It is true that in easy spontaneous judgments some of these elements are so rapidly slurred over as to be scarcely discoverable. But if the reader reflects upon a judgment deliberately given in answer to such a question as: Is the prisoner guilty? he will be able easily to distinguish these several elements. Or, let us suppose the judgment to refer

[1] This doctrine, which is the common teaching of St. Thomas and the leading scholastics, has been re-discovered by modern logicians during the last forty years. Mill devoted considerable pains to establish it against Hamilton and the conceptualist logicians. (Cf. *Logic*, Bk. I. c. v. and *Exam.* c. xviii.) The student will find this subject treated in the volume on *Logic* of the present series, Pt. II. c. iii., and in the volume on *First Principles*, c. ii.

to some concrete fact or event, as, for instance, the snow-covered ground, or a moving train. I first perceive the object as a unity or totality. The primitive act of apprehension is indistinct. I am only implicitly conscious of the predicate; that is, I do not as yet formally distinguish it from the other attributes which constitute the object. I then by a selective act of attention *analyze* the object. I mentally separate one attribute from the rest. I abstract or lay hold, as it were, of the colour or motion by one concept, and the earth or the train by another. I next combine them by an act of *synthesis;* that is, I consider them separately as distinguished from each other yet in *connexion with each other.* In doing so I perceive the relation of agreement between them. I realize that the predicate is a closer determination of the conception representing the subject, and that the attribute, quality, or aspect of the thing for which it stands is really part of the thing apprehended under another form as subject. In this act I am aware that my mental synthesis of subject and predicate reflects the real union of the object with the attribute. It is in this last act that assent is perfected. This feature is more clearly discerned in formal comparison of universal notions, as *e.g., A square is a rectangular figure,* or, *The diamond is hard,* than in judgments immediately occasioned by external perception. In the latter, the element of simple apprehension is more prominent, consequently the mental attitude is more objective, and the concomitant implicit consciousness of the mind's own action is fainter though still really there. (See p. 52.) This last element of the judicial process is particularly emphasized in Ueberweg's definition of judgment as, "the consciousness of the objective validity of a subjective union of conceptions whose forms are different but belong to each other."[2]

Judgment thus involves both *analysis* and *synthesis*—the

[2] *Logic,* § 67. Similarly Bradley, *Principles of Logic,* cc. i. ii. Cf. St. Thomas: "Per conformitatem intellectus et rei veritas definitur. Unde *conformitatem istam* cognoscere est cognoscere veritatem. Hanc autem nullo modo sensus cognoscit. Licet enim visus habeat similitudinem visibilis, non tamen cognoscit comparationem, quæ est inter rem visam, et id quod ipse apprehendit de ea. Intellectus autem *conformitatem sui ad rem intelligibilem* cognoscere potest: sed tamen non apprehendit eam, secundum quod cognoscit de aliquo quod quid est. Sed quando *judicat,* rem ita se habere, sicut est forma, quam de re apprehendit, tunc primo cognoscit et dicit verum. Et hoc facit *componendo, et dividendo.* . . . Ideo proprie loquendo veritas est in intellectu componente, et dividente non autem in sensu, nec in intellectu cognoscente quod quid est (*i.e.,* in actu simplicis apprehensionis)." (*Sum.* i. q. 16, a. 2.)

breaking up of the original presentation and the reuniting of its parts, which are now explicitly cognized as distinct constituents of the total object. Herein lies the efficacy of the judicial activity of the mind in developing our knowledge. The highest function of intelligence is not judging or reasoning, but intuition. It is because of the obscurity and inadequacy of the intuitions of the human mind that our conceptions have to be perfected by this analytic and synthetic activity—*dividendo et componendo*, as the schoolmen taught. Could we obtain a comprehensive conception of the nature of the *triangle* or of *carbon*, by simple apprehension, the laborious comparisons and reasonings of the geometrician and the chemist would be unnecessary.[3] The starting-point of the judgment is a percept or a notion apprehended in an indistinct or undeveloped form. The result is the same percept or notion, but possessed in a more distinct and perfect manner. A proposition containing a complex predicate as, for instance: *The orange is a yellow, spherical, sweet, juicy fruit*, really expresses the result of many judgments. All our conceptions, both scientific and vulgar, are, as we have already seen (pp. 297—302), elaborated by successive acts of discrimination and assimilation in this way. Judgment is not merely automatic fusion or association of ideas, still less of concrete impressions. It involves *active abstraction*. In all propositions the predicate is a universal term, and even in singular judgments the subject is considered under an abstract aspect. The mind holds the two concepts *together* but *apart;* it *unites* them whilst keeping them *distinct*. It retains hold of both throughout the entire operation. The force of attention to the two compared ideas is constantly varying, the subject being vividly realized at one moment, the attribute or quality at the next. But neither can completely fade out of consciousness during the process; otherwise, the judicial act would be impossible. The faculty of *Retention* is as essential a condition of judgment as that of *Assimilation* and *Discrimination*. Herein lies evidence of the indivisible unity of the mind as a real persisting being. Two successive impressions or "sections" of a "stream of consciousness" cannot compare themselves with each other. Nor could a third born after the death of both do so, unless it be the act of a real abiding

[3] "Si intellectus noster statim in ipso principio videret conclusionis veritatem, nunquam intelligeret discurrendo, vel ratiocinando. Similiter si intellectus statim in apprehensione quidditatis subjecti haberet notitiam de omnibus, quæ possunt attribui subjecto, vel removeri ab eo, nunquam intelligeret componendo et dividendo sed solum intelligendo quod quid est." (*Sum.* i. q. 88, 4.)

agent which was the subject of its two predecessors, and is capable of resuscitating them.

Affirmation and denial.—It has been maintained by some writers that the act of judgment is something really distinct from and superadded to the perception of the agreement or disagreement of the subject and predicate. When the reasons for assent are not strictly cogent, a voluntary element undoubtedly enters into affirmation or denial. But in those judgments in which the truth is evident, the assent, it seems to us, is necessarily included in the perception of the relation between subject and predicate. The mental act by which I apprehend that $2 + 1 = 3$, or, that "snow is not warm," involves the mental assertion of the truth, and this is the judgment.

Assent and consent.—A far graver error, however, is that of Descartes and his followers, who confounding *assent* with *consent* teach that "affirmation, denial, and doubt are different forms of *volition*."[4] It must be admitted that *will* and *intellect* act and react upon each other in the most intimate manner. Whilst the will is moved to desire through the apprehension of motives by the intellect, the intellect is itself moved to observation and study by the effort of the will. In many acts of judgment it is the faculty of volition which directs and concentrates attention upon the attribute or relation that is the matter of the judicial act. If the truth be evident, the will is powerless; but if it be not evident, the will may largely influence assent, either by withdrawing attention from the considerations in favour of one side and focussing it upon those which tell for the other, or by directly impelling the mind to assent and embrace an opinion whilst the evidence is felt to be insufficient. It is in this way that the will is so often the cause of error.[5]

[4] "Cupere, aversari, affirmare, negare, dubitare sunt diversi modi volendi." (*Princip.* I. § 32.)

[5] St. Thomas succinctly defines the influence of volition upon intelligence thus: "Actus rationis potest considerari dupliciter: Uno modo, quantum ad *exercitium actus;* et sic actus rationis semper *imperari potest;* sicut cum indicitur alicui, quod *attendat*, et ratione *utatur*. Alio modo quantum ad *objectum;* respectu cujus duo actus rationis attenduntur. *Primo* quidem, ut veritatem circa aliquid *apprehendat:* et hoc *non est in potestate* nostra; hoc enim contingit per virtutem alicujus luminis vel naturalis, vel supernaturalis; et ideo quantum ad hoc actus rationis non est in

Further, there is a certain affinity in character between the act of judgment and voluntary election. The assent included in the former causes the cessation of intellectual activity in the adhesion of the understanding to the truth possessed, somewhat as a voluntary choice results in the quiescence of the appetitive faculty in the fruition of its appropriate object. The sense of liberation from the disagreeable suspense of doubt by complete assent is thus often akin to the relief from the hesitancy which precedes the formal act of consent. Nevertheless, judicial activity is the immediate function of the Intellect, not of the Will. The act of judgment though often, in scholastic language, *imperatus a voluntate*,—commanded by the will,—is always *elicitus ab intellectu*, exerted by the intellect. *Assent* differs essentially from *consent*. The former is intellectual acquiescence in something as *true:* the latter is voluntary complacency in something as *good*. The cognitive faculty accepts or submits to what is imposed upon it: the appetitive faculty stretches after and embraces what is suggested to it. The end and purpose of the former is the expression or representation of some kind of *being;* that of the latter, the attainment, or enjoyment of some form of *action*. We may be compelled to *assent*, but *consent* is always voluntary. Truths and facts that are disagreeable may be evident; whilst projects which win our approval may have but a doubtful chance of success. When, however, we pass from the speculative to the practical or moral order, assent of the intellect to the rightness of action imposes special moral obligation on the will, whilst our judgments assume a distinctly moral character. The judgment that a certain line of conduct is obligatory commands and moves us to embrace it with our will and carry it out in action.[6]

potestate nostra, nec imperari potest. *Alius* autem actus rationis est, quum his, quæ apprehendit, assentit. Si igitur fuerint talia apprehensa, *quibus naturaliter intellectus assentiat*, sicut prima principia, assensus *talium*, vel dissensus *non est in potestate nostra*. . . Sunt autem quædam apprehensa, quæ non adeo convincunt intellectum quin possit assentire, vel dissentire, vel saltem assensum vel dissensum *suspendere* propter aliquam causam: et in talibus assensus ipse vel dissensus in potestate nostra est, et sub imperio cadit.' (*Sum.* 1–2. q. 17, 6)

[6] Ollé Laprune, in his valuable work, *De la Certitude Morale*, thus writes: "*Assentiment*, en soi, n'est pas *consentement*. On ne déclare point une chose vraie parce qu'on le veut: l'acte de volonté n'est pas dans la décision même par laquelle on prononce sur la vrai et le faux. Hors le cas où une certaine obscurité fait naître des difficultés que la volonté doit surmonter, la decision n'est pas,

Reasoning defined.—Besides conception and judgment there remains a third function of the intellect, that of *reasoning* or *inference*. It may be defined as, *that operation by which we derive a new judgment from some other judgment or judgments previously known*. When we pass from a single judgment to another involved or contained in it, the act is styled an *immediate* inference. Thus, from the proposition, "All men are mortal," we *immediately* conclude, "Some mortal things are men." When we proceed from two or more judgments, to a new judgment following from their combined force, we have *mediate* inference. Mediate inference is also defined as, *that mental act by which from the comparison of two ideas with a third we ascertain their agreement or difference*.

Analysis of Ratiocination.—Reasoning, being an exercise of judgment, is a more complex process of analysis and synthesis, *divisionis et compositionis*. From the proposition *S is P* I infer: *Not-P is not S*, and: *At least some-P is S*, by deliberate consideration of what is contained in the concepts S and P. This is still more obvious in *mediate* inference, or reasoning strictly so-called, in which the synthetic activity of the mind is more prominent. Here the problem is to determine

en soi un acte libre. C'est la lumière qui détermine l'assentiment: on affirme ou l'on nie légitimement parce qu'on voit qu'il faut affirmer ou nier, et l'on n'est pas libre de le voir ou non. On est seulement libre de regarder, ce qui est autre chose. . . . *L'assentiment* est involontaire, mais le *consentement* qui s'y ajoute, ou plutôt qui y est impliqué, est volontaire. Le consentement, c'est cette acceptation de la vérité, dont nous parlions tout à 'heure; ce n'est point l'acte même d'assurer ou de nier, lequel est dicté pour ainsi dire par la vérité, mais c'est la réponse de l'âme à cette voix supérieure." (p. 64.) For some admirable remarks on the right relation of Will to Intellect in Philosophy, see also Mr. Wilfrid Ward's excellent little work, *The Wish to Believe*.

some relation between S and P whilst we are unable to compare them immediately. We shall attain our purpose if we can find a suitable middle-term—a mediating notion—which will serve to connect them, somewhat as a common-measure. The type of the argument is: S is M, but M is P, therefore S is P. Analysis of S has revealed M, whilst further analysis of M and comparison of it with P has disclosed a relation of identity between these also. We now hold that S is P *because* it is M, which is identical with P. The identity of P with M is the logical *ground* or *reason* why we affirm P of S. Reasoning, then, in addition to analysis and synthesis involved in all judgments, includes *identification*, or the explicit perception of an element implicit in the previously known relations. The synthesis in the conclusion is the formal evoking of this implicit relation into consciousness. This perception of the consequence or logical nexus expressed by the words *therefore*, *since*, *because*, etc., is the essence of reasoning, and is possible only to a rational being.

Logicians have disputed as to which of the laws of thought is to be deemed the most fundamental and universal principle of reasoning. To us it seems that different axioms are more immediately applicable for the justification of different forms of inference, whilst the denial of any one of the laws of thought would lead immediately to the destruction of all reasoning. Still, the *principle of identity*, which on its negative side involves the *principle of contradiction*, has strong claims to be deemed the most universal and ultimate law of rational thinking. That *A is A*, that *A thing is identical with itself*, that *Whatever is, is*, must be held to be the supreme canon of consistency. Our terms must retain the same *meaning*, our concepts must remain unchanged, the data which we handle must persist unaltered throughout our discourse, or no conclusion can be drawn. S is inferred to be P only because, whilst both S and P continue identical with themselves, they are also identical with the same M.

Deduction and Induction.—If the movement of the mind is from a wider to a narrower truth, from a

law to particular facts, or to a narrower law, the mental operation is called *deductive* reasoning; if the reverse, it is characterized as *inductive*. Thus, in the syllogism: *All bodies containing carbon are combustible; but diamonds contain carbon; therefore diamonds are combustible*, we argue *deductively*. On the contrary, if from perceiving that iron, gold, silver, lead, and copper sink in water, I conclude that *all* metals sink in water, I am said to argue *inductively*, and in the given case falsely. From the present psychological point of view, however, the distinction is unimportant. The reasoning in every case is the establishing of a relation between two notions by the mediation of a third notion. The hitting upon this middle-term is the ever-recurring problem of scientific discovery, as its accurate determination and definition is the essence of scientific proof. To isolate the attribute M, which constitutes the reason, ground, or cause of P, and is implicit in the complex concrete S, is the work of the insight of the Man of Genius. And the human race has to wait for a Newton to detect amid the infinite complexity of two such diverse phenomena as the falling apple and the circumvolving moon the hitherto invisible M—the force of gravitation.

Implicit reasoning.—Were it not for the danger of rousing the ire of the logician, the psychologist might define the syllogism as that particular form of reasoning which mankind do *not* use. In ordinary literature, in conversation, or in his natural processes of thinking, man never formulates an inference in the shape of major, minor, and conclusion. The most common form of argument is the *enthymeme*, in which either the conclusion or one of the premises is suppressed. Very often the conclusion comes first, and one of the premises is merely invoked to justify it; whilst not infrequently the inference emerges into consciousness with so transient and so indistinct an apprehension of the reasons upon which it rests, that it seems doubtful whether they have ever been really perceived. Indeed, it is often impossible to draw any but an arbitrary distinction between simple external perception, judgment, and reasoning. Thus, whilst walking on Wimbledon

Common, I observe an object amongst some furze at a little distance. After a few seconds of attentive observation, I mentally pronounce the object to be *a deer most probably escaped from the neighbouring park.* The judgment that the object is *a deer*, I call a *perception;* the opinion that it has escaped from the park, I call an *inference.* Yet the former act of assent, like the latter, is due to a process of reasoning from past recollections and present apprehension of shape, colour, movement, limbs, antlers, etc., performed sub-consciously with such rapidity that I arrive at the conclusion without being aware of the steps by which it has been reached. Many of these *data* will, however, be at once consciously realized if the decision is challenged.

Inferences concerning the concrete facts of life are nearly all of this kind, and the conclusions which we form from moment to moment are generally the result of a mass of reminiscences, perceptions, feelings, opinions, facts, and experiences of every sort, mingled together with a complexity that defies analysis, or at all events renders adequate exposition in logical form impossible. The diagnosis of a malady by the doctor, the decision of the authorship of a painting by an art critic, the prevision of the market by the man of business, the divination of the coming storm by the sailor, and our own appreciations of the characters of our intimate friends, whether we call such judgments acts of intuition, tact, or perceptions of common-sense, are all in their origin based on acts of observation and ratiocination which have become so easy and rapid that at last the intermediate links and reasons cannot be discovered without considerable effort. The strength of the great majority of our beliefs on familiar subjects so far outweighs the grounds which we can assign for them, that when we attempt to formulate an argument in abstract logical shape, they seem to be unfounded prejudices. My conviction, for instance, that my father would not calumniate me, that England is an island, that the *Æneid* was not written in the Middle Ages, could receive no adequate justification if I had to express the grounds for it in syllogistic form. Yet my

assent may be perfectly rational, and in no way exceeding the evidence.

The Logic of real life.—Newman's Grammar.—It is in the rare skill with which he expounded, and the clearness and felicitous richness with which he illustrated this wide field of our actual rational life, that Newman's great contribution to Logic and Psychology lies—a work the value and wide-reaching influence of which have been but very inadequately recognized by English psychologists and logicians. The multifarious and complex character of the evidence which underlies our religious and moral convictions in particular, is shown by the superior force of the cumulative method of arguing over formal syllogistic proof in these departments, especially when it is used to stimulate our own *implicit* reasonings. This is well exemplified by Newman in a passage cited from Pascal: "'Consider the establishment of the Christian religion,' says the French philosopher. 'Here is a religion contrary to our nature, which establishes itself in men's minds with so much mildness, as to use no external force; with so much energy, that no tortures could silence its martyrs and confessors; and consider the holiness, devotion, humility of its true disciples; its sacred books, their superhuman grandeur, their admirable simplicity. Consider the character of its Founder; His associates and disciples, unlettered men, yet possessed of wisdom sufficient to confound the ablest philosopher; the astonishing succession of prophets who heralded Him; the state at this day of the Jewish people who rejected Him and His Religion; its perpetuity and its holiness, the light which its doctrines shed upon the contrarieties of our nature;—after considering these things, let any man judge if it be possible to doubt about its being the only true one.' This is an argument parallel in its character to that by which we ascribe the classics to the Augustan age. . . . Many have been converted and sustained in their faith by this argument, which admits of being powerfully stated; but still such a statement is after all only intended to be a vehicle of thought, and to *open the mind* to the apprehension of the facts of the case, and *to trace them by their implications in outline*, not to convince by the logic of its mere wording. Do we not think and muse as we read it, try to master it as we proceed, put down the book in which we find it, fill out its details from our own resources, and then resume the study of it?"[7]

The great mass of our practical, moral, social and political as well as scientific faiths have their sources in informal and

[7] *Grammar of Assent*, pp. 306—308.

implicit inferences of this kind; and it is by working through such channels rather than by formal arguments, that permanent real assents are obtained. By controversy a man is rarely persuaded of anything except of the truth of his own view. Philosophical positions rushed by a logical assault are not permanently retained. Intellectual assent extorted at the point of the syllogism soon rebels. It is by the gradual process of sapping and mining that convictions are subverted and conversions effected. It is by famine that beliefs are starved and atrophied. And such is the infirmity of the human mind, that unless it be frequently reinforced, it will be compelled by the slow but constant pressure of the siege all around to capitulate and surrender its most cherished, perhaps even its best warranted faiths.

Thought differently viewed by Psychology and Logic.—Although the diverse standpoints of the Logician and the Psychologist with respect to mental phenomena in general have been already indicated (pp. 7, 8) their different ways of regarding *thought* in particular seem worthy of notice here. Whereas *thinking* constitutes in the language of the Schoolmen, a common "material object" for both, the "formal object," that is, the special aspect under which they consider this phenomenon is essentially different in the case of each. The aim of Logic is primarily *practical*—to secure truth in our judgments and reasonings: that of Empirical Psychology is *speculative*—to study and describe these operations as mental facts interesting in themselves, apart from their veracity or falsehood. To attain its end Logic seeks to determine the various ideal forms or types of *valid* inference. For this purpose, by an act of abstraction it considers concepts, judgments, and reasonings, *in facto esse*, as the scholastics said, that is, as finished products—portions of thought crytallized into solid pieces. It classifies concepts according to their meaning, content, and extent. It examines the several possible forms of judgments, their import, quantity and quality, in order to define their mutual implications. It studies their various legitimate combinations in which consistency of thought is maintained, and it then formulates precepts—rules of the syllogism and canons of induction—by which fallacies may be avoided and correctness in judging and reasoning preserved.

Empirical Psychology, on the other hand, is directly concerned only with the *actual* behaviour of the intellect. Its desire is to ascertain how men *do* reason; not how they *ought to* reason. It considers our conceptual, judicial, and ratiocinative acts not as solidified abstractions, but as they really do occur in a *fluid* condition forming continuous portions of

the current of our mental life. It observes them *in fieri*—in the making. It endeavours to analyze them in order to discover their *genesis* and their relations to emotions, desires, and other conscious states. Whilst Logic considers almost exclusively the *objective meaning* of our intellectual acts Psychology is specially interested in their *subjective source* and their inner *nature*. Whilst the former science limits itself to the investigation of the *structure*—the Morphology, as Bosanquet calls it, of mature explicit thought, and confines itself to judgments characterized by certainty; the latter studies the *growth* and *development* of thinking in all its stages, whether implicit or explicit, and attends alike to all forms and degrees of assent. Finally, the philosophical or rational Psychologist is specially interested in the functional activities of the Intellect as affording valuable evidence for important metaphysical conclusions as to the inner nature of the mind.

Belief.—There has been much discussion during the past two centuries as to the nature of *belief*. In general the tendency has been to exaggerate its claims at the expense of *knowledge*, and then by representing it as irrational to destroy the foundations of all certitude. Belief has been variously assigned to the cognitional, emotional, and volitional faculties; and its sphere has been made to comprehend all forms of assurance, from trust in human or divine testimony to convictions of the validity of primary truths. Amongst English Psychologists at the present day it is generally set in simple contrast to Imagination, as signifying assent to objective reality.

Historical Sketch.—With **Hume** who, here as elsewhere, saw more clearly and accepted more heroically than any of his followers the consequences of Sensism, all assertions, except those regarding purely ideal truths, are expressions of belief. Although we may be said to *know* that "equals added to equals give equals," and all propositions deduced from this, we can only be said to *believe* that *real* material objects exist. The principle of causality too, is not a *cognition*, but a *persuasion* or *belief*. Furthermore, when belief is analyzed, it is found according to Hume to consist in the "superior force or vivacity, or solidity, or firmness, or steadiness" of those ideas which are believed to be objectively valid. He sometimes speaks in a vague way of an element of "sentiment" forming the essence of belief, but he finally defines the latter act as "a lively idea related to or

associated with a present impression." With my present vision of a distant tree there is associated a "lively idea" of tactual and other sensations. My belief in the reality of the object is merely the superior vivacity by which this "lively idea" surpasses the creations of fancy. This explanation is inadequate. Independently of the fact that Hume characterizes as belief what should be properly described as knowledge, the resolution of belief into mere intensity of imagination is refuted by everyday experience. The scientist is assured of the existence of infinitesimal vibrations in an unimaginably elastic medium; and we all, in fact, believe in numberless objects of which we can form none or but the faintest ideas, whilst we hold to be unreal many things which the imagination represents with the greatest distinctness.

James Mill also calls cognition of external reality belief; and in a similar manner would reduce this mental act to an "inseparable" or "indissoluble association" between ideas. Belief in the events of to-morrow, in ghosts during darkness, in a real external world, and in my own past experience, are all merely instances of continuous association. A present impression irresistibly arouses another by association, and that *association* constitutes belief. Against this view may be urged two objections. First, the assenting act of the mind, in which the essence of belief consists, is confused with the *causes* of that assent. Though associations may *generate* belief, they are not thereby the belief itself. Secondly, in many cases where association has begotten a deception, the mind may discover its error and *disbelieve* in the illusion although the association remains, as in the case of the apparent fixity of the earth.

Dr. Bain formerly identified belief with *readiness to act*. He held that belief is "in its essential import related to Activity and Will," and that in fact it is merely a "growth or development of will under the pursuit of immediate ends."[8] Subsequently, however, he abandoned the old view, and now looks on the phenomenon as a fact or "incident of our intellectual nature, though dependent as to its force on our active and emotional tendencies."[9] The chief factors in its development are innate "spontaneity" and "primitive credulity." Dr. Bain's attempt merely adds to the list of failures. (1) Readiness to act may be sometimes, though it is not always, a *test* or indication of belief, but it is poor logic to confound the sign with the thing signified, or the effect

[8] Cf. *Mental Science*, Bk. IV. c. viii. (1st Edit.)

[9] Cf. Note appended to last edition of *Mental Science*; see also *Emotions and Will* (3rd Edit.), p. 536.

with the cause. (2) Again, so far from its being a growth of our active volitional power, the essential feature of the act of belief is in many cases the passive or recipient attitude of the mind. (3) The analysis of belief into "primitive credulity" savours suspiciously of the vicious circle. For the sensist, who denies knowledge of aught except sensations, and who must logically reduce the external world to an aggregate of mental states, the problem here is to explain the act termed "belief," which is involved in external perception and memory, but absent from imagination. Now, to resolve *belief* into a group of elements including "primitive credulity," is to resolve it into a tendency *to believe too easily*, plus some other factors This obviously is no real analysis The simple truth is that the acquiescence of the mind in its own cognitions cannot be resolved into any simpler act.

Three questions concerning Belief.—To secure clearness it is needful to separate three distinct questions: (A) What mental states are to be comprised under belief? or, How is it demarcated from *knowledge?* (B) What are in general the mental *causes*, or *conditions* which most influence belief? (C) What are the usual psychical *effects* and manifestations of belief? [10]

(A) **Nature of Belief.**—Belief is opposed to *doubt* rather than to *disbelief:* for frequently to disbelieve a statement means positive belief in its contradictory. If a proposition is presented to us and neither the grounds for nor against it compel assent, there arises a state of intellectual hesitancy in which the mind is unable completely to adhere to one side or the other from fear of the opposite being true. This is the condition of *positive doubt*—a mental attitude that is generally disagreeable, since the mind naturally seeks its appropriate good in the assured possession of truth. When the motives in favour of one alternative seem stronger than those on the other side, the mind tends in the direction of the former, but still with a lurking fear that the latter may be true. This acceptance of a proposition based on a probability, that is, on motives not excluding all reasonable anxiety as to the possibility of error, is called an *opinion*. In opposition to

[10] Cf. Professor Adamson, "Belief," *Encycl. Brit.* (9th Edit.)

both doubt and mere opinion, the term belief is used to include many forms of assent.

Belief and Knowledge.—(1) In a very wide and vague sense of the word *belief* is made to embrace every form of *cognition*. Belief in its own validity is in fact an aspect or essential feature of all knowledge. Hamilton takes advantage of this usage to found cognition upon belief—but with grave peril to the certainty of all knowledge. (2) The word belief is also used to express the various degrees of assent, falling somewhat short of full certainty, with which the mind may adhere to a proposition; belief is here equivalent to a very probable opinion. (3) Again, from time immemorial, this word has been used to denote the acceptance of a truth on testimony. (4) Lastly, the term is also employed by psychologists to designate a large class of convictions in which our acquiescence may be so complete as to exclude all reasonable doubt, but which yet in ordinary language are frequently distinguished from knowledge. The chief assurances of this class would seem to be firm assents where the evidence, though sufficient to afford certitude, has not been analyzed or clearly realized in consciousness. Apart, therefore, from that inaccurate usage according to which we are described as *believing* axiomatic principles or that our knowledge is true, we find three classes of judgments in which the mental state is called belief. We are said to believe (*a*) that a penny will not turn up heads six times running; (*b*) that there were two revolutions in England during the seventeenth century; and also (*c*) such statements as that trains will run, that newspapers will be published, and that bridges will bear us up to-morrow. Regarding the first and second classes, there is no difficulty; probable opinions and trust in testimony may be rightly described as belief and easily distinguished from knowledge. The appropriateness of applying the term belief to the third class of assurances—a class roughly equivalent to what Cardinal Newman calls "simple assents" as opposed to "complex or reflex assents"—is not so clear. The principal objection to ranking these mental states as belief lies in the difficulty of determining how much formal analysis or conscious realization of the grounds of a conviction is necessary to constitute it a cognition. The chief justification for such a course is based on the obscure and indistinct manner in which the evidence is apprehended.

Under *Knowledge* we would include (1) all truths of the necessary order seen to be immediately or mediately evident; (2) all truths of the physical or contingent order revealed in my own experience, whether as (*a*) facts of internal conscious-

ness, (*b*) facts given in external perception, or (*c*) recollections of memory; (3) all truths explicitly inferred by logical reasoning from such known facts. Thus I *know* the mathematical axioms and all theorems which I have deduced from them by formal reasoning. I *know* that calumny is wrong. I also *know* my own feelings. Further, matters-of-fact, objects and events in the external world disclosed to my own observation, my personal identity, and past experiences recollected by memory should be included within the sphere of *knowledge*. That I have an extended body, that my house contains two storeys, that I am the same being who opened Mill's *Logic* about two minutes since, are all matters of *cognition*. Lastly, I *know* all truths which I have consciously reasoned out from these more immediate cognitions. What is *knowledge* to one man may therefore be *belief* to another.

Both compared.—We do not imply that such precision as this can be observed in everyday language. We merely seek to define a distinction vaguely felt, and confusedly indicated in ordinary modes of expression, but which points to real and important psychological differences. If we accept this delineation of the fields of *knowledge* and *belief*, or even if we confine belief to the two smaller classes—probable opinion and trust in testimony—we see the motive for the frequent description of the one as *intelligent*, the other as comparatively *blind*, although both acts pertain to the intellect. Cognition requires that the truth assented to be mediately or immediately intrinsically evident. Belief, at least in the narrower sense, has for its object the inevident, or what is but extrinsically evident.[11] In the former state there is always full assent; in the latter acquiescence may at times be only partial. In the one case we are completely determined by the objective evidence or reality of the fact; in the other we may be largely governed by volition, emotion, and other subjective dispositions of the soul. It is this element of truth which lies at the root of Hamilton's statement: "Knowledge and Belief differ not only in degree but in kind. Knowledge is a certainty founded upon insight; belief is certainty founded upon feeling. The one is perspicuous and objective, the other obscure and subjective." It is true that knowledge is eminently rational, whilst belief may be largely instinctive or emotional; still, possibility of error can at times be as securely excluded in states of mind justly called beliefs as in

[11] In scholastic language a truth is said to be *intrinsically* evident when by its own nature it enforces assent. It is *extrinsically* evident if necessarily acquiesced in by virtue of authority or testimony in its favour. For a treatment of *evidence* as the criterion of certitude, cf. *First Principles of Knowledge*, c. xiii.

the clearest knowledge. Since, however, the essential feature in the mental state of belief is the admission by the *intellect* of some truth impressed upon it, those psychologists misread consciousness who ascribe the act itself to the voluntary or affective faculties.

From this demarcation of knowledge and belief it will follow that truths transcending phenomenal experience, such as the existence and attributes of God, the nature of the soul, the reality of a future life, and the like, when demonstrated by strict logical reasoning from evident facts and principles, can be *known* as well as *believed*.[12] The term *faith* is more especially employed to signify belief in supra-sensible things on the authority of Divine Revelation. Such supernatural belief requires, according to Catholic Theology, the co-operation of grace, and exceeds in both reliableness and dignity the avouchments of natural intelligence.

(B) **The Causes of belief.**—The forces which determine belief are manifold. Looking from the outside at our beliefs as a system—the complexus of views, opinions, and convictions possessed by each of us, on moral, religious, social, scientific, and political matters—we are forced to admit that they are very largely the result of our intellectual environment or what Mr. Balfour happily styles the "psychological atmosphere" or "climate" in which we live. If we turn to the particular acts of judgment exercised from day to day throughout our lives, it is clear that our inherited character as well as our acquired habits of thought have an important part in determining assent wherever the evidence is not conclusive. Still it is in the proximate conditions of belief that the psychologist is most interested; and these may be classed as (1) Intellectual, (2) Emotional, (3) Volitional.

(1) *Intellectual factor.*—Amongst the *causes* of belief must obviously be included *reasons*. A *reason* may be described as any motive which involves an essentially direct appeal to intelligence. When a particular consideration influences the intellect indirectly through feeling or will it is so far forth a non-rational cause of belief. But as the same object may move the intellect both directly and indirectly, it is sometimes difficult to determine whether a particular motive is to be

[12] See Ollé Laprune's able treatment of this subject, *De la Certitude Morale*, pp. 91—117.

classed as a *reason* or as a *cause*, or as both reason and cause of belief.[13] Reasons which are explicitly realized in consciousness, if sufficient to necessitate assent, result in knowledge, not mere belief. The most extensive and important class of our convictions, as we have already observed, are probably those inferences which are drawn from premises abundantly sufficient in themselves to warrant the conclusion but not formally realized in consciousness. It is the intellectual power of forming such conclusions easily, rapidly, and surely, which Newman termed the *Illative faculty* or the *Illative sense.* And however this intellectual activity be best characterized, that it has played an immense part in the building up of our entire system of beliefs, he demonstrated beyond dispute.[14] Special aptitude for rapid inferences from such evidence, particularly in regard to the effect upon others of our words and actions, is often called *tact.* In addition to the intellectual element of quick appreciation, this term also implies the faculty of prompt and appropriate responsive action; for, fineness of touch refers not only to the discriminate capacity of the sense, but to its delicate efficiency in modifying the materials handled. Where the

[13] The distinction between *reasons* and *causes* of belief is brought out with admirable clearness in Mr. Balfour's *Foundations of Belief:* "To say that I believe a statement because I have been taught it, or because my father believed it before me, or because everybody in the village believes it, is to announce what everyday experience informs us is a quite adequate *cause* of belief—it is not, however, *per se*, to give a *reason* for a belief at all. But such statements can be turned at once into *reasons* by no process more elaborate than that of explicitly recognizing that my teachers, my family, or my neighbours, are truthful persons, happy in the possession of adequate means of information—propositions which in their turn of course require argumentative support. Such a procedure may, I need hardly say, be quite legitimate; and reasons of this kind are probably the principal ground on which in mature life we accept the great mass of our subordinate scientific and historical convictions." (p. 220.) It is worthy of note here that in the justification of our beliefs, when we get back to first principles, the *reason* and *cause* coalesce. Thus, the ultimate *reason* for the acceptance of mathematical axioms is that they are truths which revealing themselves to the intellect by their own evidence inevitably *cause* or command assent.

[14] See especially chapters viii., ix. of the *Grammar of Assent.* The value of that contribution to Philosophy is best estimated by the prominence in all subsequent apologetic literature of the argument which justifies our religious beliefs by showing that our most assured practical and "scientific" convictions are based on intellectual data and processes of precisely the same kind.

evidence is not rigorously conclusive it still may render a particular alternative probable; and here either intellect or will may be the determinant of the resulting belief. Other things equal, the force of our conviction tends to be in proportion to the weight of the evidence. Frequent repetition of contiguous experiences generates an expectation that the one will be in future followed by the other, and superior vividness of an idea often produces a belief in its objective reality. Nevertheless we sometimes disbelieve in those phantasms which are most vivid, and contrariwise are convinced of the objective truth of faint ones.

(2) *Emotional* sources of belief cannot be completely separated from those described as *Intellectual*, since most emotions are based on intellectual representations. Still, there is a sufficiently well marked distinction for the purposes of our classification. Bound up with the social instinct, there is an innate impulse to trust human testimony. Children are proverbially credulous, and it is only a sad experience which unwillingly forces us to be chary of putting too great faith in our neighbour's word. Again, all emotions—especially those of hope and fear—which have the power of arousing in us a lively picture of any event, thereby tend to create a belief in its occurrence. Applied to our own actions this law is expressed in the axiom that "Beliefs tend to realize themselves." On the other hand, sorrow, melancholy, and those feelings which depress psychical life produce despair and disbelief in the wished-for good, or a hopeless conviction of the coming ill.

(3) *Volitional Element.*—The effect of the Will on belief has always been recognized:

> The wish was father, Harry, to that thought,

is but the particular application of an adage far older than Shakespeare. The emphasis laid on the *merit* of Belief by all Christian teachers from St. Paul downwards, implies that assent is largely under the control of the Will. The forces modifying belief which have their root in the appetitive side of our nature may be classed as, (*a*) natural or indeliberate, and (*b*) volitional or deliberate. As regards (*a*), we readily believe what we desire, unless the wish be intense, when our anxiety makes us over-exacting as regards the evidence either for or against our hopes. We are easily convinced that our ideal heroes possess every virtue. We have, partly by character, partly by education and habit, become possessed of a number of cherished fancies on various subjects. Whatever conflicts with these, though the evidence in its favour be strong, we are impelled to distrust: what harmonizes

with them, however improbable, we readily admit. We have called these beliefs indeliberate, inasmuch as they come into play without any positive effort on our part, but of course they may have serious responsibilities attached; and when in certain subjects reason declares that our beliefs or disbeliefs have been misplaced, we may be under a weighty obligation to assume the unpleasant task of uprooting the prejudice. (*b*) Belief, as we have seen, is often under the influence of Free-will in the exercise of judgment. A change in our convictions cannot of course be at once effected by a single volition. But by deliberately fixing our attention on the arguments favourable to one side of a question and averting it from those on the other, we may in time come to adhere to what we at first discredited, or what is *in se* least probable.

(C) **Effects.**—The *effects* of Belief are frequently, though not always, manifested in *movement*. Readiness to act is a common sign of conviction, and this is probably the source of Dr. Bain's error on the subject. Nevertheless, from many of our beliefs, it requires a very forced and artificial interpretation of consciousness to elicit any reference at all to action. Thus my belief that William the Conqueror invaded England A.D. 1066, or that there is hydrogen in the sun, or that I read a play of Shakespeare yesterday, contains no tendency to action that I can discover. On the other hand, the acceptance of depressing truths, instead of originating movement, often results in complete mental and bodily prostration. Still, in the larger number of cases belief is followed by action, and of course action must always presuppose belief in the reality of the environment. The active temperament is usually sanguine. The energetic man is not given to despair, but easily acquires confidence in new projects. Acting on mere opinions soon transforms them into steady convictions, which conversely strengthen the impulse to activity. "Courage is half the battle," expresses the psychological truth that confidence in our own prowess is eminently calculated to express itself in vigorous action.

Conscience.—The *Moral Faculty* is simply the intellect directed towards the moral aspects of action, and hence styled the *Moral* or *Practical Reason*. It is not a different power from the *Speculative Intellect*. The terms Speculative and Practical qualify merely diverse exertions of the same faculty. By the former the mind discerns

truth and falsity, by the latter the rightness and wrongness of conduct. An action viewed simply as a fact is the object of the intellect. The harmony, however, of such an act with human nature and its relation to a given end are but special accidental aspects of the same reality. Consequently, as St. Thomas argues, there is no reason why the rational faculty which apprehends the being of an act cannot consider its fitness for an end, its harmony with nature, or its moral rightness.

Scholastic view of Conscience.—Two elements contained under the vague modern term Conscience are carefully distinguished by the schoolmen as *Synderesis* and *Conscientia*. They attributed both, however, to the same *ratio practica*. *Synderesis* denotes the innate *disposition* or *habit* by which we are enabled rapidly and easily to apprehend the primary precepts of the Moral Law, when the suitable experience occurs. Thus the practical maxims that "Right ought to be done," and that "Ingratitude is wrong," when observation has enabled us to comprehend the terms, are intuitively perceived with the same certainty as the speculative axiom that "Equals to the same are equal to each other," and the like. *Conscientia* is defined as the exercise of the Practical Intellect in applying the general precept to a particular case. It is, in fact, the cognitive activity exhibited in the ethical syllogism by which the moral quality of any act is determined—*e.g.* (*Major*) To relieve parents from suffering is right (Synderesis). (*Minor*) This act does so. *Ergo*. This act is right (Conscientia). This doctrine affords an easy solution of conflicting moral judgments. For even if the general principle is fully grasped, there may be error in its application; as when some barbarous tribes insert as minor in the above syllogism, "To kill parents in times of famine or sickness is to *relieve* them." Again, the special aptitude or disposition by which we are inclined to apprehend general axioms may be corrupted or perverted by education, tradition, evil passions, extreme intellectual and moral degradation due to climatic conditions or to the severity of surroundings, and the like.

Theories concerning Conscience.—The chief hypotheses on the subject of moral cognition

advanced during modern times are those of the Moral Sense, of Associationism, of Evolutionism, and the doctrine of Moral Reason, which is a return to the Scholastic view.

Moral Sense doctrine.—The theory of a *Moral Sense* was first advocated by **Shaftesbury** (1671—1713), and afterwards in a more decided form by **Hutcheson** (1694—1747). In this view, Conscience is conceived as a *Sense* analogous to that of taste or hearing. It is described as a special original aptitude of the mind capable of *feeling* the moral quality of actions, just as the tongue discerns the sweetness of sugar. Its perceptions, like those of our other senses, are accompanied with pleasure or pain according to the goodness or badness of the acts. The peculiar character of its object, the uniformity throughout the race of its decisions on the primary principles of morality, the promptness and ease with which they are formed, and the early age of their appearance, —all these features point, it is urged, to the original and native character of the endowment. At times, however, defenders of the Moral Sense identify it with the instinct of Benevolence, with our Æsthetic Sensibility, or even with the Moral Reason proper.

Hume (1711—1776) verbally adopted the *Moral Sense* view, but resolved that power into two factors, *Reason* and *Sentiment*. Reason, which plays an inferior part, can possess no motive power, but only assists in ascertaining the useful or harmful consequences of different acts. The chief element, then, in Conscience is *Sentiment* or *Feeling*, and this has its root in *Sympathy*. This latter principle Adam Smith (1723—1790) practically constituted the foundation of ethical distinctions, and the source of all moral approval or disapproval.

Criticism.—Although the Moral Sense school was right in denying the associationist analysis of moral intuitions, their description of Conscience is open to grave objections. (1) The assumption of an additional new faculty is gratuitous. The intellect or reason which perceives the self-evident necessary truth that "Equals added to equals give equals," is the same power which cognizes the validity of the self-evident moral axiom that "We should do as we believe we ought to be done by." (2) The representation of this special aptitude as a *sense* is highly objectionable. A sense is organic; it acts instinctively, blindly; it is essentially irrational. But moral judgments above all others claim to be the voice of reason, the revelation of the spiritual faculty of

the soul. (3) A sense or instinct is essentially a subjective property or disposition. Its cognitions are relative to the constitution of the organism. It pretends to no universal or absolute validity. Its action could conceivably be reversed by Almighty God. Animals might have been created to relish salt, dislike sugar, and so on. But moral perceptions are not acts of this kind; they, like the fundamental intellectual intuitions, disclose to us necessary, absolute, and universal truths which hold inviolable for God Himself. (4) The formal object of a sense is, moreover, always a concrete individual fact. In relation to this object the sense operates invariably and infallibly, and it is not capable of transformation by education; but the moral relations expressed in the primary ethical principles do not partake of such a concrete individualistic character. In addition Conscience is subject to error and perversion, and it requires proper training to exercise its functions in a perfect manner. (5) Finally, the *authority* implied in the decisions of the Moral Faculty completely separates it from all forms of sensibility. An ethical sense might be the root of impulses to certain kinds of action, but it could neither impose nor disclose *obligation*.

Ethical terms defined.—The confusion between the intellectual, emotional, and appetitive elements involved in the exercise of the Moral Faculty has been the cause of so much error that besides criticism it is needful to distinguish these several factors carefully. *Moral Intuition* is the percipient act by which the truth of a self-evident moral principle is immediately cognized. The name is also applied to the discernment of the moral quality of a *particular* action; perhaps this exertion of the Practical Intellect, as well as moral decisions based on longer processes of reasoning, may be best designated *Moral Judgment*. *Moral Sentiment* is not an ethical *cognition*, but the attendant *emotion*—the feeling of satisfaction or remorse, of approval or disapproval excited by the consideration of a good or bad action by myself or somebody else. The term *Moral Instinct* is employed to denote a *native* disposition towards some class of socially useful acts, *e.g.*, gratitude, generosity, &c. Such *natural* indeliberate tendencies do certainly exist, but they are not truly *moral* any more than the sympathetic impulses of brutes. It is only when approved by reason and consented to by will that they become moral in the strict sense of the word. *Moral Habits*, that is, dispositions acquired by intelligent free exercise, are moral in the fullest sense.

Associationist Theory.—The chief attack, however, on the *Moral Sense* doctrine came from the disciples of Hartley and

Bentham. The Sensationist school necessarily adopted utility as the foundation of morality, and sought to resolve moral distinctions into feelings of pleasure and pain. Conscience, it is held, is not a simple original faculty, but a complex product derived from experience of the agreeable and disagreeable results of actions. The child is trained up to obedience, and the idea of external authority is formed in its mind. Certain acts are associated with punishments, others with rewards. Affection towards the person of the superior, social sympathy and reverence for law, as well as fear of retaliation and enlightened prudence, all gradually amalgamate to produce that indefinite mysterious feeling, attached to the acts of the moral faculty. The essential constituents of conscience are, therefore, the faint traces of pleasurable and painful consequences which have been associated in past experience with particular kinds of action.

Criticism.—The objections to this theory are numerous: (1) It does not account for the very early age at which moral judgments are formed, nor for the ease and readiness with which they are elicited before any proper estimate of the utility of various classes of acts can be attained. The child is able, while still very young, to distinguish between *just* and *unjust* punishment, and thus to apply a moral criterion to the very machinery by which its moral notions are supposed to be manufactured. (2) The Utilitarian hypothesis again does not account for the *absolute authority* attributed to moral decisions by the fully developed human mind. (3) Nor does it explain the peculiar *sanctity* attached to moral precepts. Mere experiences of utility, mere impulses towards pleasure or from pain would never generate the axiom, *Fiat justitia ruat cœlum.* (4) It does not account for the universality of this reverence in regard to at least some moral distinctions; nor for the universality of ethical notions exhibited in terms to be discovered in every language, and found in the customs, laws, and religions of all nations. In spite of wide diversities of opinion as to *what* is right, there is the unanimous conviction that *right ought to be done.* (5) Again, the notions of duty and utility are not merely radically different, but often stand in opposition. If apparent self-sacrifice is seen to be designed for gain, its virtue disappears. (6) Logically followed out, this theory annihilates the claim to *authority* of conscience, which prescribes the observance of certain intrinsic distinctions of human action. (7) As a final proof of the utter inadequacy of association and personal experiences of pleasure and pain to generate conscience, it may be noted that since the Evolutionist hypothesis has been

invented, the representatives of Sensism, almost to a man, now admit that the theory maintained so confidently by their school twenty years ago is completely insufficient.

Origin and Authority of Moral Judgments.—In connection with the associationist theory it has been maintained that the *character* of the *moral faculty* is in no way affected by its *genesis*. Dr. Sidgwick justly holds that the *existence*, *origin*, and *validity* of moral cognitions are three distinct questions; but he errs in teaching that the two last are completely independent of each other. He asserts (*a*) that the *validity* of any cognition is not weakened by its late appearance in life; (*b*) that the mere derivation of moral perceptions from simpler elements cannot render them *untrustworthy*, nor their innate character establish their infallibility; (*c*) that consequently Ethical science is no more concerned with the *origin* of Conscience than Geometry with that of Spatial Perception.[15] This doctrine draws its chief plausibility from an ambiguity contained in the words "validity" and "trustworthiness." These terms as predicated of intellectual cognition mean that the perception in question agrees with an objective fact universally admitted. As applied to moral cognition they mean that the judgments of conscience possess *authority*. They signify that these acts (*a*) reveal to us *law* of a *transcendent* and *sacred* character, and (*β*) thereby impose on us an *obligation* to special kinds of action or abstinence, (*γ*) *independent* of *pleasurable* and *painful consequences*. Obviously then: (1) The essence of genuine analogy with mathematical knowledge is wanting. (2) The vital objection is not to the late date assigned to the appearance of moral notions, but to the materials out of which they are supposed to be manufactured. (3) The real question is, whether the *supremacy* and *holiness* claimed for the deliverances of conscience are justified by genuinely objective moral distinctions, or are merely illusory products containing only sensational and emotional elements of a non-moral kind. If the latter alternative be true, their pretended sovereignty is obviously but an illegitimate usurpation. If, as Dr. Martineau puts it, "the conscience is but the dressed dish of some fine *cuisine*, if you can actually exhibit it simmering in the saucepan of pleasure and pain, the decorous shape into which it sets ere it appears at table, cannot alter its nature or make it more than its ingredients."[16] Similarly, from the opposite standpoint of Physical Ethics, Mr. Sidgwick's view has been attacked on the ground that the pretensions put forward on behalf of conscience are very different from those of the spatial faculty,

[15] *Methods*, Bk. III. c. i. § 4. [16] *Types*, Vol. II. p. 14.

and that the ultimate grounds of Morality are disputed, while those of Mathematics are agreed upon.

Evolutionist Hypothesis.—The Evolutionist doctrine of the *Moral Faculty* varies from that just described merely by enlarging the period during which the pleasurable and painful consequences of conduct have been at work, so as to include not the life of the individual only, but also that of the race. Conscience is a species of instinct analogous to the *retrieving disposition* in a well-bred game dog. It embodies the experiences of pleasure and pain felt during the numberless ages of the gradual evolution of man. These, it is asserted, have been by degrees organized and accumulated through Natural Selection, and transmitted by heredity from parent to offspring in the form of physiological modifications. The theory thus claims to reconcile the *Moral Sense* doctrine with that of the Benthamite school; or at all events to combine the elements of truth supposed to be contained in both. On the one hand, it recognizes the native or instinctive character of moral intuitions and sentiments, whilst on the other it ultimately bases all moral distinctions on the pleasurable and painful consequences of action, and teaches that Conscience is a complex product derived from these latter.

Criticism.—As this account of the Moral Faculty forms part of the general theory of the Origin of Necessary Truth advocated by Evolutionist Psychology, we refer the reader back to our discussion of the wider subject. Here, however, we may observe in addition: (1) that the new hypothesis is exposed to all the most weighty objections advanced against the old Associationist doctrine, except that based on the readiness with which moral cognitions are elicited, and the early age at which they appear; (2) that moral intuition is not of the nature of a sensitive instinct, but of an intelligent apprehension; (3) finally, that Conscience or ethical notions are the most unlikely product that can well be conceived to arise by Natural Selection. Even in tolerably civilized stages of society, the utility of moral sensibility to the individual in the *struggle for life* is very problematical. *A fortiori* amid the internecine war and conflict of the supposed pre-human stage, where, in the words of Hobbes, "fraud and force" are the "cardinal virtues," the chances should be enormously against the development of self-sacrifice.[17]

[17] Concerning the *authority* left to conscience in this account of its *genesis*, Mr. Balfour writes thus: "Kant, as we all know, compared the Moral Law to the starry heavens, and found them both sublime. It would, on the naturalistic hypothesis, be more appropriate to compare it to the protective blotches on the beetle's back, and to find them both ingenious. But how, on this view, is the 'beauty of

The fact that within a tribe or nation some of the moral virtues are of evident advantage in the struggle with other tribes makes no real difference, unless we assume, against the whole teaching of evolution, the sudden causeless appearance of the moral instinct throughout the majority of the individuals of the tribe. If "the weakest to the wall" is the one supreme Law of Nature, if Natural Selection is the great force of evolution, then the occasional individuals varying slightly in the direction of conscientiousness would be inevitably eliminated in the perpetual struggle for existence within the limits of their own savage tribe, before the dubious utility of their incipient moral dispositions could be extended to the tribe as a whole, and render it superior to other less moral races. If an unprejudiced mind considers how intensely difficult it is, even at the present day, when we are in possession of all the moralizing agencies of religion, education, language, literature, public opinion, and governmental authority, to quicken the moral sensibility of the individual or of the nation, he must surely see that in the alleged pre-human stage, when not a single one of these forces were present, and when the conditions of existence combined unanimously in the opposite direction, the natural growth of conscience must have been absolutely impossible.[18]

holiness' to retain its lustre in the minds of those who know so much of its pedigree? In despite of theories, mankind—even instructed mankind—may, indeed, long preserve uninjured sentiments which they have learned in their most impressionable years from those they love best; but if, while they are being taught the supremacy of conscience and the austere majesty of duty, they are also to be taught that these sentiments and beliefs are merely samples of the complicated contrivances, many of them mean and many of them disgusting, wrought into the physical or into the social organism by the shaping forces of selection and elimination, assuredly much of the efficacy of these moral lessons will be destroyed, and the contradiction between ethical sentiment and naturalistic theory will remain intrusive and perplexing, a constant stumbling-block to those who endeavour to combine in one harmonious creed the explanations of Biology and the lofty claims of Ethics." (Op. cit. pp. 18, 19.)

[18] Mr. Lecky has justly remarked that, "Whether honesty is or is not the best policy, depends mainly on the efficiency of the police," a social factor seemingly not very perfect in those prehistoric times of which Herbert Spencer affords us such detailed information. Bain argues forcibly that "the Moral Sentiment is about the least favourably situated of all mental products for transmission by inheritance." The chief grounds on which he does so are: (1) *Comparative infrequency* of special classes of moral acts

Intuitionalist Views.—Writers of the Intuitionalist school subsequent to Shaftesbury and Hutcheson modified the doctrine of the Moral Sense, so as to remove its most obvious defects. Thus Reid and Stewart, who accept the term, describe the faculty as of a *rational* character. It is a special innate power, given at first only in germ and requiring training and cultivation, but nevertheless capable of revealing the objective moral qualities of actions. The term *Moral Sense*, however, has been used in such a variety of significations, and is so liable to suggest an erroneous view of the nature of moral perception, that we believe Conscience will be best described as the Moral or Practical Reason. It should always be borne in mind that while on the one hand the moral faculty is a cognitive power identical with the intellect, its proper object differs in kind from mathematical relations and purely speculative truths.

Kant, identified Conscience with the Practical or Moral Reason. It was, however, conceived by him not as a cognitive faculty making known to us an external law prescribed from without, but as an internal regulative force which itself imposes commands on the will. Man is thus asserted to be *a law to himself*. This doctrine, based on the so-called *autonomy of the reason*, confounds the function of promulgating a law with the office of legislation, and gives a defective account of the nature of authority, and of the ultimate grounds of obligation. But criticism of this theory would lead too far into Ethics: and for a treatment of this subject we must refer the reader to the volume on *Moral Philosophy* of the present series.

Is Conscience a Spring of Action?—The confusion prevalent in modern ethical speculation regarding the connexion between Conscience, Reason, Intellect, and Moral Sentiment has given rise to a warm psychological dispute as to whether Reason can be a *spring of action*. **Cudworth** (1617—88) and **Clarke** (1675—1729), the ultra-intellectual moralists, identified the moral faculty with Reason in its narrowest sense, assimilating the activity of Conscience to the cognition of purely speculative truths. Interpreting Reason in this restricted

"We are moralists only at long intervals, . . . we may be hours and days without any marked moral lesson." (2) *Complexity*. "The moral sentiment supposes a complicated situation between human beings apart from whom it has neither substance nor form" (*i.e.*, in the Utilitarian system). (3) *Disagreeableness* of duty. "We do not readily acquire what we dislike, . . . mankind being naturally indisposed to self-denial are on that account slow in learning good Moral habits, and are not generally in an advanced state even at the last." (*Emotions and Will*, 3rd Edit. pp. 55—57.)

signification, Hume argued that it can have no influence over the will, and therefore is not a spring of action. He, consequently, assigned to *sentiment* the chief place in the constitution of the moral faculty. Later philosophers, wishing to defend the rationality of morality, opposed this view **Dr. Sidgwick** thus argues: (1) The chief part of moral persuasion appeals to Reason. (2) "Reason prescribes an *end*. The judgment, "This ought to be done," stimulates the will to action. The moral sentiment may co-operate, but the cognition of *rightness* of itself really impels to action.[19] **Dr. Martineau**, on the other hand, defining a *spring of action*, as "an impulse to an unselected form of action," excludes both Prudence and Conscience from the list of active forces. Moral Reason merely decides which of two rival impulses is the *higher*, which is to be *preferred*. It is a "judge," not an "advocate." The motive power lies solely in the impulses.

Criticism.—There is an element of truth contained in both views, and the dispute seems to us to be in part verbal. *Moral perception* is an act of the Reason, and this is in itself a *cognitive*, not a *conative* or *appetitive* faculty. It is primarily recipient, not impulsive. On the other hand, in apprehending an action as *right*, *obligatory*, *agreeable*, or *useful*, the intellect stimulates the will to action, and thereby becomes a motor agency. The propelling force thus lies primarily in the quality of the *object* apprehended, and not in the intuition viewed merely as a *cognitive state*. A spring of action is thus a mental state *tending of itself* to issue into action, while an ethical cognition in virtue of the objective moral law which it reveals is an apprehensive act which may originate or check such an impulsive state.

Butler's Doctrine.—Among English moralists of last century the ablest defender of the authority and rationality of Conscience, and the writer who returned most closely to the teaching of St. Thomas and the great Catholic philosophers of the middle ages, was Butler (1692—1757). The attention which had been devoted to the empirical study of the mind by his immediate predecessors, however, caused him to lay great stress on inductive arguments. And we believe we may suitably close the present chapter with a passage of his, which admirably epitomizes the psychological grounds by which the existence of truly moral intuitions is established: "That which renders beings capable of moral government is their having a moral nature, and moral faculties of perception and of action. Brute creatures are impressed and actuated by various instincts and propensities: so also are

[19] *Methods*, Bk. I. c. iii. § 1.

we. But additional to this we have a capacity for reflecting upon actions and characters, and making them an object to our thought; and on doing this we naturally and unavoidably approve some actions, under the peculiar view of their being virtuous and of good desert, and disapprove others as vicious and of ill desert. That we have this moral approving and disapproving faculty is certain from our experiencing it in ourselves, and recognizing it in each other. It appears from our exercising it unavoidably, in the approbation and disapprobation of even feigned characters: from the words right and wrong, odious and amiable, base and worthy, with many others of like signification in all languages. . . . It is manifest, great part of common language and of common behaviour over the world is formed upon supposition of such a moral faculty, whether called conscience, moral reason, moral sense, or Divine reason. Nor is it doubtful in general, what action this faculty, or practical discerning power within us, approves, and what it disapproves. For, as much as it has been disputed wherein virtue consists, or whatever ground for doubt there may be about particulars, yet, in general, there is in reality a universally acknowledged standard of it. It is that which all ages and all countries have made profession of in public: it is that which every man you meet puts on the show of: it is that which the primary and fundamental laws of all civil constitutions over the face of the earth make it their business and endeavour to enforce the practice of upon mankind, namely, justice, veracity, and regard to the common good." (Cf. *Dissertation on the Nature of Virtue.*)

Readings.—On Judgment and Reasoning, cf. St.Thomas, *Sum.* 1. q. 79. a. 8; Suarez, *De Anima*, III. c. 6; Rickaby, *First Principles*, Pt. I. c. ii.; Kleutgen, op. cit. §§ 133—146; Clarke, *Logic*, Pt. II. c. iii. On Assent and Consent, Ollé Laprune, *De la Certitude Morale*, c. ii.; Wilfrid Ward, *The Wish to Believe*. On Implicit Reasoning, Newman, op. cit. cc. viii. ix.; also Dr. W. G. Ward's *Philosophy of Theism*, Essays XV. and XVI. On Belief and Knowledge, Ollé Laprune, op. cit. cc. iii.—v.; Newman, op. cit. cc. iv. vi. vii.; Rickaby, op. cit. Pt. II. cc. vii. viii. On Conscience, St. Thomas, *Sum.* 1. q. 79. a. 9—13; J. Ming, *Data of Modern Ethics Examined*, c. xii.; *Moral Philosophy* (present series), Pt. I. c. viii. §§ 1, 2.

CHAPTER XVI.

ATTENTION AND APPERCEPTION.

Attention.—We have confined the term *attention* to the higher order of mental activity. The word is, however, frequently employed to denote mere intensification of sensuous consciousness. In this sense a dog or a cow is said *to attend* when it is excited, by the approach of some object, to watch or listen; increased activity of the sensuous faculties of man may similarly be named *attention*. Still, careful introspection assures us that in an act of attention proper there is something more than augmentation of the previous sensation.[1]

Attention and Sensation.—Suppose that I am suffering from toothache; I can advert to the pain or try to turn my attention away from it. But this attention is not the same thing as the feeling. I can direct my observation to the peculiarly aching character of the latter. I can consider its likeness and unlikeness to the sensation of a burn or a needle-prick; I can estimate its superiority in intensity over previous states. In fact, I am conscious throughout of exerting a cognitive activity distinct from the mere sensation, and this presupposes before it can operate the sensation or its reproduced image. Increased intensity of a

[1] On attention to sensuous impressions, see pp. 232, 243—246.

sensation is not identical with the act of attention, though the former may often awake the latter. For we can attend to the weaker of two impressions, and the vividness of a sensation occasionally obscures the relation or special aspect which is at the time the formal object of the act of attention.

Attention and Volition.—Neither is attention merely a volition or act of will. On the contrary, it is that upon which the conative act is exerted. It is cognitive energy directed by the will to an existing experience. Thus, in attending to a toothache, the act of the will is not, "I wish to feel more pain or less pain," but "I wish to turn my attention towards or from this pain," "I wish to have a clearer and more distinct consciousness of this state." Becoming an object of thought, the feeling may subsequently become an object of will; and, as a rule, the increased clearness and force of a conscious state effected by attention augments its motive power and reacts upon the conative activity of the mind.

Attention interrogative.—In becoming attentive we pass into an attitude of *inquiry* or *expectation*, and this is characteristic of the mind throughout the whole period. Mr. G. Stout accurately describes this phase of the mental state: "Between a protracted train of thought which lasts for an hour and a transient act of attention which lasts for only a few seconds, there is in this respect only a difference of degree, not of kind. Whenever we attend at all, we attend to some object, and it is the essence of the process that, in and through it, our apprehension of this object shall become, or at least *tend* to become, more full and distinct. For this reason a certain prospective attitude of the mind is characteristic of attention. *Attendere* originally means to expect or await. This prospective attitude is for the most part interrogative. The interrogation in its more primitive phases is dumb, and to express it in language is to falsify it by giving it a fictitious definiteness. But with this reservation we may say that it corresponds to the question: What is that? or simply, What?"[2]

[2] *Analytic Psychology*, Vol. I. p. 184.

That is, literally, in scholastic language, it is the concentrated activity of the intellect seeking to apprehend the *Quidditas*. Accordingly we shall wisely return to the old definition, and define attention as: *Applicatio cogitationis ad objecta*, or the special application of intellectual energy to any object.

Voluntary and non-voluntary Attention.—The phenomenon of attention takes two forms according as the exciting cause is the mind itself or something presented to the mind. In the former case we are conscious of a certain self-direction of the mind towards a particular object. We interfere with the automatic current of our thoughts, and turn them into a new channel. This is effected by fixing upon some particular section of the series, and dwelling upon it. This act of attention at once increases the force of the selected idea, and raises into consciousness other ideas of various kinds with which it is connected. We then again choose which of these new lines of thought shall be followed, and so change the original course of the stream. This is an exercise of *voluntary attention*. The completeness of control over our own thoughts, the success which we can command in the expulsion or detention of a particular mental state, varies at different times and in regard to different objects. A representation of the imagination, a strong emotion, a worrying train of thought, no less than some distracting external stimulus, may at times render nugatory repeated efforts to apply our minds to some other topic. It is this experience of resistance which affords us the most convincing assurance that we have a real power of free voluntary attention, for it reveals to us in the clearest manner the difference between automatically drifting with, and actively struggling against the natural current of thought. It brings into distinct consciousness the exertions of real personal *choice*. The conditions influencing our command over attention are, accordingly, twofold. On the one side are the varying degrees of attractiveness pertaining to the object; on the other is the energy of the mind.

Non-voluntary Attention.—Attention, however, is often both awaked and continued without any effort of the mind. Of this *non-voluntary* activity we can distinguish two grades. Sometimes the process of attention, though not due to special volition, flows along in a smooth, facile manner, without any consciousness of constraint. This is *spontaneous*, or *automatic* attention. On the other hand, there are also occasions when we feel our attention to be extorted from us, or constrained against our will, when an idea forcibly intrudes into our

consciousness, and defies our best attempts to eject it. This advertence against our will is *involuntary* attention in the strict sense. Extreme instances are the "fixed ideas," and hallucinations of the insane. Serious enfeeblement of voluntary control of attention is generally among the symptoms of approaching mental derangement.

Laws of Attention.—*Intensity.*—The general conditions of Attention have been described by some psychologists as *Laws;* and they may be thus briefly formulated: (1) Involuntary, automatic, or reflex attention, is determined as regards both its force and direction, by the comparative attractiveness of the objects present to the mind. (2) Voluntary attention is determined (*a*) by the energy of the mind at the time, (*b*) by the inherent attractiveness of the object, and (*c*) by extrinsic motives, or relations of the object with other desirable things which may influence the will. Thus the student's power of keeping his intellect fixed upon his work depends on the nature of the subject; on the present intensity of his desire to pass his examination; on the fresh and healthy condition of his brain; on the native energy of his mind, and on his acquired habits of steady concentration.

Duration.—In the first stage of the exercise of voluntary attention repeated struggles are often necessary; but when interest is once awakened the activity becomes self-supporting, and further volitional effort is needless. Still attention, whether voluntary or involuntary, is of an essentially variable character. It flows in waves rather than in a constant level stream, and soon grows feeble unless revived by a new effort or by a change of object. When a man is said to keep his attention concentrated or fixed for a long time on a single object, he really follows out a train of ideas related to the object.

Extent.—The force of attention is limited in *range* as well as in *duration;* and another law supposed to express the relation between *extent* and *intensity* of attention was formulated in the old aphorism: *Pluribus intentus minor est ad singula sensus*, or *the intensity of attention varies inversely as the area of objects over which it ranges.*

This statement refers rather to sensuous than to intellectual cognition. In so far as it applies to the latter, it defines not the force of a single act of attention, but the general efficiency of mental energy during a longer or shorter period.

Whether we can attend simultaneously to more than one object has been much disputed; and, as is usual in such cases, the disputants often differ as to what they mean by "attend" and "one object." Experiments like those of Hamilton, indicating how many pebbles a man can perceive at a single glance, obviously have to do with the perfection of eyesight, rather than with the range of attention. It is clear that we can be sentiently aware of sounds, colours, temperature, and pressure at the same time. But intellectual attention, even when engaged in comparison, apprehends its objects in the form of a unity of some sort. The focus of attention seems to be at any moment a single thought, though that thought may carry a fringe of relations and a nucleus of elements dimly felt to be distinct from each other;[3] and in the process of analysis the mind passes from one to another in rapid succession.

Effects of Attention.—*Intensification.*—The most obvious effect of an act of attention is to intensify the mental state towards which it is directed, whether that state be a sensation, an idea, or an emotion. At any moment of our waking life we are subject to a mass of impressions, tactual, auditory, and visual, pouring into the mind through the several senses. Most of them are so feeble as to escape notice in the crowd. But when I direct my attention, for instance, to the pressure of the ground, or of the chair, or to the colour of the table on which I am writing, the sensation

[3] This seems to be the view of St. Thomas: "Intellectus quidem potest simul multa intelligere *per modum unius* non autem per modum *multorum*. . . . Partes. *e.g.*, domus, simul cognoscuntur *sub quadam confusione*, prout sunt in toto." (*Sum.* 1. q. 85, ad 3.) Compared objects, he teaches, are simultaneously apprehended "*sub ratione ipsius comparationis.*" Similarly Mr. Stout: "The essential is that, however manifold or heterogeneous the objects of my thought may be, I must, in thinking of them, simultaneously think of some relation between them." (loc. cit. p. 195.)

emerges at once into vivid consciousness. The possible augmentation of the feeling is, however, limited. We cannot increase the blueness of the sky, nor the loudness of a sound, nor the weight of a pound above what corresponds to full normal stimulation. But it is probable that organic pain may be increased by a certain physical effect of attention which seems to react on the nerves and blood-vessels of the locality on which observation is concentrated.

Expectant Attention.—The intensification of the force of phantasms of the imagination is still more remarkable; and, as we have already indicated, is often the cause of illusion. Since the reproduced images probably occupy the same cerebral centres as the original motor, visual, or auditory sensations, revival of the image involves a rehearsal of the former neural tremor, and in proportion as the representation becomes more vivid the nervous excitation grows in strength until it may issue into an actual repetition of the former experience. This also explains the shortening of *reaction-time* in psychometrical experiments when a definitely known event is looked for. Thus, if I am expecting to perceive a particular colour, the visual faculty is adjusted for its immediate reception and the appropriate brain cells under the action of the imagination are in a condition of nascent excitement ready to respond like hair-trigger pistols to the faintest stimulation. In fact "pre-perception," or the ante-dating of a phenomenon, is not an uncommon illusion when expectation of a particular event is in an acute stage.

Distinctness.—But more important from an intellectual point of view is the increased *distinctness* which attention sheds upon its objects. It affects this by *clarifying the relations* of which the observed phenomenon is the centre. It brings under our notice the various threads by which this object is interwoven with the web of our already acquired knowledge. Relations of similarity and contrast, of causality and dependence, of action and reaction, rational connexions of every kind to which mere sensuous intuition is blind, reveal themselves beneath the light of this higher mental

energy, and what was before a confused mass of sensuous impression, becomes now a consciously unified object—a well defined *thing*.

Attention and Genius.—This illuminating power of attention by which the obscure and dimly discerned relations of certain ideas are elevated into vivid consciousness is the great parent of *invention* and *discovery*. By continued fixation of our intellectual gaze upon an object, its connexions with its surroundings become more clearly realized; possible explanations of particular facts suggest themselves; and their validity is verified or disproved by reasoning out the consequences. The importance of this faculty in original work of all kinds is so great, that in many celebrated definitions we find *genius* and *power of attention* made synonymous with each other. Thus Hamilton teaches that "the difference between an ordinary mind and the mind of a Newton consists principally in this, that the one is capable of the application of a more continuous attention than the other." (*Metaph.* Vol. I. p. 256.) Helvetius defined genius as "nothing but continued attention"—*une attention suivie;* Buffon as *une longue patience.* Newton ascribed his own successes to patient attention more than to any other talent; whilst the definition of genius by another great mind as, "an infinite capacity of taking pains," is well known. This complete identification of the two aptitudes is an error. Recent writers justly insist on the spontaneous non-voluntary character of the outpourings of genius; whilst Mr. F. Myers and certain German philosophers would connect this faculty with a somewhat mystic theory of a subconscious mental life,—a second subliminal or subterranean personality which occasionally emerges above the surface of consciousness in dreams, hysteria, and the hypnotic state. The truth seems to be that, although genius has its source in the native endowments of the mind, its most impressive and fruitful achievements are only accomplished by the exercise of a rare degree of sustained concentration, whilst this very concentration is possible only to a prolific intellect rich and fertile in ideas.

Retention.—A further effect of attention is increased retentiveness. Events not attended to fade so quickly from memory that, as in the case of automatically winding one's watch, a man is often completely oblivious of the action immediately afterwards. If we wish to fix in our mind a line of poetry, a person's address, or his face, we concentrate our attention on

the object to be remembered. In doing so, we not only prolong and intensify the impression, but we associate it with other experiences, we assimilate it into the general system of our mental life. In Herbartian language, we *apperceive* it. Attention thus both accelerates mental acquisition and secures permanence. Twenty repetitions of a lesson whilst the mind is careless and inattentive have not the efficiency of one performed when our whole energy is concentrated on the subject in hand.

Physiological conditions.—Regarding the physiological counterpart of attention there is much speculation and little knowledge. Evidence of a general character renders the following statements probable: (1) During periods of intellectual concentration there is an increased flow of blood to the brain and heightened activity of the cells which compose the cortical substance. (2) The adjustment of the sense-organs and the bodily strain which often accompany a process of attention involve an innervation of the cerebral motor-centres subservient to these particular movements. (3) Direction of attention to a particular sensation seems to stimulate circulation and neural functioning throughout the portion of the organism, central and peripheral, engaged in the experience. (4) The same seems to hold in regard to reproduced images when they are the object of attention. Thus, if I fix my thought on some particular word, the appropriate ideational motor and auditory centres, that is, the group of cerebral cells which minister to the production of this particular sound, are probably excited to greater activity. These various physical changes are, however, the *effect* rather than the *cause* or neural correlate of the act of attention proper. Of the latter nothing is really known as certain.

Physiological manuals not infrequently indulge in graphic accounts of "attention-centres," and of successive groupings of neural currents in cerebral stations arranged in an ascending order of dignity and complexity like local, provincial, and city telegraph offices, with a great presiding metropolitan centre in the frontal region of the brain. Such descriptions are purely mythological. They may, of course, afford help to the imagination—like a coloured picture of an angel. But unless the reader is reminded that they are mere conjectures without any evidence, or even prospect of evidence, to establish their truth, they are sure to mislead. The sort of knowledge which we really possess concerning the brain will be indicated in our section on the localization of cerebral

functions. If certain areas of the cerebral matter are stimulated or extirpated, certain corresponding movements and sensations and images are excited or inhibited. That is almost the sum total of present *scientific knowledge* concerning the subject.

Pleasure and Pain.—The relation of attention to feeling can be readily gathered from Aristotle's theory of pleasure and pain, given in an earlier chapter. Pleasure accompanies spontaneous or easy volitional attention, increasing in proportion to the vigour of the activity until the energy becomes strained or fatigued. On the other hand, forced attention, thwarted attention, and the struggle against distraction, monotony, or weariness are painful experiences. Novelty pleases, both by affording pleasant relief and by awakening a fresh energy. If a particular exercise of attention prove agreeable, the activity is stimulated and increased; if it result in pain, especially of a monotonous character, the exertion is depressed. But acute pain tends to focus upon itself the whole available energy of consciousness and thereby to inhibit all other intellectual operations.[4] Such cases, however, are rather instances of purely painful feeling in which rational activity proper is suspended. Fixed ideas, disagreeable recollections, and sharp griefs often exert a violent painful fascination on the mind, which renders it almost impossible to get rid of the unpleasant thought.

Interest.—We attend readily to some subjects because they are *interesting;* and they possess interest because they afford us pleasure or a particular kind of pain. Some psychologists would completely identify interest and attention, maintaining that to *attend* to an object and to be *interested* are the same thing. Still, ordinary language recognizes a difference. Whereas attention is *transitory*, interest may be *permanent;* thus we can retain interest in a science to which we have not devoted attention for a considerable period. Moreover, we easily concentrate our attention on a particular subject

[4] "Si sit dolor intensus impeditur homo ne tunc aliquid addiscere posset. Et tantum potest intendi quod nec etiam instanti dolore potest homo aliquid considerare etiam quod prius scivit." (St. Thomas, *Sum.* 1-2. q. 37. a. 1.)

because it interests us; it is not immediately interesting because we direct our attention towards it. Common thought in fact seems to identify interest with a peculiar attraction exerted by certain subjects of consideration in virtue of associated pleasurable or painful experiences in the past. Thus, even an elementary knowledge of Botany or Geology gives a new "interest" to a walk in the country, and the fact of having read one of Scott's novels makes Edinburgh quite a different city to the visitor.

Education.—From all this we see the importance of the mental function of attention from an educationalist standpoint. Without some degree of attention *intellectual* acquisition of any kind is impossible; and in proportion as this power is brought more under command, so is progress more rapid and more solid. The child at first finds great difficulty in controlling his attention, especially for any length of time. It is, therefore, the office of the teacher to help these first feeble efforts by awakening interest in the pupil's tasks. Skill in illustrations that are homely yet novel, ingenuity in connecting the lesson, or parts of it, with subjects of the child's previous experience or reading—especially with the stories in which he has taken pleasure—judgment in changing the subject, or enlivening it by a joke or anecdote when the class is growing weary, tact in utilizing incidental points that turn up to enforce some practical or moral truth, are all so many means of stimulating and sustaining attention. But the education of the faculty of attention is even more important as a part of *moral* training. It is by control of our attention that we can determine which of two conflicting motives shall prevail. By the free effort of our attention we keep steadily before our minds the claims of duty, or the consideration of permanent happiness when impulse surges up within, or seductive pleasure assails us from without; and the strong-willed man is he who can keep his attention riveted to some abiding rational motive that gives stability to his deliberately formed resolve, and thus remains unshaken by gusts of passion or transitory cravings of sense.

Are there Unconscious Modifications of the Mind?—Connected with the topic of attention, is that of latent mental operations. Notwithstanding the superstitious dread of metaphysics, which infects all recent psychology, no really intelligible answer can be offered to this much discussed question unless we know what is meant by "mind" and by "modification of mind;" and these queries inevitably carry us into Philosophy. If we start with the great majority of empirical psychologists by defining the mind as "the entire collection of our conscious states," or "the total stream of our conscious life," then obviously an affirmative reply would involve a contradiction in terms. Or even if prescinding from the inquiry as to the nature of the soul, we define a "mental modification" as a "conscious state," there can be no further dispute. Still such a summary disposal of the question merely ignores a very genuine problem. But if by *mind*, or *soul*, we understand a *real being* other than the series of "phenomena" or "conscious states," and if we then propose the inquiry thus: *Do there take place any real activities, processes, or energizings of the mind of which we are completely unconscious?* the question is no longer meaningless.

In the first place, that some mental operations happen without their being apprehended by the explicitly reflex activity of *self*-consciousness is indubitable. For instance, the self-conscious element in the percipient act of the spectator who watches the finish of an exciting race is reduced to nil. It is also indisputable that there enters into the texture of our normal conscious existence a multitude of sub-conscious, or obscure mental processes so dim and indistinct as to be at best only very faintly realized. Our emotional temperament and our normal moral disposition is largely determined by such sub-conscious influences. But when we come to the question as to the reality of latent activities of the mind *completely* below the surface of consciousness, there is no longer agreement among psychologists. The following arguments have been advanced:

For Unconscious Modifications.—(1) The reality of *minima visibilia, audibilia, etc.*—the fact that our ordinary sensations of sight, sound, and the rest, arise out of an aggregate of elementary impressions occasioned by combinations of stimuli separately unperceivable. Thus the leaves of the forest, individually indiscernible, each contribute to the general presentation of colour. Neural excitations that are just too feeble or too brief to result in a sentient state which rises above the threshold of consciousness must, it is maintained, have a real effect upon the mind. (2) That such an

effect though unconscious is real, it is urged, is often proved by the effect of the sudden cessation of the unobserved stimulus. Thus the miller, though unconscious of the sound of the mill-wheel, is awakened at once by its stopping. (3) The effect of a mere act of *attention* in evoking into distinct consciousness experiences hitherto unnoticed, as for instance a headache, or the pressure of my back against the chair, points to their previous reality as mental impressions though unconscious. (4) The facts of habit, acquired skill, and dexterity. Complex operations seemingly automatic which were originally effected by conscious effort must, it is alleged, be still performed under the guidance and control of the mind though acting unconsciously. Similarly unconscious inferences enter into our acquired perceptions. (5) The effects of unconscious trains of thought by which reminiscences of events long forgotten, or unnoticed at the time, or the solution of problems are suddenly presented to the mind. (6) Abnormal phenomena of hysterical patients, deferred or post-hypnotic suggestions, somnambulistic feats, negative illusions, or artificially induced anæsthesia—in a word, a multitude of actions fulfilling the conditions of "having all the characteristics of a psychological fact save one—*i.e.*, they are always unnoticed by the agent himself at the very time when he performs them."[5]

Against such Modifications.—It is argued (1) that the facts of *minima sensibilia* merely prove that the normal physical stimulus of a sensation must possess a certain quantity of strength before consciousness is awakened, but when that limit is passed the effect produced is of a completely new and completely different kind. It is always unlawful, as Mill has shown, to ascribe separate fragments of such a total "heteropathic effect" to separate fragments of the cause. Similarly, though successive increments of heat will finally cause ice to melt and then to boil, or dynamite to explode, we cannot legitimately conceive each small addition of heat as producing a corresponding small part in the liquefaction, evaporation, or explosion. (2) The positive effect of the sudden cessation of a stimulus is explained by the considerable change thereby wrought in the tension of the nervous mechanism, which has become adapted to the regular action of the stimulus. (3) Attention can undoubtedly increase our sensibility to impressions of all kinds, but this only shows, it is maintained, that the particular experience was felt in a faint degree before; or that it is only under these new psychological conditions it begins to exist. (4) The pheno-

[5] Cf. Pierre Janet, *L'Automatisme Psychologique* (Edit. 1898), p. 225

mena of habit, automatic action, acquired perceptions, and the like, may be ascribed not to psychical, but to physiological dispositions, which by frequent repetition of a series of movements become organized and embodied in the nervous system in such a manner as to be able to bring about the final result without the concomitant action of the mind during the process. (5) Sudden reminiscences, and discoveries, the effects of seemingly unconscious trains of thought, and the like, may be similarly explained as due to unconscious *cerebration*. The neural processes in the brain being once set in motion may run their course unconsciously till the particular cerebral situation is reached which forms the appropriate condition for the final mental act. Or, it may be held that the intermediate *mental* links do actually appear in consciousness, but that, like the perceptions of the separate letters of a word, they are too fleeting and of too little interest to be remembered. The phenomena of dreams, somnambulism, hypnotism, and the like, are similarly explained as actually felt at the time, but lost by inattention and rapid obliviscence.

These explanations seem to us to afford an intelligible interpretation of most of the facts adduced. Nevertheless, provided it be recognized that no composition, amalgamation, or coalescence of unconscious units can constitute a conscious state, we do not see any conclusive reason for denying the reality of unconscious activities of the human mind. Furthermore, adopting the Aristotelico-scholastic theory that the Soul is a substantial principle at once the source of vegetative, sentient, and rational life—a doctrine which we will establish in Rational Psychology—this view seems to be forced upon us. Latent modifications of the mind must be admitted at least as dispositions, habits, or *species impressæ*, to account for the possibility of recognition and ordinary knowledge. The vital processes of the *potentiæ vegetativæ*—the vegetative functions of the Soul—are normally unconscious; and the scholastic conception of the nature of the action of the *intellectus agens* seems also in harmony with the doctrine of unconscious mental energies.[6]

Apperception.—(*S'apercevoir*=to notice with attention.)—

[6] The literature on this subject is abundant. The modern scholastic writers who have treated it most fully are Sanseverino, *Dynam.* pp. 944—982; Farges, op. cit. pp. 295—307, 390—395; Mercier, *La Psychologie*, pp. 154, seq.; Gutberlet, *Die Psychologie*, pp. 49—59, 166, seq. See also Hamilton, *Metaph.* Vol. I. pp. 338, seq.; Carpenter, *Mental Physiology*, c. xiii.; Mill, *Exam.* c. xv.; James, op. cit. Vol. I. pp. 162—175; Mark Baldwin, op. cit. pp. 45—48; Pierre Janet, *L'Automatisme Psychologique*, pp. 223—304.

Historical Sketch.—Recent psychology dwells much on the "apperceptive" activity of the mind; and Herbart's disciples in pædogogic literature are copious in illustrating the mental processes now designated by that word. As it is connected with the present subject we shall treat it briefly here. **Leibnitz,** who seems to have been the first to employ the term *apperception*, understands by it strong distinct perceptions, as opposed to *petites perceptions*—obscure or *unconscious* impressions. He only means by it *developed self-consciousness* or *reflex cognition*. **Kant,** borrowing the term from Leibnitz, employs it to signify *the innate unifying activity of self-consciousness*, which in his theory of knowledge plays so important a part in combining the chaotic manifold impressions of sense. This self-consciousness he does not conceive like Leibnitz, as emerging with the development of mental life, but as an original endowment, an *a priori* transcendental condition of all rational experience. Apperception with **Herbart** and his followers means the appropriation of fresh presentations or perceptions by groups of similar ideas persisting in the mind from previous experience. Writers of this school have usefully enforced the truth that every cognition leaves a certain vestige or residual effect in the mind, which modifies its future percipient acts. A newly imported elephant, for instance, is apprehended quite differently by a London child, a zoologist, an African hunter, an ivory dealer, and a menagerie proprietor. The powers of vision may be approximately equal in all of these observers, yet the total cognition will be different in each case, because of the different mental habits of each.

This principle was familiar to the scholastics in the well-known axiom, *Unumquodque recipitur secundum modum recipientis;* but they did not consider to what extent the recipient mind may be accidentally modified by experience,—nor how much its percipient powers are enriched with the growth of knowledge from infancy to manhood. Herbart, therefore, notwithstanding his mythological account of "masses of concepts" which apperceive each other, and push each other above or beneath the "surface of consciousness," did useful work for educational theory in emphasizing the influence of pre-existing knowledge in the process of cognition.

Definition.—Psychologists are not at present agreed as to the precise meaning to be allotted to the term. Perhaps amongst the best definitions of the process is that of Karl Lange: "*Apperception is that psychical activity by which individual perceptions, ideas, or idea-complexes are brought into relation to our previous intellectual and emotional life, assimilated with it, and thus raised to greater clearness, activity, and*

significance."[7] Apperception is in fact equivalent to *conscious assimilation* in a wide sense. It includes identification, recognition, classification, understanding, interpretation, and all forms of knowledge in which a new idea or group of ideas is incorporated with an existing group.[8]

Nature of the process.—For instance, on awaking I dimly see a strange object in the middle of my room. In the obscurity it resembles a very big dog with an enormous head. It might be a lion *couchant*, except that there are no wild animals in the neighbourhood. After straining my eyes in vain to discover what it can be, I wearily desist. Suddenly I recollect having last night left my umbrella open in order to dry. I now look again and apprehend the object quite distinctly, though the room is as dark as before. The head and shoulders of the monster are formed by my umbrella; the body is my half-open portmanteau. I have identified, recognized, *apperceived*, the mysterious being. Or to borrow another example cited by Mr. Stout: Robinson Crusoe and his man Friday suddenly perceive a ship off the shore. To the savage it was "only a dark and amorphous blur, a perplexing, frightening mass of details." To the old sailor Crusoe, on the contrary, it is, in spite of his poorer eyesight, "an object." It is a unity; all its parts combine to make a symmetric whole which coalesces with a representation latent in his mind. It fuses with, or is subsumed under a familiar generic notion: it is classified as "Ship." It is

[7] Cf. *Apperception*, p. 41. According to this view, *all perceptions* except the first simple sensations involve *apperception*. The chief distinction lies in the fact that the latter term accentuates the element of assimilation with previous acquisitions. Lange gives a useful historical account of apperception in Part III.

[8] Mr. G. Stout, in his able and interesting chapter on the subject (*Analytic Psychology*, Vol. II. c. vii.), distinguishes *apperception* from mere *assimilation*, as involving attention and a "noetic" or *conscious* appropriation of the new element which is absent from the latter: "Where attention is not present, there is no apperception but mere assimilation, because there is no noetic synthesis. Thus, in automatic actions, the impressions which guide us are all *assimilated*, but not *apperceived*. . . . Unless there is some difficulty to be overcome, mere assimilation and association fulfil the office of apperception. . . . For the most part, the *perceptions* of size, shape, and distance depend on processes of relative suggestion which are independent of *apperception*, except in the earlier stages of mental development." (p. 118.) The distinction is convenient for some purposes, but very difficult to maintain owing to the imperceptible degrees by which cognitive appropriation fades into mere automatic coalescence. If rigidly adhered to, it would exclude from apperception much of what is usually ascribed to that process.

apperceived. Or, on reading a work on Psychology, I find apperception described as *noetic* assimilation, *noetic* incorporation of a new fact. Suppose I have not met this adjective before, I feel puzzled, probably irritated, as the chapter proceeds and sundry possible meanings vaguely suggest themselves to my mind. At last I recur to my Greek and recall that *νοεῖν* signifies *to perceive.* Immediately, the meaning of *noetic* as *percipient, cognitive,* becomes clear. I understand, I *apperceive* it, successfully. Guessing a riddle, solving a problem, harmonizing conflicting evidence, construing an author, are all illustrations of apperceptive activity. In fact, every advance in knowledge in which the new fact is consciously combined with former experience is included under the term.

Apperception and Education.—The chief merit of the Herbartian school is their constant insistence on the methodical or systematic direction of apperception throughout the whole course of education. Each piece of fresh knowledge must be thoroughly, consciously incorporated and assimilated with knowledge already firmly possessed. Mere mechanical memory is to be reduced to a minimum, whilst "cramming," that is, the hurried piling into the mind of disconnected parcels of information which are not properly digested and interwoven with cognitions and ideas already thoroughly comprehended, is to be condemned as most injurious to mental development.

Readings.—Besides the references given, see also on Attention, Balmez, op. cit. Bk. IV. §§ 7—11; Carpenter, op. cit. c. iii.; Ladd *Elements of Physiological Psychology,* pp. 534—543.

CHAPTER XVII.

DEVELOPMENT OF INTELLECTUAL COGNITION: SELF, AND OTHER IMPORTANT IDEAS.

Reflexion and Self-Consciousness.—*Attention* and *reflexion* have been sometimes contrasted as the direction of cognitive energy *outwards* and *inwards*. The two terms may thus be conveniently distinguished for some purposes, but it should be remembered that they really denote, not separate powers, but diverse functions of the same intellectual faculty. Reflexion is nothing else than *attention* to our own states; and this operation constitutes the exercise of self-consciousness. *Self-consciousness* may be defined as *the knowledge which the mind has of its acts as its own.*

Grades of Consciousness. — We can discern different forms which the reference of a state to a Self assumes in the several stages of mental life. In the merely sentient existence of the infant or brute animal, there is no cognition of a *self*. There is only consciousness of sensations, emotions, and impulses. But these states are not apprehended as abstract qualities. They could not be felt as states *without* a subject or states of no subject. Animals are pained or pleased, suffer or are satisfied; and this can only be because the pain or pleasure felt is theirs, and is felt by them. The sentient being is conscious that it is pained; but it does not in

any way distinguish between the pain as a *state* and itself as a *subject* of that state. It feels the state to be its own, yet never formally cognizes it *as its own*.

When, however, we reach the grade of intellectual life we meet with a distinctly new fact. We find an agent which not only is, acts, and feels, but which knows that it is, which is aware that it is the cause of its acts, and which recognizes that its feelings are its own, though not itself. But this final stage of self-knowledge and complete recognition of its own personality is probably not reached by the child until its mind has attained a considerable degree of development.

Growth of the cognition of Self.—The infant at first leads the life of the merely sentient animal. The topography of even its own organism seems to be only gradually ascertained. Throughout the first year the child pinches, bites, and strikes its own body and other objects indifferently. Sometimes it continues these acts whilst crying from the pain.[1] By the end of the first year, however, its organism comes to be pretty sharply distinguished from other objects. As experience extends and the mental faculties ripen, memory comes into play; and although the attitude of the child's mind is still mainly objective, awareness of a Self present in its various states becomes more and more completely awakened into life. The material organism is still the most prominent element in the representation of Self. Indeed, as it is an essential constituent of the human person, the body always remains a chief feature in what we may call the abstract or quasi-objective conception of our personality. It is the centre of all the child's pleasures and pains, the source of all its impulses, and the focus of all impressions. It is, too, the subject and object of all its sensations of double contact, and the one enduring figure ever obvious in the field of vision. When the child, early in the third year, speaks of itself in the third person, it is probable that the bodily self is still uppermost in its thought, although a full self-conscious cognition of its own Ego is often possessed, whilst the use of impersonal language in regard to

[1] Cf. Preyer, *The Development of the Intellect*, pp. 189—206.

itself may be retained, especially when this practice is encouraged.

Still, the child could never come to know that it is a Self *from the outside* by merely elaborating a generalized conception of its body connected with its past history. This may be a preparatory or concomitant process; but the real discovery of every Self must be *from within*—the apprehension of the Ego *by itself* and *in its states*. As the thoughts of pleasures and pains repeated in the past and expected in the future grow more distinct, the dissimilarity between these and the permanent abiding Self comes to be more fully realized. Passing emotions of fear, anger, vanity, pride, or sympathy, accentuate the difference. But most probably it is the dawning sense of power to exert energy or to resist and overcome rising impulse, and the dim nascent consciousness of responsibility, which lead up to the final revelation, until at last, in some reflective act of memory or choice, or in some vague effort to understand the oft-heard "I," the great truth is manifested to him: the child enters, as it were, into possession of his personality, and knows himself as a *Self-conscious Being*. The Ego does not *create* but *discovers* itself. In Jouffroy's felicitous phrase, it "breaks its shell," and finds that it is *a Personal Agent with an existence and individuality of its own*, standing henceforward alone in opposition to the universe.[2]

The developed Mind's consciousness of Itself.—Once arrived at the stage of formal or complete self-consciousness—to which the Scholastics chiefly confined their attention—the mind habitually becomes cognizant of itself *in its acts*. Cognition of self is thus not *innate*, as some have erroneously maintained. Even during mature life, in the absence of all particular psychical operations, there is no apprehension of self. On the other hand, the mind's cognition of its existence is not

[2] J. F. Ferrier insisted with much force upon the leading part the exercise of *free-will* plays in the realization of our personality. (*Introd. to the Philos. of Consciousness*, Pt. V.) The primitive conception of Self must be feeble and obscure, but it grows in strength and distinctness. Jean Paul Richter gives a vivid description of how "the inner revelation, '*I am I*,' like lightning from heaven," flashed upon him. But such infant psychologists are unhappily rare.

of the nature of an *inference* from its activities—to be formulated in Descartes' *Cogito ergo sum.* The true view was clearly and concisely stated by St. Thomas. *The mind apprehends itself and perceives its existence in its own acts.*[3] This perception is of a concrete reality. In becoming conscious of a mental state, I become aware of the Self as the *cause* or *subject* of the state, and of the state as a *modification* of the Self. Such self-conscious activity may appear either as an implicit concomitant awareness of self during a mental process; or it may be the result of a formal reflective act in which the mind deliberately turns back on itself. In the former case the vividness with which the self is presented varies much in different acts. Frequently, when our interest is keenly excited by some external object, or when we are under the influence of certain strong emotions, the notice of Self becomes so faint as practically to disappear, though memory assures us that these acts were *ours.* But there are other mental processes in which we are as certainly cognizant of the *Self* as of the *state.* This is especially the case in *active* operations, whether of thought or of will. In a difficult effort of attention, for instance, I am distinctly aware that the act is *mine*, and that it is freely elicited and sustained by *me.* It is, however, in the deliberately reflective acts of self-consciousness that the cognition of the *Self*, and of the *states* as distinct from the *Self*, becomes especially clear, as is seen in the introspective observation of any mental phenomena.

Still, the knowledge of the mind immediately presented in such internal perception is very limited and imperfect. The mind thus ascertains directly that it *exists*, that it is a unity, that it abides, and that it is different from its states. But it cannot in this way learn *what is its inner constitution*—whether, for instance, it is material or spiritual. Introspection merely furnishes the data by diligent study of which, combined with

[3] "Quantum igitur ad actualem cognitionem qua aliquis considerat se in actu animam habere, sic dico quod anima cognoscitur *per actus suos.* In hoc enim aliquis percipit se animam habere et vivere, et esse, quod percipit se sentire et intelligere et alia hujusmodi vitæ opera exercere." (*De Veritate*, q. 10, a. 8.)

reflexion and reasoning upon the facts supplied by other sciences, we can define and determine the real *nature* of the human soul—the chief problem of Rational Psychology.[4]

Abstract Concept of Self.—After the realization of its personality has been attained in fully developed self-consciousness, we must still carefully distinguish between the mind's immediate *perception* of itself in its operations, and the *abstract quasi-objective notion* of his own *personality* habitually possessed by every human being. The *former* is an act of concrete apprehension, in which I cognize myself as real *cause*, or *subject* of my operations or states. The *abstract notion of my personality*, on the other hand, is a conception of a highly complex character. It is an intellectual abstraction formed out of the concrete perception of self combined with remembered experiences of my past life. It is commonly viewed by me in a quasi-objective manner. It includes the *self*, but accentuates the *states* of self. It gathers into itself the history of my past life—the actions of my childhood, boyhood, youth, and later years. Interwoven with them all is the image of my bodily organism; and clustering around are a fringe of recollections of my dispositions, habits, and character, of my hopes and regrets, of my resolutions and failures, along with a dim consciousness of my position in the minds of other "selves."

Under the form of a representation of this composite sort, bound together by the thread of memory, each of us ordinarily conceives his complete abiding *personality*. This idea is necessarily undergoing constant modification; and it is in

[4] Here again St. Thomas, with his wonted precision, clearly distinguishes the two questions: "Non per essentiam suam, sed per actum suum se cognoscit intellectus noster. Et hoc *dupliciter: Uno* quidem *modo* particulariter, secundum quod Socrates vel Plato percipit se habere animam intellectivam ex hoc, quod percipit se intelligere. Alio modo in universali, secundum quod naturam humanæ mentis ex actu intellectus consideramus. . . . Est autem differentia inter has *duas* cognitiones. Nam ad *primam cognitionem* de mente habendam sufficit ipsa mentis præsentia, quæ est principium actus, ex quo mens percipit seipsam; et ideo dicitur se cognoscere per suam præsentiam. Sed ad *secundam cognitionem* de mente habendam non sufficit ejus præsentia sed requiritur *diligens et subtilis inquisitio*. Unde et multi naturam animæ ignorant; et multi circa naturam animæ erraverunt. Propter quod Augustinus dicit de tali inquisitione mentis: Non velut absentem se quærat mens *cernere*, sed præsentem se curet *discernere*, id est, cognoscere differentiam suam ab aliis rebus, quod est cognoscere *quidditatem* et *naturam suam*." (*Sum.* 1. q. 87. a. 1.)

comparing the present form of the representation with the past, whilst adverting to considerable alterations in my character, bodily appearance, and the like, that I sometimes say: "I am completely changed;" "I am quite another person," though I am, of course, convinced that it is the same "I" who am changed in accidental qualities. It is because this complex notion of my personality is an abstraction from my remembered experiences that a perversion of imagination and a rupture of memory can sometimes induce the so-called "illusions or alterations of personality," —a subject which will be discussed in Rational Psychology.

Unity, Continuity, Discontinuity of Consciousness.—Fully developed self-cognition presents to us in its perfect form what is called the *unity of consciousness*, but which might perhaps be more accurately described as the *consciousness of Self as a unitary being*. This feature of mental life should be carefully distinguished from *continuity of consciousness*, with which it is not necessarily connected. When viewed in retrospect our past conscious life, at first sight, seems to have been one continuous whole without gap or break. And when we examine recent portions of our waking existence, we find that there is a real continuity between successive states. In contrast to the old associationism which dwelt on the "mental chemistry" by which originally separate "impressions" were supposed to be fused together, Dr. James Ward insists much on the truth that consciousness at any given time is a "presentation continuum" of which the parts simultaneous or successive are not separated "as one island is separated from another by the intervening sea, or one note in a melody from the next by an interval of silence."[5] Although the context of consciousness is constantly altering, so much abides the same alongside of the changing element, that there seems to be no break or interruption. Accordingly, consciousness is frequently likened to a *stream*.

We must, however, not be misled by this figurative language into forgetting that *consciousness is not really continuous*. At least once every twenty-four hours there is a chasm—an interval of something "disparate from consciousness." Our mental life, as a whole, is made up of parts separated not merely as the notes, but as the successive tunes of an orchestra by long intervals of silence. It is no more a continuous stream of consciousness than a year is a continuous stream of daylight. Further, even in our conscious life, the most important factor both in its intellectual development and in its moral worth lies not in the *continuity* of

[5] "Psychology," *Encycl. Brit.* p. 45; cf. G. Stout, *Manual of Psychology*, p. 72.

conscious states; but in that real *indivisible unity* which binds the series of processes into an *individual self.* By this *unity of consciousness* we mean the fact that our various mental states, simultaneous and successive, continuous or discrete, present and past, like and unlike, are all apprehended as combined and centred in that one indivisible point which we call Self. Or, from another point of view, we may describe it as that unifying activity of intellect which refers all states to the conscious self. A horse, perhaps even a worm, resembles man in *continuity*, but not in *unity of consciousness.* On the other hand, were man's *conscious* activity broken by a hundred complete gaps each day, provided that the *underlying unity* were preserved, the development of rational life could proceed as at present. It is this *indivisible unity* and not the *continuity* of consciousness which renders possible comparison, judgment, reasoning, and recognition of identity between the present and the past. It is this same unity which gives a *meaning* to expectation. This it does too, as well in the appetitive as in the cognitive sphere of life. My desires, resolutions, hopes, and fears all have to do with a future in which this same indivisible *I* am to be engaged. The continuity or cessation of consciousness during the intervening period is of little concern, but the identity of the present *self*, who is now conscious with the self of the future experience, is felt to be of vital interest. The importance of this distinction between *unity* and *continuity*, and the fact that mental life is not merely a *stream* of consciousness, will become evident when we examine Professor James's theory concerning nature of the mind in Book II.

Genesis of other Ideas.—Besides the idea of Self, there are certain other conceptions of such philosophical importance that at least a brief treatment of their genesis is desirable here. The chief and the most disputed of those not already dealt with are the notions of Substance and Accident, Causality, the Infinite, Space and Time. We shall have to recur to the cognition of Substance in Book II., but the nature of our knowledge of Time, so much discussed at the present day, we must examine at some length in the present chapter. For an adequate defence of the trustworthiness of all these notions, we must refer the reader to the volume on Metaphysics belonging to the present series. The questions of *genesis* and *validity*, though intimately connected, should here as elsewhere

be carefully distinguished. The former more properly pertain to Empirical Psychology, the latter to Epistemology, Metaphysics, or Rational Psychology.

Substance and Accident.—*Substance* is defined as *being which exists per se*, or, *that which subsists in itself*, whilst *Accident* is *that which exists in another being, as in a subject of inhesion.* The most fundamental element, therefore, in the notion of substance is *subsistence*, though it is the fact of *change* with the accompanying *permanence amid variation* that stimulates the mind to distinguish between substance and accidents. Both correlative ideas are the product of intellectual experience. Even very early in life I observe things around me subsisting in themselves, and I am conscious that I possess real independent existence. Further examination causes me to notice greater or lesser changes taking place both in external objects and in myself. As I begin to reflect, however, I become assured that this change is not annihilation, and that some constituent element must remain the same amid the variations. Internal consciousness manifests to me my own substantial sameness amid my transient mental states, and reflexion on the evidence afforded by my external senses enables me to perceive the necessity of such an enduring identity underlying the transitory qualities of material objects. The reflexion required is not of a very deliberate or laborious character. It is a spontaneous activity of the rational mind. The shape and temperature of the piece of wax in the child's hands, the position and colour of objects before his eyes vary from moment to moment, but the substantiality of the object reveals itself to his intellect. Although the ideas of accident and substance were first wrought out very slowly, in mature life the apprehension of a necessarily enduring element amid the fluctuating phenomena is so easy and rapid, that it may fairly be described as an *intellectual intuition.*

Causality.—The notion of *causality* is connected with that of substance, and can be attained only by rational free beings. Sensuous perception acquaints us with successive phenomena, but from this source alone we could not derive the idea of *causation* any more than that of *substantiality.* On the other hand, this concept is not an innate cognition, nor a subjective form of the mind. It is the result of intellectual experience, and it possesses real extra-mental validity. We may distinguish several elements or factors which normally co-operate in the formation of this idea.

(1) In our internal experience we are conscious of change among our mental states. In some cases of variation the

order of succession seems casual; or we at least are unaware of the force which determines the course of our thoughts. In others we are conscious that *we ourselves* control and direct the current. We fix our attention on particular feelings, we combine or separate thoughts, we form complex ideas, judgments, and reasonings. In all these processes we apprehend ourselves as *efficient agents*, and we immediately cognize the results as products of our *personal energy*. Causality is thus concretely presented to the mind in the most intimate manner in each individual deliberate act.

(2) This experience alone would be sufficient to originate the conception of causation, but other factors assist in its elaboration. Combined internal and external observation is constantly revealing to us the fact that we control not only our *thoughts* but our *movements*, that our volitions liberate, direct, and sustain the outflow of physical energy—that when we *will* to move our limbs they are moved in proportion to the degree and quality of the volitional effort. (3) Our senses make known to us the action of material objects upon us. We feel the latter as foreign and active, ourselves as passive and recipient. Sensations of pressure and resistance, in a special manner conduce to make us aware of force or energy —notions essentially involving the idea of causal efficiency. (4) Finally, we observe changes perpetually taking place in the world around us: we notice frequent transitions from not-being to being of various kinds. As our powers of reflexion develop the intellect grows to apprehend more and more clearly that there must be a *sufficient reason* for the rise of these new modes of being. Repeated observation assures us that this reason of the origin of particular forms of reality must lie in particular antecedents which have been always followed by these results, and then the intellect cognizes the changes *as the effects* of the *agency* of these antecedents. But it should be remembered that our notion of causality rests ultimately, not on the perception of the uniformity of changes in the external world, but on our own subjective consciousness of self-activity and our constant immediate experience that the mind exerts *real influence* on bodily movement. For the reader will find later that many modern philosophers, in the name of this very notion and law of causation, actually deny to the mind any causal influence whatever over bodily movement, maintaining that only material agents can move matter.[6]

Sensuous perception could never afford the notion of anything more than *succession*, which is radically distinct

[6] Cf. Balmez, op. cit. Bk. X. §§ 50—53.

from that of causality, efficiency, productiveness, or whatever we like to call it. When an *effort* of attention combines two ideas, when one billiard ball moves another, when a steam hammer flattens out a lump of solid iron, when a blow on the head knocks a man down, in all these cases there is something more than, and essentially different from, the mere *sequence* of two phenomena: there is *effective force—causal action* of an agent endowed with *real energy*. But our conception of the reciprocal causal action which obtains between external beings is analogical, being derived in the last resort from our immediate cognition of our own causality.[7]

The Infinite.—The idea of the *Infinite* is the idea of the *plenitude of all being*, of a Being who contains all perfections without limit. This notion is in part positive, in part negative; and, as a matter of experience, it is conceived by us. From both internal and external observation we can form the concept of a *limit;* and then of limitation in general. We can also form the idea of *negation;* the recognition of the principle of contradiction, the apprehension of the distinction between being and non-being involves this conception. Taking now the ideas of *being*, of *negation*, and of *limit*, we can combine them so as to form the complex conception, *being without limit*, that is, *infinite being*. The operation is, therefore, effected by the intellectual activity of reflexion and abstraction. The natural process will, however, be better seen by taking a single attribute, for instance, that of power. We are immediately conscious of effort put forth, and of power exercised by ourselves. We can conceive this power vastly increased, its boundaries pushed farther and farther back. We can imagine an agent capable of whirling round the earth or the solar system, just as we can swing a piece of string round our finger; yet we are fully aware that the power of such an agent may be as rigidly limited as our own. But we are not compelled to stop here; we may think "greater than that, and greater than that, and greater *without any limits or boundaries at all.*" Here we have the proper notion, faint and inadequate, but still truly representing infinite energy.

[7] Kant teaches, in harmony with the spirit of the rest of his system, that *causality* and *substantiality* are *a priori categories* of the understanding,—innate moulds or conditions which regulate our thinking, but have no validity as applied to things-in-themselves. Hume and his followers have sought to explain both ideas as products of "custom" or association. If consistently followed out, the Kantian and Sensist doctrines alike lead to absolute scepticism. The real validity of the three notions, *causality*, *substance*, and *personal identity*, must stand or fall together; and if the last is an illusion, there can be no truth attainable by the mind of man.

We can similarly form the notion of infinite intelligence, holiness, and the rest; and then combining these we can conceive an omnipotent, infinitely intelligent, all-holy Being. We have now reached as perfect a conception of God as is possible to the finite mind. It is absurd to describe this as a purely negative notion. We ascribe to the Reality which we seek to realize to ourselves, every perfection we can conceive in the intensest form or degree we can imagine, and then we say: *All that and more without any limit.* Such a conception wants clearness and distinctness, but it most certainly is not purely negative. The thought of an attribute being increased beyond the range of our fancy without any limit assuredly does not thereby annihilate the positive content of the idea already represented to ourselves.

The Idea of Space.—We have already more than once touched on our cognition of Space, so that but little additional treatment is necessary here. We have established the fact of an immediate or intuitive perception of *surface* extension through at least two of the senses—*sight* and *touch*. We have also shown the part played by *motor sensations* in experiences of *solidity*, or the third dimension of bodies; and finally, we traced the growth and development of our knowledge of the material world. But the abstract *conception* of Space is not the same thing as the *perception* of an extended object, or a particular part of Space. It is an abstraction founded on such individual acts, but rising above them; and the same active supra-sensuous power by which the ideas of whiteness, truth, the infinite, &c., are formed, operates in the present case. The mind observing a material object prescinds from its other qualities, and thinks only of the *co-existence of its parts outside of each other:* this is the notion of *extension* in the abstract. Of course, however, as in the case of the ideas of *whiteness* or *being*, long before the mind has elaborated this reflex abstract notion, it has directly apprehended objects *as extended*. Still, even the abstract notion of *extension* is not strictly identical with that of *Space*. The extension of a body is a property which belongs to the individual body itself, and moves about with it, just as its other qualities. Space, on the contrary, we look upon as something fixed,—that in which bodies are contained, and through which they move. The space of any particular object is the interval or voluminal distance lying between its bounding superficies. Now, the human mind having once cognized the trinal dimensions of material bodies, and observed their motions, inevitably passes to the conception of the successive intervals or *spaces* which they occupy; it distinguishes between the extended thing and the *room* which the thing fills. Apprehending these separate

parts of space as immediately juxtaposed, it conceives the *continuity* and the consequent *oneness* of space. Further reflexion enables us to think of lines produced in all directions beyond the boundaries of the existing universe, and we thus reach the concept of *ideal* or *possible* space. Noting that there is no limit to the possible production of such lines, we conceive possible space as *infinite;* not, however, as a positive existence or reality, but as an inexhaustible potentiality. The interval filled up by the entire physical universe is termed, in opposition to the imaginary region beyond, *actual* or *real* space.

Cognition of Time.—Whilst ancient materialistic philosophers conceived *Time* as an objective real entity, a substantial receptacle in which all events happen, Kant makes it an *a priori* or innate form of internal sensibility, a purely subjective condition of all human experience which possesses no extra mental validity. The true view is that Time is neither a real independent being nor an innate form of consciousness preceding all experience, but an idea which is a genuine product of intellectual activity. It is like other universal conceptions, an abstraction derived from concrete cognitions of change, a generalization which has a real foundation in the real changes going on in the world, but is completed by the intellect.[8]

Still the psychological explanation of this notion is attended with peculiar difficulties. All time is made up of past, present, and future; but the past is for ever extinct, and the future is non-existent, whilst the present consists of one indivisible *Now*—a single instant that perishes as soon as it is born. Again, since time, unlike space, is presented to us, not by one or other faculty, but as an integral part of all our experiences, both internal and external, it is not easy to isolate this cognition and trace it to its sources. Time has been defined as "successive duration," and though

[8] Cf. St. Thomas: "Quædam sunt quæ habent fundamentum in re, extra animam, sed complementum rationis eorum, quantum ad id quod est formale, est per operationem animæ ut patet in *universali*. . . . Et similiter est de *tempore*, quod habet fundamentum in *motu*, scilicet prius et posterius; sed quantum ad id quod est formale in tempore, scilicet *numeratio* completur per operationem intellectus numerantis." (In I. *Sent.* Dist. 19, q. 5, a. 1.)

faulty in some respects, this definition accentuates two elements involved in the notion, *change* or *successive movement*, and *persevering existence*.

Development of the Notion.—The conscious life of the infant is hardly more than a succession of changing states. There is little looking forward or backward. The child is absorbed in each experience as it occurs, vague and obscure though these experiences are. Here we have a *succession of conscious states*, but not the notion of *time*. We have *a series of ideas*, but not an *idea of a series*. As memory grows stronger and the powers of observation and comparison develop, the child begins to notice that certain experiences *recur* in certain conditions; particular sights, sounds, gustatory and tactual feelings are repeated under similar circumstances, and the judgment is elicited that the objects which cause these conscious states *endure*, that they persevere in existence when unobserved. The child at the same time begins to be consciously aware of its own abiding identity and thus attains the idea of *sameness*, and of persistent existence. To a being unaware of its own continued identity the conception of time would be impossible.

The perception of variation united with sameness is not, however, the whole of the cognition of Time. For this the mind must be able to combine in thought two different movements or pulsations of consciousness, so as to represent an interval between them. It must hold together two *nows*, conceiving them, in succession, yet uniting them through that intellectual synthetic activity by which we *enumerate* a collection of objects—a process or act which carries concomitantly the consciousness of its own continuous unity. The conception of two such points, with the intervening duration, gives us the unit of time; and in proportion as an interval is broken up into periods of this kind by transitions of consciousness, the representation of the time occupied expands. The transitions of consciousness are not, however, *discrete* or detached events. Nor is the course of mental life during waking hours that of a continuous even-flowing river, but rather an eddying undulating current with waves varying in depth and force. We are thus led back to Aristotle's celebrated definition of time as "the *number* of movement estimated according to its *before* and *after*."

The infant is probably first stimulated to this intellectual operation by the regular recurrence of certain agreeable experiences such as its food, the presence of its nurse, or the use of its toys. Thus a certain series of incidents, A B C D ending in X (the satisfaction of some desire), has happened

repeatedly in the past. As memory acquires strength, the recurrence of A B, the first steps of the process, re-awakens in a faint degree the recollections of C and D; and much more vividly the interesting event X. There is thus impressed upon the child's mind along with the consciousness of the present *Now*, the representation of a subsequent *Now*, the future enjoyment, together with a simultaneous notice of interjacent events which force upon it the intervening duration. The period is then measured by a subconscious or implicit enumeration of the interposing incidents, and the notion is complete.[9]

Subjective and Objective Time.—The child first measures time by the number and variety of its own conscious states; but the estimate is of the vaguest and feeblest kind. Looking drowsily backward and forward to a particular incident, it *feels* the interval to be longer or shorter as it is dimly aware of more or fewer intervening possible experiences. The irregular character and varying duration of conscious states, however, soon bring home to us the unfitness of these subjective phenomena to serve as a standard measure of time. There is indeed a certain rhythm in many of the processes of our

[9] The above analysis coincides, we believe, with Aristotle's doctrine which is thus developed by St. Thomas: "Manifestum est, quod tunc esse tempus determinamus, cum accipimus in motu *aliud* et *aliud*, et accipimus aliquid *medium* inter ea. Cum enim intelligimus extrema diversa alicujus medii, et anima dicat, illa esse *duo nunc*, hoc prius, illud posterius in motu, tunc hoc dicimus esse tempus. . . . Quando sentimus *unum nunc*, et non discernimus in motu *prius* et *posterius*, non videtur fieri tempus, quia neque est motus; sed cum accipimus prius et posterius et numeramus ea, tunc dicimus fieri tempus, quia tempus nihil aliud est quam *numerus motus secundum prius et posterius:* tempus enim percipimus, ut dictum est cum *numeramus* prius et posterius in motu." (*Comm. Physic.* Lib. IV. lect. 17.) By "movement" Aristotle, as well as St. Thomas, understands *all* forms of change, whether subjective or objective—not merely external sensible movement as many modern writers imagine. St. Thomas makes the point quite clear, as well as the error of supposing that we can immediately apprehend a "pure empty time:" "Contingit enim quandoque quod percipimus fluxum temporis, quamvis nullum motum particularem sensibilem sentiamus; utpote si simus in tenebris, et sic visu non sentimus motum alicujus corporis exterioris, et, si nos non patiamur aliquam alterationem in corporibus nostris ab aliquo exteriori agente, *nullum motum corporis* sentiemus; et tamen si fiat aliquis *motus in anima nostra*, puta secundum *successionem cogitationum* et *imaginationum*, subito videtur nobis quod fiat aliquod tempus; et sic percipiendo quemcumqum motum percipimus tempus; et similiter e contra, cum percipimus tempus *simul percipimus motum.*" (*Ibid.*)

organic life, such as respiration, circulation, and the recurrent needs of food and sleep, which probably contribute much to our power of estimating duration; but the natural objective tendency of our minds, as well as our early perception of the regularity of certain changes in the external universe soon suggests to us a more easily observable objective scale of measurement. Accordingly, the relatively uniform movements of the heavenly bodies and the orderly changes of day and night, of tides and of seasons, have come to constitute the universal chronometer of the human race, and in the popular mind to be identified with time itself.

Relativity of our appreciation of Time.—A period with plenty of varied incident, such as a fortnight's travel, passes rapidly *at the time*. Whilst we are interested in each successive experience, we have little spare attention to notice the duration of the series. There is almost complete lapse of the "enumerating" activity. But *in retrospect* such a period expands, because it is estimated by the number and variety of the impressions which it presents to recollection. On the other hand, a dull, monotonous, or unattractive occupation, which leaves much of our mental energy free to advert to its duration, is over-estimated whilst taking place. A couple of hours spent impatiently waiting for a train, a few days in idleness on board ship, a week confined to one's room, are often declared to constitute an "age." But when they are past such periods, being empty of incident, shrink up into very small dimensions, unless their duration be over-estimated on account of their accidental importance, or for some other reason. An occurrence on which a weighty issue hangs seems to move slowly on account of the microscopic attention devoted to each successive moment of the event. In retrospect its gravity leads us to over-estimate the time required for its accomplishment, and causes it to divide us by a seemingly wide chasm from our previous life. Long periods are under-estimated; indeed our conception of a number of years is purely symbolical. Very short periods—fractions of a second—are generally over-estimated. Similarly, recent intervals are exaggerated compared with equal periods more remote. Whilst, as we grow older and new experiences become fewer and less impressive, each year at its close seems shorter than its predecessor.

Localization in Time.—Memory, or the knowledge that a present mental state represents an experience which really happened to us in the past, is an *ultimate fact* incapable of explanation. But the process by which we refer the experience to a particular section of our past history is open to at least partial analysis. The chief factors in the operation

seem to be the following: (1) Finding that the memory of an impression *wanes with time*, we tend to refer the more obscure of two representations to the more distant date. Though an element in the calculation, this, by itself, is obviously an unsafe criterion. (2) The original *order* of the movement of attention in any mental process leaves a disposition towards its own reproduction, as, for instance, in repeating the alphabet. Thus, there is a peculiar feeling attached to the utterance of Y due to its formerly following X and preceding *Z* in consciousness; and this at least assists us in locating that letter between the other two.[10] This peculiar quality of consciousness belonging to any mental state through its having succeeded some particular state and preceded another constitutes in fact a local "colouring" or sign, by virtue of which its relative situation in the time-series of our past life may be determined. The fact that the mind tends to reproduce events in their original serial order is indisputable, and helps to explain—if *explanation* it can be called—how we recognize which was prior of two reproduced events that originally occurred in immediate succession. But the question remains, How do we determine priority between two utterly disconnected past experiences such as a toothache and a particular interview? (3) The answer given to this is that we ascertain the time-relations of minor incidents by consciously connecting them through *contiguous association with more important events* which have themselves been associated with public dates. Thus, I recollect that the toothache experience, though more vividly remembered than the interview, occurred when I was staying with certain people in the year 1890; whilst the interview took place during a visit to London in 1897, the year of the Queen's Jubilee.

Expectation illustrates the same principles. For instance, the mind having experienced the series of incidents A B C D, on the recurrence of any one of them tends to revive in imagination its successors, and the mere vivacity of the images tends to generate an anticipation of their realization. Apart from any reasoning process there can be awakened in the imagination a state of sensuous expectancy in the human being as well as in the lower animals by the preliminary stages of some familiar operation. But besides this species of sensuous presentiment originating in previous association, we are capable of a higher form of intellectual belief in future events, which springs from inductions based on conscious recognition of the *uniformity of nature* and the *principle of causality*. This constitutes expectation in its most proper sense.

[10] See Dr. Ward, "Psychology," *Encycl. Brit.* p. 66.

It involves memory, the notion of time, and inference from cause to effect. In addition to its reference to the future, expectation differs from memory by its *active* and *emotional* character. The real interest of our lives lies in the experiences which are *to come*, not in those which are *gone*. Consequently, there is, especially in the keener forms of this state, a stretching out of the mind towards the things that are before, an eagerness to ascertain what is about to happen which takes the form of *hope* in regard to what is in conformity with desire, and *fear* or *anxiety* with respect to what is against our wishes. Both emotions, by intensifying the vivacity of the imagination, augment the force of belief, and so we are inclined to over-estimate the probability of events which we like or dislike much.

Readings.—On Reflexion and Self-Consciousness, St. Thomas, *Sum.* 1. q. 87, also *De Veritate*, q. 10, a. 8, 9; Kleutgen, op. cit. §§ 102—120; Balmez, op. cit. Bk. IX. cc. vii. viii.; Ladd, *Philosophy of Mind*, pp. 105—112; Mivart, *On Truth*, c. ii.; Piat, *La Personne humaine*, c. i. On the Idea of Substance, cf. John Rickaby, *Metaphysics*, Bk. II. c. i.; Balmez, op. cit. Bk. IX. cc. i. iii. vii.; Stöckl's *Lehrbuch*, § 31. On Causality, Rickaby, op. cit. pp. 304, seq.; Kleutgen, §§ 300—303; Balmez, Bk. X. cc. iv. v. viii. xi. xii. xvi.; Stöckl, op. cit. § 45. On the Idea of the Infinite, Rickaby, Bk. I. c. vi.; Kleutgen, op. cit. Pt. V. cc. ii. iii.—especially §§ 412—419; Balmez, Bk. VIII. cc. iii. iv. vi. viii. and xv.; Stöckl, § 27. On Space and Time, Rickaby, op. cit. Bk. II. c. iv.; Kleutgen, §§ 342—369.

CHAPTER XVIII.

RATIONAL APPETENCY.

Rational Appetency.—We have sketched the chief manifestations of Appetency or Conation exhibited in the lower forms of life (c. x.), and we there distinguished various kinds of action as automatic, reflex, impulsive, and instinctive. We shall now resume our treatment of this activity as exercised in its higher grades. Amongst the most important of these is Desire. This term is not confined exclusively to inclinations of the super-sensuous order, for many yearnings aroused by the imagination of sensuous pleasures are so called.

Desire defined and analyzed.—Desire may be defined as *a mental state of longing or want aroused by the representation of some absent good*. It is a form of consciousness superior to and more refined than that of *appetite* in the modern sense. Unlike the latter, it is not a blind organic craving limited to a single mode and definite range of activity. In common with appetite, it involves a species of discontent and longing, but its object is the representation of some *known* good. The newly-born infant is the subject of appetites and of reflex or instinctive movements; but it is incapable of forming a *desire*. The first step in the development of the power of desire is the awakening of the cognition. Some sense is excited by its appropriate stimulus, and the resulting experience is felt to be *agreeable*. A bright colour

attracts the child's eye, its food tastes sweet, some reflex or instinctive movement affords relief or satisfaction; in a word, an experience is felt as *good*—as in harmony with the agent's nature or some part of it—and there is immediately evoked a tendency to prolong that experience, or to secure a fuller possession of the object. Should anything re-awaken the *idea* of such an experience, there will be excited a tendency to realize again the agreeable activity, and to reproduce the movements by which it was previously obtained. Here we have the fully developed state.

Analysis of Desire thus understood reveals to us three elements: (1) the representation of some object or experience not actually enjoyed, (2) the appreciation of this object or experience as *good*, and (3) a resulting tension or feeling of attraction towards the agreeable object. The two former elements are rather the *conditions*, the last the *essence*, of desire. Desire regards the future, and so aims at the realization of the ideal. In proportion as our acquaintance with various kinds of goods extends, so the field of desire widens and longings multiply. Whilst the physical appetites have their birth in *sensation*, and are satiated, at least for the time, by a definite quantity of appropriate exercise, desire emerging from the activity of the *imagination* is practically of indefinite range; and in a rational creature who can conceive boundless good it is incapable of being fully satisfied by any finite object.

Is Pleasure the only object of Desire?—It has been much discussed in recent years whether all forms of appetency are only towards pleasure and from pain. Mill, Dr. Bain, and sensationists generally, maintain the affirmative. "Desiring a thing and finding it pleasant, aversion to it, and thinking of it as painful, are phenomena entirely inseparable, or rather two parts of the same phenomenon; in strictness of language two different modes of naming the same psychological fact—to think of an object as desirable (unless for the sake of its consequences), and to think of it as pleasant *are one and the same thing;* and to desire anything except in proportion as the idea of it is pleasant is a *physical and metaphysical impossibility*."[1] Seemingly unselfish impulses are merely the effect

[1] Mill, *Utilitarianism*, p. 57.

of association. Virtue, like money, originally desired solely as a means to happiness, is later on pursued as an end in itself. This doctrine has been effectively refuted by numerous philosophers from Butler to Drs. Martineau and Sidgwick: (1) Appetites proper are cravings whose primary object is the exercise of an activity, not the pleasure thence proceeding—*e.g.*, the formal object of hunger is food, not the subjective delight of eating; though of course by a reflex act this pleasure may be made an end. (2) Many desires proper are primarily *extra-regarding*, and not aiming at the agent's own pleasure—*e.g.*, the parental and social affections, sympathy, compassion, gratitude, wonder, the desire of knowledge, and the mental activities of pursuit. (3) The aim of rational volition is certainly not *always* pleasure. We can choose right for its own sake against the maximum pleasure. The formal object of appetite is the *good*, not solely the *pleasant*; it includes *bonum honestum* as well as *bonum delectabile*. We may further urge (*a*) the *hedonistic paradox*, viz., that the deliberate pursuit of pleasure—the only rational end of egoistic ethics—is suicidal. Thus, the pleasures attached to benevolence, self-sacrifice, pursuit of knowledge, field sports, &c., are annihilated if consciously set as the end of our act. (*b*) The assertion that all these now apparently disinterested impulses are originally the creation of pleasant associations is an appeal from consciousness to ignorance, and is by the nature of the case incapable of proof. (*c*) The most careful observation of children confirms the view that they are subjects of many extra-regarding impulses.[2]

Motive.—With the multiplication of longings there inevitably arises *conflict of desires*. The attainment of an immediate gratification may clash with more remote good, or duty with interest. The various objects which thus excite desire are called *motives*. They include whatever *moves* or *influences* in any degree the Will. The apprehension of any object as desirable, whether it be ultimately preferred or not, thus constitutes a *motive*.

[2] On this subject see Sidgwick, *Methods of Ethics*, Bk. I. c. iv.; Martineau, *Types of Ethical Theory*, Pt. II. Bk. I. c. v. and Bk. II. c. i. § 3; James, op. cit. Vol. II. pp. 549, seq.; Mark Baldwin, *Handbook of Psychology*, Vol. II. pp. 325, seq.

St. Thomas, insisting on the notion of *good* (*conveniens naturæ*) as wider and more ultimate than that of *pleasure*, considered and rejected in advance the sensationist doctrine; commenting on Aristotle, he urges that *activity* (*operatio*) is prior as an object of appetency to *pleasure*, which is a consequence of the former. Thus: "Non enim fit *delectatio* sine *operatione* neque rursus potest esse

Strictly speaking, the motive is not the physical being possessed of objective existence, but this being *as apprehended by the mind*, and represented as under some aspect *desirable*. The force of a motive consequently fluctuates, depending on the vividness with which it is realized in consciousness. Its attractiveness will depend partly on the quality of the object itself, partly on the general character of the man; but also more immediately on the extent to which he permits or causes it to absorb his attention at the time.

Spontaneous Action and Deliberation.—By far the greater part of man's daily actions are determined by his habits or usual modes of thought and volition. Unreflective activity, thus issuing forth as the resultant of character and present motives, may be termed *spontaneous*. Most of human conduct is accordingly the outcome of the spontaneous tendency of the will. The great majority of our actions are *in themselves* morally indifferent; and even were a man consciously to analyze his motives, he would find no sufficient reason for interfering with the normal direction of his inclination formed by habitual action. Many of these acts, moreover, escape consciousness altogether, as, for instance, the separate movements in the operations of dressing, eating, or walking; but even in regard to those of the performance of which man is aware, he is said to give a *virtual* or *implicit* consent, rather than formally to *will* their execution. If any of these actions have a moral aspect, he is chiefly responsible for them *indirectly*, in so far as they are voluntary *in causa*—that is, in so far as he implicitly intended or accepted them as effects or as part of an entire operation freely initiated by him.

Occasions, however, occur when opposing motives present themselves, and the agent has to exert more explicit volition. Some fresh consideration, running

perfecta operatio sine delectatione. Videtur autem *principalius* esse *operatio* quam *delectatio*. Nam delectatio est quies appetitus in re delectante qua quis per operationem potitur. Non autem aliquis appetit quietem in aliquo, nisi in quantum æstimat (id) sibi conveniens. Et ideo *ipsa operatio*, quæ delectat, sicut quoddam conveniens, videtur per prius appetibilis quam *delectatio*." (*Com. in Ethica*, Lib. X. l. 6.)

counter to the natural tendency of his disposition, emerges into distinct consciousness. The new motive may be the clearer perception of some moral obligation, of some enduring worldly advantage, or of the opportunity for proximate pleasure. When in such circumstances the agent adverts to the possibility of more than one course of action, there arises *deliberation;* and the course adopted is said to be *deliberately chosen.* The word *deliberation* signifies a weighing or balancing. The process implies *active consideration* of competing motives. It is no longer a mere struggle of impulses. The agent holds the alternatives together and compares them. He dwells on each in *succession*, yet in some degree retains both *simultaneously* before consciousness. The operation thus involves the *unity of consciousness* possible only to a rational Self. But we must not suppose that a protracted pondering of motives is a necessary condition of *every* deliberate act. Two alternatives may be consciously realized and one adopted in a moment. If I advert to the moral quality of an impulse or an action, and then acquiesce in its continuance, I thereby make it *my own.* It is henceforth deliberately or fully *consented to*, and I am *responsible* for it.

Choice or Decision.—The acceptance of some suggested course or its rejection constitutes the act of *choice.* For this exercise of choice there must be the self-conscious reflective cognizance of at least two possible alternatives, though one may be mere abstinence from action. There is then a free practical judgment by the intellect: "*This is to be preferred;*" and I embrace one side, or *identify myself with it.* I adopt it, acquiesce in it, *choose* it. There is a *fiat* or a *veto*, and one side is *elected.*

Types of Election.—Different forms assumed by the act of choice have been distinguished by psychologists as *types of election* or *decision.*[3] When the agent, after deliberately weighing the various reasons, finds a clear balance on one side, and then freely decides in favour of this, we have what has been called the type of "*reasonable* decision." At other

[3] Professor James gives an able and interesting analysis of some of these types. (Op. cit. Vol. II. pp. 531—534.)

times, becoming impatient of suspense, we seek relief in the adoption of one or other course in a somewhat reckless manner. Here we have the *impetuous* decision.

Again, on other occasions the spontaneous bent of our will—our present inclination as the resultant of our character and actual motives—tends in a certain direction. Though perhaps not in harmony either with our moral ideal or our general interests, this way of acting offers itself as here and now the pleasantest. It is for us *the line of least resistance.* After some hesitation we consent or allow our will to issue into the open channel. Our attitude is passive and permissive rather than active and selective. This is an example of *acquiescent decision.*

Finally, there are certain acts of choice, elicited at least occasionally by all men, but far more frequently in the experience of those who are striving after a higher moral or religious life, in which we set ourselves in opposition to the *spontaneous impulse* of the will. There is a distinct *feeling of volitional effort*, an unpleasant struggle against what is apprehended as the more agreeable suggestion. Some imagined self-indulgence, or some angry or envious thought, emerges into consciousness, and a *painful and prolonged endeavour* is needed to expel or suppress it. In cases like these, whilst keenly aware of the greater intensity of the attractions on one side, and whilst absolutely certain that the easiest course would be to yield to the enticement, we often set ourselves to embrace the less pleasant alternative. The general character of an act of choice of this kind—the sense of effort, the consciousness of painful struggle, and the final adoption of the less agreeable course—distinguishes it from the previously mentioned types of decision.[4] Each of the other varieties of choice reveals to us our moral liberty, for even in the acquiescent decision consciousness assures us that we freely ratify or consent to the stronger impulse, but these experiences of struggle against preponderating attraction bring it home to us in an exceptionally vivid manner. This type may be called *anti-impulsive* decision.[5]

[4] "The slow dead heave of the will that is felt in these instances makes of them a class altogether different subjectively from all the preceding classes. . . . Here both alternatives are steadily held in view, and in the act of murdering the vanquished possibility the chooser realizes how much in that instant he is making himself lose. It is deliberately driving a thorn into one's own flesh." (James, *ibid.* p. 534.)

[5] The proof of free-will based on this experience of "anti-impulsive effort," or of action against "the spontaneous impulse of the will," is admirably treated in W. G. Ward's *Philosophy of Theism*, Essays IX.—XI.

Volition and Desire.—The processes of deliberation and choice exemplify free or self-determined *volition* in the strictest sense. This word is sometimes employed to denote any act of the rational will, whether spontaneous or reflective. Using it in the strict sense it implies: (1) the conception of some object or end as good or desirable, (2) advertence to the possibility of alternative courses of action with respect to it, (3) a judicial act of preference, and (4) the consequent *active* tendency or inclination of myself to that side. Volition is thus to be clearly distinguished from mere *desire*. The latter state is necessarily awakened by the representation of a possible gratification, but the volition is originated by the mind itself, and remains within its control. In spite of feeling drawn towards a desired object we can say, *No*. In the will's ratification or rejection of desire our moral freedom is manifested.[6]

Various Forms of Conative Activity distinguished.—Now that we have analyzed the chief forms of conative activity, it may be convenient here to call the student's attention to the differences by which some of the more important of them are distinguished. *Instinct* is described as *unconsciously purposive*, impulse aimed towards an end not realized in consciousness. *Impulse* is a state of feeling tending to issue into *any* action: a striving towards any end or satisfaction obscurely felt. Dr. Bain's definition of *voluntary action* as "feeling-prompted movement" coincides with *impulsive*, but not with strictly *free* action. *Desire* is a felt tension towards an end distinctly realized in consciousness, a yearning, a mental state of uneasiness awakened by the representation of an absent *known* good. *Motive* is whatever attracts the will, the apprehension of a desirable end, an agreeable consequence of my action viewed as *moving* me. *Intention* etymologically signifies *the act of tending towards something*, and is commonly described

[6] Henri Marion makes out an elaborate distinction between Will and Desire, which, if not conclusive, is at least suggestive. These are the headings: "Le *désir* est une double émotion; la *volonté* est froide. (2) Le désir est troublé et agité; la volonté est calme. (3) Le désir est *fatal;* la volonté est *libre*. (4) Le désir est souvent vague, parfois inconscient, la volonté est précise, determinée. (5) Le désir a pour objet des choses extérieures; la volonté ne porte que sur ce que dépend de nous. (6) Il y a des degrés dans le désir; la volonté est une." (*Leçons de Psychologie appliquée à l'Education*, pp. 92—95.)

by the schoolmen as *the tendency of the Will towards some end through some means*. It is thus opposed to *choice*, which refers to the selection of intermediate means. If we wish to bring out the distinction between *Intention* and *Motive*, perhaps our best definition of the former will be: the Will's *conscious acceptance of* or *consent to* a contemplated action or total series of actions. The *Motive* is a *represented good* viewed as *attracting* me; the *Intention* is the Will's *act of embracing* a represented future good. The *intention* is always *free*, while the *desire* or *craving* is not, unless consented to or ratified.[7] *Purpose* or *resolution* is a *deliberately* formed intention with regard to a future series of acts or a remote end. A *wish* is the conception of an end as good, but without effort or intention towards its realization.

Self-control.—The exercise of choice when the agent makes an effort to resist the spontaneous tendency of emotion or passion is an example of *Self-control*, on the due cultivation of which depends in the highest degree the happiness and well-being of each of us. Under *Self-control* psychologists usually include the power of restraining and directing thoughts, feelings,

[7] Regnon's acute metaphysical analysis is so appropriate here that I quote it at length: "La vie de la volonté présente deux caractères. Elle *reçoit une influence* supérieure . . . et mise en acte par cette influence qu'on appelle une motion, elle *exerce l'activité* qui est le propre de sa nature. A ces deux caractères de passivité et d'activité correspondent le *motif* et l'*intention*. *L'intention* est un acte par lequel la volonté pose un terme, c'est-à-dire décide l'existence d'un effet, et j'ai prouvé que l'intention *ne modifie* en rien son principe et sa source. . . . Quant au *motif*, si on le considère, non dans son objet qui est un bien à acquérir, non dans l'intelligence où il est la bonté perçue, mais dans la volonté qui est proprement son siège, le motif est une influence qui *incline* physiquement la volonté, ou mieux, la *pousse* vers un bien, de telle sort que la volonté est dans deux états physiques différents, lorsqu' elle subit ou lorsqu' élle ne subit pas l'éxcitation du *motif*. Ainsi le *motif* meut la faculté qu'il atteint; *l'intention* pose un terme dont elle décide l'existence. Le *motif* est *subi* par la volonté en tant qu'elle est un *patient*; l'*intention* est l'*acte* de la volonté en tant qu'elle est un *agent*. Le propre du patient est d'être déterminé par autrui, le propre de l'agent est de déterminer autrui. D'où la conclusion suivante: La volonté est modifiée d'une manière 'déterminée' par le *motif*; mais la volonté 'détermine' elle-même le terme de son *intention*; et cette distinction, ce me semble, fait évanouir l'antinomie sujet de si grand débats. . . . Le motif produit une motion dans la volonté—*l'acte indelibéré*: mais si l'intention se porte sur cet acte et décide qu'il soit, cet acte devient *acte délibéré* de volonté." (*Métaphysique des Causes*, p. 741.)

and movements, whilst from another point of view, they have distinguished different forms of Self-control as physical, prudential, and moral.

Control of Expression.—(1) Since emotion is intimately bound up with its external expression, the suppression of the physical manifestation often speedily extinguishes the feeling. Passion is in many cases nourished and strengthened by the gestures and signs which lend it utterance, as when a man gives way to an outburst of rage. The actor by adopting the gesticulations and frowns indicative of passion, works himself temporarily into the frame of mind of the character which he impersonates. The bodily movements apparently react on the feelings and intensify them partly by suggestion, partly by augmenting the general cerebral excitement. Consequently, energetic and sustained effort to inhibit the external expression will nearly always gradually extinguish the internal feeling. "Control your temper" is, as a rule, merely another way of saying, "Keep down the manifestation of it." But sometimes the inhibition of external manifestation only turns the mind back on itself, and leaves it to brood over the irritating cause of the emotion. In such cases superficial suppression of symptoms is by itself useless.[8] An outburst of tears may relieve the pent-up grief; and vigorous physical exercise of a neutral character may work off a fit of passion.

Control of Thought.—(2) In instances of this kind, Control is best exerted by attacking the *thought* which is the root of the impulse. This may be accomplished *indirectly*, by withdrawing attention from the exciting idea and fixing it upon some rival object. Thus, when the recollection of a past insult awakens a feeling of anger or a desire of revenge, it would generally be extremely difficult to conquer the temptation by a direct *veto* or a simple "I will not be angry." The most efficacious means to restrain the malevolent impulse is to transfer the attention to some other matter. And here we may

[8] As when according to Thackeray, "to *keep* your temper" means "to bottle it up, and cork it down, and preserve it carefully for a more violent future explosion."

either simply endeavour to banish the irritating thought and engross our mind in something else; or we may advance and attack the evil suggestion by concentrating our attention on an opposing motive, such as the beauty of the virtue of forgiveness, the charity of Christ, or some redeeming feature in our enemy's character. When the temptation is of a seductive character, or violent, or of frequent recurrence, the former course is generally the safer. Dr. W. B. Carpenter has judiciously observed: "The Will may put forth its utmost strength in the way of *direct repression* and may entirely fail; whilst by exerting the same amount of force in *changing the direction*, complete success may be attained. When the question is not of restraining some sudden impulse of excited passion, but of keeping down an *habitual tendency* to evil thoughts of some particular class, and of preventing them from gaining a dominant influence, it does not answer to be continually repeating to oneself, 'I will not allow myself to think of this,' for the repetition, *by fixing the attention* on the very thought or feeling from which we desire to escape, gives it an additional and even overpowering intensity, as many a poor misguided but well-intentioned sufferer has found to his cost. The real remedy is to be found in *the determined effort to think of something else*, and to turn into a wholesome and useful pursuit the energy which, wrongly directed, is injurious to the individual and to society." [9]

During the first years of childhood, the human being is completely the creature of impulse, and only potentially separated in respect of moral action from the irrational animal. The simplest, and probably the earliest, form of Self-control consists in the inhibition of impulsive *movement*, in self-restraint freely put forth at the recollection of a past prohibition or a painful experience. The moral training which the child receives has a most important influence in the rapid development of this power of self-control. Judicious expressions of approval or disapprobation when he has

[9] *Mental Physiology*, p. 335; cf. Jules Payot, *L'Éducation de la Volonté* (1899), Lib. II. c. iii.

resisted or yielded to temptation stimulate the child to the use of his moral liberty; and this faculty, like his intellectual and physical aptitudes, is gradually perfected by exercise.

Order of development.—The precise date of the first exercise of Free-will, like that of the awakening of Self-consciousness, cannot be determined in any individual; but it implies considerable development in the power of reflexion; and is long subsequent to our chief locomotive acquisitions. In the order of development, then, physical appetites and instincts as the guardians of animal existence and well-being show themselves earliest in life. Desire proper, which is more complex, involving a representative element, appears at a later stage. Its first manifestations consist in ill-defined cravings, containing only the vaguest representation of the means or end to be attained. As the child grows older, unselfish impulses, such as those of sympathy and gratitude, together with the desire to renew remembered pleasures, arise. True self-control and free volition manifest themselves last.

Habit.—The development of the power of voluntary action proceeds concomitantly with the formation of *habits*. By a *habit* is now commonly understood an *acquired aptitude for some particular mode of action*. It is thus opposed to *instinct*, which is an inherited tendency.[10] Modern writers usually include under *habit* uniform modes of both bodily and mental activity. Habit has its explanation in the great general fact that any operation once performed by an agent tends to be repeated with greater facility. Under whatever shape we try to conceive the residual effect of a thought in the mind, or of a motion in the nervous substance of the organism, it is indisputable that the occurrence of such an event leaves a facility for its reproduction, and that the facility increases with each repetition.

[10] The schoolmen signified by *habitus* innate as well as acquired dispositions; on the other hand, to the lower animals they denied habits in the strict sense, maintaining that only rational free beings can be subject of habits proper. (Cf. Rickaby, *Aquinas Ethicus*, Vol. I. p. 150.)

"Lines of least resistance" in the nervous tissue, or "associations" between groups of mental states become formed, and the reproduction of any part of the operation tends to call up the remainder.

The *physiological basis* of habit was well expressed by Carpenter in the principle that "*the organism grows to the mode in which it is exercised.*"[11] Although a constant process of waste and reconstruction is ever going on in the living being, yet, since youth is the special period of growth, it is then that the deeper and more permanent impressions and dispositions are wrought in the organism. When maturity is reached, the flexibility of the joints and muscles and the plasticity of all parts of the system rapidly diminish, and the individual constitution becomes set and fixed.

The *psychological basis* of habit lies in the law of association by *contiguity*. Any group of mental states which have occurred together or in succession, tend to be reproduced simultaneously or in the original order. Conscious voluntary action, if reiterated, becomes automatic or reflex. (See p. 218.) It has been said that "habit is second nature," and that "man is a bundle of habits," but few recognize how much truth there is in these sayings. All the ordinary operations performed by mankind, such as walking, speaking, reading, writing, are acquired habits. The various trades, arts, professions, methods of business learned by men are products of the same force. All the knowledge which a man gathers, all the sciences of which he becomes master, the modes of thought which he cultivates, the feelings in which he indulges, are embodied as dispositions in his being. Every volitional act which he exerts, be it good or ill, is registered in the cells of his brain, and leaves a "bent" in his soul which proves its reality by the increased inclination to repeat that act.[12]

[11] *Mental Physiology*, p. 340.

[12] Cf. Payot: "Si c'est sous forme de souvenirs que se dépose dans la *mémoire* de l'étudiant une partie du travail qu'il accomplit, c'est sous la forme *d'habitudes actives* que se dépose en nous notre *activité*. *Rien ne se perd en notre vie psychologique;* la nature est un comptable minutieux. Nos actes les plus insignifiants en apparence, pour peu que nous les répétions, forment avec les semaines,

"To him that hath shall be given." The more strength already acquired by a habit, whether physical, intellectual, or moral, the easier to sustain it.

Practical Rules.—Hence the value of Professor Bain's recommendations with respect to the acquisition of moral habits—to start with as *vigorous and decided an initiative as possible*, and to permit oneself no exceptions *till the new habit is firmly rooted*. We must never lose a battle in the beginning of the campaign. Many victories will be needed to compensate for an early defeat; and they will be more difficult to win because of it. Of even greater value are the maxims formulated by Professor James: "(1) *Make your nervous system your ally instead of your enemy:* make automatic and habitual as early as possible as many useful actions as you can. (2) *Seize the very first opportunity to act on every resolution you make.* (3) Finally, *Keep the faculty of effort alive in you by a little gratuitous exercise every day.* Be systematically ascetic or heroic in little unnecessary points, for no other reason than that you would rather not do it, so that when the hour of dire need draws nigh, it may find you not unnerved and untrained to stand the test."[13]

Moral Discipline.—All ethical training consists in the acquisition of moral habits; but the worth of such training lies not less in the disciplinary exercise of the Will than in the particular habits acquired. The man who, by persevering effort, conquers a bad temper or a lazy disposition, has not merely acquired a valuable disposition, such as other men possess by nature. He has done much more. He has during the process elicited a multitude of acts of *free-will*, he has put forth *voluntary effort*, he has on innumerable occasions exerted *self-denial;* and this exercise is the *only* means in his possession of strengthening the highest and most precious faculty with which he is endowed. Order

les mois, les années un total enorme qui s'inscrit dans la mémoire organique sous forme *d'habitudes indéracinables.*" (*L'Éducation de la Volonté*, p. 135.)

[13] *Principles of Psychology*, Vol. I. pp. 123—126. This admirable vindication of Catholic teaching on Asceticism is specially welcome from a writer of so very un-mediæval a temper of mind as the distinguished professor of Harvard. His treatment of volitional activity contains some of the best pieces of psychology that he has written.

and regularity, whether in work or recreation, are amongst the most useful disciplinary agencies for youth, since they accustom the young to act and decide according to a *fixed rule* or *plan*, instead of vacillating and changing with the impulse of the moment. One of the greatest advantages of public school life is that of the discipline and regularity which the organization of a large body necessitates; and perhaps amongst the best parts of the discipline is that afforded by the *general* games, such as cricket and football. Where played with a good spirit, they make constant demands on the virtues of obedience, self-restraint, unselfishness, good-temper, patience, pluck, and perseverance; and, better still, this discipline is *self-imposed*.

Its importance.—The chief conclusion, then, which we would draw from a consideration of this subject is the transcendent importance of moral training in early life. If the culture of the memory, of the imagination, and of the understanding form integral parts of education, more essential still is the training of the will. Even confining our view to temporal interests, upon a man's moral habits depend the happiness of himself and those around him far more than upon his intellectual capabilities. A mind possessed of due self-control may lead a peaceful contented life amid many trials, whilst even genius, if ill-regulated, will be miserable amidst the most prosperous surroundings. But if moral training is of importance to the individual, it is of still more vital interest to society. In the private morals of its citizens the robust and healthy life of the State has its source. If the former are corrupt, diffusion of intellectual culture may only increase the rapidity of national decay. The need of insisting on the importance of the moral element in education is especially grave at the present day.

Character.—The total collection of a man's acquired moral habits grafted into his natural temperament make up his *Character*. Character is thus partly inherited, partly formed by experience. That there is given to each by nature a certain original disposition, a certain fund of qualities, both intellectual and moral,

varying in different individuals, is evident from the differences which in later life mark the personality of members of the same family and of individuals reared under very similar circumstances. On the other hand, what we have just said regarding the growth of habits shows how much of the formed character is acquired. The formation of the character, however, is not merely a process of moulding wrought into the original temperament by the impress of external agencies. Under the same trials and temptations, one man by persevering resistance becomes strong, self-reliant, and solidly virtuous; whilst another by yielding becomes weak, vacillating, and vicious. From the earliest acts of free-volition there is constant reaction between personal will on the one side, and the force of motives on the other. Each solicitation conquered, each impulse to immediate gratification resisted by building up habits of self-control, goes to form a *strong will*, and the stronger a man's will grows, the greater the facility with which he can repress transitory impulses, and the more firmly can he adhere to a course once selected in spite of obstacles.

Types of Character.—If such a man is wont to make his decisions on sound reason, we have the highest type of *strong character*. When, however, this firmness of adhesion attaches to decisions based not on reason but on impulse, or when the mere fact of having once made a decision closes the intellect to the apprehension of all opposing considerations, we have the *obstinate character*.

Again, there are some men who quickly form judgments on transient impulse or slight grounds, but as readily change or reverse their choice. There are others, too, who though slow and hesitating in coming to a conclusion, even after they have made the election, timidly shrink back into the previous state of doubt on the appearance of a new motive. Both of these forms are types of the *weak* or *vacillating* character. Accordingly, narrowness and rigidity are the dangers for the strong-willed, whilst excessive indecision and vacillation are liable to beset the large and liberal-minded.

Temperaments.—Man's character, then, is partly inherited, partly acquired,—due, as recent writers say, in part to *nature*, in part to *nurture*. The original element, in so far as it is determined by his bodily constitution, was called his *temperament* by the ancients. Four great types of temperament were recognized by Aristotle and Galen, and ascribed to the quality of the mixture of the chief humours of the body. They are:

(1) The *choleric* temperament, which typifies the energetic disposition. Men of this class were held to be prompt and vigorous in action, liable to strong passions, and inclined to ambition and pride as well as anger.

(2) The *sanguine*, indicating the light-hearted, imaginative, vivacious. Persons of this class are alleged to be brilliant rather than solid, enthusiastic rather than persevering.

(3) The *phlegmatic*, or those of slow and somnolent disposition, tardy in judgment, of tranquil mind, devoid of strong passions and incapable of great actions, whether good or evil.

(4) The *melancholy*, signifying those prone to sadness, envy, and suspicion; of a brooding introspective disposition; of obstinate will, and of persevering dislikes.[14] The ancient physiological explanation is long since abandoned, but the classification has been generally retained, especially in Germany, where Kant insisted strongly on the fourfold division.

[14] See Pesch, *Institutiones Psychologicæ*, §§ 1078, 1079; Höffding, *Outlines of Psychology*, pp. 349, 350; Herbart, *Text-Book of Psychology* (Eng. Trans.), pp. 100—102; Kant, *Anthropologie*, pp. 318—324. See also "Character," *American Catholic Encyclopedia;* on training of character, A. Eymieu, *La Gouverment de Soi Même.*

CHAPTER XIX.

FREE-WILL AND DETERMINISM.

Free-will and Philosophy.—We have now reached one of the most important theses in the present volume—the *Freedom of the Will.* This doctrine ramifies into all departments of Metaphysics, and the view adopted on the question must logically determine the theory of life and morality which is the practical outcome of rational speculation. Ethics, Natural Theology, Ontology, and Cosmology all meet the phenomenon of the human Will in one connexion or another; and all these sciences are compelled to harmonize their general conclusions with their creed upon this point.

Free-will and Psychology.—Many writers on Psychology maintain that the discussion of Free-will should be excluded altogether from this science, and relegated to Ethics or some other branch of Philosophy. Provided the subject be adequately treated, it seems to us of minor interest where this shall be done. Still the claims, nay the obligations, of the psychologist to face this problem are obvious. The facts of volition, choice, self-control, character, the feeling of remorse and of responsibility, are all important mental phenomena which can hardly be ignored in the *Science of the Mind.* Indeed no adequate treatment of voluntary activity is possible without assuming some view on the question of

moral freedom; and those English psychologists who profess the most rigid doctrine as to the purely positive or phenomenal character of the science of Psychology, invariably adopt one side—usually that of determinism—in their account of volition. As we take a larger view of the subject, and conceive Psychology to be a *philosophical science*, it is our duty not to shirk the question.

Free-will defined.—Will, or Rational Appetency in general, may be described as *the faculty of inclining towards or striving after some object intellectually apprehended as good;* but viewed strictly as a free power, it may be defined as the *capability of self-determination.* By *self* is meant not the *series of my mental states*, nor the *conception* of that series, but the *abiding real being* which is *subject* of these states. By *Free-will* or *Moral Freedom*, then, we understand that property in virtue of which a rational agent, when all the conditions required to elicit a volition are present, can either put forth or abstain from that volition.

Scholastic Terminology.—The schoolmen here, as usual, distinguished terms with more accuracy and precision than their successors. They defined *spontaneous* acts, as *all those which have their source within the agent*, *e.g.*, the movements of the roots of a plant, as well as the impulsive or the fully deliberate actions of men. Such acts merely exclude *coaction*. The schoolmen further distinguished two forms of *voluntary* action. Voluntary acts in a *wider sense* they defined as "those proceeding from an internal principle (*i.e.*, spontaneous) *with the apprehension of an end.*" Only voluntary acts in the *strict sense* were held to be free, or *deliberate*. These latter imply not only an apprehension of the object sought, but a self-conscious advertence to the fact that we are seeking it, or acquiescing in the desire of it. The spontaneous or impulsive acts of man which are the outcome of his nature are voluntary in the lax sense, but non-voluntary in the stricter signification. The term *actus humanus*—human action—was confined to *free* or *deliberate* acts: *actus hominis* designated all indeliberate actions of man. Further, the term *liberty* was carefully distinguished. *Physical liberty* means immunity from physical compulsion or restraint (*necessitas coactionis*). The unbridled horse is in this sense free, whilst the prisoner in a cell is not. *Moral Liberty*, or *Freedom of Will* (*libertas arbitrii*) signifies immunity from necessitation

by the agent's nature (*necessitas naturæ*). In this latter sense the prisoner is free, but the horse is not. When Locke defines free-will as *the power to do what I choose*, he confounds moral and physical liberty. The latter in the case of human beings is also called *personal freedom*.

Problem stated.—Now the question at issue is not whether man can choose or will without *any* motive whatsoever. Such a choice would be irrational and impossible, because volition implies the embracing of an object *intellectually apprehended as a good*. But any object of thought apprehended *as good* or *desirable* is thereby a *motive soliciting the will*—whether it be ultimately preferred or not. Attacks of determinists on "the theory of *motiveless* volition" are therefore completely irrelevant. No accredited defender of Free-will teaches that man can choose or will without any motive. St. Thomas would have described such a view as self-contradictory and absurd. *Nihil eligitur nisi sub specie boni*—"Nothing is willed except under the appearance of good," was a universally received axiom in the schools. Free-will implies not choice *without* motive, but choice *between* motives. If there be but *one* motive within the range of intellectual vision, the volition in such circumstances is not *free*, but *necessary*. Equally unjustifiable is it to represent the doctrine of Indeterminism as a theory of *causeless volition*. The *mind* or the *self* is the cause. Again, the question is not whether *all* actions of man are free, but whether *any* action is so. In the words of Dr. H. Sidgwick: "Is my voluntary action at any (every) moment determined by (1) my character (*a*) partly inherited, (*b*) partly formed by past feelings and actions, and (2) my circumstances or the external influences acting on me at the moment? or not?" Or, in those of Dr. Martineau: "In exercises of the will (*i.e.*, in cases of choice) is the mind *wholly* determined by phenomenal antecedents and external conditions; or does itself also, as *active subject* of these objective experiences, play the part of determining Cause?" Or to put it otherwise: Given all the prerequisites for a volition except that act itself, does it necessarily follow? Or finally, in the language of

Professor James: "Do those parts of the universe already laid down absolutely appoint and decree what the other parts shall be?[1] *Determinists* or *Necessarians* answer in the affirmative; *Libertarians*, or *Anti-determinists* or *Indeterminists* say, No.

We allow most readily, first, that a very large part of man's daily action is *indeliberate*, and therefore merely the resultant of the forces playing upon him: secondly, that even where he acts deliberately, and exerts his power of free choice, he is *influenced* by the weight of the motives attracting him to either side; and finally, as a consequence of this, we grant that a being possessed of a perfect knowledge of all the forces operating on a man would be able to prophesy with the greatest probability what course that man will take. But on the other hand, we hold that there are many acts of man which are not simply the resultant of the influences working upon him: that he can, and sometimes does set himself against the aggregate balance of motive, natural disposition, and acquired habit; and that, consequently, prediction with absolute certainty concerning his future free conduct would be impossible from even perfect knowledge of his character and motives. Such is the thesis we defend. Whether it be called the doctrine of *free-will*, of *moral liberty*, of *indeterminism*, or of *contingent choice*, seems to us of little moment. But it is of the utmost importance that the precise point of the dispute should be understood, and the gravity of the issue realized. For this reason we have formulated the question in so many ways.

Fatalism and Determinism.—There is a marked tendency among recent opponents of Free-will to shrink from the use of such "hard" terms as necessity, fatality, and the like, adopted by their more courageous and more logical predecessors. We have now-a-days, as James says, "a soft determinism which says that its real name is freedom." (Op. cit. p. 149.) These efforts to change the meaning of the terms employed in the controversy can only confuse the student by obscuring the fundamental difference between the rival doctrines, which involve profoundly opposed conceptions of

[1] Cf. Sidgwick, op. cit. p. 46; Martineau, op. cit. p. 188; James, *The Will to Believe* (1898), p. 150.

the universe. Mill (*Logic*, Bk. VI. c. ii. § 3, n. 3) sought to make a distinction between *Determinism* and *Fatalism*. The latter doctrine holds, he teaches, that all our acts are determined by *fate* or external circumstances, independently of our feelings and volitions. Determinism, on the contrary, maintains that action is determined by feeling. *In practice*, then, they will certainly differ. The *determinist* may seek to arouse good desires in himself or others: the *fatalist* will abandon the attempt as useless. But *logically* fatalism flows from determinism. In connexion with this point Mill falls into one of his frequent inconsistencies, teaching that "our character is in part amenable to our will." (*Exam.* p. 511.) Our character is, of course, merely the result of inherited constitution and personal acts. The former is obviously beyond our control, and according to Mill the latter have all been inevitably predetermined by antecedent character and external influences, until we reach infancy, where of course there was no freedom at all. The desire to "alter my character" or to improve myself must in the determinist theory have ever been *as independent of* me, as *completely given to* me, as the shape of my nose.

The arguments usually adduced to establish the Freedom of the Will are threefold. They have been called the psychological, the ethical, and the metaphysical proofs respectively. The first of these appeals to the direct testimony of consciousness. The second is indirect in character, being based on the analysis of certain mental states—ethical concepts. The third is a more complex deduction from the nature of higher mental activity. We shall begin with the second as its demonstrative force is to some minds clearest.

Argument from Ethical Notions: Obligation.—"Thou canst for thou oughtst." The inference which Kant thus draws is perfectly just; though he erroneously interprets it, and confines liberty to the *noumenal* world, whilst conceding the "empirical self" and the phenomena of experience to the rule of a rigid determinism. If I am really bound *hic et nunc* to abstain from an evil deed, then it must at some moment be really possible for me that this deed shall not occur. The existence of *moral obligation* is at least as certain as *the uniformity of nature*—the assumption or postulate on which all the propositions of physical science rest. The conviction

that I am bound to abstain from evil is not a *generalization* from an imperfect and limited experience, but an immediate and universal judgment of mankind. The moral law lies at the foundation of practical social life. *Right conduct is not merely a beautiful ideal which attracts me. It commands me with an absolute authority. It obliges me unconditionally.*[2] Whatever be my own feelings or desires, I remain in each act categorically bound to do right and to avoid wrong. At the same time it is a patent fact that the moral law is not always observed. But if the moral law obliges me at all times it must be really within my power on those occasions when I disobey it. To suppose that I can be really and unconditionally bound to perform an act which is now, and has ever been, for me *absolutely impossible*, is utterly irrational. For instance, a dishonest director or promoter of a bubble company, is elaborating a plan to amass a fortune by the plunder of several hundred poor people. Suppose his moral sensibility is not as yet altogether obliterated, and that he adverts to the fact that his evil scheme is a piece of cruel and nefarious swindling. He feels that it is *wicked* and *wrong*—that he *ought not* to proceed with it. Involved in this consciousness of the present *obligation* is the conviction that he *can* abstain from his evil course. Are both the persuasion that he *ought* and that he *can* an illusion? In the determinist theory no other volition or choice than those actually elicited were really possible to that man throughout his entire past life, and the present criminal choice is inexorably determined by the equally inevitable choices that have gone before.

[2] Léon Noël states this argument well: "Si nous n'étions pas libres, *le bien* nous apparaîtrait comme un *idéal* nous manifestant sa beauté et sollicitant notre amour. Il serait le terme d'une tendance analogue à l'admiration esthétique. . . . Ce n'est pas ainsi que *le bien* s'offre à nous. Il ne nous présente pas un *idéal*, attendant, pour nous entraîner à l'action, qu'il lui réponde un attrait assez puissant. Il nous apparaît sous la forme austère du *devoir*, nous *imposant* une loi à accomplir *toujours*, quelles que soient nos dispositions et nos tendances. Pour qu'un sentiment pareil ne soit pas absurde, il faut que nous soyons *libres*. L'impératif absolu du *devoir* suppose une puissance supérieure à toutes les circomstances, n'ayant besoin que d'elle-même pour lui obéir." (*La Conscience du Libre Arbitre*, p. 165.)

Remorse and Repentance.—Let us now examine the character of another mental state: If I have voluntarily yielded to some evil temptation, or knowingly done a wrong act; if I have been deliberately unjust, unkind, or dishonest, especially if I believe my act to have been grievously sinful; when I reflect upon it I am keenly conscious that my conduct was *blameworthy*. I *condemn* myself for it, I feel *remorse* for it, I judge that I ought to *regret* it, that I am bound to *repent* it. But for acts that have not been thus deliberately performed I do not in this way *blame* myself, even though they may have resulted in far more serious injury to others or to myself. Of course I wish that even involuntary actions of mine which may have occasioned harm had not happened; but I do not deem them *culpable;* and I judge that I am not bound to *repent* them. The sentence of self-condemnation and the pain of remorse present in the former and absent from the latter cases are due to the assurance that the former were *mine* in the strictest sense, that I *freely* did them—that, *unlike the latter*, they were *not* the inevitable outcome of my nature and circumstances, that I *could* have done otherwise. Furthermore, this clear distinction is confirmed by the universal judgment of mankind, which asserts that it is right to have remorse and to blame myself for the evil deliberately done *which I could have avoided*, but not for those acts which were not deliberate, and *therefore not in my power*. But if determinism be true, *both classes of acts were equally the inevitable outcome* of my nature and circumstances. If the reader will think out the strictly logical consequences of determinism he will see that, according to that theory, it is just as rational to indulge in remorse and self-condemnation for an attack of heart-disease or for being caught in a railway accident as for having committed an act of perjury.

The determinist—who invariably claims exclusive monopoly of the scientific attitude of mind—refuses to *think;* and instead vehemently insists that injustice is done his theory, that there is a profound difference between the two cases, that feelings of sorrow, desires, and purposes of amendment, are useful to prevent future perjuries, but not for the avoidance of railway collisions. This is very true, but equally irrelevant to the point at issue—the *rationality* of *remorse* and *self-condemnation* for our past *voluntary* acts. If all my past acts, whether deliberate or indeliberate, alike inevitably resulted from my nature and circumstances, it is not virtue but irrational folly to indulge in remorse for sin, and it is mendacious to teach that it is right and reasonable to repent of a crime which we believe to have been as unavoidable as an earthquake. Professor James writes on this topic with his

wonted vigour. "Some *regrets* are pretty obstinate and hard to stifle,—*regrets* for acts of wanton cruelty or treachery, for example, whether performed by others or by ourselves. Hardly any one can remain *entirely* optimistic after reading the confession of the murderer at Brockton the other day; how, to get rid of the wife whose continued existence bored him, he enveigled her into a desert spot, shot her four times, and then as she lay on the ground and said to him, 'You didn't do it on purpose, did you, dear?' replied, 'No, I didn't do it on purpose,' as he raised a rock and smashed her skull. Such an occurrence with the mild sentence and self-satisfaction of the prisoner, is a field for a crop of regrets, which one need not take up in detail. We feel that though a perfect *mechanical* fit for the rest of the universe, it is a bad *moral* fit, and that something else would have been really better in its place. But for the deterministic philosophy the murder, the sentence, and the prisoner's optimism were all necessary from eternity; and nothing else for a moment had a ghost of a chance of being put into their place. To admit such a choice, the determinists tell us, would be to make a suicide of reason; so we must steel our hearts against the thought. . . . (Yet) Determinism in denying that anything else can be instead of the murder, virtually defines the universe as a place in which what *ought* to be is *impossible*." (Op. cit. p. 61.) But it is in the name of reason—in order to conceive the universe as a *rational* whole—to satisfy the postulate of uniformity of causation, that determinists deny free volition!

Merit and Desert.—Closely related to the mental states just discussed are the conceptions of *merit* and *desert*—notions embodied in all languages, and engrained in the moral consciousness of mankind. When I have struggled perseveringly against a difficult temptation, or made some deliberate sacrifice in the cause of virtue, I feel that my act is *meritorious*, that I have *deserved* a reward. I may see no prospect throughout my life of receiving the recompense. But I am none the less assured that I have established a *right* to it, that such a recompense is *just*. And this I judge to be so *because* I believe the act to have been *free*. For if not, even though the act had been far more painful to myself, and far more useful to mankind, I deem that I have not this claim. The good accomplished unwittingly or involuntarily, however *useful*, is not *meritorious* on the

part of the agent; praise or esteem which I may receive for it I recognize in my heart to be *undeserved*.[3] Now this judgment is primarily *inward*. It is a *retrospective* sentence pronounced by my reason on my *deliberate* actions—or rather on *myself* as exerting them. I do not, as some determinists seem to imply, esteem these acts because they are evidence to me of the *valuable character* which I possess. The very reverse is often conspicuously the case, as when the drunkard, striving to reform, measures the merit of his painful resistance by the very badness of that formed character which the violence of his temptation reveals. Still less is the sense of merit due to the experience that good actions have been rewarded and evil acts punished in the past. From a very early age the child shows, in its feeble way, that it can clearly distinguish between *deserved* and *undeserved* punishment. "I could not help it," is the invariable excuse; and when the child really *believes* that this was the case, he is convinced that the punishment is *unjust*. This same retrospective judgment as to the merit or demerit of free action, and their absence from actions similar in effects but involuntary in origin, is confirmed by the general sense of mankind both cultured and uncultured.

Retribution.—The truth is, the idea of *moral retribution* is incompatible with Determinism. That theory is compelled to maintain that the notion of the *restitution of violated right order through expiatory suffering* is a childish delusion. Punishment is purely preventive. Praise and blame are not *just awards* for self-sacrifice in the *past*, but *judicious incentives* for anticipated *future* services. Gratitude is, not in jest but in earnest, "a delicate sense of favours to come."

Responsibility. — For acts done by me with

[3] Cf. G. L. Fonsegrive: "Quand on dit, en effet, qu'on a mérité une récompense ou une punition, on veut dire non pas seulement que nécessairement il résultera de l'acte accompli un plaisir ou une douleur, mais qu'on s'est créé des droits soi-même à ce plaisir ou à cette douleur. Cela est si vrai que nous regarderions tous comme injustes une récompense ou une punition qui seraient les conséquences d'une action accomplie par nous sans notre assentiment intérieur." (*Essai sur le Libre Arbitre*, p. 509.)

advertence to the fact that I was doing them, and with a consciousness of their moral quality, I judge myself *accountable*. Their goodness or badness I consider to be rightly *imputed* to *me*. If good the *praise*, if evil the *blame* is *mine*. But actions performed by me inadvertently, or without cognizance of their moral quality, I pronounce with equal certainty *not* to be justly imputable to *me*. They are not truly *mine;* and it is not right that I should have to *answer* for them. The meaning and ground of this distinction is that I am convinced the former acts were *free* in the strict sense; that I had real power to have chosen the other course; whilst the latter were there and then inevitable—the necessary resultant of my character and the forces playing on me. This ethical conception is so important that it is desirable to scrutinize it closely:

Notion of Responsibility analyzed.—Responsibility in the fullest sense pre-supposes: (1) A justly binding authority. (2) Knowledge in the agent of the just will of this authority—of the rightness or wrongness of the act. (3) Power either to perform or abstain from the act. If any of these be absent, responsibility in the full sense no longer exists. Be it noted that the reality of my responsibility or of my duty does not rest ultimately on the mere fact that the badness or goodness of the deed actually *moves* my will. Even were my will hardened by crime so as to become insensible to the charms of virtue or the foulness of vice, both obligation and responsibility would remain real, so long as I intellectually apprehended the act to be my *duty*. But most important of all, the act must be really *mine*—really within my power to perform or to omit. If not, my reason affirms, I cannot be *answerable* for it. Imperfect knowledge, fear, sudden passion—in so far as these conditions were themselves outside of my control—all diminish responsibility, precisely in proportion as they diminish freedom. I may have communicated the plague to an entire city, or poisoned my father and mother, and though plunged in grief over the terrible misfortune, I may retain the clearest conviction that I am not *responsible* for the calamity, that I am not morally *guilty* of the act, that I cannot be *justly* punished for it, *because I know it was not my free act*, because I am sure that *I could not have helped it*. I apply this same criterion to the conduct of other men, and I am quite certain that mankind at large would endorse my judgment. I may of course have been guilty of voluntary

carelessness, or imprudence which resulted in the act. If so, I am accountable just in so far as this final act was voluntary or free *in causa*—in its original cause. That is, my responsibility is measured by the distinctness with which the final disastrous act could have been foreseen by me as likely to result from my earlier faults, and the facility with which these could have been avoided. It is because the maniac and the somnambulist are inevitably determined by their nature and the forces acting on them, that we judge them unaccountable for any harm which they may have caused. We take measures to prevent their innocently doing further evil; and we may even apply painful remedies to deter them in the future; but we do not judge them deserving of *blame* or moral *censure*. We deem them *irresponsible* agents. Responsibility is therefore not the "consciousness of the *solidarity* of our mental life," that is, the conviction that certain acts, *as a matter of fact*, physically entail certain painful consequences; nor the knowledge that the *law* visits certain transgressions with particular penalties. It implies that I am *justly* punishable for a past *free* act, and *only* for a *free* act.[4]

Justice.—Finally, the idea of *Justice* involved in nearly all other ethical conceptions is completely subverted. Justice is volition and action *according to Law*. But if determinism be true, *all* volitions are equally predetermined according to the laws of the universe. Each human choice is as inflexibly fore-ordained as the daily ebbing tide. Of course it still remains true that we can in *fancy* picture other imaginary conditions, and

[4] Professor Alexander, who attacks the doctrine of Free-will in his Chapter on Responsibility, writes: "Responsibility depends on two things. First that a man is capable of being influenced by what is right, that he can feel the force of goodness; and second that *whatever he does is determined by his character*." (*Moral Order and Progress*, p. 335.) Now if every human act is thus absolutely determined by character, how can I justly pronounce the Brockton murderer, mentioned above, to be worthy of *reprobation* rather than *pity*; or the man who perseveringly struggles against temptation to be *meritorious?* The *character* and every *volition* of each throughout his life were alike inexorably predetermined for him by his inherited organism and environment. Neither of these men have ever had for a second in their lives the *real power of making a different choice* than that which they have made. Again, Mill's statement that responsibility means "the knowledge that if we do wrong we shall *deserve* punishment," is plausible only because it explains one *free-will* term by another. With the latter we have already dealt.

construct *moral ideals* fairer to contemplate than the actual facts of human life. But these conceptions themselves are merely particular manifestations of the same universal iron necessity. *Moral* law is identical with *physical* law, and *whatever is is right.*

Determinism distorts Moral Conceptions.—In brief, then, the notions and sentiments which constitute the moral consciousness of mankind, and are embodied in the laws and literatures of all nations, and in the ethical terms of all languages, imply the freedom of the Will. "On the Determinist theory," as Dr. Sidgwick justly remarks, "*ought*, *responsibility*, *desert*, and similar terms, should be used, if at all, in new significations." The universal illusion was indeed profitable to society in the past, but its day is over. Dr. Maudsley frankly tells us: "The doctrine of free-will, like some other doctrines that have done their work and then, being no longer of any use, have undergone decay, . . . was necessary to promote the evolution of mankind up to a certain stage."[5] It is scarcely necessary to point out that a psychological or metaphysical hypothesis which is contradicted by the actual moral consciousness of the human race is not in a very satisfactory condition. The determinist does not save his position by asserting that he can provide intelligible or useful meanings for our ethical terms. The problem for him is to harmonize his theory with the *actual* character and *genuine significance* of our leading moral emotions and sentiments. The business of science is to *accept* facts *as they are* and to *explain them*, not to *manufacture* them—to *interpret*, not to *transform* them.

Free-will and Ethics.—It has been argued by Dr. Sidgwick that the question of Free-will has little or no bearing on Systematic Ethics. (Op. cit. c. v. §§ 4, 5.) The whole controversy comes to this: If we mean by the *Science of Ethics* merely the exposition of a code of judicious rules of individual conduct, a psychological account of the formation of habits, and a scheme of useful social sanctions; then, perhaps, the problem of Free-will might be ignored in such a "systematic" treatise. But if by the *Science of Ethics* we mean, not a body of precepts to attain an end somehow or other

[5] Sidgwick, op. cit. Bk. I. c. v. § 2; Maudsley, op. cit. p. 415.

assumed, but a *Moral Philosophy*, *i.e.*, a *philosophical* determination of the right end of human action, an analysis of the grounds of Duty or Moral Obligation, a rational account of the moral convictions of man universally embodied in the leading ethical terms and ideas—responsibility, merit, approval, remorse, &c., and an adequate treatment of the most wide-reaching of all ethical virtues—*Justice;* then—and such is of course the only study worthy of the name of the *Science of Ethics*—the Freedom of the Will is not merely not a side issue; it is a most vital and all-important question penetrating to the very foundations of Moral Philosophy. The fact that leading determinists such as Mr. Spencer and Dr. Maudsley, as a logical consequence of their doctrine reduce *morality* to *natural* action makes the significance of the problem clear. (Cf. Martineau, op. cit. Vol. II. pp. 311—324.)

Argument from Consciousness.—We now return to a more strictly psychological argument—the introspective analysis of volition. We shall study different phases of this activity; and we invite the reader to make experiments and observe for himself.

Attention.—We have already indicated the connexion of *voluntary attention* with the present question; but it will be well to notice some special aspects of this mental function here. If I study by introspection any process of voluntary attention, such as that involved in recalling a forgotten incident, or in guessing a riddle, I observe that *I myself* deliberately *guide* the course of my thoughts. I am conscious that I do this by fostering the strength of some ideas, and starving others. I am conscious too that those which I select and detain are often among the feeblest and least attractive; and that by my *preferential* attention I cause them to prevail. I determine not only what representations, but what *aspects of these representations* shall occupy my consciousness. In such cases I am conscious of exerting *free volition*. Further, throughout this process I apprehend myself as *causing* my mental activity—I am immediately conscious of my attention as the exercise of *free causal energy* put forth by *me*.

It is this power of the mind to modify through *selective attention* the relative strength of rival motives that renders so futile all comparison of the will with a

balance inevitably drawn in the direction of the heaviest weight: "Pull a body," says Professor Alexander, "to the right with a force of twelve pounds, and to the left with a force of eight; it moves to the right. Imagine that body a mind aware of the forces which act upon it; it will move in the direction of that which, for whatever reason, appeals to it most; and in doing so it will, just because it is conscious, act of itself, and will have the consciousness of freedom. A true explanation of this consciousness turns the flank of indeterminism." (Op. cit. p. 340.) "Flanking" movements are sometimes perilous to the flanking party. Imagine that body not merely aware of the forces acting upon it, but also *self-conscious of the active power of selective attention* by which it increases the force of the eight pounds or diminishes that of the twelve, and the example will accurately represent what introspection assures us takes place in our minds when we exert our free-will to overcome the strongest motive. The illustration thus merely makes clear the radical misconception of the actual character of our mental life required by the determinist theory.[6]

Or, the argument may be put in the converse form: *Suppose that I was free, could consciousness affirm that fact more clearly than it does now?* "Let us ask what the effort to attend would effect *if* it were an original force. It would deepen and prolong the stay in consciousness of innumerable ideas which else would fade more quickly away. The delay thus gained might not be more than a second in duration—but that second might be *critical;* for, in the constant rising and falling of considerations in the mind, where two associated systems of them are nearly in equilibrium it is often but a matter of a second more or less of attention at the outset, whether

[6] Cf. Léon Noël: "La *prédominance de l'idée* qui triomphe s'obtient précisément *par le fait de l'activité* volitive qui la soutenait et commandait le jeu des représentations. Cette même activité, maintenant, se tourne définitivement vers elle, de tout son poids, et c'est ce qui constitute la volition. Elle ne surgit pas soudainement, par l'action de l'idée et des motifs; depuis longtemps elle se trouvait préparée dans la conscience, par une force maîtresse de l'idée et des motifs." (Op. cit. p. 194.)

one system shall gain force to occupy the field and develop itself, and exclude the other, or be excluded itself by the other. When developed, it may make us act; *and that act may seal our doom.* . . . The whole drama of the voluntary life hinges on the amount of attention, slightly more or slightly less, which rival motor ideas may receive. But the whole feeling of reality, the whole sting and excitement of our voluntary life, depends on our sense that in it things are *really being decided* from one moment to another, and that it is not the dull rattling off of a chain that was forged innumerable ages ago." [7]

Deliberation.—Let us take another experience. Suppose two alternative courses are suggested to me in regard to some projected action, as for instance the investment of a sum of money; or the selection of a servant. I set myself to reflect on the merits of two claimants. I question each of them about their capabilities. I examine their testimonials, and make what inquiries I can about them. I then ponder on the motives against and in favour of each. I consider the matter on different occasions; and finally at the end of a week select one of the candidates. Now what is to be noticed here is that *the process of deliberation itself* is, on the testimony of internal consciousness, an exercise of free volition. I have *freely* reflected, inquired, and examined the reasons for each side. As I dwelt on the arguments for one of the candidates, I felt drawn to decide in his favour, but I *freely deferred* decision. I *voluntarily abstained* from what I there and then felt to be the easier and more agreeable course. It is of no avail to assert that I had some *motive* for these acts of reflecting, comparing, refraining, and finally electing. In order that the process may have been *intelligent* and not *blindly impulsive*, there must have been some *reason* present to the mind—and so far forth a *motive*. What determinism has to show is that that reason so inexorably pre-determined me there and then to reflect, to compare, and to abstain, that any other act was impossible to me. But this is what no man—even the determinist—in the act of deliberating can believe. The conviction irresistibly borne in on me by introspective consciousness is just the opposite—that it is *I—the indivisible abiding subject I*—who freely *recall* and *detain* that reason or motive before my consciousness, and confer upon it whatever strength it possesses.

[7] James, *Principles of Psychology*, Vol. I. p. 453.

Finally, this conviction of my freedom throughout the process was founded not on *ignorance* of what was determining my action, but on the immediate and positive knowledge that *I myself* was causally determining my action. For I have had plenty of experience of action *of the opposite kind*—of oscillating passively under the pressure of rival impulses, of the intrusion of uninvited motives, of unwelcomed ideas forced upon the mind, and even of agreeable spontaneous activity that was indeliberate. This important fact is constantly overlooked in attacks on the argument from introspection. Were I free in *all* my actions perhaps my knowledge of moral freedom would not be so clear. Were a man *always* hungry his conception of hunger would be imperfect. I have learned what *free, self-determined*, conative activity is by having been repeatedly the subject of conative activity that was *not* free or determined by myself, but *the spontaneous* and *necessary* outcome of *my character and the motives* playing upon me.[8]

Decision or Choice.—Deliberation is free, but the act of *choice* is the culmination of the exercise of freedom. Let us take an ethical choice. A temptation to an immoral act suggests itself—to excuse a fault by a lie, to commit some small dishonesty, to reveal something to my neighbour's discredit. The evil thought may have been present for some time before I awake to its immoral quality. So far it has been non-voluntary, and I am not responsible for it. Now, however, I advert to its sinfulness, and there is at once forced upon me a deliberate choice—to resist or to consent to the temptation. Suppose that I now deliberately decide either to consent or resist. I am irresistibly convinced *during that act of decision* that the election is freely made by me—that I am not inevitably determined by habit and present motive to this course—that the opposite alternative is really in my power. This conviction that I have chosen freely—that the situation

[8] "Il y a entre l'hésitation et la délibération une différence importante. *Hésiter*, c'est proprement subir passivement des impulsions motrices, osciller tantôt dans un sens, tantôt dans l'autre; *délibérer* c'est ne subir aucune impulsion, mais les soumettre toutes au jugement actif de l'esprit, afin de juger de la valeur de leurs résultats. . . . Or les seuls actes vraiment volontaires, les seuls qu'on appelle libres, sont ceux qui sont précédés d'une délibération; et ils sont d'autant plus volontaires que la délibération a été plus attentive." (Fonsegrive, op. cit. p. 423.)

being precisely the same I might have freely elected the opposite—remains afterwards, and is the ground for my sense of *remorse* or *self-approval*. Professor Sidgwick assuredly does not exaggerate the testimony of consciousness, yet even he writes: "Certainly, in the case of actions in which I have a distinct consciousness of choosing between alternatives of conduct, one of which I conceive as right or reasonable, I find it impossible not to think that I can now choose to do what I so conceive, however strong may be my inclination to act unreasonably, and however uniformly I may have yielded to such inclinations in the past."[9]

Or, take an instance of prudential decision. Whilst reading for an examination, I receive an invitation to some pleasant entertainment. The spontaneous impulse of my will is to consent at once: but I freely resist this inclination. I reflect on the *pros* and *cons;* and then I *deliberately choose.* Here again the conviction, both during and after the election, that my election is free is irresistible. Consciousness affirms that it is I who freely initiated the act of reflexion. It is the same abiding indivisible I—not alternating groups of feelings—who have deliberated, who have actively considered each motive in turn, who *have decided which shall prevail.* This Ego, introspection also assures me, is not a mere conscious arena wherein rival propensities conflict: it is not a mere mass of ideas and desires with the more frequent of the latter personified into a *character;* it is not a mere abstract *notion* of my life, past, present, and future. It is, on the contrary, the *real being* who *has* this notion, the *permanent subject* of my states, the true *cause* of my deliberations and volitions. To the suggestion that this Self which thus seems to decide is perhaps merely my *formed character*, it has been effectively replied: "Besides the motives felt, and besides the formed habits or past self, is there not a *present self* that has a part to perform in reference to both? Is there not a *causal self*, over and above the *caused self*, or rather the *caused state and contents* of the self (the character) left as a deposit from previous behaviour? Is there not a *judging self* that knows and weighs the competing motives, over and above the

[9] *Methods of Ethics*, p. 64. What we are directly and positively conscious of is not that we are able to move our limbs—that we know by past experience—nor yet that *we shall be able* to choose in the next second; this also is an inference and may be falsified by death, &c. The affirmation of consciousness is that *now* in the *moment of consent or refusal* I freely elect.

agitated self that feels them? *The impulses* are but phenomena of your experience; *the formed habits* are but a condition and attitude of your consciousness, in virtue of which you feel this more and that less; both are *predicates* of yourself as subject, but are not yourself, and cannot be identified with your personal agency. On the contrary, they are *objects of your contemplation;* they lie before you to be known, compared, estimated; they are your data; and you have not to let them alone to work together as they may, but to deal with them as arbiter among their tendencies. In all cases of self-consciousness and self-action there is necessarily this duplication of the Ego into the *objective*, that contains the felt and predicated phenomena at which we look or may look, and the *subjective* that apprehends and uses them. It is with the latter that the preferential power and personal causality resides; it is this that we mean when we say that 'it rests with us to decide,' that our impulses are not to be our masters, that guilty habit cannot be pleaded in excuse for guilty act."[10]

Adhesion to resolution under temptation.—Let us now take the case of a moral choice freely *sustained* in the face of severe pressure. Suppose an angry impulse, a feeling of envy, or an impure image presents itself to me. As soon as I advert to its sinfulness, I deliberately reject the evil thought and endeavour to direct my attention to something else. But the temptation recurs again and again in spite of my efforts to banish or suppress it; and the victory is only finally secured after a long and painful struggle.[11] Now the most careful introspective observation of my mental processes assures me here that I am exerting and sustaining volitional activity against the preponderant impulse. Further, it forces upon me at each instant the absolutely overwhelming conviction that the alternative choice is *hic et nunc* in my power—that I can, alas! only too easily surrender. It is only by painful, constantly renewed, energetic volition that I can inhibit the sinful inclination. *The alternative choice would require no positive act.* Mere cessation from this sustained

[10] Martineau, *A Study of Religion*, pp. 214, 215.

[11] The *Volitional effort* should be carefully distinguished from *Muscular effort.* James does this well, *Principles of Psychology*, Vol. II. p. 562; cf. also Noël, op. cit. pp. 229—234.

volitional effort would permit the evil impulse to take possession of my consciousness—would involve acquiescence or consent. The *motive* of *doing right* undoubtedly attracts me; but the assertion that the cognition of the rightness of resistance converts such resistance into the pleasantest course, or constitutes a motive of such force as to draw me inevitably to the side of virtue, is extravagantly untrue. It is *I myself* who, by continuous painful effort of volitional attention, keep this evanescent idea of duty before my mind and give it what power it possesses. Moral conduct of this kind is, as Professor James truly says, *action in the line of greatest resistance.* It is not merely one original momentary act of choice against what seemed to be the strongest motive; it is a series of volitions in opposition to what consciousness continuously assures me is the strongest motive. But according to the determinist, not only the original decision, but each subsequent volition was inexorably determined by the preponderant attraction, and no other alternative was ever possible to me.[12]

An objection.—To these various arguments one general objection is urged: "The conviction of freedom is an illusion." "Men," says Spinoza, "deceive themselves in thinking that they are free. On what is this opinion based? On this alone, that they are conscious of their acts, but ignorant of the causes which determine them. The idea which men form of their liberty arises then from this, that they do not know the causes of their actions."[13] "Which motive is chosen,"

[12] Cf. M. Piat: "Il existe une profonde différence entre mes *représentations* et mes *volitions morales.* Mes représentations viennent de je ne sais quelle région de mon être et s'imposent à ma conscience. Elles se font *en* moi *sans* moi. Je ne les *produis* pas; Je les *subis.* Il en va tout autrement des actes que j'accomplis pour me conformer à la loi morale. Ces actes ne se passent pas en moi sans mon concours; je ne suis seulement spectateur de leur évolution; je les *tire de mon propre fond* et par un effort qui ne dépend que de *moi.* Quand je lutte contre une passion, je sens bien la sollicitation de l'idéal et le charme du bien qui m'appellent en haut; mais ce que je sens avec non moins de netteté, c'est que cette sollicitation et ce charme n'ont rien d'analogue à une force, si subtile et délicate qu'on la suppose, qui me tire et m'entraîne à sa suite. C'est par un effort qui m'est propre, par une tension de mon énergie, que j'opine pour lui contre la passion." (*La Liberté*, Vol. II. p. 94.)

[13] Cited by Maudsley, op. cit. p. 409.

says Professor Alexander, "is perfectly fixed and dependent upon the character, which cannot choose otherwise than it does." The mistaken notion that "I was free to do otherwise" is due simply to the fact that: "Given any act, a different act is *conceivable*, there is a *logical* alternative to everything. But so far as the agent believes that *he*, with his character and under his circumstances, could have acted otherwise, he confuses the feeling that he chooses with this mere logical possibility."[14] The reply is already furnished in the analysis of the examples of conative activity just given. My assurance of freedom in voluntary attention, deliberation, and effort against temptation is founded, not on ignorance of the causes which have determined my volition, but on the knowledge that *I* am that cause—the certainty that it is *I* who have originated, developed, guided, and sustained my volitional activity. I can clearly distinguish certain free volitions from conative activity which is *not* free. I can recognize with not less clearness the wide difference between the conception of some abstractly possible action and the conviction that an alternative course is or was really in my power. And the assertion that whilst I was painfully struggling against a violent and protracted temptation consent was there and then never really possible to me, is simply incredible. If ugly facts are to be got rid of by calling them "illusions," no psychological or metaphysical hypothesis, however absurd, could be effectually disproved.

Metaphysical Argument.—The third form of proof used in establishing the Freedom of the Will is sometimes called the Metaphysical Argument. The distaste for metaphysical speculation, which has held such complete sway in this country during the last two centuries, has virtually ostracized this argument from English philosophical literature. It is indeed of very little use for the purpose of converting a man who is not convinced of the existence of Free-will by the preceding lines of reasoning. But, on the other hand, it has the advantage, which they do not possess, of showing the *cause* of our freedom, and the natural continuity of that freedom, as long as reason remains to us in this life. We do not of course mean by this, that there is moral liberty involved in every use of reason. We have already pointed out that freedom is limited to

[14] Op. cit. p. 340.

those states of mind in which we advert to thoughts and desires that have occurred to us, and in which we are thus in a reflex manner concomitantly aware of the character of these thoughts—of their real or apparent worth, of their value estimated from a moral, a prudential, or a hedonistic standpoint. As often as the mind is in such a condition—and every man's experience assures him of its frequency—we are free to indulge or resist the thought, to foster or struggle against the desire.

The cause of this lies in the fact that the Will is a *rational* appetite: an appetite which embraces nothing of necessity, except what is apprehended as *desirable in every respect*. The Rational Will can be irresistibly drawn only by that which reason proposes as so universally attractive that it contains no dissatisfactory feature. As long as the thought of an object reveals any disagreeable aspect, the Will has not that which it is naturally longing for—perfect happiness—and it is able to reject this object. The Will is moved to desire an object only in so far as that object is good. Appetency is in truth merely tendency towards good, whatever form that good may take; and an object which contains any deficiency is the reverse of desirable so far as that feature is concerned. If, then, attention is concentrated on this undesirable feature, and withdrawn from those which are attractive, the object loses its enticing force. But during this present life no object presents itself to the intellect as attractive under *all* aspects *when we advert to its value*,—that is, in the mental situation for which liberty is claimed. As regards *finite* goods it is obvious that, either in the difficulty of their acquisition, or in the uncertainty of their possession, or in their possible incompatibility with our highest good, there is always something on account of which they are undesirable, and for which man may turn away from them to seek the *infinite* good—God Himself. At the same time it is equally clear that man is not at present drawn inevitably in this latter direction. The inadequate and obscure notion of God possessed in this life, the difficulty of duty, the conflict of man's pride and

sensuality with virtue, all make the pursuit of our true good disagreeable in many respects to human nature, so that we can only too easily and freely abandon it. The clear apprehension of an Infinite Good, such as is given in the Beatific Vision of the blessed in Heaven, would, theologians teach, remove this freedom. The blessed cannot help loving God above all things; we, however, though necessitated to seek after good in some shape or other, are at liberty to reject any particular form of it presented to us. Our Freedom, accordingly, lies in our power of choosing between the manifold kinds of good which are ever conceivable by the Intellect; it is, in fact, a free acceptance of intellectual judgments concerning the desirability of thoughts and external actions. Free-will is, therefore, a result of man's possession of a spiritual faculty of cognition whose object is the universal, and which can conceive unlimited and unalloyed good. Consequently, where such a power does not exist, as in the case of brute animals, moral liberty is absent.

The establishment of Free-will by the two former arguments demonstrates that independently of the intellect we are endowed with a spiritual faculty, an activity superior to matter, and not completely controlled in its operations by the physical organism. This in truth is the rock of offence. If the Will is free, then there is more in man than an organized frame.

Objections against Free-will.—We shall now handle briefly the leading objections urged against Free-will. Since many of these claim to be the outcome of modern science, we shall treat them under the heads of the several branches of knowledge to which they belong. We shall start with those which are asserted to proceed from the study of the mind itself.

Psychological Difficulties.—1. Many determinists devote a considerable quantity of abuse to the doctrine of Free-will, as a fitting exordium to prepare the reader's mind to make proper estimate of the *pros* and *cons*. Thus, Dr. Bain characterizes his opponent's view as incomprehensible and unintelligible. Free-will, he tells us, is "a power that comes from nothing, has no beginning, follows no rule, respects no time or occasion, operates without impartiality;" and reasonably enough he looks on such a conception of voluntary

action as "repugnant alike to our intelligence and to our moral sentiment."[15] In the same strain Dr. Maudsley: "A self-determining will is an unmeaning contradiction in terms and an inconceivability in fact."[16] Such rhetorical devices are to be met by simple denial. That the mind possesses at times the power of free choice, of freely yielding to or resisting the most agreeable attractions, that it is not always inevitably determined in the direction of the greatest pleasure is at least as intelligible a proposition as its contradictory. Moreover, since it expresses what is practically the universal conviction of mankind, it cannot be self-evidently absurd.

Similarly, when Professor Stout compares free volition in the libertarian view to "a Jack-in-the-box," and says that "contingent choice" in that theory "springs into being of itself as if it were fired out of a pistol,"[17] the anti-determinist can, of course, at once retort the illustration and reply that, on the contrary, it is in Professor Stout's theory human choice resembles the pistol-bullet—is just as *free*, *meritorious*, or *blameworthy*, and that the Brockton murderer is just as responsible and worthy of reprobation as the revolver with which he shot his wife!

2. It is affirmed that our own internal experience is in favour of the necessarian view. Introspection tells us that we are always determined by motives; and it is denied "that we are conscious of being able to act in opposition to the strongest present desire or aversion."[18] By "strongest," is meant strongest estimated in quantity of pleasure or pain. Now, here we come to the point of assertion and denial about an ultimate fact of consciousness which is incapable of demonstration, and which each must examine for himself. We hold that each man's own internal experience reveals the fact that he can at times resist the strongest desire or aversion, and we believe that most men, at least occasionally, do so. In involuntary acts we admit also that we are inevitably necessitated by our character and the motives operating upon us. Even in deliberate choice we are *influenced* by the greater weight of motive on one side, but we are not *inexorably determined* thereby.

3. "The strongest motive always prevails." This is either a tautological statement, or it is untrue. If strength of motive is to be determined by its final prevalence, then it is an identical proposition affirming the undeniable truth that the motive which prevails, *does* prevail. This seems to be

[15] *Emotions and Will* (3rd Edit.), pp. 483, 492, 500.
[16] Op. cit. p. 412. [17] *Manual of Psychology*, pp. 590, 614.
[18] Mill, *Exam.* (2nd Edit.), p. 505.

Bain's view.[19] Mill, however, says, by *strongest* is meant most pleasurable.[20] In this sense the statement must be denied, and appeal made to the illustrations given above.

4. Some deterministsfind misrepresentation the most convenient method of demolishing the case for Free-will. "That every one is at liberty to *desire*, or *not to desire*, which is the real proposition involved in the dogma of Free-will, is negatived as much by the analysis of consciousness as by the contents of the preceding chapters."[21] The question is not whether *desire* be free, or whether *action in opposition to wish* be possible. G. H. Lewes is here less unfair towards his opponents. "No one," he says, "supposes that our desires are free."[22] *Desire* is an ambiguous term. Primarily, as we have already indicated, it means a consciousness of want or insufficiency to be satisfied by some represented object. Such a state is, of course, not a volition or free act of the will. The latter consists in the rejection of, or consent to, this feeling—in the act of permitting or resisting the spontaneous movement of the appetite towards the desired object. We certainly can at times put forth an act of will to restrain this spontaneous desire. The word *desire* is, however, also used to designate the movement of the appetite, when this motion has been accepted or adopted by the will, and of course in this sense it is impossible not to will or desire what we freely desire.

5. One of the difficulties most frequently urged is, that experience of our neighbour's actions shows that they are ever determined by character and motives. "We always explain the voluntary action of all men except ourselves on the principle of causation by character and circumstances. Indeed, otherwise social life would be impossible, for the life of man in society involves daily a mass of minute forecasts of the actions of other men founded on experience."[23] "All the massive evidence to be derived from human conduct, and from our interpretation of such conduct, points to the conclusion that actions, sensations, emotions, and thoughts, are subject to causal determination no less rigorous than the movements of the planets."[24]

This objection, however, really proves nothing against our doctrine. For, (*a*) such predictions and judgments deal mainly with external acts of which a large part are indeliberate, and so necessitated by nature and circumstances.

[19] *Emotions and Will* (2nd Edit.), p. 409. [20] *Exam.* p. 519.
[21] H. Spencer, *Principles of Psychology*, § 219.
[22] *The Study of Psychology*, p. 109.
[23] Sidgwick, op. cit. Bk. I. c. v n. 2. [24] Lewes, op. cit p. 102.

(*b*) Even in deliberate actions, unless their *moral* quality be very marked, men follow freely the spontaneous impulse of the will, which is the resultant of character plus motives. The most thorough-going libertarian allows that man's will is *influenced*, though not *inexorably constrained*, by these forces; and hence Christian teachers of all times have laid the greatest stress on the formation of virtuous habits. (*c*) Even where the morality of an act becomes prominent, it is only men aiming at a virtuous life who frequently resist the solicitations of pleasure. (*d*) That in an unreflective mood we should thus seem to consider other men's acts to be completely determined by character and motives, is quite explicable on the principles of mental association. Character and motives have admittedly great influence, and they are the *only* factors of the case which come within our cognizance. Accordingly, the unknown element of the will being always neglected, the observed agents impress themselves vividly on our mind, especially in connexion with successful predictions, and so cause the existence of the unseen element to be forgotten. (*e*) Finally, when we reflect upon the deliberate moral acts of others, we most certainly do *not* believe them to be the inevitable outcome of their circumstances, as is shown by our allotment of praise and blame.

6. The fiction of Free-will, it is said, has its root in the illusion, that the mind is at any moment not merely the aggregate of conscious states then present, but something persisting amid these changing phases. "The collective 'I,' or 'self,' can be nothing different from the feelings, actions, and intelligence of the individual."[25] "Considered as an internal perception, the illusion consists in supposing that at each moment the *ego* is something more than the aggregate of feelings and ideas, actual and nascent, which then exists."[26] Here, of course, we again reach ultimate and fundamental differences of view. We deny that the *ego* is merely an aggregate or a series of states. The unity of consciousness refutes such a doctrine. If there were not a permanent abiding principle or subject, underlying our transient conscious states, then memory, reflexion, deliberation, and reasoning would be impossible.

7. Herbert Spencer urges: "Either the *Ego* which is supposed to determine or will the action is present in consciousness, or it is not. If it is something which is not present in consciousness, it is something of which we are unconscious —something therefore of whose existence we neither have nor

[25] Dr. Bain, *Mental Science*, p. 402.
[26] Spencer, *Principles of Psychology*, § 219.

can have any evidence. If it is present, then, as it is ever present, it can be at each moment nothing else than the state of consciousness, simple or compound, passing at that moment." [27]

From neither of the alternatives does the alleged conclusion follow, and the legitimate inference from the second is actually the direct contradictory of that conclusion. Although the *Ego* were not presented in the consciousness of successive states, yet the possibility of *memory* and *reflexion* would afford irresistible evidence of such a permanent subject. But if the *Ego* were continually present in consciousness, if amid the transient mental states which form the current of our psychical life we were conscious of the Self as ever present, then assuredly it could not be any mere passing state, simple or compound. Surely the fact of being conscious of a permanent self cannot demonstrate that it is merely transitory. Yet this is literally Mr. Spencer's conclusion. The syllogism, however, involves other fallacies. Suppose the Self to determine our volitions, it does not necessarily follow that the *Ego* must be *always* distinctly realized in consciousness. At most this need only be on the occasions of the exercise of free or deliberate volition. As a matter of fact, the vividness with which the *Ego* is apprehended varies in different mental attitudes; but the mere possibility that any past act can be recalled and identified, that we can by any reflex act cognize a mental state *as a state of Self*, demonstrates that the *Ego* is something over and above the "passing" states.

Metaphysical Objections.—1. "Nothing can begin without a cause; but a free volition has no cause; therefore it is impossible." We grant the major premiss, but deny the minor. The *Ego*, or Self, is the cause, and a free cause. I can choose which motive is to prevail. Though I follow the weaker attraction, my volition is neither motiveless nor causeless.

2. Free-will is asserted to be in conflict with the *Law of Causation*. The law of causation is thus expressed by Dr. Bain: "Every event is uniformly preceded by another event; or, To every event there is some antecedent which happening it happens." [28]

[27] *Ibidem*, § 219.

[28] Dr. Bain's *Logic*, Vol. I. p. 27. Cf. also p. 226, and Mill's *Logic*, Bk. III. c. v. § 2. Mill endeavoured, and as is now admitted unsuccessfully, to prove this law. Dr. Bain abandoned the attempt as hopeless. On the confusion of the principle of causality with the uniformity of nature, cf. Fowler's *Inductive Logic*, pp. 24—26; also Knight's *Hume*, pp. 161—163.

In the phenomenalist account of this law there is a lamentable confusion of two distinct truths of quite different orders. The one is the *principle of causality*—"nothing can begin to exist without a cause;" the other is the *law of the uniformity of nature*—"the same causes produce the same effects," or, "the laws of nature are constant." The former is a *necessary* metaphysical principle; and we have explained its bearing on free volitions in the previous answer. The latter generalization is a *contingent* truth which we can easily conceive subject to exceptions. Suppose now that uniformity was proved from experience in the region of physical science—a task which the Empirical Philosophy is utterly unable to accomplish. There would yet not have been made any advance towards the demonstration of uniformity within the sphere of *mind*, where the phenomena are of an utterly opposite character. Again, if within the total assemblage of mental states we find the law to prevail *generally*, the inference as to its universality may be more or less probable, until our internal experience brings before us a distinct exception. As soon as this occurs—and our illustrations we consider have established the fact—*a priori* probability becomes worthless, and our *inductio per enumerationem simplicem* falls to the ground. The student should always remember that physical science simply *assumes* the *law of uniform causation;* that its *universality* is merely a *postulate* to be justified only in *metaphysics;* and that the metaphysician, who recognizes moral convictions to be not less real nor less weighty facts than those of physical science, is bound to qualify, limit, or interpret the law when applied to moral actions in accordance with his wider and more comprehensive view of experience. The truth is, that though the law of uniformity is fulfilled in the subsequent series of events proceeding from an originating cause, it does not apply in an absolute unqualified manner to the primary originating cause itself.[29]

Objections from Physiology, Physics, and Statistics.—*Physiology.*—According to certain physiologists, *e.g.*, Dr. Maudsley, G. H. Lewes, and Luys, Physiology has disproved the freedom of the Will. This science, it is asserted, has established that the connexion between bodily and mental states is so intimate and continuous that each modification of the mind is inexorably conditioned by some definite molecular change in the substance of the organism. But since the uniformity is rigid among the corporeal changes, it must be equally so among the mental correlates. To this we may

[29] See an admirable article by Father H. Lucas in *The Month*, February, 1877, pp. 248, seq.

reply, that equally distinguished authorities on physiological science deny any such conflict as is alleged between Free-will and that science.[30] As regards the facts asserted, we admit, of course, a very close dependence of mind on body,—the scholastic doctrine that the soul is the form of the body always laid stress on this truth,—but we emphatically deny that anything approaching to the shadow of a proof that every act of the former is conditioned and determined by the latter has been made out.

Physics.—The establishment of the Law of the Conservation of Energy is asserted to have disproved Free-will. This argument applies not merely to free-volition, but to all conscious states, and would prove, if valid, that no bodily movement has ever been influenced by any mental act in the history of the world! We shall examine the difficulty later.

Statistics.—It is alleged that *Free-will* is disproved by the existence of the Moral sciences. Buckle, who used to be the classical author on this line of attack, maintains that the actions of men "vary in obedience to the changes in the surrounding society, . . . that such variations are the result of large and general causes which, working upon the aggregate of society, must produce certain consequences without regard to the volition of those particular men of whom the society is composed." He concludes that "suicide is merely the product of the general conditions of society, and the individual felon only carries into effect what is a necessary consequence of preceding circumstances." This is proved by the evidence of statistics, "a branch of knowledge which, though still in its infancy, has already thrown more light on the study of human nature than all the sciences put together."[31] The same objection adopted by Mill, Bain, and

[30] See the writings of Beale, Carpenter, and Ladd. Carpenter's *Mental Physiology* is replete with excellent observations on this subject. Ladd writes: "Nothing of scientific value which Physiological Psychology has to offer, throws any clear light on the problem of the 'freedom of the will.' . . . When M. Luys, for example, maintains that to imagine 'we think of an object by a spontaneous effort of the mind is an *illusion*,' and that, in fact, the object is only forced on us by the cunning conjurer, the brain, 'because the cell-territory where that object resides has been previously set vibrating in the brain,' he is controverting a plain and universal dictum of consciousness by his private and unverifiable hypothesis on a question of cerebral Physiology where experts and novices are alike ignorant. Physiology neither disproves nor verifies the postulate of free-will; accordingly this postulate must be raised and discussed on other grounds." (*Physiological Psychology*, p. 544.)

[31] *History of Civilization in England*, pp 24, 30.

most other determinists, is evidently considered by them to be one of their most irresistible arguments. Let us first recall the precise point at issue. The defenders of moral freedom maintain that within a certain limited sphere man's volition, and consequently his action, is not inevitably predetermined by his character and surroundings. They admit: (*a*) that his spontaneous or indeliberate acts are merely the outcome of motive and disposition; (*b*) that he can never act without some motive—the most common forms of which being immediate pleasure, permanent self-interest, and duty; (*c*) that even in deliberate or free actions he is largely *influenced*, though not inevitably determined, by superior force of attraction. Thus, a man accustomed to give way to a particular temptation, will very probably yield again—though *freely*—when it recurs. It is now at once evident how easily general uniformity, even in individual conduct, is reconcilable with the libertarian view. Furthermore, statistics deal with societies of men, not with the particular human being, and there is no contradiction in the existence of regularity among actions of the community taken as a whole, while the members freely vary. "It is precisely because individual actions are not reducible to any fixed law, or capable of representation by any numerical calculation, that statistical averages acquire their value as substitutes." [32]

[32] Mansel, *Prolegomena Logica*, p. 343. The inefficiency of the statistic objection is well shown from two widely opposed views of Causation by Dr. Venn and Dr. Martineau. Dr. Venn points out: (1) That there is a certain illegitimate gain in the apparent force of the difficulty by the selection of sensational cases, such as the regularity of suicides, misdirected letters, and the like. The emotional shock of surprise aroused by such discoveries makes us mistake their logical value, which does not exceed that of regularity in meals, or in wearing clothes. (2) Mere uniformity of an *average* proves nothing as to invariable determination of the *individual* action. Were there a purely *random* or *chance* factor among the agencies at work, this would not affect deductions from the theory of Probability. If a sufficiently large number of observations were taken we would be justified in expecting that the *random* occurrences on the positive and negative sides would be approximately equal. Thus in tossing a collection of pennies, whether they were completely necessitated or partly free we should expect a uniform average of heads and tails in the long run. (3) "The antecedents and consequents in the case of our volitions must clearly be supposed to be very nearly immediately in succession, if anything approaching to causation is to be established." But nothing of the kind is or can be attempted in statistical averages. It is probable that no two of the three hundred suicides in London last year were precisely alike in antecedents; and very few, if any, of this year

Theological Objection: *Divine Prescience and Free-will.*—It is argued that God could not foresee with certainty our actions were they free. This is properly a theological difficulty; and for an adequate answer we refer to the volume of this series on *Natural Theology*. We may, however, point out that it is not strictly accurate to speak of God *foreseeing* events to come. With Him it is a question of *actual insight*, of *intuitive vision*. The past and future are both alike ever present to His infinite changeless intelligence. Not only all that has been and all that will be, but even all events that would occur under any conceivable circumstances lie unfolded before His omniscient mind. It is true that we cannot imagine the nature of such an eternal intelligence, any more than the snail which takes a week to cross a field, can conceive the human vision that simultaneously apprehends in the flash of a single glance leagues of a landscape; but this does not disprove the fact. *Logical dependence* in the order of *knowledge* is not the same thing as *causal dependence* in the ontological order, that of *being*. Our certainty regarding past or present volitions of ourselves or of others does not affect their freedom; neither does God's vision of our future free actions. He sees them because they *will* occur; but their occurrence is not necessitated by the certainty of His knowledge.

Finally, it is asserted that if volition is not as rigidly ruled by the law of Uniform Causation as other events, then a *science* of Psychology is impossible. The objection possesses about equal force with that which alleges that if some miracles are admitted to have occurred in the life of our Lord, or of His Saints, all physical science is thereby annihilated. Mr. Spencer sums up the whole case thus: "To reduce the general question to its simplest form: Psychical changes either conform to law, or they do not. If they do not conform to law, this work, in common with all works on the subject, is sheer nonsense: no science of Psychology is possible. If they do conform to law, there

resembled in all details those of last year. If it could, for instance, be shown that three hundred individuals of last year, and again of this year, under the action of *three hundred precisely similar sheaves of motives* put an end to their lives, then the determinist would have made some progress. The statistician does not attempt to show such similarity. "In fact, instead of having secured our A and B (motive and volition) here in closest intimacy of succession to one another, we find them separated by a considerable interval, often indeed we merely have an A or a B by itself." (Venn, *Logic of Chance*, c. ix. §§ 16—21.) Cf. Martineau, op. cit. pp. 255—272. We need scarcely say that with his theological explanation later on of the relation of God's foreknowledge to our free volitions, we do not agree.

cannot be any such thing as Free-will."[33] The alternative is, of course, especially as regards Mr. Spencer's portly volumes, awful to contemplate. Such a calamity is not, however, inevitable. It is a misconception of the doctrine to affirm that the reality of Free-will can seriously affect the scientific character of Empirical Psychology. The interference of free volition, though ethically momentous, may be psychologically very small. There still may remain sensibility, imagination, memory, intellectual cognition, sensuous appetite, automatic or involuntary movement, habit, and the emotions, as law-abiding as ever. With such wide dominions under the sway of uniformity, and with the Free-will itself subject to the conditions we have enumerated, all anxiety as regards the reconciliation of Freedom with Psychological science disappears.

Readings on the Will.—St. Thomas, *Sum.* 1. qq. 82. 83.; W. G. Ward, *Philosophy of Theism*, Essays 6, 7, 10, 11, 17; Martineau, *A Study of Religion*, Vol. II. pp. 195—328; Carpenter, *Mental Physiology*, Introduction to 4th Edit. and c. ix.; Father Lucas, Essays in *The Month*, 1877; Ladd, *Physiological Psychology*, pp. 524—544. French literature is much richer on this subject. A good compact work is Léon Noël's *La Conscience du Libre Arbitre* (Louvain, 1899); G. Fonsegrive's exhaustive *Essai sur le Libre Arbitre* (2nd Edit. Paris, 1896), contains much valuable matter; Abbé Piat's *La Liberté* (Paris, 1895), Vol. I. contains useful historical matter: Vol. II. has a good chapter on the argument from consciousness J. Gardair, *Les Passions et la Volonté* (1892), pp. 300—440, expounds the scholastic doctrine well. See also T. de Regnon's able work, *Métaphysique des Causes*. The German reader will find a good treatment of the whole subject in Dr. Gutberlet's *Die Willensfreiheit und ihre Gegner* (Fulda, 1893) See also "Freewill" and "Fatalism," by the Author, in the *American Catholic Encyclopedia*.

[33] *Principles of Psych.* i. § 220.

CHAPTER XX.

THE EMOTIONS. EMOTIONAL AND RATIONAL LANGUAGE.

Feeling and Emotion.—We have already (c. xi.) investigated the nature and conditions of Feeling, understood as the agreeable or disagreeable *tone* of mental activity—what recent writers call the *phenomenon of pleasure-pain*. We shall now briefly treat of Feeling as synonymous with the Emotions. This latter term, which literally means a *movement* or *perturbation* of the soul, is commonly employed to denote certain complex forms of cognitive and appetitive consciousness in which the latter element is predominant. This is especially observable in the connotation of the term *passion* which, although the usage is not rigidly fixed, generally signifies in English either a *violent actual* emotion or a deep-seated *permanent tendency* to some particular species of emotion. The latter sense is exemplified in the principle that *passion* is sharpened and intensified, whilst *emotion* is dulled and enfeebled by re-iterated or prolonged stimulation.[1]

[1] Cf. Höffding: "By Emotion (*Affekt*) is understood a sudden boiling up of feeling which for a time overwhelms the mind and prevents the free and natural combination of the cognitive elements. Passion, sentiment, or disposition (*Leidenschaft*), on the other hand, is the movement of feeling become second nature, deeply rooted by

Scholastic View of Emotion.—The schoolmen, who were interested in the emotions on ethical rather than psychological grounds, discussed these states, in so far as they handled them at all, in their treatment of the *Passions*. These latter they defined as intense excitations of the appetitive faculty. The *passiones sensibiles vel animales*, which they especially studied, are acts of sensitive appetency. They recognized eleven chief forms, which they divided into two great classes, called the *passiones concupiscibiles* and the *passiones irascibiles*. In the former class the object of the mental state acts directly on the faculty as agreeable or repugnant in itself; whilst the object of the irascible appetite is apprehended subject to some condition of difficulty or danger. In scholastic phraseology the object of the *appetitus* or *passio concupiscibilis* is *bonum vel malum simpliciter:* that of the *appetitus irascibilis* is *bonum vel malum arduum*. Six *passiones concupiscibiles* were enumerated,—joy or delight and sadness, desire and aversion or abhorrence, love and hatred. These are the affections of the appetitive faculty viewed as present, future, and absolute, or without any reference to time. The five *passiones irascibiles* are hope and despair, courage and fear, and anger. The first pair of emotions are the acts elicited by the appetitive side of the mind in presence of arduous good, according as the difficulty of attainment is apprehended as slight or insuperable. *Courage* and *fear* are the feelings awakened by threatening evil viewed as more or less avoidable; whilst *anger* is aroused by present evil.

Whatever view be taken in regard to this scheme as a scientific classification, but little reflexion is required to see that the several emotions mentioned are really phenomena of the appetitive faculty of the mind emerging out of cognition. Appetency embraces the conscious tendency *from* evil, as well as *towards* good; for these two inclinations are only negative and positive phases of the same energy. But this faculty must also be the root of the mental states arising in the actual presence of good or ill. The words *desire* and *appetite*, indeed, bring more prominently before us the notion of an absent good, since it is in striving after such an object this power most impressively manifests itself. Still, it cannot be maintained that it is by a different faculty we stretch after, or yearn for a distant joy, and take complacency in its actual

custom. . . . '*Emotion*,' says Kant, 'takes effect as a flood which bursts its dam; *passion* as a stream which wears for itself an ever-deepening channel; *emotion* is like a fit of intoxication which is slept off; *passion* as a madness brooding over one idea, which sinks in ever deeper.' . . . Feeling begins as emotion, and passes—if it finds sufficient food—into passion." (*Outlines*, p. 283.)

possession. It is not by three separate powers, but by one and the same, that we dislike evil in general, shrink from its approach, and are sad in its presence. *Hope* is similarly a desire to attain an arduous good, unsteadied by a cognitive element of doubt; whilst *despair* is a painful prostration resulting from a negative phase of the same activity. The affinity of *courage* and *fear* to the two former states, and their like derivation from the positive and negative forms of appetitive activity, are obvious. Both involve intellectual appreciation of the threatening danger, but whilst in the one case the will is strong and determined, in the other it shrinks back in feeble irresolution. *Anger* implies at once dislike and desire of revenge.

Chief forms of Emotion.—Amongst the feelings which have attracted most psychological interest are the following: (1) Self-regarding emotions. (2) Those of an altruistic character. (3) Feelings attached to intellectual activity. (4) Æsthetic feelings. (5) Moral sentiment. These classes are not mutually exclusive.

Self-regarding Emotions.—Emotions with respect to Self take a variety of shapes. Though sometimes termed *Egoistic*, they may be ethically either good or bad. The pleasurable forms appear as self-esteem, self-complacency, self-commiseration, and the like; whilst among painful feelings are remorse, self-condemnation, and shame. They are all different phases of self-love; and so products of the Appetitive Faculty. There is in man an instinctive desire of his own happiness; and consequently satisfaction in contemplating the possession of whatever increases it. Every excellence possessed, every good attained, every praiseworthy action done, forms agreeable food for self-reflexion.

Pride and Vanity.—The special form of self-love exhibited in an inordinate desire of our own excellence is termed *pride*. This vice is not self-confidence, nor the consciousness of any virtue we may happen to possess, nor even the confession to others that we do possess such virtues. These may indeed be symptoms; but the essence of the vice lies in the craving for undue superiority. Closely related to pride is *vanity*, or vain-glory. The primary meaning of this term is inordinate desire for glory, that is, for fame or esteem among men,

In ordinary language vanity usually signifies either the seeking of praise on account of some trifling or paltry performance not really worthy of honour, or the act of setting an exaggerated value on the varying standard of human approbation. Vanity is thus incompatible with true greatness, which must be capable of rightly estimating both personal gifts and the fickle judgments of other men. In *self-commiseration* we indulge in a sweet feeling of pity over the injustice of our position, or the unfortunate circumstances in which we have been placed. There is a peculiar joy in the possession of a grievance which often causes its removal to leave an "aching void." But the trial must, in such cases, have been of a nature to be easily appreciated by our neighbours. The explanation of the state would seem to be, that the satisfaction derived from the imagined interest or importance our particular trouble gives us in the eyes of others, with the agreeable and inexhaustible fund of conversation it supplies, more than counterbalance the inconvenience.

Remorse and Shame.—In *remorse* and *shame* we have painful species of self-reflexion. In the former there is both *sorrow* and *self-condemnation* for our past action. It may, or may not, be mingled with shame. The most important element in this latter state is the pain caused by the representation of the disapproval or contempt of others. As their admiration is agreeable, their dis-esteem is mortifying. It should be noticed that shame is in itself essentially different from moral self-condemnation. Our contrition for sinful action may indeed be mingled with shame at the appearance our conduct presents in the eyes of our fellow-men; but those writers who would resolve the moral sentiment into mere shame ignore most important facts. A man may experience the keenest self-condemnation on account of an action such as a duel, in which social approval was completely with him, whilst he suffers a torturing consciousness in consequence of some involuntary act or some trifling piece of ill-manners, which he knows has not the faintest shadow of moral taint about it.

The Sense of Power.—Among the self-regarding emotions may be also classed a feeling concerning which much has been written by modern psychologists—the *sense of power*. The term "sense" is of course not here used in the strict signification of cognitive faculty, but as equivalent to an emotional form of consciousness of an abstract character. We must distinguish two elements or grades in this sentiment,—the *desire* of power, and the *complacent pleasure* in its actual possession. It is in this latter stage that we have the complete emotion; and the luxury of the state consists in the conscious satisfaction of a desire of wide range.

The longing for power first exhibits itself in the simple shape of the impulse towards the exercise of our physical faculties. We have already shown it to be a universal law of our being that appropriate action of our various energies is agreeable. Consequently, although the original instinct is of the nature of a spontaneous impulse towards activity without the representation of any pleasure to be attained, yet, afterwards, the memory and idea of this resulting gratification come to reinforce the impulse. The child shows this active instinct in the constant and vigorous exercise of its limbs and voice. It evidently rejoices in its power of exerting its members and creating surprising effects in the world around.

Every advance in the efficiency of our command over our faculties means enlarged potentialities of satisfaction, and the consciousness of such increased efficiency is agreeable. As the bat, gun, or horse become parts of our personality, its special perfections curiously afford a joy similar to that generated by the knowledge of our own physical or intellectual superiority over our neighbours. Even the fact that our tailor has cut our coat in a particular way, that a pet rabbit winks one of his eyes in an eccentric manner, or that a pig which we have purchased surpasses in fatness those of our less fortunate acquaintances, carries with it in our imagination an undefinable dignity, which, blending with our other excellences, helps to swell this grateful emotion of self-importance. When, instead of material implements, other men become the instruments of our will, the range of our power is at once indefinitely extended. It is too in the desire to gain sway over our fellow-creatures, whether by intellectual labour, by eloquence, by literary work, or by military force, that the passion is seen in its most striking forms; and it is in success in these directions that the emotion assumes its most luxuriant and its most dangerous character.

Fear and Anger are ordinarily classed as *self-regarding* emotions; but may be aroused in behalf of

other beings. Both are manifested throughout the entire animal kingdom. Both seem to be instinctive, at least in a vague form, in the infant; and both exhibit themselves at a very early age. Their general utility for the protection of the individual is obvious; but when excessive they are directly injurious. *Fear* is purely painful. It may be defined as *the pain of anticipated pain*. Anger may be in part pleasant. It includes both the pain of felt injury and the agreeable consciousness of reacting against the cause of our pain. The intensity and power of the evil pleasure of revenge are only too well known. Physically, *fear*, apart from the exertion of flight, which it may excite, causes depression, lowering of vitality, derangement of the digestive organs. If the fear be great the imagination is excited, impressions are exaggerated, the faculty of judgment and reasoning is disordered, and control of attention is impaired. Consequently, from an educationalist standpoint, fear, though at times a necessary instrument, is always an imperfect motive. Its efficiency is deterrent from evil rather than promotive of genuinely good effort; and especially in the very young it may conflict with the very self-composure and steady concentrated energy needed for study.

Anger is amongst the most exciting of the emotions. It stirs up activity and arouses to energetic action. It seeks relief by injuring the cause of its pain. Like fear, though in a different way, it heightens the sensibility of the imagination and obscures the power of judgment and reflexion. When combined with fear, anger if fostered rapidly passes into *hatred*. In the form of virtuous indignation it may be an elevated moral force; but it is always a dangerous impulse, and needs watchful control from the earliest stages.

Altruistic Emotions: Sympathy. — The most marked form of *unselfish* or *benevolent* emotion is that of *sympathy*. Sympathy literally means *feeling with* others; benevolence *wishing well to* others. That there are naturally in man non-selfish impulses is shown especially by his possession of benevolent and sympathetic instincts. Hobbes, indeed, who defines *pity* as, *grief for*

the calamity of another, arising from the imagination of the like calamity befalling one's self, attempted to reduce even these to far-sighted selfishness; but the general tendency of the present representatives of his school is to admit naturally altruistic inclinations. That sympathy is an innate unselfish impulse, or rather a native disposition, is shown by the prompt manner in which the feeling arises on the contemplation of another's suffering; by the entire absence of any prospect of gain to ourselves in return for our compassion; by the real self-sacrifice to which it often successfully urges; and by the universality of its range,—moving us to compassionate the pains of brute animals, the sorrows of strangers and historical personages, and even the imaginary woes of the creations of the dramatist and novelist.

Analysis.—The two chief features of the state of Sympathy are a lively representation and an active appropriation of the feelings of others. There is both a projection of self into the situation of the sufferer, and a voluntary acceptance of his grief. In compassion there is a free affectionate adoption of the pain as our own, not a shrinking dislike for it through fear of its infliction on us. We can sympathize with the trials and joys of those differing from us in age, sex, or condition, which it is absolutely impossible should occur to ourselves. At the same time, since sympathy involves the realization of the feelings of another being, some experience of a kindred nature is presupposed. And herein lies the cognitive factor in the emotion. The intensity of our sympathy will thus be conditioned both by the range of our actual knowledge, and by our capacity of imagination. Consequently, its force diminishes when the feeling is of a kind remote from our experience. We can all commiserate physical pain; but the keen sufferings of refined or scrupulous minds are often incomprehensible to ruder natures.

Equally important with the element of cognition involved in the act of compassion is that of affection. The accepted signification of the term *antipathy*, as equivalent to dislike, shows this. Anger and hatred suspend for the time our power of pity. The intensity

of sympathy is, *ceteris paribus*, in proportion to our love for the object of the emotion. This fine susceptibility of human nature would also seem to be less in unison with the energetic than with the reflective or contemplative character; though the former disposition is more fertile in the practical fruits of benevolence. Since the Christian era, the faculty has grown both in range and depth along with the mental and moral development of the race. The increase in the exercise of the imagination arising from the universal habit of reading, so new in the history of mankind, must have an important effect in enlarging the normal power of the fancy. To this cause, perhaps, ought to be traced the present popular indignation against various forms of cruelty towards which men seemed almost insensible a few centuries ago. Sympathy in the full sense comprehends fellow-feeling in the joy of another, as well as compassion over his pain. The former is a more completely disinterested state, and far harder to attain, as the neutralizing action of jealousy and envy, even in a faint form, is able to destroy this truly unselfish feeling. This does not occur in the case of pity.

Feelings attached to Intellectual Activity.— The mental states of *novelty*, *surprise*, and *wonder*, called by Dr. Bain,[2] *feelings of relativity*, also play an important part in this department of the mind. The agreeable feeling of *novelty* is a particular instance of the pleasure due to exercise of the mental energies in general. The enjoyment of any activity is highest whilst fresh, and gradually tones down as the faculty becomes habituated to the action of the stimulus. Accordingly, transition from the exertion of one power to that of another; or even variation in the quality of a mental state must, *ceteris paribus*, be agreeable. Since the number of possible experiences is limited and the list of absolute novelties soon exhausted, the advantage of change in employments is obvious. The recurrence of a former mental state after an interval of time may be attended with almost as much pleasure as that of its first appear-

[2] Bain's description of some of the Emotions is among the best.

ance; and occasionally, as in the case of old familiar tunes. previous acquaintance enriches the emotion.

Surprise contains something in addition to *novelty*. In the latter state there is change: in the former there is besides a certain shock of unexpectedness. Practically, of course, the two feelings shade into each other—marked novelties producing surprise; but the characteristic feature of the latter state is the temporary perturbation of the movement of thought, owing to the sudden appearance of an unlooked-for idea which does not at once coalesce with the existing current. In itself such a dislocation would be disagreeable rather than the reverse, but the pleasure springing from a fresh energy prevents surprise being classed as a universally painful state. Dr. Bain allots it to his group of so-called "neutral" feelings.

Wonder (which Aristotle deems to be the beginning of Philosophy) is a more complex emotion than surprise. It requires a certain magnitude or greatness as well as strangeness in the new event, which causes a failure of the effort to understand or classify that event with our past experiences. When the novel object is of such a completely unfamiliar kind as to convince us that it is beyond our comprehension, the mind is thrown into a condition of conscious stupefaction, which is the purest form of astonishment. The soul, however, cannot long persist in such an attitude, and the natural inclination of the intellect impels it to try and bring this occurrence into harmony with others which we have observed. The native tendency of the mind to exert its powers when thus stimulated by the enigmatic, is the essentially rational attribute of *curiosity*. It is scarcely too much to say that this impulse holds a similarly important position in the domain of knowledge with that possessed by the instinct of self-preservation in the kingdom of physical life.

The Logical Feelings of consistency and contradiction are closely related to the emotions just described. These states are essentially cognitional; but pleasure or pain forms such a very important ingredient, that the term *feeling* is frequently applied to them. They

afford the best example of strictly intellectual sentiments, and are of a spiritual or supra-sensuous character. The consciousness of the irreconcilability of apparently independent cognitions is distinctly disagreeable. We are dimly aware of an internal state of strain or contention; and we cannot rest till we effect agreement between the discordant forces. The discovery of new truth, the bringing of fresh facts under old generalizations, at once satiates the intellectual yearning for unity and gratifies our sense of power. There is a very real joy in detecting hitherto unperceived relations of similarity, whether it be in the solution of a mathematical problem, the discovery of a law of physics, the invention of a happy metaphor, or the guessing of a riddle.

This kind of enjoyment is one of the main elements in the higher species of those pleasures which constitute the *Emotions of Pursuit*. This term has been employed to denote the agreeable excitement attendant on certain kinds of out-door sport, games of chance, and interest in the plot of a novel. There is in such exercises novelty, the satisfaction due to the play of our faculties, and a pleasing interest aroused by the uncertainty of the result, which gives much food to imagination and intellect. If the stake is very heavy the agreeable character of the excitement disappears, and the state of doubt, resulting in anxiety and fear, may become extremely painful.[3]

[3] **Rivalry or Emulation.**—Closely connected with the *emotions of pursuit* and the *sense of power* is the passion of emulation—one of the most important psychological forces both for good and evil in the economy of human life. Amongst the ordinary constituents of this feeling are: (1) The pleasure of activity—though sometimes, especially when excessive, the activity may not be pleasant; (2) the agreeable interest of the chance element—the excitement of hope and expectancy; (3) the sense of power; (4) the anticipated gratification of triumph; (5) the pleasure of the imagined admiration of the spectator; (6) the pleasure of conflict itself, in so far as it is distinct from the factors just mentioned. That the excitement of *contest*, when not counterbalanced by some positive pain, such as fear or fatigue, is *per se* agreeable, seems to be established by the enjoyment which mimic combat in so many forms affords both to man and to the young of all animals. It is an essential element in

Æsthetic Emotions.—Another interesting class of feelings are the *æsthetic emotions*. The chief of these are the sentiments awakened by the contemplation of the *Beautiful* and the *Sublime*. Ontology is the branch of Philosophy to which the problem of the nature and objective conditions of Beauty properly belongs. But since the middle of last century discussion on this subject has been so continuous, that there has grown up a portentous body of speculation claiming the title of the *Science of Æsthetics*.[4] Here we can only analyze briefly the feelings aroused by the perception of the Beautiful, the Sublime, and the Ludicrous, and point out the chief features in these realities themselves.

The Beautiful.—The epithet *beautiful* is applied to such widely different things as a sunset, a human face, a flower, a landscape, a musical symphony, a greyhound, a poem, a piece of architecture; and there may be awakened pleasing emotions by the consideration of any of these objects. The first and essential property, then, of beauty is that it *pleases*. In most cases the satisfaction aroused involves two elements—the one sensuous, the other intellectual. The lower is the result partly of the harmonious action of an external organic faculty, such as sight or hearing, partly of that of the imagination. Thus, we describe particular hues as beautiful, certain sounds as charming, and in many of the examples just mentioned, the important part played by the quality of the organic stimulus is evident.

most of our field sports. The above analysis shows that this spring of action which has done so much for social progress contains both useful and dangerous elements—that like all other passions it may be productive of both good and evil. The aim of the Teacher must be to extract from its use the maximum of good, with the minimum of evil. The pleasure of activity, interest, increased power of faculty, and even the desire of esteem, may be all neutral or good. But the desire to triumph over another, if it includes the wish to inflict *pain*, or if it be so intense that failure invokes *envy* or *hatred* of the successful rival, is obviously bad. But that emulation, when limited and safeguarded under normally wholesome conditions, does not necessarily result in these evil effects, seems to be abundantly established by the innumerable forms of competition which have been sanctioned by moralists of all ages.

[4] Cf. *Æsthetik*, by J. Jungmann, S.J. (Freiburg).

Along with this satisfaction due to sensation, there is also usually an element of gratification dependent on the exercise of the imagination. We have already shown in our chapter on the development of sensuous perception, what a large part the reproductive activity of consciousness plays even in seemingly simple cognitions, such as those of a house or of a tree. Consequently, the pleasure of the effect must be attributed to the agreeable operation of both the presentative and the representative faculties of the lower order. The combined energies of the external and internal senses are thus of themselves capable of accounting for much of the delight aroused by the contemplation of beautiful objects; and we think those writers in error who would deny or minimize the reality of sensible beauty. Visual, auditory, and motor sensations, both actual and ideal, conspire according to their quality, their intensity, and their harmonious combinations to enrich the pleasurable sentiment of admiration.

Unity amid Variety.—Nevertheless, human appreciation of Beauty is essentially rational; and the importance of intellect in this department of cognition is shown by the absence of æsthetic tastes in irrational animals. The most universal feature in the various kinds of beautiful or pleasing objects, the generality of philosophers have held to consist of *unity amid variety;* and the apprehension of this perfection is an intellectual act. Symmetry, order, fitness, harmony, and the like, are but special forms of this unity. The suitable proportions of the lineaments of the face, of the limbs of an animal, and of the constituent portions of a building; the admirable co-ordination of the several parts of a flower; and the unity of idea which should run through a musical air, a poem or a drama, are all only varying expressions of the *one amid the manifold.* Monotony is painful; sameness wearies the faculties. On the other hand, chaotic multiplicity, disorderly change overpowers and prevents us from getting a coherent grasp of the confused mass before us. When, however, our energies are wakened into life by a rich variety of stimulus, whilst, at the same time, the presence of some central unity enables

us to hold the several parts together with ease, there is produced in the mind a luxurious feeling of delight.[5]

Utility.—A particular manifestation of this unity of thought in a work of art is *utility*. The mind is gratified by seeing how an object is adapted to the purpose for which it is intended. The structure of the greyhound thus embodies the idea of speed: the English dray-horse that of strength. The charm of a pillar in a piece of architecture depends as much on its obvious utility and fitness, as on its own beauty; and the fundamental rule of Gothic art, that *no ornament is to appear for the sake of ornament*, is but a practical application of this psychological law. Objects which please indirectly as in this way subservient to some ulterior end are said to exhibit *relative* or *dependent* beauty; those which charm of themselves exemplify *absolute*, *intrinsic*, or *independent* beauty. A flower, taken as a whole, may be described as absolutely beautiful, whilst the delight awakened by contemplating the fitness of its parts is an effect of dependent beauty.

Association.—The extent and importance of this second kind of beauty gave occasion at the end of last century to the advocates of Associationism to attempt the explanation of all forms of beauty by that principle. A plain of ripe waving corn is beautiful in this view because it suggests peace and plenty; a ruined castle because it recalls deeds of chivalry and prowess in past times. The influence of Association in awakening agreeable emotions, and in giving an accidental charm to indifferent objects is undoubtedly very great. The scenes of our childhood, familiar tunes, the rise and fall of fashions, and the rules of etiquette, all exhibit the beautifying force of this agency. Still, it is a mistake to push the principle too far, and a sea-shell, a feather, or a landscape must often win the approval of the severest æsthetic judgment, apart from any extrinsic relation which it may possess.[6]

[5] The *picturesque* wants the *unity* of beauty proper, but the disagreeable effect of mere disorder is prevented by the beauty of the separate elements; certain harmonies, too, usually pervade the irregularities.

[6] Ruskin thus concisely states the flaw in the case of the advocates of *Associationism*: "Their arguments invariably involve one

Sight and hearing are the principal senses in the appreciation of beauty; but the experiences of the other faculties when represented in imagination can contribute much to the general effect, as is especially seen in poetic description. A consequence of beauty being mainly apprehended by the two higher senses is the disinterested character of the emotions aroused, and the communistic or shareable nature of æsthetic pleasures in general. The delight of admiration, though it may stimulate the desire of personal appropriation as a means to ulterior advantage, is not itself an egoistic affection. The joy awakened by the contemplation of a picture or a landscape, by a poem or a concert, is not diminished but increased by the partnership of other minds.

The Sublime.—The emotion of the *Sublime*, though an agreeable consciousness, differs from that of the Beautiful. The object of the former feeling is some kind or other of grandeur. Physical magnitude, immensity in force, space, or time, moral excellence displayed in searching trial, may all be characterized as sublime, and awaken the corresponding sentiment. The emotion involves *admiration*, *fear*, or *awe*, and a certain *sympathy* with the power manifested. Mere size is usually not sufficient to constitute sublimity. There must be a certain degree of perfection of form to give contemplation an agreeably stimulating character; and in this respect the emotion aroused is related to our enjoyment of the beautiful. But yet it is in the grandeur of the object that the chief element of sublimity consists, and this feature is so essential that even ugliness and wickedness of transcendent magnitude may sometimes generate a feeling of an almost admiring awe. The mind becomes aware of its feebleness and incapacity in the presence of immensity, whilst at the same time it is stimulated to endeavour to comprehend the object. Sublimity, like Beauty, is a revelation of the Divine attributes, but in the former the infinite incomprehensibility of God is brought more home to us. In our admiration of the sublime in human action little introspection is required to discover a thrill of sympathy with the agent.

of these two syllogisms: Either Association gives pleasure, and Beauty gives pleasure, therefore Association is Beauty; or, the power of Association is stronger than the power of Beauty, therefore the power of Association *is* the power of Beauty." (*Modern Painters*, Vol. II. 31.)

Although in the sentiment aroused by the contemplation of a piece of wild scenery, or of a storm at sea, this ingredient of fellow-feeling is not so easily detected, yet if we carefully reflect on the fact that what properly impresses us in these phenomena is the manifestation of a *Power*, we shall find that in the effort to realize to ourself such an energy we experience a faint vibration of sympathetic consciousness.[7]

The Ludicrous.—The mental state aroused by contemplation of the *Ludicrous* is in striking contrast to that of the Sublime. In place of admiring awe and fear, we have joyous elation; instead of a shrinking consciousness of our own diminutiveness we explode in a burst of exuberant mirth. Though the emotion is eminently rational, the fit of laughter, is, of course, only a physical movement which may be excited by purely physical stimuli, just as well as by the intellectual perception of the ridiculous.

There has been much discussion as to what are the essential features of the ludicrous. According to Aristotle, the laughable is to be found in what is deformed or mean, yet incapable of producing pity, fear, anger, or any other strong emotion; and Herbert Spencer has not advanced the psychological analysis of this state much further. Incongruity, the latter writer teaches, is a prime constituent of the ridiculous, but this incongruity must not give rise to other powerful feelings. To see a fop tumble into the mud may cause us to laugh, whilst the fall of an old man whom we love arouses quite a different emotion. Hobbes defined laughter as "a sudden glory arising from the conception of some eminency in ourselves by comparison with the infirmity of others and with our own formerly." This view would place the essence of the ludicrous in a degradation of the object. It is true that the point of wit often consists in making others seem contemptible, and there is awakened a pleasurable consciousness of elation in ourselves by the contrast; but such a theory is very one-sided, and does not account for good-natured laughter, or for many forms of humour. Release from restraint is undoubtedly a very general condition of mirth, and the facility with which

[7] Hamilton thus distinguishes the character of these emotions: "The Beautiful awakens the mind to a soothing contemplation; the Sublime arouses it to strong emotion. The Beautiful attracts without repelling, whereas the Sublime at once does both; the Beautiful affords us a feeling of unmingled pleasure in the full and unimpeded activity of our cognitive powers, whereas our feeling of sublimity is a mingled one of pleasure and pain—of pleasure in the consciousness of strong energy, of pain in the consciousness that this energy is vain." (*Metaph.* Vol. II. pp. 512, 513.)

laughter can be excited by any unusual event when we have been for a time sustaining a dignified or solemn demeanour has often been noted. The cheapness of the wit directed against holy things which have been long held in reverence by mankind is thus obvious.

The Moral Sentiments.—Under this term are included the feelings of moral obligation, responsibility, approbation, disapproval, remorse, and self-commendation. As we have already dwelt at length on Conscience, we must be brief here. We have seen that conscience is not a special faculty or sense, but the ordinary judicial activity of the intellect which discerns *what* actions are *right* and *wrong*. The cognition of rightness or wrongness includes or results in the consciousness of *obligation*—the feeling of *ought*. It is this latter frame of mind which is more especially termed the *moral sentiment*. As a mental state it is *sui generis*, and though capable of rational explanation, it cannot be analyzed into mere sensations. It manifests itself as a certain consciousness of pressure or constraint on the will differing in kind alike from the motive force of pleasure or pain and the compulsion of known truth. We feel *impelled* towards duty though it be *disagreeable*: we *can* refuse to embrace it though it be *evident*. It involves a sense of *subjection to an authority* with which we are brought into immediate contact. It presents to the mind a *categorical imperative* which binds *absolutely*; and from which there is felt to be no appeal. It contains the germ of the notion of *holiness*.

The *objects* to which the moral sentiment attaches are not, like those of the æsthetic feeling, lifeless things, but *voluntary actions*, and primarily *my own*; secondarily those of *others*. It essentially implies the notion of *free choice*, becoming meaningless if human volitions are reduced to the category of natural events uniformly determined by necessary law. This consciousness of obligation is, moreover, universal throughout mankind, although the influences of education and the social environment may alter considerably the classes of action to which it is affixed. The intellect may doubt or even err in determining *what* particular conduct is

right; but that which he judges *to be right* each man feels *bound* to do. Further, the perception of the obligatoriness or wrongness of contemplated conduct carries in its train all the other forms of the moral sentiment. The action apprehended to be wrong evokes the feeling of *disapprobation*. This is judged to be rightly transferred to the agent. The action I know to be *mine*: its moral quality I feel to be justly ascribed to *me*. I am conscious of *responsibility* for it. When after its accomplishment the act is considered retrospectively, the combined feelings of violated obligation, disapprobation, and responsibility result in the painful consciousness of *remorse*.

These various phases of ethical feeling all contain a distinctly moral element as original and as incapable of analysis as that of the feeling of *ought*. Finally, there is in the background present in them all a common feature of *reverential fear*—well insisted upon by Newman: "Conscience leads us to reverence and awe, hope and fear, especially *fear*. . . . No fear is felt by any one who recognizes that his conduct has not been beautiful, though he may be mortified at himself, if perhaps he has thereby forfeited some advantage; but if he has been betrayed into any kind of immorality, he has a lively sense of responsibility and guilt, though the act be no offence against society,—of distress and apprehension, even though it may be of present service to him,—ot compunction and regret, though in itself it be most pleasurable,—of confusion of face, though it may have no witnesses. These various perturbations of mind,—self-reproach, poignant shame, haunting remorse, chill dismay at the prospect of the future—and their contraries, . . . these emotions constitute a specific difference between conscience and other intellectual senses."[8] These moral sentiments, however, be it remembered, are developed, refined, strengthened, and perfected, in proportion as man acts up to the dictates of conscience: they can be weakened, perverted, all but extinguished by continuous violation and abuse.

[8] *Grammar of Assent*, p. 108.

No distinct Faculty of Feeling.—Having now treated o. the chief emotions, we would recall once more the truth on which we have often insisted, that these states are not acts of a third radically distinct faculty, but complex products of appetency varying in character with the quality of the cognitive consciousness out of which they emerge. No satisfactory attempt has been made to show that such states as anger, hope, shame, curiosity, pride, are all reducible to a third ultimate mental aptitude, distinct alike from conation and cognition. Yet if such a third faculty is to be assumed, or if it is to be identified with the mere capacity for pleasure or pain, reason should be assigned why the various emotions are to be grouped under it rather than under the other two. But the more carefully these states are analyzed, the clearer will it become that they are only complex forms of appetitive and cognitive consciousness. Desire and aversion are principles of wide range, and when they have been carefully applied to the explanation of every feeling, very little that is not an act of a cognitive power will remain. We may appropriately complete our treatment of these states with a citation from the work of Jungmann, devoted to the special subject of Feeling: "Modern Psychology is accustomed to treat of several species of Feeling and Feelings in its theory of the third Faculty. We accordingly have discussions regarding the sympathetic, intellectual, æsthetic, moral, and religious emotions; and also of the feeling or sense of right, of the beautiful, of the noble, and of moral good, or of æsthetic, moral, and religious feeling. If we admit no special Feeling-power, besides the faculties of Cognition and Conation, where shall we dispose of these states? It is not very difficult to find the right place for them, if we only get a clear notion of what is meant by these names. The sympathetic emotions are, in general, joy or sorrow over the weal or woe of others. Those feelings are styled 'Æsthetic' which are awakened in the soul in the presence of the æsthetic excellence of the creations of human genius. Under the phrase 'Intellectual Feelings' are signified those agreeable or disagreeable affections the cause and object of which is an activity of our intelligence in harmony or conflict with that intelligence. Finally, Moral and Religious Feelings are the appetencies of the soul in the presence of ethical good and ill with reference to the supernatural order. . . . The sense of the Beautiful and the Good, or Æsthetic and Moral sentiment, is not a (special) energy, not a faculty of the soul, but simply the first attribute of every created spirit—*rationality*. Rationality embraces a two-fold element. Our soul is rational on the one hand because its understanding

is necessarily determined by Eternal Wisdom's laws of knowledge; on the other, because there is impressed upon its appetency a natural bent towards what agrees with these laws of knowledge and with Uncreated Goodness, that is, towards the physically perfect and the ethically good; and therefore towards the Beautiful. This rationality, for reasons assigned elsewhere, does not manifest itself in all men in equal perfection, but in its essence it is present in all. Accordingly, in so far as no other agencies interfere, every man naturally knows and recognizes the Good, the Right, the Noble, the Beautiful, and the Great; towards these he is impelled, these he embraces, these he loves, these he enjoys. On the other hand, Wickedness, Meanness, Ugliness, are for every man the object of aversion and displeasure."[9]

Genesis of Feelings. — *What is the proximate cause of Emotion?*—Professor James writes: "Our natural way of thinking about the 'coarser' emotions is that the mental perception of some fact excites the mental affection called the emotion, and that this latter state of mind gives rise to the bodily expression. My theory, on the contrary, is that *the bodily changes follow directly the perception of the exciting fact, and that our feeling of the same changes as they occur* is *the Emotion*. Common sense says, we lose our fortune, are sorry and weep; we meet a bear, are frightened and run. The hypothesis here to be defended says that this order of sequence is incorrect, that the one mental state is not immediately induced by the other, that the bodily manifestations must be interposed between them, and that the more rational statement is that we feel sorry because we cry, angry because we strike, afraid because we tremble and not that we cry, strike, or tremble, because we are sorry, angry, or fearful, as the case may be. Without the bodily states following on the perception the latter would be purely cognitive in form, pale, colourless, destitute of emotional warmth. We might then see the bear, and judge it best to run, receive the insult, and deem it right to strike, but we should not actually feel afraid or angry." (Op. cit. p. 450.) Although James makes a distinction between the "coarser" and "subtler" emotions, he accounts for both classes in practically the same way. The theory seems to be accepted in substance by Lange, Lloyd Morgan, and others. The chief evidence urged in its favour are the following alleged facts: (1) Particular perceptions do excite diffused bodily effects antecedent to emotions. (2) Many pathological cases in which the emotion is "objectless" are thus easily explained. The numerous instances of *unmotived* fear, melancholy, anger, and the like, which are frequently met

[9] *Das Gemüth und das Gefühlsvermogen*, § 99.

with in asylums, are thus easily accounted for as due to a morbid condition of those parts of the nervous mechanism by which the emotion in question is usually expressed. Thus an organic malady which occasions trembling is felt as fear. (3) "The vital point: If we fancy some strong emotion, and then try to abstract from our consciousness of it all the feelings of its bodily symptoms, we find we have nothing left behind; no 'mind-stuff' out of which the emotion can be constituted, and that a cold and neutral state of intellectual perception is all that remains." (Op. cit. p. 451.)

Criticism.—Although its chief thesis is erroneous, this theory seems to us to contain grains of truth frequently overlooked by its opponents. 1. An emotion is not a momentary, atomic conscious state of pure quality; but a complex form of mental excitement always lasting for some time, and generally constituted of sundry elements both cognitive and appetitive, sensuous and spiritual. The class of "coarser" emotions—which roughly correspond to the *passiones sensibiles vel animales* of the schoolmen—more especially include as an essential component the consciousness of motor nervous activity and general bodily disturbance. What we understand by an emotion of anger or fear, is thus not a simple act of an ultimate *feeling-faculty*, but a process of consciousness comprising a cognition of some object, a resulting appetitive or impulsive state, and a feeling of organic excitement.[10] This latter ingredient is probably the incoming perception of the reverberation of neural discharges diffused throughout the system. Consequently, if we abstract the feeling of bodily symptoms, a very substantial constituent of the coarser emotions is thereby eliminated. Still the remnant is not merely a neutral "state of perception." There will remain also an element of appetency or conation. Of course the latter factor may likewise be abstracted; but surely this is deliberately *das kind mit dem Bade auszuschütten*—"to empty out the baby along with the bath." In the subtler emotions —*passiones spirituales*—the rational appetitive element of complacency or dissatisfaction is at least as important as the act

[10] The organic commotion—*transmutatio corporalis*—is made an essential part of the "coarser" emotions by St. Thomas. Thus: "Passio proprie invenitur ubi est *transmutatio corporalis*, quæ quidem invenitur in actibus appetitus *sensitivi*." (*Sum.* 1-2. q. 22. a. 3.) "Ad actum appetitus sensitivi per se ordinatur hujusmodi transmutatio: unde in *definitione* motuum appetitivæ partis materialiter ponitur *aliqua naturalis transmutatio organi*, sicut dicitur, quod ira est *accensio sanguinis circa cor*, unde patet quod ratio passionis magis invenitur in actu sensitivæ virtutis *appetitivæ* quam in actu sensitivæ virtutis *apprehensivæ*." (*Ibid.* a. 2. ad 3.)

of intellectual appreciation; but it is quite true that if we abstract all the *sensible* effects, the *passional* element of the emotion disappears.[11]

2. Nevertheless, the impulsive or appetitive element in emotion—whether "coarse" or "subtle," is not merely the apprehension of the reverberation of the neural disturbance. This disturbance is the effect either of the impulse or of the physical correlate of the latter. The fact that mankind at large—including psychologists—have hitherto so interpreted the conscious process affords at least a strong presumption in its favour. Furthermore, there are many experiences which cannot otherwise be rationally explained. For example, an officer at the mess-table hears the word "liar" or "coward" incidentally pronounced, and remains unaffected. But let him understand that the term is *addressed to himself*, and the state of consciousness immediately awakened is totally different. The sound, the physical impression is substantially the same in both cases; and it is not easy to see on the physiological theory why the motor reverberation should be so enormously different. The common sense theory, on the other hand, answers intelligibly that though the act of perception may be almost the same in both cases—or even more intense in the former—yet the *rational meaning* is completely different. This difference of *meaning* can account for the enormous difference in the subsequent *mental* state—the violent impulsive feeling which has as its physical correlate an outgoing nervous process. This expresses itself in the bodily commotion which is felt as organic sensation. The same holds true of the feeling of fear, moral approval, æsthetic admiration and the sentiment of the sublime or the ludicrous, which are awakened not by the impressions of particular stimuli, but by intellectual appreciation of *relations* which give its *meaning* and *worth* to the object. The closing words of Lotze in another connexion are to the point here: "The shudder in presence of the sublime, and the laughter over comical incidents are unquestionably both produced not by a transference of the physical excitations of our eyes to the nerves of the skin or the diaphragm, but by what is seen being taken up *into a world of thought* and estimated at the value belonging to it in the rational connexion of things. The mechanism of our life has annexed this corporeal expression to the *mood of mind thence evolved*, but the *bodily expression*

[11] "Amor, et gaudium, et alia hujusmodi, cum attribuuntur Deo vel angelis, aut hominibus secundum appetitum intellectivum, significant simplicem actum voluntatis cum similitudine effectus *absque passione*." (*Ibid.* a. 3. ad 3.)

would never of itself without the understanding of what it presents give rise to the mood." (*Microcosmus*, Vol. I. Bk. III. c. 3, § 4.) The physical act of tickling may excite laughter similar in kind to that awakened by a humorous story, yet the frame of mind evoked is totally different; and on the other hand, what is substantially the same strong emotion may manifest itself in quite unlike motor effects. Thus intense sorrow may result in violent outbursts or tearless silence.

3. The various facts cited in favour of the physiological theory can be accounted for just as well on the psychological or common-sense view. Emotion and emotional movements, whatever was the original order of their occurrence when connected by association reciprocally suggest each other. The awaking of emotion in the actor by counterfeit expression is thus easily explained. The pathological cases of objectless emotion can be similarly accounted for. The recurrence of any part of a total emotional mood tends according to the ordinary law of mental association to reinstate the remainder; even though the recurring element be organic sensation abnormally excited by the morbid instability of the nervous mechanism of expression. But it is at least as probable that these pathological cases are due to disordered cerebral ideational centres which pervert the emotion at its source.[12]

Classification of the Emotions.—We have abstained in the present chapter from all attempt at a systematic classification of the emotions. We believe such an undertaking to be impossible; and we think that a scheme falsely pretending to effect a scientific division of these mental states will do more harm than good. Most of the emotions are extremely complex states. Few of them are of well-defined character; and the quality even of these is rarely pure. Feelings are invariably mingled or tinged with others of a different

[12] The constitution of a total emotional process, *e.g.*, a fit of anger, seems to us to include these psychical and physical elements: (1) *Cognitive* state (*a*), with its *physical* correlate, a nervous change in *cerebral* centres (α); (2) a *conscious appetency* or *impulse* (*b*), excited by (*a*), and having as *physical* correlate a diffused *outgoing* process along motor nerves (β); (3) expressive *bodily* commotion (*transmutatio corporalis*) (γ), caused by (*b*)(β), and presenting itself to consciousness through organic *sensation* (*c*). Psychically the emotion is composed of (*a*) (*b*) (*c*); the physical counter-part consists of (α) (β) (γ). On the general question cf. also Mark Baldwin, *Feeling and Will*, pp. 252—257; and Stout, *Manual*, pp. 287—297.

nature. They also shade into each other by imperceptible transitions. Moreover, they continually change in tone with the varying age, circumstances, and dispositions of man. As a consequence of all these properties, no satisfactory *fundamentum divisionis* can be selected; no table of *membra excludentia*, no arrangement exhibiting degrees of intrinsic affinity—in a word, no scheme embodying the rules or attaining the ends of logical classification, can be drawn up.

Certain writers, starting from some very unimportant extrinsic feature have elaborated plans possessing a degree of external symmetry, but lending no real assistance to the analytical study of the emotions. Others, on the contrary, adopting some hypothetical principle, which claims to penetrate to the root of mental life, have subjected many mental states to the most violent handling in order to squeeze them into the prescribed compartments. We thus find feelings which are closely akin in nature widely separated, and *vice versa;* because the particular principle chosen, however suitable in the division of other states, is utterly inappropriate when applied to these. In such a situation it seems to us decidedly the best course frankly to accept the facts; and so we have merely taken up the chief feelings and pointed out their most prominent characteristics. But in order to establish completely the justice of our method, we shall indicate a few of the schemes which have been advocated:

Spinoza recognizes as the three great primary types of passion: *Desire*, *Joy*, and *Sadness*. They form the three first on the ordinary scholastic list, which we have already given, and did he but add the fourth—aversion or abhorrence—the scheme of the Dutch philosopher would have been at least as good as that of any of his successors. If he marks off joy from desire, he ought to separate aversion from sadness. Desire aims at future or absent good, the fruition of which is joy; the object of abhorrence or aversion is absent evil, and its presence creates sadness.

Thomas Brown's classification of emotions runs thus:

I. Immediate—cheerfulness, melancholy, wonder, moral feeling, love, etc.

II. Retrospective—anger, gratitude, regret, gladness.

III. Prospective—the desires of knowledge, power, fame, etc.; also hopes and fears.

The principle of division here—that of time, is of very little importance from a psychological point of view. What is fundamentally the same feeling—*e.g.*, the moral sentiment—may be evoked by the contemplation of an object as future, present, or past. It is obviously unwise to separate these phases of the same emotion from each other, and to group them with feelings to which they have no affinity.

Herbert Spencer, assuming the theory of Evolution, seeks to classify the emotions according to degree of development and complexity. This he considers to be determined by the order of their manifestation in the ascending grades of the animal kingdom, in different stages of human civilization, and in different periods of the individual's life. He accordingly divides all feelings into four great classes:

I. *Presentative feelings.*—Sensations considered as pleasurable or painful.

II. *Presentative-Representative.*—The majority of emotions so called. They are due to inherited experience: our sensations arouse vague representations of pleasurable or painful sensations experienced by our ancestors, *e.g.* terror.

III. *Representative.*—Ideas of feeling of the previous class excited in the imagination apart from external stimulus, *e.g.*, the pleasures of poetry.

IV. *Re-Representative.*—The most abstract, complex, and refined sentient states. Representations of representations of sensuous impressions. The sentiments of justice, of property, and the moral sentiment are illustrations.

Criticism.—In the first place the assumption on which his scheme is based—that all our emotions are evolved out of sensuous impressions—may be simply denied. Proof of such a thesis would be a very big undertaking indeed, and Mr. Spencer does not seriously attempt it. The emotions of curiosity, surprise, the ludicrous, shame, logical consistency, and moral approval, are certainly not reducible to sensuous elements. Again: stage of development, though possibly a consideration of much use for educational purposes, is not an appropriate ground of division from the standpoint of psychological analysis. What is needed is a systematic grouping of the several distinct species of emotion, such as love, wonder, hope, anger, fear, and the like, according to their mutual affinities, and as far as possible in their purest forms in the hope of discovering some underlying general principle which rationally connects them. If we wish to study the characteristics of the various human races, we class them as Caucasian, Mongolian, American Indian, and

the other large divisions, and then subdivide these groups into smaller families, the Indo-Germanic, the Semitic, and the rest. We do not take as our divisions: man up to the age of three; from three to ten; from ten to twenty. A fatal defect of this development method of classification is that it distracts our attention from most of the very affinities and differences which it is our primary object to discover. The characteristic features of the elementary distinct types of emotion are ignored, and widely opposed qualities of consciousness are grouped together, whilst what is fundamentally the same activity in successive stages of growth is split up and assigned to different categories. Thus curiosity, indignation, and admiration for the beautiful should appear in nearly all the four compartments. The error of this classification is, in a word, the substitution of differences of *degree* for differences of *kind*.

The Expression of the Emotions.—In the final analysis we always have to be satisfied with the statement that a definite neural movement is *de facto* the immediate antecedent or consequent of a given psychical act. The one cannot be deduced from the other; and why God created mind and body thus cannot be explained. But, though a vast region of mystery will ever surround the small field of human knowledge, it is the duty of the scientist to seek to push back the circumference of his circle as far as he can. At this object theories of emotional expression aim; and, although the subject lies on the border-land of both Physiology and the Science of Mind, it seems here appropriate to give a short account of what has been done with a view to explaining why particular actions are connected with certain emotions.

Sir Charles Bell, the distinguished physiologist, in his essays on the *Anatomy and Philosophy of Expression* (1806—1844), was practically the first to attempt an accurate scientific treatment of emotional expression. He devoted himself solely, however, to *describing* in detail the muscular movements engaged in the manifestations of the various feelings; and he makes no pretence to *explain why* the particular gestures are connected with the corresponding mental state.

Bain seeks to go a step further in the line of explanation in attempting to formulate a principle which will account for the difference in character of the movements accompanying

broadly different kinds of feeling. This he does in his "Law of Self-conservation:" *States of pleasure are concomitant with an increase, and states of pain with an abatement of some or all of the vital functions.* Pleasurable feelings—joy, laughter, hope—express themselves in augmented vigour of the vegetative functions, and also in the stimulation of various muscles, facial, respiratory, and the like. On the contrary, painful feelings—sadness, fear, sorrow, result in depression of organic life, and in the general diminution of motor activity. This generalization embraces a considerable number of facts, but it is subject to so many limitations that its claims to be styled a *law* are very doubtful. As a principle, too, it is so vague that it helps us very little in accounting for particular forms of emotional expression.

Evolutionist theory.—Attempts have been made by Darwin and Herbert Spencer to account for emotional expression on the hypothesis of Evolution. **Darwin's** theory is embodied in three laws:

1. *The principle of the preservation of serviceable associated habits.*—Movements which at an earlier period in the history of the race were instrumental in the relief or gratification of particular mental states, tend to survive when no longer of use. The phenomena of *frowning* and *weeping* are thus explained as being effects on the eyebrows and lachrymal glands of the contraction of certain ocular muscles. This contraction was the result of prolonged fits of screaming, very frequent during infancy in the early history of the race. At present though the scream be voluntarily suppressed, and the cause removed, painful mental states will still produce the frown or the tears. Scratching the head was serviceable for the relief of cutaneous irritation during long years of pre-human existence, and still persists as a gesture aroused by intellectual distress. Similarly, grinding the teeth and clenching the fists, formerly useful actions in conflict, now accompany angry feelings when apparently purposeless.

2. *The principle of antithesis.*—Opposite impulses of will tend to urge us in opposite directions. In the same way, given certain states of mind leading to habitual actions under the previous principle, opposite states of mind will tend to set up movements of a directly contrary nature, though they be of no particular use. The *flexuous* movements of a joyful affectionate dog are thus accounted for as the antithesis of the *rigid* attitude of angry dislike.

3. *The principle of actions due to the constitution of the nervous system independently from the first of the will, and independently to a certain extent of habit.*—To this class are assigned all expressive movements not accounted for by the

other two laws. Such are the trembling of the muscles, modifications of the secretions, and other changes effected by particular emotions.

Criticism.—As regards the first law, if the doctrine of descent were already established, the explanation thus given of a few instinctive gestures, such as clenching the fists and grinding the teeth, would certainly be plausible. Still, the application of the law in a large majority of cases would be, to say the least of it, very improbable. To take the example of weeping, cited by Darwin, there is no real evidence to show that screaming of itself is productive of tears, for the screams of both infants and adults are often strongest when tearless; and, on the other hand, tears may flow from joy or pity, although these states cannot have been associated with infantile screaming. Similarly the connexion between irritation of the scalp and intellectual anxiety is very faint.

A most important point, however, usually overlooked by advocates of Evolution, is the fact that emotional expression must have often been disadvantageous, not beneficial, to the individual. If Talleyrand's saying, "Speech is given man to conceal his thoughts," possesses an element of truth in any condition of human society, assuredly the manifestation of his feelings and desires must have been detrimental to the agent in the earlier stages of animal existence. The premonitory disclosure of hatred or fear, for instance, would have been invariably unprofitable. It would in fact seem that many instinctive modes of expression ought, as a rule, to have been extinguished almost as soon as they appeared.

Darwin's second principle has met with but little acceptance even amongst his disciples. When we endeavour to realize precisely what is meant by *contrary* feelings tending to produce movements of an *opposite* nature, we discover that the conception of contrariety involved is extremely vague. "What is meant, it may be asked, by opposition between the impulses of the will to turn to the right and to the left, over and above the contrariety of direction in the resulting movement? And even supposing there were such mysterious contrast in our volitions, with which contrariety of movement had become instinctively associated, one might still inquire how we should be able to determine the proper antithesis in the case of any given emotion. Why, for example, should the movements of a dog during an outburst of affection be regarded as the antithesis of movements which accompany anger, rather than of those which characterize terror? As states of feeling, one suspects terror before a threatening look and the pleasurable elation at friendly symptoms, have quite as many elements of contrast

as the feelings said to be in antithesis by Mr. Darwin; and so far from the movements of these opposite feelings being unlike, they very closely resemble one another in many respects, as may be seen in the fawning and crouching attitudes."[13]

Darwin's third principle is sufficiently comprehensive, but it suffers from the disadvantage of explaining virtually nothing. It merely tells us that the character of certain expressive movements resulting from the excessive generation of nerve force by strong feeling is determined by the constitution of the nervous system. This is undoubtedly the case, and Darwin's whole theory would, we believe, have approximated more to actual truth, though thereby losing the charm of ingenuity and originality, if it had assigned a considerably larger share of the phenomena to this cause.

Herbert Spencer accounts for emotional expression thus. Nervous energy is aroused by feeling, and tends to express itself in the discharge of motor activity. This discharge exhibits itself partly in a *general effect* diffused throughout the *entire system;* partly in *special excitement* within a *restricted field*. An attack of coughing exemplifies both. The disturbance produced will be directly as the intensity of the feeling, and inversely as the size of the muscles acted upon. Thus, a faintly pleasurable feeling may excite a slight lateral oscillation in a dog's tail, whilst stronger emotion sets him barking and capering around. Movement first takes hold of the smaller and more easily moved muscles, afterwards of the heavier parts, and finally of the whole body. This may be seen by tracing the external manifestations of a fit of anger or merriment. In the incipient stages slight feelings act upon the lips and eyebrows, but as the passion grows in strength, the lungs, head, limbs, and finally the entire organism may be set in violent motion. The particular movements within the restricted field, however, are those which specifically express the several qualities of emotion. These movements are, in Mr. Spencer's view, inherited ancestral actions by which feelings similar in kind to those now aroused were formerly satisfied.[14]

Spencer's *law of restricted discharges* is substantially identical with Darwin's principle of associated serviceable actions; and the remarks we have made above are again applicable here. Spencer, too, illustrates his law by an

[13] Sully, *Sensation and Intuition*, p. 29.

[14] Darwin's theory is expounded in his book, *The Expression of the Emotions in Man and Animals*, 1872. Spencer's treatment of the subject is given in his Essay on the *Physiology of Laughter*, and in his *Principles of Psychology*, Pt. VIII. c. iv.

account of the genesis of that important emotional expression —the frown; and the divergence between his explanation and that of Darwin, affords an instructive comment on the worth of the doctrine common to both. The corrugation of the eyebrows, Spencer tells us, is useful in protecting the eyes from the rays of the vertical sun. This act would therefore have afforded an advantage in tropical regions during the combats of the animals from whom we are more immediately descended. Accordingly, those individuals in whom the nervous discharge accompanying the excitement of combat chanced to cause an unusual contraction of the corrugating muscles of the forehead "would be more likely to conquer and leave posterity—survival of the fittest tending in their posterity to establish and increase this peculiarity."[15] The recurrence of angry feelings or non-pleasurable states of any kind would, therefore, after a time, by association tend to excite the frown, where its utility as a sunshade has ceased. Darwin, as we have already mentioned, showed in an equally conclusive manner that frowning is an inheritance from the distortion of the facial muscles during long ages of infantile screaming. Both hypotheses exhibit the fertile imagination possessed alike by the philosopher and the naturalist, but the conflict in their conclusions ought to warn us of the exceedingly precarious character of their theory.[16]

Spencer's *law of general diffusion* corresponds to Darwin's third principle, but is a far more definite and satisfactory description of the course of neural disturbance. It appears to us to contain much truth. It gives a natural account of the gradual development of the external manifestation of feeling, and embraces many curious facts. Unfortunately, however, the author at times does not seem to distinguish

[15] *Principles of Psychology*, § 498. For Darwin's account of the gesture, cf. op. cit. pp. 225, 226.

[16] The distension of the nostrils by indignation, Mr. Spencer similarly traces to the accidental advantage gained by those of our ancestors in whom the diffused discharge chanced to dilate the nostrils during conflict, especially when influenced by non-pleasurable feelings their mouths were occupied *in holding on to part of an antagonist's body!* The force of this ingenious explanation is somewhat seriously shaken by the fact, that the nostrils are also dilated in certain *pleasant* states; and we find Wundt classing this gesture under the general tendency to extend the mouth, eyes, nostrils, &c., in order to increase *agreeable* sensations. The act of blushing and several other phenomena are also differently accounted for by these three writers. The simple truth is that once we get into the regions of pure imagination, there is no limit to fanciful hypotheses.

clearly between the mental state and its physical concomitant. He frequently appears, especially in his article on *Laughter*, to speak as if the emotion were itself identical with, or transformable into, the accompanying discharge of nervous energy; although he elsewhere recognizes the transcendent difference which separates them.

Wundt also formulates a theory in three general laws: 1. *The principle of the direct alteration of innervation.* This signifies that intense emotions generate their external expression by exerting an immediate reaction on centres of motor innervation, paralyzing or stimulating the action of many groups of muscles—*e.g.*, in the trembling of limbs and contraction or enlargement of blood-vessels. 2. *The principle of the association of analogous sensations.* This means that different species of sensations in which there is a certain community of *tone* or *quality* tend more easily to combine and strengthen each other. The muscles of the jaws thus assume an attitude of tension under energetic feelings; of agreeable ease in quiet satisfaction; and of unpleasant distortion under contrary emotions. The movements of the mouth and tongue under the action of sweet, bitter, sour, or disgusting tastes, are also excited by the *idea* of such sensations, and then transferred to analogous *feelings* or *emotions* 3. *The principle of the relation of movement to the perceptions of sense.* This law embraces all gestures and expressive motions not included under the other two. Movements of the eyes, head, and limbs accompany our thoughts and words. As our language or feelings become excited we point towards distant objects, clench our fists, raise our arms, erect our head, and the like. We smilingly nod assent, or deprecatingly draw back our head from the imagined object. This theory, though less imaginative than either of those just mentioned, determines more accurately the relations between many classes of feelings and their expression.[17]

The Origin of Language.—Rational language may be described as, *a system of conventional signs representative of thought:* or we may define *oral language* in more precise fashion as, *a system of articulated words representative of thought.* The primary object of language is the communication of ideas; but it serves in addition as a record or register of past intellectual acquisitions, and also as a mechanical aid to thinking. (See p. 302.) The origin of language thus understood, has formed a

[17] For a synopsis of Wundt's theory, cf. Ladd, op. cit. p. 531.

prolific subject of speculation. It is the function of Theology, not Philosophy, to interpret the passages of Scripture bearing on this matter, and to explain in what manner and to what extent this gift was communicated to the first human beings. Apart, however, from the decision of these points there remains for Philosophy the question: Could language have been invented by man, and, if so, by what agencies and laws would its development be governed? The latter investigation, moreover, is not purely hypothetical in character. Whatever interpretation of Scripture be adopted, the subsequent history of language will, in accordance with God's usual providence, have been governed by natural laws. Abstracting then from Revelation, could language have arisen in a natural manner? and, however originated, what are the principles which have determined its evolution?

Its Nature.—For *rational speech* the name must be used consciously *with a meaning;* that is, *as a sign* of an object of thought. The parrot articulates words, and the dog unmistakably manifests feelings of joy or anger; but neither of these animals is capable of language in the proper sense of the term. Even the most pronounced advocates of Materialism are constrained to admit that no other creature but man has ever attached a name to an object.[18] For such an operation, a supra-sensuous power of abstraction and reflexion is absolutely necessary. Accordingly, language could not have *preceded* the existence of intellect or reason. *Manifesting thought, it must be subsequent to thought.* It presupposes the formation of general concepts, and in its simplest employment of a word as a sign, language involves that apprehension of universal relations which is the characteristic feature of supra-sensuous intelligence. Still, the invention of language does not require a previous fund of elaborate notions. Looking on human nature as we find it at present, the accumulation of a considerable collection of intellectual products, and any but the most meagre cultivation of the rational faculties seems naturally impossible without the assistance of words. But given men created with both the reflexive activity of thought and the physical power of making signs, and they will inevitably soon learn to communicate their ideas to each other.

[18] Cf. Maudsley, op. cit. p. 502. On the other hand, no tribe of men has yet been discovered devoid of the attribute of speech.

Development.—Starting with the social instinct, men tend to congregate together. In the next place, their nature is such that lively emotions are expressed not merely in facial changes, but in cries and movements. There is also exhibited in man, especially in early life, a curious mimetic impulse, which leads him to reproduce in his actions and utterance the phenomena of external nature, whether animate or inanimate, that most interest him. Cries thus elicited in sympathy or fright, having been both felt and heard by the individual in the presence of the external object, will be associated with it, and tend to be reproduced on other occasions, according to the laws of suggestion. Moreover, living in community and being of like nature and disposition, men would be impelled to similar manifestations, and would soon grow to associate their neighbour's utterances as well as their own with the appropriate external event. We have not, however, yet reached *rational* language; we are still in the plane of sense and instinct. These are preliminary steps; still, gregarious brutes would get thus far. But in addition to these aptitudes, man is endowed with the faculty of abstraction and reflexion, and this power would now inevitably lead him to conceive and employ these expressions *as signs* of the corresponding objects—to *mean* things by words; and at once we have rational speech.

Agencies.—To the first query, then, we must answer: Yes. Apart from any special Divine intervention, man, with his present nature, by use of the faculties which God has given him, would have invented a language. The materials employed for signs will be in part the exclamations emitted as interjections, in part mimetic utterances by which he seeks to suggest to the hearer the object imitated.[19] The indirect action of the onomatopœic tendency is, however, probably far more influential than its immediate results. Not only are analogies observed between the sensuous impressions and the sounds or feelings of effort put forth in the responsive vocal expression, but kindred utterances involving a like

[19] The hypotheses which lay chief stress on the interjectional and onomatopœic impulses have been respectively styled by Max Müller the "*Pooh-pooh* and *Bow-wow* theories." (*Lectures on the Science of Language*, First Series, p. 344.) He holds that the efficiency of these principles is extremely limited, many apparent instances of onomatopœia not being really so, *e.g.*, *thunder* from the same root as the Latin *tenuis*, *tender* and *thin*. Squirrel not from the rustling whirling of the little animal, but from the Greek *Skiouros*= *shade*, *tail*; the French *sucre* from the Indian *sarkhara*, &c. He does not however seem to have considered sufficiently the mediate or indirect agency of onomatopœia.

tone of consciousness are used to designate analogous, though very unlike experiences. Still, by far the most important part of all languages, it has been forcibly argued, is reducible by the science of Comparative Philology to a small collection of generic roots representative of universal ideas though applied to particular objects. These root-sounds, it is asserted, cannot be onomatopœic; they are indicative of characteristic actions or attributes of the object, and so are expressive not of particular impressions, but of general notions. For this reason they are fruitful and capable of forming part of the names of many things possessing this feature in common. These four hundred or five hundred ultimate roots, which remain as the generic constituent elements in the different families of languages, are neither interjectional nor mimetic sounds, but *phonetic types* produced by a power inherent in human nature. There is, in fact, a species of natural harmony between the rudimentary oral expression and the corresponding thought, just as there is between the latter and the external reality.[20]

Very little original capital would have been required, and however this was obtained, whether in the form of casual sounds accompanying appropriate gestures, or as a spontaneous product of human nature, or as a collection of suitable utterances elicited by Divine intervention, the start once effected, progress was comparatively easy. New surroundings, new wants, the inventive energy of intellect, the

[20] Cf. Max Müller, op. cit. Lect. ix. Apart from the question of the original fund of root-sounds—which is equally a difficulty to all purely rational theories—Müller's general doctrine seems plausible. The fierce conflict, however, which still prevails on most fundamental questions of the science of Comparative Philology makes one feel that beyond the limited region of common agreement even the most attractive hypotheses are extremely hazardous. Schleicher, for instance, the leading Darwinian in this field, whose confidence in his views is always in direct proportion to the obscurity of the subject-matter, asserts that language is a natural *organism*, the growth and decay of which is governed by fixed and immutable laws. Language is as independent of the will of the individual as the song of the nightingale. Opposed equally to both Max Müller and Schleicher is the chief American philologist, Professor Whitney. With him language, which separates man from the brute, is essentially a voluntary invention, an "institution" like government, and "is in all its parts arbitrary and conventional." (*Life and Growth of Language*, p. 282.) Steinthal's teaching increases the novelty; and Heyse, who stands to Hegel as Schleicher to Darwin, evolved a mystical creed on the subject, in unison with the spirit of his master's philosophy. An account of the various theories is given in Sayce's *Introduction to the Science of Language*, Vol. I. c. i.

force of analogy, multiplied and perfected the materials in use. Diversities of climate, food, and exercise, acting on the organism, modify the vocal machinery. Special occupations develop particular groups of words earlier in one district than in another. Variety of classes, trades, and professions within the same nation fosters the simultaneous growth of a multiplicity of terms. The onomatopœic and interjectional tendencies continue to make small contributions from time to time, but the great force which enriches our vocabulary is *analogy*. The old roots representing generic attributes merely require recombination to express a novel object. Growth of language and intellectual power will proceed concomitantly, for they act and react upon each other.

Readings.—On Emotional Activity, see *Das Gemüth und das Gefühls-vermögen der neuren Psychologie*, von J. Jungmann, S.J. Dr. Gutberlet handles the matter from a different point of view, op. cit. pp. 199—229; On Language and Emotional Expression, *ibid.* 116—128; J. Gardair's, *Les Passions et la Volonté*, pp. 6—250, contains a good exposition of the scholastic doctrine. Portions of Dr. M'Cosh's *Emotions* are useful.

PSYCHOLOGY.

Book II.

Rational Psychology.

CHAPTER XXI.

SUBSTANTIALITY, IDENTITY, SIMPLICITY, AND SPIRITUALITY OF THE HUMAN SOUL.

Scope of Rational Psychology.—We have hitherto been chiefly studying the character of our several mental activities, and the modes of their exercise; we now pass on to inquire into the nature of the principle from which they proceed. The aim of Rational, Metaphysical, or Philosophical Psychology, is to penetrate to the source of the phenomena of consciousness. It endeavours to ascertain the inner constitution of the subject of our psychical states, and to discover the relations subsisting between this subject and the body. In a word, Philosophical Psychology seeks to learn what may be gathered by the light of reason regarding the nature, origin, and destiny of the human soul.

Its Importance.—The importance of such a study is evident. What are we? Whence come we? How ought we to live? What is there to hope for? These have ever been questions of transcendent interest to mankind; and never more so than at the present day. Beside these problems, unless in so far as they may throw light on them, the discussions of Empirical Psychology sink into comparative insignificance. Yet the great majority of recent English text-books on Psychology affect to ignore these matters altogether. Or, if they allude to them, they do so with a shame-faced profuseness of apology which is not a little amusing. The naturalist, the physiologist, the physicist, may speculate at length about the nature and future destiny of man's soul; but if a writer on the Science of the Human Mind ventures to touch on topics so alien to his subject and so unbecoming his character, unless, indeed, in order to show that there is *no* soul and *no* future, his reputation as a psychologist is at once ruined, and he is stigmatized as a "metaphysician"! The unsatisfactoriness of such a course ought now to be plain to our readers. The first part of this work, whatever be its positive value, ought to have at least proved that it is impossible to separate the investigation of our mental activities from Philosophy—that an *unphilosophical* psychology is necessarily an *inconsistent*, and therefore an *unscientific* psychology. Our views concerning the existence of an external world, the nature of the higher faculties of the soul, human responsibility, causality, and the final question of materialism or spiritualism, must inevitably be determined by the view of the character of mental life adopted in the empirical portion of Psychology. Once more we are forced to choose, not between a metaphysical psychology and psychology without any metaphysics; but between a psychology annexed to an inconsistent, half-concealed, clandestine metaphysics, and one that forms part of a philosophical system which, whatever be its difficulties, is at any rate openly professed and frankly declared.

Method.—Our method of procedure here will be both inductive and deductive, both analytic and

synthetic. We start from truths and facts already possessed to reach others not yet known. We argue from the effect to the cause. From the character of those mental activities, which we have analyzed with so much care, we shall now be able to perfect our conception of the subject to which they belong. We believe that no doctrine concerning the nature of the soul can be satisfactorily established in the face of modern criticism, based, as it now is, on most acute and elaborate analyses of our conscious states, unless that doctrine rest upon an analysis of these states not less thorough and painstaking. And it is for this reason, we have begun this work by so laborious and detailed an investigation into the character of our mental activities, especially those of thought and volition. From what the mind *does*, we shall now seek to learn what it *is*. From the spiritual nature of our rational and voluntary operations, we shall show that the soul is endowed with the attributes of simplicity and spirituality; or rather, that in its nature it is a simple spiritual substantial *being*. When this all-important truth has been firmly established, we shall deduce certain other conclusions regarding the soul's origin and destiny. It will, however, be most convenient to begin by proving the soul to be a *substantial* principle. We shall then establish its persisting indivisible *identity* through life; next its *simple* nature; and afterwards its *spirituality*. Each of these propositions, taken by itself, may afford but little positive information; and even when they have been all combined, the synthetic concept of the nature of the soul thus reached will still necessarily be very imperfect and inadequate; nevertheless, it will constitute knowledge real and valid, so far as it goes.

Substantiality of the Human Mind or Soul.—By the word *Mind* or *Soul*, we here understand *the subject of our mental life, the ultimate principle by which we feel, think, and will.* A *principle* is that from which something proceeds, and by *ultimate* principle is here meant the *last* ground or source of the mental activity within us. Our immediate task, therefore, is to prove that

this ultimate principle of our individual conscious life is of a *substantial* nature. The notion of *Substance* has been so violently attacked in modern philosophy that it is desirable in entering upon the present question to add some further remarks to the account already given of this idea when dealing with its genesis. (See p. 368.) But for a detailed discussion of the subject we must refer to the volume of this series on *Metaphysics*.

Validity of Notion of Substance.—All being is divided into *substance* and *accidents*. Substance is that which exists *per se*—that which *subsists in itself;* as contrasted with accident, that which of its nature inheres in another as in a subject of inhesion. The primary element therefore in the concept of Substance is not *permanence amid change*, although in the development of the notion this feature plays an important part. Still less is the essential note of substance the idea of a secret *substratum*, concealed like "the core of an onion" beneath a rind of changing accidents really distinct from itself. The Divine Being, though devoid of all accidents and immutable from all eternity, is a perfect Substance; and on the other hand, an atom or an angel created to be destroyed the next instant, would have been a genuine substance, even if it underwent no change during its brief existence. The assault of modern philosophy upon the conception of substance has been almost entirely directed against this secret *substratum* or *noumenon* which is supposed never to reveal itself to cognition. Accordingly, when we recall and insist upon the old definition—*id quod per se stat*,—the most plausible objections which have been raised against this notion lose their force.[1]

[1] "The chief attack on substance is made precisely on the misconception, that the inmost essence of the notion is a *substratum*, hidden away under qualities really distinct from itself, a fixed unchangeable thing clothed in attributes, some variable, some constant, but all, as was just said, really distinct. Such is the interpretation of the scholastic theory by most opponents; while the schoolmen themselves have held up existence *per se* as the fundamental notion of substance. For, first it is clear that they could apply no other definition to God. Moreover, even with regard to created substance, they were aware of the enormous

The Mind is a Substantial Principle.—Every form of reality must in the last resort either subsist in itself, that is, exist *per se*, or inhere in another being. Sphericity, colour, pain, for instance, cannot subsist in themselves; neither can there be an infinite series of such accidents, each being only a mode or attribute of another; there must ultimately be something which exists *per se*. Furthermore, substances really *act*, and by their action make themselves known to us. Now the last ground of our mental life, the ultimate basis of our psychical activities must be a substantial principle. States of consciousness, mental modifications, necessarily presuppose a *subject* to which they belong. Even assuming that they may turn out to be functions of the nervous system, or phases or aspects of cerebral processes, they must still have their origin in a *substantial* principle. Motion is unthinkable without something that is moved. A feeling necessarily implies a being which feels. Cognitions and passions cannot inhere in nothing. Desires cannot proceed from nothing; they must have a source or a subject from which they flow. So far even the materialist must agree with us.

Internal Experience.—Or we may appeal directly to the testimony of internal consciousness. That I am a real being, subsisting in myself; that I am immediately aware of myself as the *subject* of sensations, feelings, and thoughts, but not any one of them, or all of them; that I am the cause of my own volitions; that I am distinct from other beings; that there is in me a Self—that I am an *Ego* which is the centre and source of my acts and states, the ultimate ground and subject of my thoughts and affections, is forced upon me by constant, intimate, immediate self-experience, with the most irresistible evidence. If it be an illusion, there is no belief, no cognition, however clear and certain, that can claim assent.

philosophic difficulty in the proof of what are sometimes called 'absolute accidents that are more than merely modal,' for the demonstration of which they relied not on arguments from reason, but upon consequences which they thought to be involved in the Church's doctrine about the Holy Eucharist." (John Rickaby, *Metaphysics*, p. 254.) "*Permanence* is not of the essence of substance, any more than non-permanence or succession of accidents is of *their* essence; Kant, therefore, and Green are wrong in the leading position which they assign to permanence." (*Ibid.* p. 259.)

Notwithstanding his own erroneous view as to the *nature* of Substance, Lotze rightly insists that the *cognition* of a substantial self, is a fact of immediate experience: "It has been required of any theory which starts without presuppositions and from the basis of experience, that in the beginning it should speak only of sensations and ideas, without mentioning the soul to which, it is said, we hasten without justification to ascribe them. I should maintain, on the contrary, that such a mode of setting out involves a wilful departure from that *which is actually given in experience.* A mere sensation without a subject is nowhere to be met with as a fact. It is impossible to speak of a bare movement without thinking of the mass whose movement it is; and it is just as impossible to conceive a sensation existing without the accompanying of that which has it,—or rather, of that which feels it, for this also is included in the given fact of experience that the relation of the feeling subject to its feeling, whatever its other characteristics may be, is in any case something different from the relation of the moved element to its movement. It is thus and thus only, that the sensation is a given fact; and we have no right to abstract from its relations to its subject because this relation is puzzling, and because we wish to obtain a starting-point which looks more convenient, but is utterly unwarranted by experience." (*Metaphysic*, § 241.)

Abiding Identity of the Mind.—Having insisted on the truth that the primary note in the concept of substance is not the idea of a permanent secret immutable *substratum;* we now proceed to prove that, as a matter of fact, the substantial being of the human mind *does* endure throughout our mental life—that *the soul is a real unitary being which abides the same during all the varying modes of consciousness.* And, although permanence amid changing accidents is not necessarily implied in the notion of substance, the establishment of the present proposition will undoubtedly tend to render still more evident the substantial nature of the *Mind.* The proof rests on the evidence of internal consciousness, understanding this term in a broad sense, so as to include reflective-cognition and self-conscious memory.

Reflexion and Memory.—Any process of reflective-observation of our experiences brings into the most vivid contrast the distinction between the mind as an abiding *subject* and its transitory *modifications*, whilst it forces upon us the real *sameness* of that *subject* with an

evidence that is irresistible. The simplest act of judgment, the briefest process of conscious reasoning is possible only to a being that persists unchanged during the interval required to pass from subject to predicate, from premisses to conclusions. But the necessary continuity of the agent becomes more obvious in the exercise of deliberate recollection. Memory, in a certain sense, is involved in every retrospective operation; indeed, it is an essential condition of every act of knowledge which extends beyond the mere present sensation; but the assurance it affords concerning some past experiences is not less than that which we possess in regard to present events. I am indubitably certain that I rose from bed this morning, that I breakfasted, that I have written the first words of the sentence which I am now continuing, that I was in Liverpool last winter, and the like. When I now turn to analyze introspectively these remembrances, I perceive that they all implicitly involve the identification of my present self with the self of these past experiences. But this would be impossible were the mind merely a succession of states, or were the material organism the substantial principle in which these states inhere. The constituent elements of the latter, it is a well-established physiological fact, are completely changed in a comparatively short time; and fleeting mental acts which did not inhere in a permanent subject, could as little result in this self-conscious recollection, as could the disconnected cognitions of successive generations of men. *The unity of consciousness establishes an essential unity of being.* It is only a real unitary being, persisting the same amid transitory states, that can afford an adequate basis for the fact of remembrance. Margerie, therefore, rightly maintains: "The condition necessary for the act of recollection, is the identity of the being who remembers, with that being whose former states are recalled by memory. To remember experiences of another would be to remember *having been somebody else:* in other words, to simultaneously affirm and deny one's own identity, a pure and absurd contradiction."[2]

[2] *Philosophie Contemporaine*, p. 140.

Apart, however, from memory, *self-consciousness*, strictly understood, discloses to me only the *present existence of the Ego* in my various operations. It does not reveal my past history, nor assure me of the identity of the man sitting here with the boy who was at a certain school many years ago. Mistake is therefore possible with respect to some past events owing to accidental aberrations of memory. But this in no way invalidates our argument. *A single certain recollection would be sufficient to prove the persisting identity of the mind as a real being.* Lotze has written well: "We come to understand the connexion of our inner life only by referring all its events to the one *Ego* lying unchanged alike beneath its simultaneous variety and its temporal succession. Every retrospect of the past brings with it this image of the *Ego* as the combining centre; our ideas, our feelings, our efforts are comprehensible to us only as *its* states or energies, not as events floating unattached in a void. And yet we are not incessantly making this reference of the internal manifold to the unity of the *Ego*. It becomes distinct only in the backward look which we cast over our life with a certain concentration of collective attention. . . . It is not necessary and imperative that at every moment and in respect to all its states a Being should exercise the unifying efficiency put within its power by the unity of its nature. . . . If the soul, even if but rarely, but to a limited extent, nay, *but once* be capable of bringing together variety into the unity of consciousness, this slender fact is sufficient to render imperative an inference to the indivisibility of the Being by which it can be performed."[3]

Simplicity of the Soul.—In establishing the permanent *identity* of the mind we have proved that it is not composed of a series of successive events or states. By affirming its *simplicity* we mean to affirm that it is not composed of separate parts or diverse principles of any kind; consequently that it is not extended.[4] The

[3] *Microcosmus*, Bk. II. c. i. § 4. The student must be careful not to conceive the *unity of consciousness* in this sense as opposed to the doctrine of the ultimate *duality of consciousness* in External Perception. (Cf. p. 106.)

[4] The schoolmen expressed this attribute—absence of extension or composition of integrant parts—by the term *quantitative simplicity*. The fact that the soul is not the result of a plurality of principles coalescing to form a single nature (as *e.g.*, in their view the formal and material principles of all corporeal objects) they signified by asserting that it is *essentially* simple—*simplex quoad essentiam*. Our proof equally excludes all forms of composition, that of extended

method of proof is the same—from the indivisible unity of consciousness; and the present proposition is really demonstrated by the last argument. But the impossibility of the ultimate source of our conscious life being a composite substance will become clearer if we consider the character of some particular mental acts, and try to realize what is involved in the supposition that they proceed from such a substance.

(1) *The Simplicity of Intellectual Ideas.*—Our experience teaches us that we can form various abstract ideas, such as those of Being, Unity, Truth, Virtue, and the like, which are of their nature simple indivisible acts. Now, acts of this sort cannot proceed from an extended or composite substance, such as, for instance, the *brain*. This will be seen by a little reflexion. In order that the indivisible idea of, say, Truth, be the result of the activity of this extended substance, either different parts of the idea must belong to different parts of the brain, or each part of the brain must be subject of an entire idea, or the whole idea must pertain to a single part of the brain. The first alternative is clearly absurd. The act by which the intellect apprehends *virtue*, *being*, and the like, is an indivisible thought. It is directly incompatible with its nature to be allotted or distributed over an aggregate of separate atoms. But the second alternative is equally impossible. If different parts of the composite substance were each the basis of a complete idea, we should have at the same time not one, but several ideas of the object. Our consciousness, however, tells us this is not the case. Lastly, if the whole idea were located in one part or element of the composite substance, this part should itself be composite or simple. If the latter, then our thesis—that the ultimate subject of thought is indivisible—is established at once. If the former, then the old series of impossible alternatives will recur again until we are finally forced to the same conclusion.

parts as well as that of separate unextended principles, whether homogeneous or heterogeneous. The *unity of consciousness* is incompatible with a multiplicity of component elements, of whatever kind.

(2) *The Simplicity of the Intellectual Acts of Judgment and Inference.*—A similar line of reasoning applies here. The simplest *judgment* supposes the comparison of two distinct ideas, which must be simultaneously apprehended by one indivisible agent. Suppose the judgment, "Science is useful," to be elicited. If the Subject which apprehends the two concepts "science" and "useful" is not indivisible, then we must assume that one of these terms is apprehended by one part and the other by a second; or else that separate elements of the divisible Subject are each the seat of both ideas. In the former case, however, we cannot have any judgment at all. The part *a* apprehends "science," the different part *b* conceives the notion "useful," but the indivisible act of comparison requiring a single agent who combines the two ideas is wanting, and we can no more have the affirmative predication than if one man thinks "science," and another forms the concept "useful." In the second alternative, if *a* and *b* each simultaneously apprehended both "science" and "useful," then we should have not one but a multiplicity of judgments. The simplicity of the *inferential act* by which we seize the logical sequence of a conclusion, is still more irreconcilable with the hypothesis of a composite Subject. The three judgments—Every *y* is *z*; every *x* is *y*; *therefore*, every *x* is *z*—could no more constitute a syllogism if they proceeded from a composite substance than if each proposition was apprehended alone by a separate man.

This good old argument has also been adopted by Lotze: "Any comparison of two ideas, which ends by our finding their contents like or unlike, presupposes the absolutely indivisible unity of that which compares them; it must be one and the same thing which first forms the idea of *a*, and then that of *b*, and which at the same time is conscious of the nature and extent of the difference between them. Then again the various acts of comparing ideas and referring them to one another are themselves in turn reciprocally related; and this relation brings a new activity of comparison to consciousness. And so our whole inner world of thoughts is built up, not as a mere collection of manifold ideas existing with or after one another, but as a work in which these individual members are held together and arranged by the relating activity of this single pervading principle. This is what we mean by the *Unity of Consciousness.* It is this we regard as sufficient ground for assuming an indivisible soul."[5]

(3) *The Indivisibility of Volition.*—The same line of argument

[5] *Metaphysics*, § 241. Cf. Balmez, op. cit. Bk. XI. c. ii.; also our citation, pp. 245—247.

as in the case of judgment establishes the simplicity of the soul from the unity of consciousness presented in acts of will. An indivisible act of choice cannot be elicited by an assemblage of distinct parts or principles.[6] But we may leave the development of the proof to the reader.

We have thus shown that the soul cannot be *formally* extended, that it cannot have parts outside of parts after the manner of a material substance. But this does not exclude the possibility of what is sometimes termed *virtual* extension—that attribute in virtue of which an energy indivisible in itself may yet exert its influence throughout an extended sphere.

The Spirituality of the Soul.—We now pass on to demonstrate that the soul is *spiritual* or *immaterial*. The attribute of spirituality is sometimes confounded with that of simplicity, but they ought to be carefully distinguished. By saying that a substance is *simple* we mean that it is not a resultant or product of separate factors or parts. By affirming that it is *spiritual* or *immaterial*, we signify that in its existence, and to some extent in regard to its operations, it is independent of matter. The principle of life in the lower animals was held by the schoolmen to be in this sense an example of a simple principle which is nevertheless not spiritual, since it is altogether dependent upon the organism, or, as they said, *completely immersed* in the body. St. Thomas, accordingly, speaks of the *corporeal* souls of brutes.

The Human Soul is a Spiritual Substance.—The proof may be stated briefly thus: The human soul is the subject or source of various spiritual activities; but the subject or source of spiritual activities must be itself a spiritual being; therefore the soul must be a spiritual being. The minor premiss is merely a particular application of the axiom, that the operation of an agent follows its nature—*actio sequitur esse*. As the being is, so must it act. The establishment of the general truth of this principle is a problem for Metaphysics; but all that is necessary for our purpose becomes evident on a little careful consideration of the axiom. An effect cannot transcend its cause: no action can contain more perfection or a higher order of reality

[6] Cf. Margerie, pp. 15, seq.; and Balmez, op. cit. Bk. IX. § 76.

than is possessed by the being which is the entire source of that action. If, then, a mental activity can be shown not to be exerted by a material organ, or to be in any degree independent of a material organ, the principle from which that activity proceeds must be similarly independent. It is positively unthinkable that whilst the soul depended as regards its whole being on the organism, it should still in some of its exercises be in any way independent of the organism. If, accordingly, any activities of the soul are spiritual, then the soul itself is spiritual.[7] For the proof of the proposition that we are endowed with activities of a spiritual or immaterial kind we have only to refer to the results established in chapters xii. and xix. where we showed both Intellect and Will to be intrinsically independent of the body. We shall, however, here recall some of the facts which manifest the truth of our thesis:

1. *The Spirituality of Thought.*—We are capable of apprehending and representing to ourselves abstract and universal ideas, such as justice, unity, man, triangle; we can form notions of spiritual being, *e.g.*,

[7] Cf. Coconnier: "*L'opération suit l'être et lui est proportionnée* . . . M. Büchner reconnaît formellement la valeur de cette formule, quand il écrit: 'La théorie positiviste est forcée de convenir que *l'effet doit répondre à la cause*, et qu'ainsi des effets compliqués doivent supposer, à un certain degré, des combinaisons de matières compliquées.' M. Karl Vogt . . . quand il dit: 'Encore *faut il* pourtant que la fonction *soit proportionelle à l'organisation et mesurée par elle*.' M. Wundt . . . quand il dit: 'Nous ne pouvons mesurer directement ni les causes productrices des phénomènes, ni les forces productrices des mouvements, *mais nous pouvons les mesurer par leurs effets*.' C'est à dire qu'aujourd'hui comme autrefois tout le monde reconnaît qu'on peut juger de la nature d'un être par son operation. Telle operation, telle nature; tel effet, telle cause; telle fonction tel organe; tel mouvement, telle force; telle manière d'agir, telle manière d'être. Ainsi parlent, dans tous les siècles et par tout pays, la raison et la science. Donc, si un être a une opération à laquelle seul il s'élève, à laquelle seul il puisse atteindre, qu'il accomplisse comme agent isolé, dégagé libre, transcendant, cet être doit avoir une existence transcendante libre dégagée et qui appartienne en propre à sa nature. Or, en regardant l'âme humaine, je lui trouve une semblable opération; je lui vois, à un moment, cette manière d'agir libre, transcendante degagée de la matière. . . . C'est quand l'âme humaine pense, et quand elle prend conscience d'élle-même et de sa pensée." (*L'Ame humaine, Existence et Nature*, pp. 123—125.)

of God; we can understand necessary truths; we can comprehend possibilities as such; and we can perceive the rational relations between ideas, and the logical sequence of conclusion from premisses. But we have shown that such operations as these are spiritual phenomena, which must accordingly proceed from a spiritual faculty. They could not be states of a faculty exerted through, or intrinsically dependent on, a bodily organ. A power of this kind can only react in response to physical impressions, and can only form representations of a concrete character, depicting contingent individual facts. But universality, possibility, logical sequence, general relations, do not constitute such a physical stimulus, and consequently could not be apprehended by an organic faculty. Accordingly, these higher mental functions must be admitted to be of a spiritual character; they thus transcend the sphere of all actions depending intrinsically or essentially by their nature on a material instrument.

This same argument is recently adopted by as competent an authority on cerebral physiology as Professor Ladd. He thus writes: "The existence which we call 'the mind' is never known—even when observed in its most exalted states and in the exercise of its most spiritual activities—as released *wholly* from bodily functions. . . . At the same time, in all forms of knowledge, and especially in self-knowledge, with its equipment of realized æsthetical and ethical sentiments, and of self-conscious choices, the mind manifests and knows itself as manifesting an existence in some sort independent of the bodily organism. With no mere figure of speech we are compelled to say, every mind thus *transcends* completely, not only the powers of the cerebral mechanism by springing into another order of phenomena, but also the very existence, as it were, of that mechanism by passing into regions of space, time, causality, and ideality, of various kinds, where the terms that apply to the existence and activity of the cerebral centres have absolutely no meaning whatever. For example, the human mind anticipates the future and predicts, on a basis of experience in the past, the occurrences which *will* be but are not now. Into this future, which is itself the product of its own imagining and thinking, it projects its own continued and yet characteristically altered existence, as well as the continued similar existence of things. But the existence of the brain, and of its particular forms of nerve commotion,

is never other than a purely here-and-now existence. This physical existence is, therefore, transcended in an absolute way by every such activity of the mind. Moreover, all supra-sensuous knowledge, as such, enforces the same conviction as to a potential independency of the mind, inferred upon the basis of an actual experience with mental activities in the way of transcending the sphere of the correlated being and activities of the brain. For all (supra-sensuous ?) knowledge is of the *universal*. In knowing, the mind moves in the sphere of so-called 'law,' of 'genera,' and 'species,' of 'relations common' to many individuals, of the 'categories,' of the true for all spaces and all times and all circumstances. But the existence of the brain is never more than concrete and individual; its being is at every instant precisely such and no other—so many countless atoms of oxygen, hydrogen, nitrogen, &c., combined in precisely such proportions."[8]

2. *Self-Consciousness*.—The reflex operation exhibited in the act of self-consciousness, is also of a spiritual or supra-organic order, and cannot be the activity of a faculty essentially dependent on a corporeal agent. The peculiar nature of this aptitude, so fundamentally opposed in kind to all the properties of matter, has been already gone into at such length (pp. 238—242), that we can afford but little space for the subject here. We shall, however, call attention to that aspect of this familiar phenomenon which has often been recognized by thoughtful minds to be the most wonderful fact in the universe. In the act of self-consciousness there occurs an instance of the complete or perfect reflexion of an indivisible agent back on itself. I recognize an absolute identity between myself thinking about something, and myself reflecting on that thinking Self. The *Ego* reflecting and the *Ego* reflected upon is the same: it is at once *subject* and *object*. An action of this sort is not merely *unlike* the known qualities of bodies: it stands in direct and open conflict with all the most fundamental characteristics of matter. It is in absolute contradiction with the essential nature of matter. One part of a material substance may be made to act upon another, one atom may attract, repel, or in various ways influence another, but the assumption that one atom can act *upon itself* —that precisely the same portion of matter can be agent and patient in its own case—is repugnant to all that either common experience or physical science teaches us. If then this unity of agent and patient, of subject and object, is so contrary to the nature of matter, assuredly an activity every element of which is intrinsically dependent on a corporeal organ cannot be capable of self-reflexion.

[8] *Philosophy of Mind*, pp. 400, 401.

3. *The Will.*—The interest attached to the discussion of the freedom of the will is chiefly due to the bearing of that doctrine on the nature of the human mind. If any of man's volitions are free, if they are not the outcome of the forces playing upon him, then there must be within him an inner centre of causality, an internal agent, a nucleus of energy, enjoying at least a limited independence of the organism. The argument based on voluntary action may, however, start from two distinct points of view:

(*a*) A merely sentient agent—one whose whole being is immersed in material conditions—can only desire sensible goods. It can only seek what is proportioned to its nature, and this is always reducible to organic pleasure or avoidance of pain. On the other hand, to a spiritual creature which is endowed also with inferior faculties, both sensuous and supra-sensuous good is adapted. Therefore, the aspirations of the latter are unlimited, while those of the former are confined within the sphere of material well-being. But our own consciousness, history, biography, and the existence of poetry and romance, all overwhelm us with evidence of the fact that man is moved by supra-sensible good. Love of justice, truth, virtue, and right for its own sake, are motives and impulses which have inspired some of the greatest and noblest works chronicled in the narrative of the human race. Consequently, there must be in man a principle not completely subject to material conditions.

(*b*) Again: we are free; we are capable of self-determination; but no organic faculty can determine itself. Such an action, as we have already insisted, is repugnant to the essential nature of matter. On the other hand, were our volitions not spiritual, were they, as our opponents allege, merely subjective phases or mental states inseparably bound up with organic processes; did they not proceed from a principle in some degree independent of matter, their moral freedom would be impossible; and man would be devoid of responsibility and incapable of morality.

CHAPTER XXII.

FALSE THEORIES OF THE EGO.

SINCE the unity of consciousness exhibited in the mind's reflex cognition of itself as a real abiding indivisible being plays so important a part in the theses which we have just established concerning the nature of the soul, this seems to be the most appropriate place to examine some of the chief attacks which have been made in modern times upon the doctrine which we defend.

Kant's Theory of the Ego.—We have already (pp. 267—269) indicated and criticized the nature of Kant's attack on rational psychology—his attempted distinction between a noumenal and phenomenal Ego, his doctrine that we have no knowledge of the mind as a thing-in-itself, that we are merely aware of the *formal* unity of consciousness, and that this phenomenal Ego is not a *real* subject, certainly not a substance subsisting in itself. Here we have space to make but one or two additional observations. The application to the mind's perception of itself of the hypothesis of an illusory subjective *formal* element in cognition, and the attempt to distinguish the *empirical Ego* of conscious experience from a supposed unknowable *noumenal Ego*, are untenable. Even were the Kantian distinction between *noumenon* and *phenomenon* valid with respect to objects of the extra-mental world, it is only by misconceiving the character of the knowledge derived from self-consciousness that this distinction can be extended to the mind's cognition of itself or of its states. The external thing, which is different in kind from the mind, is known by the latter through a mental modification which might conceivably mislead as to the nature of its cause. But con-

sciousness affords at all events an *immediate* knowledge both of my states and of myself in those states. There is no room for appearances or phenomena here; the mind, the object of knowledge, is really immediately *present* to itself. I do not merely apprehend transitory mental states which I am led to ascribe to an unknown substance or cause. I am conscious that *I* originate, direct, and inhibit my mental activity. I am immediately cognizant of my own causality—of my concrete self as energizing or suffering in my thought. Moreover, although I never can have an intuition of a naked "pure Ego" stripped of all particular forms of behaviour, yet by careful repeated internal observation of how the concrete self behaves, combined with rational deduction from evident principles, I can establish certain truths concerning the nature of this self of which I am directly cognizant in the concrete. I can, for instance, prove—under the sanction of scepticism—that it must be a real, abiding, indivisible being, not wholly evanescent; that some of its activities cannot have their ultimate source in an extended material thing, and the like. I do not pretend to demonstrate anything, nor do I feel much concern, about any unknowable *noumenon* which never reveals itself in my consciousness. If there be in existence an inscrutable "transcendental Ego" eternally screened from my ken by this self-asserting "empirical Ego," I confess I feel very little interest either in the nature or the welfare of the former. *The only soul about which I care is that which immediately presents itself in its acts, which thinks, wills, remembers, believes, loves, repents, and hopes.*[1]

Empiricist Theory.—The chief assault, however, on the conscious unity of the mind, as a real abiding being, especially in English philosophical literature, is that of Hume and the Associationist school. Moreover, since the doctrine of these writers in a slightly modified form has been recently adopted by Professor James, at least, as an adequate psychological account of the facts, and then converted into a metaphysical basis of operations whence to attack the traditional belief in a substantial spiritual soul, it is incumbent on us to examine these views at some length.

Hume, having reduced all known reality to a succession of transitory feelings, was logically forced to deny the presence of any real abiding mind, persisting

[1] For some useful criticism of Kant's theory, cf. Balmez, op. cit. Book IX. cc. 9—12; and Lotze, *Metaphysic.* § 244.

the same amid varying states. The idea of a permanent self, he argues, is not derived from any sensuous *impression*, therefore it is a "fiction" of the imagination; for, on Sensist principles, the only ideas which can pretend to any validity are those derived from *impressions*: "I venture to affirm of the rest of mankind that they are nothing but a bundle or collection of different perceptions which succeed each other with an inconceivable rapidity and are in a perpetual flux and movement. The mind is a kind of theatre where several perceptions successively make their appearance. . . . There is properly no simplicity in it at one time, nor identity in different; whatever natural propension we may have to imagine that simplicity and identity. The comparison of the theatre must not mislead us, they are the successive perceptions only that constitute the mind."[2] Hume is the frankest as well as the ablest representative of sensationalist phenomenism; but Mill, Bain, Ribot, Taine, and the rest of the school accept this conclusion, and are unanimously agreed that the mind is nothing more than a succession of conscious states.

Criticism.—That this dissolution of the Ego into a procession or series of phenomena constitutes a *reductio ad absurdum* of Sensism, will, we trust, be evident to the reader who has followed our reasoning in the last chapter. The argument may be summarized in a few words. If the mind were but a succession of evanescent states, judgment, reasoning, self-conscious reflexion would be absolutely impossible. The judicial act requires the indivisible unity of the agent who juxtaposes the terms; reasoning is not possible unless the premisses successively apprehended be combined by one and the same simple energy; and lastly, self-conscious reflexion and rational memory imply the persistence of a real abiding subject which can compare the past state with the present. (See pp. 464—466.)

Mill felt this difficulty. He saw that in rejecting the doctrine that the *Ego* is something more than a succession of states he was forced to accept "the

[2] *Treatise of Human Nature*, Part IV. § 6.

paradox that something which *ex hypothesi* is but a series of feelings *is aware of itself as a series.*"[3] He, however, abandons the hopeless attempt to remove the "paradox," naïvely counselling us that "by far the wisest thing we can do is to accept the fact."

Criticism.—The term "paradox" is here abused. "paroxysmal unintelligibility"—the phrase in which Professor James so energetically describes another theory—is scarcely too strong for the doctrine that the mind is merely a series of feelings which are aware of themselves as a series. We must not deceive ourselves with words. What is a *series?* It is a succession of distinct events, or several separate events succeeding each other. The terms, a "thread of consciousness," and a "series" of mental states, seem to indicate a unity of some sort to which, loose though it be, the *self* of the Empiricist Psychology has no claim. The moment we attempt to conceive accurately what is meant by a mere succession of conscious states, we perceive that a conviction of personal identity, and a memory of past actions, such as each man's own experience assures him he is possessed of, is absolutely impossible to it.[4] On the other hand, Mill is again wrong in representing his opponents as teaching that "the mind or Ego is something different from any series of feelings or possibilities of them," if by "different" is meant that the Ego is something separate, standing out of all relation to its states. The states are nothing but modifications of the Ego; and the true mind is the subject plus its states; or the subject present in its states. It is "an abiding existence with a series of feelings."[5]

W. James's Theory. — Though characterizing Mill's treatment of the subject as "the definitive bank-

[3] *Exam.* c. xii. ad fin.

[4] As Mr. Courtney urges, "Such a series could never be summed." (*Metaphysics of Mill*, p. 70.) Similarly Professor Knight, "A succession of states of mind *has no meaning* except in relation to the substrate of self that underlies the succession, giving it coherence, identity, and intelligibility. The states are different, but the self—whose states they are—is the same." (*Hume*, p. 177.)

[5] Cf. M'Cosh's *Exam. of Mill*, c. v.

ruptcy of the associationist description of the consciousness of self,"[6] Professor James advocates the same doctrine in but slightly modified shape. He disapproves of the associationist account, which represents personal identity, as formed "by successive thoughts and feelings in some inscrutable way 'integrating' or gumming themselves together on their own account."[7] Instead, he teaches that the Self consists of "a stream of consciousness," in which each "section" knows the previous section, and *in it* all which went before. He summarily discards the notion of an abiding indivisible substantial soul connecting past states with present, as needless and useless to the Psychologist.[8] For him "The passing *Thought* is itself the thinker, and psychology need not look beyond." "The I or Self is a Thought at each moment different from the last moment, but *appropriative* of the latter, together with all the latter, called its own."[9] It is true, that "common sense insists there must be a real proprietor in the case of these selves (successive thoughts), or else their actual accretion in a personal consciousness would never take place. . . . This proprietor is the present, remembering 'judging thought' or the identifying 'section' of the stream. . . . This is what collects and *owns* some of the facts which it surveys and disowns the rest." To help us to understand how this interesting "appropriation" of the past self or total collection of thoughts by the present Thought is effected in the absence of any real connecting being, he continues: "We can imagine a long succession of herdsmen coming rapidly into possession of the same cattle by transmission of an original title by bequest. May not the 'title' of a collective self be transmitted from one Thought to another in some analogous way? It is a patent fact of consciousness that a transmission like this actually occurs. . . . Each Thought dies away and is replaced by another. The other knows its own predecessor. Each later Thought, knowing and including thus the Thoughts which went before, is the final receptacle—and appropriating them is the final owner—of all they contain and

[6] *Principles*, vol. i. p. 359. [7] P. 338. [8] Pp. 343—347. [9] P. 401.

own. Each Thought is thus born an owner and dies owned, transmitting whatever it realized as its Self to its later proprietor."[10]

Criticism.—The suggested emendations on the associationist "gumming" hypothesis are: (1) The likening of conscious life to a "stream" rather than to "a series of states;" (2) the substitution of the statement that "the last section of consciousness cognizes its predecessor, and in that predecessor every previous cognition," instead of the statement that the "series is aware of itself as a series;" (3) the suggested method of "inheritance" or "appropriation" of past selves or states by the present state, instead of their gumming themselves by association.

As regards (1), it may be fairly objected from the standpoint of experience, on which Mr. James himself insists so much, that the representation of conscious life as "a series of states" is, in one important respect, more accurate than the conception of it as a "stream." It is not continuous, but interrupted by periods of unconsciousness. (See p. 366.) This objection is not merely verbal: its force will become more evident as we proceed. But we maintain that actual psychological experience presents to us *more* than *thoughts* or *states* of consciousness, whether as a series or as a stream—that we have an immediate apprehension of a real self in some thoughts and states which is *not* those thoughts or states. (See pp. 463, 464.)

(2) The assertion that "the present Thought knows and appropriates its predecessor," is more plausible at first sight than the proposition that "the series knows itself as a series." For a series evidently has not the unity needful to a Knower or an Owner; whilst the Thought possesses the unity of a single act by which an *agent* may cognize a previous thought. (*a*) Still, even supposing that the present thought could, without a connecting subject or agent, cognize in some degree its predecessor, it is not true that that predecessor really *knew and included* all that went before. It can hardly be maintained—especially by Mr. James, who is so emphatically opposed to the admission of any unconscious state of mind—that every mental state can really know a vast multitude of things of which it is absolutely unconscious. In what intelligible sense can it be alleged that the section of the "stream" of my consciousness extending back over the last half-minute really contained *The Charge of the Six Hundred*, which I possibly could now repeat, though I have not recited

[10] Pp. 338, 339.

it for ten years past? Were my present passing Thought the only thinker within me, even if it could apprehend and appropriate all contained "in the pulses of my cognitive consciousness" for the last three months, the Greek and Mathematics I learned in early life would be lost for ever.

(*b*) But the statement that the mere "present Thought" is the Thinker, the Owner who recognizes identity between the present state of consciousness and its *immediate* but extinct predecessor is also exposed to all the main difficulties which have proved fatal to Hume and Mill. "Pulses of cognitive consciousness" as like as successive images of a man in a looking-glass might follow one after another in the same brain without one state being able to identify itself with the antecedent state. Whether they succeed each other *immediately* like passengers in an omnibus, or at intervals like lodgers in the same bed of a hotel, makes no difference. In order that any one "pulsation" be recognized as like or unlike even its immediate predecessor, the two pulsations must be apprehended by *one* indivisible agent, who *abiding the same*, cognizes both, and assimilates or dissociates them. The necessity of this permanent subject for even the simplest acts of intellectual judgment has been shown already (p. 465).[11]

(*c*) The insufficiency of this theory which claims to "find place for all the experiential facts unencumbered by any hypothesis save that of passing states of mind," becomes still clearer when brought face to face with the "experiential fact" of periods of sleep, swooning, epileptic attacks, and the like. When I awoke this morning, the last previous "pulse of my cognitive consciousness" in possession of Mr. James's doctrine had been extinct, dead, and buried for over six hours, yet I speedily became aware that the *Thinker* who had laboured on the subject was still present and alive within me. It would be interesting to learn by what "verifiable experience" it can be shown that there was, during my sleep, a continuous stream of "judging Thoughts" or "pulsations of cognitive consciousness," each before it died handing over to its successor the contents of Mr. James's hundred pages. This difficulty is still further increased by the phenomena of "double consciousness" to which we shall return.

(3) It is scarcely necessary to criticize the analogy suggested with respect to the "inheritance" or "appropriation"

[11] James admits that his theory "must *beg* memory." (p. 339.) But this is precisely what it has no right to *beg*; especially when, as we shall see presently, this psychologist attacks the *permanent soul* as *needless*, on the ground that his own theory *gives a sufficient account of the facts!* The truth is, *consistent phenomenism* is just as impossible in empirical psychology as it certainly is in physical science.

of past "selves" by the present Thought. The reader can easily think out for himself the impossibilities involved. The transmission of "ownership" of a herd of cattle through a succession of herdsmen is possible, because the cattle are permanent objects which exist during the transmission, because they are distinct and separable from their dying owners, and because the ownership in virtue of which a man can legally buy and sell his cows is different in kind from his "ownership" of his own past existence.

(4) Finally to compare the theories of Mill and James: In a psychological analysis of the cognition of our personal identity an account has to be given of *two* things—the knowing *agent* and the *object* known. Mill's proposition that the knowing agent is "a series of states," James easily shows to be absurd; whilst his own statement that each single act of knowledge is the knowing agent, possesses, as we have observed, a certain superficial plausibility. But when we turn to the account of the object known—the entire past experience of the agent—the situation is completely reversed. That the whole collective existence of a person is realized and known by, or rather in the course of, his entire series of conscious states is, it might be urged, "verified by experience." But the doctrine that each "pulse of cognitive consciousness," whether waking or sleeping, appropriates, contains, and possesses the life history of the individual, Mill could fairly retort, is one of those hypotheses which its own author elsewhere describes as "paroxysmal unintelligibilities."

Conclusion.—After reflecting on these two empiricist theories of personal identity, the reader will probably conclude that the vulgar "common-sense" account of the matter is not to be so summarily disposed of as Professor James implies. That account, which has survived the attacks of many centuries, maintains that the same real, abiding, indivisible being, the "soul" which was the subject of my past experiences, still exists within me; and that owing to the modifications it underwent in those experiences, it possesses the power to *reproduce* many of them—not all simultaneously, but in succession—and to *recognize* them along with its own identity in successive thoughts.

James's attack on the Soul.—Having examined the adequacy of the Harvard professor's account of our mental experience, it will now be easier to estimate the worth of his objections against the vulgar "common sense" doctrine. For it must not be forgotten that the force of these difficulties depends mainly on the

sufficiency of the rival explanation of the unity of consciousness. The psychologist—even the *scientific* psychologist—must choose *some* coherent theory of conscious life. The question to be decided is: *Which* is the most rational interpretation of the facts?

1. In the first place, then, James argues, the hypothesis of a substantial soul is quite *unnecessary* in Psychology. "*It is needless for expressing the actual subjective phenomena of consciousness as they appear.* We have formulated them all without its aid by the supposition of a stream of thoughts, each substantially different from the rest, but, cognitive of the rest and appropriative of each other's content. . . . The unity, the identity, the individuality, and the immateriality that appear in the psychic life are thus accounted for as phenomenal and temporal facts exclusively, and with no need of reference to any more simple or substantial agent than the present Thought or 'section' of the stream." (Op. cit. p. 344.)

Assuredly if "the unity, individuality, and identity" of our mental life are all adequately expressed and satisfactorily accounted for by James's theory, the doctrine of a Soul may be dismissed as gratuitous. If concepts, judgments, reasonings, emotions, and recollections can be intelligibly conceived and described without the implication of their inhering in or pertaining to anything more permanent or substantial than themselves, whether material or immaterial, then the psychologist has no need of the hypothesis of a Soul. But we trust we have advanced sufficient reasons to show that this is not the case, and that neither the "unity, individuality, nor identity" of a man's mental life can be conceived or expressed without the implication of some more permanent unitary being within him which is its root and source.

2. Further, he urges, even if a metaphysical hypothesis be needed by the psychologist, that of a substantial spiritual soul is *worthless*. It affords no help in rendering intelligible anything which needs accounting for. "The bald fact is that when the brain acts, a thought occurs. . . . What positive meaning has the *Soul* when scrutinized, but *the*

ground of the possibility of thought. . . . And what is the meaning of this (—the statement that brain action excites or determines this possibility to actuality) . . . but giving a concrete form to one's belief that the coming of the thought when brain-processes occur, has *some* sort of ground in the nature of things? If the word Soul be understood merely to express that claim, it is a good word to use. But if it be held to do more, to gratify the claim,—for instance, to connect rationally the thought which comes, with the (cerebral) processes which occur, and to mediate intelligibly between their two disparate natures,—then it is an illusory term." It may be used as a provisional term like that of Substance to express the belief that there is *more* in reality than a mere phenomenon, "more than the bare fact of co-existence of a passing thought with a passing brain-state. But we do not answer the question 'What is that more?' when we say that it is a 'Soul' which the brain-state affects. This kind of more explains nothing." (P. 346.)

To this objection we would reply that the formulation of the problem needing solution, given in the proposition "the bald fact is that when the brain acts, a thought occurs," *ignores the very nodus of the difficulty* which the Soul—or at all events, the Soul viewed as an abiding substantial being —is invoked to account for. That *nodus* is *the unity of consciousness throughout the whole series of thoughts which go to make up our psychic existence.* The soul is *not* invented as a sort of plastic medium to explain the connection between a transitory *thought* and the concomitant *brain-change.* Belief in a permanent substantial Mind existed long before men knew of the existence of such cerebral processes. It is in order to give a rational account of the connexion of *thought* with *thought*, of the past thought which has perished with the present which is living and the future unborn thought; it is to render the consciousness of our persisting identity intelligible that spiritualist philosophers have insisted on the fact of an abiding substantial soul. And the permanence of such a real individual immaterial being as basis of our consciousness, does provide at any rate a coherent account of each man's internal experience. On the other hand, we venture to assert, *first*, that the notion of thoughts and feelings inhering in *nothing* is absurd and unthinkable; and *secondly*, that even were a succession of such psychological monsters possible, they could never constitute that enduring self-conscious personality which each of us calls "I."

Furthermore, we readily admit that the proposition, "Thought is an activity of the Soul," like any other merely verbal statement, "explains nothing," *unless* its terms have

been defined or are already understood. But when, after a careful examination of all the relevant data furnished by experience, the Soul is defined by the psychologist as *A real being, immaterial and indivisible in its nature, abiding in duration, individual in character, the agent and source of sensation and vital activity as well as of thought and volition*, the word Soul is assuredly not an "illusory term" vaguely expressive of the belief that there *is more* in reality than the mere phenomenon. And when the psychologist has shown that the application of these predicates to the agent and subject of our mental activities is justified and necessitated by the analysis of these activities, he has provided us not with "an explanation which explains nothing," but with the proof of the objective validity of that conception which alone renders "the unity, the identity, the individuality, and the immateriality, that appear in our psychic life" intelligible.

3. The argument for a spiritual soul deduced from the Freedom of the Will, Professor James disposes of in summary fashion. At best "it can only convince those who believe in free-will; and even they will have to admit that spontaneity is just as possible, to say the least, in a temporary spiritual agent like our Thought, as in a permanent one like the supposed Soul." (*Ibid.* p. 346.)

The first statement is quite true, and the second partially so. The rejection of Free-Will undoubtedly involves the repudiation of one of the chief arguments for the *spirituality* of the soul; whilst by subverting the notions of personal merit and responsibility as universally accepted, it destroys the principal rational ground for belief in a future life; and deprives of their meaning, as we have seen, many of the chief ethical notions of mankind. Moreover, since presumably God could create and then immediately destroy a spiritual being endowed with free-will, it does not seem impossible that "a temporary spiritual agent" might enjoy "spontaneity." We may also speak of a volition or voluntary election as being "free." Nevertheless the argument from free-will retains all its force. A *volition*, or an *act of choice*, is not "an agent," but "*the act of an agent*," and its own freedom consists in its being freely exerted by that agent. Now, because an action without an agent is unthinkable, spiritualist philosophers may postulate the soul as the cause of the action. Further, the doctrine of Free-will teaches that our consciousness reveals to us something more than "Thoughts" endowed with "spontaneity." It dwells on the reality of deliberation, reflexion, sustained resistance to temptation, on responsibility for past conduct—and especially on *the rationality of remorse*. But these experiences—on some of which James himself

elsewhere so admirably insists (see p. 401)—are just the facts for which there is no room in the theory that makes each passing Thought the "Self." If the Soul of each man be a real individual being persisting throughout life, which has freely acted and formed good or bad habits in the past, there is an intelligible foundation for the moral convictions of mankind. But if "the only *verifiable* Thinker" be the passing Thought, it is somewhat difficult to see the justice of chastising the present "pulsation of consciousness" in the Brockton murderer, for a malevolent "pulsation" long since extinct; nor why the present "pulsation" ought to *repent* for its wicked predecessor from which it is "substantially different." [12]

4. Fortunately, Professor James has indicated his own metaphysical creed as to the constitution of that something "more" which lies behind our mental states. This helps us better to compare the value of the doctrine of a spiritual substantial soul with other final explanations of the basis of our mental life. "For my own part," he tells us, "I confess that the moment I become metaphysical and try to define the *more*, I find the notion of some sort of an *anima mundi* thinking in all of us to be a more promising hypothesis, in spite of all its difficulties, than that of a lot of absolutely individual souls." (*Ibid.* p. 346.)

Amongst the "difficulties" of this "more promising hypothesis" we would suggest the following: (*a*) The complete absence of all evidence whatsoever of the existence of such an *anima mundi* or world-soul. Consciousness assures us of the reality of some sort of *anima* or mind within ourselves; and, arguing from analogy, we ascribe a similar *anima* to other organisms like our own. But obviously in the case of the material world the parity totally fails. Nothing more unlike a human brain or a living organism than the physical universe could well be conceived. (*b*) Again, the notion of such an *anima mundi* is incoherent in itself and in

[12] James's use of the term "verifiable," seems at times to imply that nothing is to be admitted as real by the psychologist which is not apprehended and "verified" by some particular sense. This was Hume's doctrine, and leads to absolute scepticism alike in physics, psychology, and metaphysics.

conflict with all that we actually know of the nature of mind. This *anima mundi* is vaguely described as a universal consciousness thinking in each one of us. Of a personal consciousness we know something; of a universal or impersonal consciousness which is unaware of itself, or of the various persons whom it may constitute, we can frame no conception. The most essential features of the mind, at least as gathered from experience, are its *unity* and *individualistic* character. It reveals itself to us as *ens indivisum in se sed divisum ab omni alio*—a being undivided in itself but separated off from all other beings. What kind of a mind or soul then is that which, unconscious of itself, is split up into a number of other selves each unconscious of the rest? (*c*) The hypothesis which interprets our conscious existence as merely a fragment of a universal mind, would seem to be a formal acceptance of Pantheism. It implies that our individuality is only apparent. It would logically be forced to transfer to this universal soul the responsibility for all our thoughts and volitions. Indeed, in this theory we would seem to have little more reality or personality of our own than the modes of the Divine Substance of Spinoza. But we must not be unjust to Professor James. We feel sure from his other writings that he would repudiate these conclusions. He believes in the freedom of the will; and in his essay on *Human Immortality*, he seeks to find place for a future life; though we fancy few will be satisfied with the metaphysical speculations by which it is supported.[13]

[13] His view, as expressed in that work, seems to be that there exists throughout the universe, or rather behind the veil of matter, a reservoir of universal consciousness, which trickles or streams through the brain into living beings, somewhat as water through a tap, or light through a half-transparent lens. Each tap, or lens, shapes or colours the incoming flow of thought with its various individualistic peculiarities, "and when finally a brain stops acting altogether, or decays, that special stream of consciousness which it subserved will vanish entirely from this natural world. But the sphere of being that supplied the consciousness would still be intact; and in that more real world with which even whilst here it was continuous, the consciousness might, in ways unknown to us, continue still." (*Ibid.* pp. 37, 38.) In addition to the difficulties

Double Consciousness.—Mental pathology, frequently styled Psychiatry, has recently brought into prominence certain abnormal phenomena of memory and self-consciousness, which from their connection with the philosophical problem of personal identity have attracted much interest. In these cases of so-called "double-consciousness" or "altered personality," the unity of psychic life is ruptured and two or more seemingly dissociated mental existences present themselves, sometimes in alternating sections, sometimes—it is alleged—simultaneously in the same individual.

The celebrated case of Felida X., methodically observed during several years by Dr. Azam of Bordeaux, will illustrate the general character of the phenomena.[14] Born in 1843, of hysterical tendency, she enjoyed normal health until 1857. During that year she fell into a swoon which lasted only a few minutes; on recovering consciousness, however, her whole character seemed changed. The original Felida is described as serious, of somewhat morose and obstinate disposition, unobservant, and of mediocre abilities, but exceptionally industrious. Felida 2, on the contrary, was gay and boisterous, very sensitive and pliant, idle yet observant, and of seemingly more than average talents. In her *secondary* state Felida could remember the experiences of her previous life, and otherwise appeared quite normal. After some months in this condition, another attack restored her to her *original* state. The dulness, sullenness, and habits of work all suddenly returned; but there was complete forgetfulness of every incident which had occurred since her former fit. For over thirty years she has now passed her life in alternate periods of her primary and secondary states. In the "second" condition she retains the memory of *both* states; but during

above indicated in regard to the absence of evidence, and the incoherence of the notion of such a universal consciousness, it is sufficient here to repeat Mr. James's complaint against the doctrine of his opponents that "it guarantees no immortality of *a sort we care for*." It is in the perpetuity of our own personal individual consciousness that each of us is primarily interested, not in that of "the sphere of being" which originally provided the supply.

[14] See *Revue Scientifique*, May, 1876. Felida's history down to 1887 is also given by Binet, *Alterations of Personality* (1892), pp. 6—21. For other cases see also Pierre Janet, *L'Automatisme psychologique* (Edit. 1899), pp. 70—130, 300—350; and James, op. cit. pp. 375—400.

the "primary" epochs there is complete amnesia respecting the "second." Thus Felida 1 was quite unaware of even such events as the First Communion of her children and the death of her sister-in-law, which occurred during the "reign" of Felida 2. The "primary" periods are consequently inconvenient and disagreeable to her, and as time has gone on the duration of the "secondary" intervals has come gradually to predominate. They now form her normal condition. Felida has thus been endowed with *two consciousnesses*, one of which is "split off" from the other. M. Binet's argument runs thus: "Two fundamental elements constitute personality—memory and character," but in Felida there is a change of character and memory, therefore "Felida is really two moral persons; she has really two Egos."[15]

In hypnotism a similar phenomenon is produced when a "personality" is artificially created by suggesting to the subject that he or she is some other personage. Occasionally the part is remembered and consistently maintained throughout successive hypnoses, although the experiences of the suggested character are, it is alleged, often completely forgotten during the waking state. In fact, the deeper forms of the hypnotic trance constitute such a "secondary" psychic existence "split off" from the main current. Natural or spontaneous somnambulism gives us illustrations of the same phenomenon.

Besides this duality of *successive* consciousnesses the theory of the *Doppel Ich* advocated by Max Dessoir and others, insists upon the reality of at least two *simultaneous* consciousnesses, each held together by its own chain of memories, but "split off" from each other. Various actions usually styled automatic or reflex are maintained to be the outcome of the "secondary consciousness." The power of distractedly following a consecutive train of thought whilst reading aloud, or playing an instrument, or performing other complex operations, the working of the involuntary inspiration of the poet, abnormal "automatic writing," the struggle between reason and appetite, the "higher" and "lower" self, as well as all forms of sub-conscious mental activities have been claimed as evidence of the reality of a genuine current of consciousness "split off" from the main stream and lost to normal memory. It is argued from these various groups of facts that the old philosophic conception of a single unchanging Self in man must be abandoned, that self-consciousness instead of being a *unity* is really *multiple*, or at least *double* in its ultimate constitution, and that our seemingly indivisible personal identity is

[15] Cf. Binet, op. cit. p. 80 and p. 20.

merely a *fusion* of diverse factors. As M. Binet urges: "What is capable of division must be made up of parts. If a personality becomes double or triple it is a grouping or resultant of many elements."[16]

Criticism.—We would first observe that the more remarkable cases like that of Felida are extremely rare, and that theories built on such abnormal and obscure phenomena are necessarily very frail. At the same time we allow that the difficulty is not solved by merely calling such cases "abnormal;" and, whilst admitting the obscurity of the problem, it seems to us that the psychologist is bound to indicate what explanation his principles offer for such facts, when these are duly authenticated. Unfortunately the temptation to make such histories startling by exaggerating their abnormal aspect betrays itself even in "scientific" reports. Thus it is often asserted that *all* the events of one state are completely forgotten in the other, yet further inquiry discloses that a mass of common experience such as knowledge of the meaning of language, familiarity with persons, objects, localities, and the like, are retained in both. On the whole, increased care in the observation of these cases goes to connect the most extraordinary with the normal, and also seems to prove that in at least one of the psychic existences portion of the experiences of the other are remembered. This fact alone would prove real identity of the person in both conditions.[17]

2. With respect to the alleged alterations of the "self," we must recall the important distinction between the abstract notion of my personality and the perception of my concrete self already dwelt upon. (P. 365.) We there pointed out that besides the immediate apprehension of self as present in our mental activities, each of us possesses a habitual representation of himself in the form of a complex conception elaborated by intellectual

[16] Op. cit. pp. 348, 349. Similarly Ribot: "The unity of the Ego is the cohesion of the states of consciousness." (*Les Maladies de la Personalité*, ad fin.)

[17] Cf. Ladd, *Philosophy of Mind*, pp. 164—168.

abstraction. This idea presents to me a quasi *objective* view of myself, emphasizing the states, experience, and character by which the total Ego is externally distinguished from other persons rather than the subject as distinguished from these states themselves. This objective concept of self as an individual history is based on memory. Consequently a dislocation of memory will mutilate the conception. If, then, owing to some cerebral malady a considerable section of my past life is lost to remembrance, or if the present vivid pictures of the imagination are confounded with recollections, the habitual representation of my personality will naturally be perverted. This truth is abundantly illustrated in patients subject to "fixed ideas," and in incipient stages of insanity. In such cases the invalid interweaves part of his own history into that of an imaginary character, yet is quite sane on other points, or even realizes the erroneous character of his delusion.

3. Variations in the representation of our personality would thus be mainly occasioned by perturbations of *memory;* and the mind's power of remembrance depends on the state of the organism. The recurrence, in fact, of a particular set of cerebral conditions may either re-instate or exclude a particular group of recollections. The mental changes observed in Felida and hypnotized subjects may therefore be accounted for as due to alterations in the functioning of the brain occasioned during the transition. Concerning the nature of this change in the brain's action nothing is known. Forty years ago it was conjectured that the two cerebral hemispheres may work independently, and it has been held that the functioning of one side corresponds to the normal Ego, whilst that of the other is correlated with the "secondary" self. This hypothesis has been especially urged with respect to the curious phenomenon of intelligent unconscious "automatic" writing. This rare "gift" has been ascribed to a "subliminal" or sub-conscious Ego; but seems to us to be more scientifically explained as the product of semi-conscious and reflex action. Post-mortem examinations have undoubtedly proved that one half of the brain has sometimes sufficed for normal mental life; and it has also been suggested that other particular areas of the brain may be alternately isolated or inhibited; or that the blood supply is somehow varied, and so sets the nervous mechanism in different *gear*. Though

destitute of proof, these hypotheses have a certain plausibility. Something of the kind probably happens in falling asleep; and the stories of dreams and somnambulistic performances resumed and continued during successive nights, fit in with the same explanation. In fact, several of the chief difficulties of "double-consciousness" have been always familiar to mankind in our dream experience.[18]

4. Changes of character are of various degrees, and often seemingly sudden. They are simply variations in the abiding frame of mind; and are consequently much influenced by bodily conditions. The complete alteration of mental tone by bad news, by a bilious attack, or by a couple of glasses of champagne, are well known. In cases of sudden insanity the change in moral disposition is often extraordinary; and that the alternate set of cerebral conditions which presumably succeed each other in Felida should occasion a different emotional and volitional tone seems natural enough. If then it is the duty of the psychologist to seek to harmonize *irregular* phenomena with *normal* facts, these rare specimens of mental life afford no justification for departing from the old universal conception of a single continuous personality in man.

5. Professor James devotes much space to these "mutations" of the Ego, yet overlooks the fact that they are peculiarly fatal, not to his adversaries, but to his own theory that "the present thought is the only thinker," and that

[18] Hypotheses of *locally* separated brain processes—attractive because easy to the imagination—seem to us too simple and crude for the facts. The physiological concomitants of *all* higher mental operations must be extremely *complex;* those of any *total* mental mood must be both complex and *widely diffused.* Organic sensations are important factors in all emotional moods; and these are certainly conditioned by widely diffused neural processes. Further, these alleged multiple "psychic existences" in the same individual invariably overlap and fade into each other. According to Janet, Leonie and Lucie have *three* "personalities" and Rose "at least four." These assuredly cannot be all isolated and distinct. Consequently they cannot be dependent on nervous functionings in anatomically separate regions of the brain. The established psychological principle that *a total frame of mind fosters recollections and feelings related to it by contiguity or congruity inhibiting those not so related* may explain much if we conceive these alternating "personalities" as cases of *extremely marked* "frames of mind" exerting exceptionally despotic selective power. Such abnormally distinct and enduring mental moods would involve sets of neural conditions of unusually distinct character; but we think their mutations are determined by alteration in the *quality* rather than in the *locality* of nervous processes,—that the basis is *physiological* not *anatomical.*

seeming identity is sufficiently preserved by each thought "appropriating" and "inheriting" the contents of its predecessor. The difficulties presented to this process of inheritance by such facts as sleep and swooning have been already dwelt upon; but here they are if possible increased. The last conscious thought of, say, Felida 2 has to transmit its gathered experience not to its *proximate* conscious successor, which is Felida 1, but across seven months of vacuum until on the extinction of Felida 1 the next conscious thought which constitutes Felida 2 is born into existence. If single personality is hard for Mr. James to explain, "double-personality" at least doubles his difficulties.

6. As regards the asserted duality of *simultaneous* consciousnesses; moralists from St. Paul downward have insisted upon the reality of the struggle between opposing conscious activities within us—between the "higher" and the "lower" self. The statements that "reason ought to rule in man," that "will can resist appetite," that "man is in great part an automaton," emphasize the two-fold factor in conscious life. Still they do not justify or make intelligible the conception of a "secondary unconscious consciousness" or of a state of consciousness "split off from consciousness." A rivulet detached from the main current of a river remains still a stream of water; but a "thread of consciousness" excluded from consciousness is no longer a "thread of consciousness;" and such phrases if intended to be more than a loose figurative expression are misleading and unjustifiable. The various operations ascribed to this "secondary consciousness" are best accounted for as either faintly conscious activities or reflex and automatic processes of the animated organism.

Readings.—On chapters xxi. xxii., cf. St. Thomas, *Sum.* 1. q. 75. On scope and method, cf. Coconnier, *L'Ame humaine*, c. i.; Ladd, *Philosophy of Mind*, cc. i. ii. On substantiality of soul, Rickaby, *Metaphysics*, pp. 245—260; Balmez, Bk. IX. cc. 11, 12; Kleutgen, op. cit. §§ 791—807. On simplicity and spirituality, Coconnier, *ibid.* c. iii.; Mercier, *Psychologie*, Pt. III. Art. 2, sect. 1; Farges, *Le Cerveau et l'Ame*, pp. 57—108. On double-consciousness, Piat, *La Personne humaine*, cc. 2, 3, Farges, op. cit. pp. 108—136; Ladd, op. cit. c. v.

CHAPTER XXIII.

MONISTIC THEORIES.

Dualism and Monism.—Psychological theories concerning the nature of man and the relations of body and mind are classed as Dualistic and Monistic. Dualism teaches that Mind and Body are two really distinct principles; whilst Monism maintains that both mental and corporeal phenomena are merely different manifestations of what is really one and the same Reality. According to the character of the opposition and mutual independence ascribed to the two principles by different thinkers of the former school, we have Ultra-Dualism and Moderate Dualism. To the previous class belong Plato and Descartes; to the latter Aristotle and the leading Scholastics. As both forms of dualism agree in teaching the spirituality of the soul, we shall defer further comparison of them for the present.

Monism.—Of Monistic theories there are three chief types: *Monistic Spiritualism* or *Idealism; Materialism;* and a third doctrine which has been variously described as the *Double-aspect Theory*, the *Identity-Hypothesis*, the *New Spinozism*, and also simply *Monism*. There is rooted in the intellectual nature of man a craving for the unification of knowledge, for the reduction of facts and truths to the fewest and most general principles. And we ourselves maintain that the only truly satisfactory account of the Universe as a whole is *Monistic*—that

philosophical system which derives the multiplicity of the world from a single indivisible spiritual principle, God. But the present question is not the *origin* of the Universe, but the *inner constitution* of the individual human being; and the attempts to ignore the essentially disparate character of mind and matter, and to reduce either to the other, or to identify them both in some inconceivable *tertium quid* seem to us among the most lamentable perversions of a rational instinct which the history of philosophy has to show.

Spiritualist Monism or Idealism.—This theory overcomes all difficulties as to the relations between body and mind or the possibility of inter-action between them by boldly denying the reality of any material substance existing in itself without the mind. It holds that our consciousness of mental states is *immediate* and *primary*, whilst our assurance as to the reality of matter is at best *mediate* and *secondary*. It insists on the fact that our notions of substance, cause, energy, and the like, are all in the first place derived from the consciousness of our own mental activities, and that in the final analysis we can never know anything about the nature of matter except what is given in our psychical states. It assumes that matter could not act upon mind; and finally concludes that the most philosophical course is to deny all extra-mental reality to matter, and to look upon the seemingly independent material world as an illusory creation or emanation of mind itself. But the Monist does not stop here. In his desire for unity he does not merely deny real being to matter, he asserts that all minds are in reality *one*—all individual conscious existences being but wavelets surging on the one ocean of Universal Consciousness.

Criticism.—As opposed to the Materialist the Idealist seems to us impregnable. Our reasons for the rejection of Idealism, which are not available by the Materialist, we have already stated (pp. 100, 113—117); so we can merely refer the reader back to them here. Against the Monistic aspect of the theory, which denies the real plurality of minds, we would urge in addition: (1) The complete absence of proof—nay, of

the *possibility* of proof. (2) Its direct conflict with our immediate internal experience. My own individuality, my real oneness, the complete insulation, the thorough exclusiveness of my personality are the best attested and the most fundamental convictions of my life. If I admit the existence of *other* men in any form, I must accept their testimony to the same experience in their own case. To reject this clear evidence of universal experience for the sake of some obscure *a priori* postulate of unity is irrational. (3) It is inconsistent with freedom and responsibility. If all finite minds are but phases or moments of the Absolute Spirit, possessing no substantial reality of their own, it seems impossible that such finite spirits can be guilty or the Infinite Spirit innocent of sin. Some idealistic monists—Lotze, for instance, if we do not misunderstand him—believe they can adopt Monism yet evade these consequences. Such a course seems to us impossible. It is only by changing the meaning of words and inconsistently allowing real plurality of beings that they can reconcile their systems with the ethical convictions of mankind.

Materialism.—Conveniently assuming that experience establishes the existence of the brain as a permanent extended substance, but affords no evidence respecting the abiding reality of the mind, the materialist seeks to show that the cerebral substance is the sole and ultimate cause or ground of all our conscious states. Consciousness, he teaches, is a property of matter, or the resultant of sundry properties of material elements combined in a complex manner. The progress of physiological science proves, he alleges, more and more clearly every day the dependence of intellectual processes on neural functions. Moreover, it is impossible to imagine *how* conscious states can act upon matter or cause bodily movements; whilst the doctrine of the *conservation of energy* and the *law of inertia* are incompatible with the view that the mind is an immaterial being exerting a real agency in the material universe. Such is the general argument of materialism; but it will conduce to clearness, if we examine its chief tenets in detail.

Thought is not a Secretion of the Brain.—In expositions of the coarser forms of materialism such assertions as the following have been boldly put forth: "*La pensée est une secretion du cerveau.*" (Cabanis.) "There subsists the same relation between thought and the brain, as between bile and the liver." (Vogt.) Moleschott describes thought as "a motion in matter," and also as a "phosphorescence" of the brain.[1] Other philosophers of like metaphysical acumen have been found to proclaim the existence of the soul to be disproved, because anatomy has not revealed it—the "dissecting knife" having never yet laid it bare.

Writers of this calibre scarcely deserve serious refutation. To speak of thought as a "secretion" or "movement" of cerebral matter is to talk deliberate nonsense. Thought is essentially *unextended.* The idea of virtue, the judgment that two and two must equal four, the emotion of admiration, are by their nature devoid of all spatial relations. The various secretive organs effect *movements* and *material products.* Their operations occupy space; and the resulting substance is possessed of resistance, weight, and other material properties. The process and the product can be apprehended by the external senses; and they continue to exist when unperceived. Conscious states are the exact reverse in all these features. The microscope has never detected them. They cannot be weighed, measured, or bottled. When not perceived they are non-existent; their only *esse* is *percipi.* Even Herbert Spencer is forced to admit, "That a feeling has nothing in common with a unit of motion becomes more than ever manifest when we bring them into juxtaposition."[2] Tyndall acknowledged the same truth in a paragraph often cited: "The passage from the physics of the brain to the corresponding facts of consciousness is *unthinkable.* Granted that a definite thought and a definite molecular action in the brain occur simultaneously, we do not possess the intellectual organ, nor apparently any rudiments of the organ, which would enable us to pass by a process of reasoning from one to the other. They appear together, but we do not know why. Were our minds and senses so expanded as to enable us to see and feel the very molecules of the brain, were we capable of following all their motions, all their groupings and electric discharges, if such there be, and were we intimately acquainted with the corresponding states of

[1] For an account of modern German Materialism, cf. Janet, *Materialism of the Present Day*, c. i.; also Margerie, *Philosophie Contemporaine*, pp. 191—226.

[2] *Principles of Psychology*, Vol. I. § 62.

thought and feeling, we should be as far as ever from the solution of the problem—'How are these physical processes connected with the facts of consciousness?' The chasm between the two classes remains still intellectually impassable."[3]

Thought is a not a Function of the Brain.—In a scarcely less crude way consciousness is sometimes described as a *function* of the brain: "There is every reason to believe that consciousness is a *function of nervous matter*, when that matter has attained a certain degree of organization, just as we know the other actions to which the nervous system ministers, such as reflex action, and the like, to be."[4] "Thought is as much a *function* of matter as motion is."[5] The use of the term "function," however, does not better the materialist's position with any reader not contented with payment in obscure words. What is a "function of matter"? The only "functions" of matter of which physical science is cognizant consist of *movements* or *changes* in *matter*. Now, thought, as we have just pointed out, is nothing of this sort. If we employ this word at all, we must speak of intellectual activity as a function of something utterly opposed in nature to all known subjects of material force. When mental processes are at work, movements indeed take place in the nervous substance of the cerebrum, and it is accordingly true that the brain "functions" and expends energy whilst we think. But neither this functioning nor the energy expended constitutes *thought*. As Tyndall says, the "chasm" between the two classes of facts still remains "intellectually impassable."

Thought is not a Resultant of material forces.—Büchner, by comparing the organism with the steam-engine, seeks to prove that mental life is merely the result of the complexity and variety of the material forces and properties at work in the former. "Thought, spirit, soul, are not material, not a substance, but the effect of the conjoined action of many materials endowed with forces or qualities. . . . In the same manner as the steam-engine produces motion, so does the organic complication of force-endowed materials produce in the animal body effects so interwoven as to become a unit, which is then by us called spirit, soul, thought. The sum

[3] *Address to the British Association at Norwich.* Professor Huxley has, in one of his better moments, endorsed this doctrine. (Cf. "Mr. Darwin and his critics," *Contemp. Rev.* Nov. 1871.) But the passage tells equally against the "function" view of the next objection, advocated at times by Mr. Huxley himself.

[4] Prof. Huxley, *Contemp. Rev.* Nov. 1871.

[5] Huxley, *Macmillan's Magazine*, May, 1870.

of these effects is nothing material; it can be perceived by our senses as little as any other simple force, such as magnetism, electricity, etc., merely by its manifestations."[6]

This is a fair example of the random methods of reasoning employed by materialists. What is the resultant of the aggregate of forces accumulated in the steam-engine? It is nothing more nor less than movements of portions of matter, all perceptible by the external senses. If the engine drags a train, we may speak of the motion of the latter as being a single effect, but the occurrence has only a moral or metaphorical unity. It is really a series of events, a vast assemblage of parts of matter moving other parts. When we turn to the living organism, we find, indeed, a similar set of movements and displacements of matter, but we find also in addition to these physical occurrences, and differing from them, as Mr. Spencer says, "by a difference transcending all other differences," the very phenomenon to be explained, "spirit, soul, thought." Granting, then, for the sake of argument, similarity between the material forces collected in the steam-engine and in the human body, at most the legitimate inference would be that the various movements and organic changes observable in the body were the outcome of its material energy; but there is not a shadow of a reason for attributing the distinctly new phenomenon of consciousness to that energy. In the final sentence another piece of confused and inconsistent thinking is introduced. Thought is there likened to the "*simple forces*, magnetism and electricity." But the only known manifestations of electricity and magnetism consist in the production of movement. Consciousness, however, is revealed in a different way. Of the nature of electricity or magnetism as a simple force we know nothing. The word is merely an abstract term to denote the unknown cause of a certain species of movements coming under external observation. On the other hand, of mental states we have immediate internal experience; and that experience discloses conscious life as centred in one single being, in a peculiar indivisible unity utterly repugnant to the composite nature of a material subject.[7]

[6] *Kraft und Stoff* (Trans.), pp. 135, 136.

[7] "Fifty million molecules, even when they are highly complex and unstable phosphorized compounds, gyrating in the most wonderful fashion with inconceivable rapidity, certainly do not constitute *one thing*. They do not, then, by molecular constitution and activities, constitute a physical basis conceivable as a representative or correlate of one thing." (Ladd, *Phys. Psychology*, p. 595.)

Unknown Properties of Matter.—Against the spirituality of the principle of thought, it was objected by **Locke** that matter has a great variety of wonderful and unlike properties, that our knowledge of these is still very limited, and, consequently, that we are not justified in asserting that matter could not be the subject of intellectual activity. He also says this statement is derogatory to the Divine power, implying that God Himself could not endow matter with the faculty of thought. We most readily admit our knowledge of matter to be still very inadequate; and we allow that matter possesses many unlike qualities. But it is not from mere dissimilarity in character subsisting between mental and material phenomena—although this dissimilarity "transcends all other differences"—that we infer a distinct principle. It is from the absolute contrariety in nature which sets them in opposition. In spite of the imperfect condition of our acquaintance with matter, we can affirm with absolute certainty that some new properties, *e.g.*, self-motion, can never be discovered in it. It is, too, no reflexion on the power of God to say that He cannot effect a metaphysical impossibility, such as the endowment of an extended substance with the indivisible spiritual activity of self-consciousness would be.

Dependence of Mind on Body.—The spirituality of the soul, it is said, is disproved by the absolute dependence of mental life on bodily conditions—a dependence more effectively established by Physiology and Pathology each succeeding year. We find, it is asserted, that intellectual ability varies in proportion to the size of the brain, its weight, the complexity of its convolutions, and the intensity of its phosphorescent activity. Mental powers develop concomitantly with the growth of the brain, and similarly deteriorate with its decay or disease: "The doctrine of two substances, a material united with an immaterial, . . . which has prevailed from the time of Thomas Aquinas to the present day, is now in course of being modified at the instance of modern Physiology. The dependence of purely intellectual operations such as *memory* upon

material processes has been reluctantly admitted by the partisans of an immaterial principle, an admission incompatible with the isolation of the intellect in Aristotle and Aquinas. . . . Of the mind apart from the body we have no direct experience and absolutely no knowledge. . . . In the second place, we have every reason to believe that there is in company with all our mental processes an *unbroken material succession.*"[8] This argument in behalf of Materialism gains much of its weight with many minds from the belief that those who formerly defended the spirituality of the soul conceived it as an independent entity standing out of all relations to the body. The allusion to St. Thomas in the passage just quoted is an expression of this belief. Recent advances in physiological knowledge, it is imagined, have disproved this supposed mutual isolation of the two substances, consequently the inference is that modern science has rendered untenable the spirituality of the soul.

Criticism.—Now, in the first place, this historical theory is utterly false. It is mainly since the rebellion against Scholasticism, inaugurated by Descartes, that this exaggerated antagonism between soul and body has been advocated by anti-materialist thinkers. The central idea of the Peripatetic Psychology, as expounded by every leading writer, from Albert the Great to Suarez, is the conception of the soul as *substantial form* of the body—a view which implies the most intimate union and interdependence between these two co-efficient principles of man.

Consequently, so far from ignoring or admitting "with reluctance" the influence of bodily conditions on mental operations, the greatest emphasis is laid upon the fact, as any one possessed of an elementary acquaintance with the writings of St. Thomas or any other scholastic, on the appetites, imagination, sense-perception, memory, and the passions, must know. Mediæval philosophers were just as well aware as our wise men of to-day that age, bodily fatigue, the processes of digestion, disease, stimulants, and the like, affect our mental operations; and in taking these into account they had to meet by anticipation every difficulty that has or can be raised from the physiological quarter. Physiology has brought to light no facts of essentially novel significance in

[8] Bain, *Mind and Body*, p. 130; cf. Maudsley, op. cit. c. ii.

their bearing on this problem. It has, indeed, given us a better knowledge of the material structure of the brain and nervous system, and of the occurrence of special processes there in conjunction with mental states; but the general principle of interdependence between mind and body, illustrated in such facts, was forced on the human intellect in its very earliest attempts at psychological speculation. Moreover, it ill becomes Cerebral Physiology, which is still in a very backward state, to dogmatize in this fashion.[9]

In the next place, assuming for the moment that all the assertions regarding the intimate relations between neural conditions and mental life were accurately true, and in no way exaggerated, how would this prove more than an extrinsic dependence of the soul on the body which it enlivens? "For, suppose for an instant that human thought was of such a nature that it could not exist without sensations, without images and signs (I do not mean to say that no kind of thought other than this is possible); suppose, I repeat, that such were the conditions of human thought, is it not evident that a nervous system would be then required to render sensation possible, and a nervous centre to render possible the concentration of sensations, the formation of signs and of images? According to that hypothesis, the brain would be the organ of imagination and of language, without which there would be no thought for the human mind."[10] In such a case—and this is precisely the theory of St. Thomas—whatever affects the organ or instrument of the mind will naturally modify mental operations. Now we have shown (c.xiv) how

[9] Of the theory of certain scientists, "that *all* mental phenomena, whatever their varied characteristic shading, have exact equivalents, as it were, in specific forms of the nerve-commotion of the living brain," Professor Ladd remarks: "Our first impression on considering the foregoing way of accounting for mental phenomena is that of a certain surprising audacity. The theory, standing on a slender basis of real fact, makes a leap into the dark which carries it centuries in advance of where the light of modern research is now clearly shining." He shows that even in such comparatively simple problems as the determination of the physiological conditions of variations in the quantity, quality, and time-rate of sensation, "almost everything needed for an exact science of the relations of the molecular changes in the substance of the brain and the changes in the states of consciousness is lamentably deficient;" whilst as regards the neural conditions of spiritual acts, such as the conviction of the *principle of causality*, or the *idea of substance*, he shows that science must remain in absolute ignorance. (Cf. *Physiological Psychology*, pp. 592—597.)

[10] Janet, *Materialism of the Present Day*, p. 134.

intellect requires as an essential condition the operations of sense and imagination, and is therefore extrinsically dependent for its materials on these organic faculties. But, on the other hand, study of the character of its activity (c. xii.) has also proved to us that the spiritual power transcends the material order, and that this power is in its nature essentially and intrinsically independent of matter. The continuity of the organic process, if proved, would be accounted for by the exercise of the imaginative faculty, which the intellect requires as a condition of its operation. That neither imagination nor organic memory are, as Bain implies, *intellectual* activities, must have been evident from the earlier part of this work.

In answer to the sage observation that we never find mind apart from the body, it is sufficient to reply that concomitance does not prove identity, and that at all events we often find body without mind. Whenever we meet with a new group of properties or effects incapable of being accounted for by previously known causes, we are bound, according to the universally recognized canons of physical science, to assume a new cause for these phenomena. As regards the part of the difficulty which lays stress on the relations between the character of the brain as a whole and intellectual ability, whilst we readily admit that the vastly superior mental faculties of man would lead us to anticipate in his case a more perfect instrument than is to be found in the brute kingdom, it is worthy of notice that science has as yet completely failed to assign any distinct property of man's brain by which his intellectual superiority is marked.[11]

[11] "Since evidently the *absolute* weight of the brain cannot be the measure of intelligence, because if so the elephant and the whale ought to excel the greatest human genius, therefore refuge has been taken in greater *relative* weight. . . . Since again in this respect man is surpassed by several of the smaller birds (*e.g.*, the titmouse), and the adult by the child, the multiplicity, complexity, and thickness of the convolutions on the surface of the brain are to afford the solution. But since on this principle the ox ought to distinguish itself by mental capacity, appeal is made to the chemical constitution of the cerebral substance, and the excellence of man's intellect attributed to the richness of his brain in phosphorus; but here again the superiority of the human cerebrum is disputed by two proverbially stupid animals, the sheep and the goose." (Gutberlet, *Psychologie*, p. 255.) On the relative weight, size, etc., of brains, cf. Ladd, op. cit. Pt. II. c. i.; also Surbled, *Le Cerveau*, cc. iv.—xii. The latter writer gives some very interesting statistics on this point. Thus, the average cubic capacity of Parisian skulls—which are larger than those of most European nations—is estimated to-day at about 1,559cc, whilst six skulls of "Cave-men," assigned to the

Man not a Conscious Automaton.—All Materialists necessarily teach that conscious states can never condition or determine bodily movements, but **Dr. Shadworth Hodgson** was, we believe, the first frankly to admit the still more incredible consequence that states of consciousness never condition, determine, or modify *each other*. "There is real action and reaction between organs and parts of organs in a nervous system, as well as between nerve and other parts of the organism and between nerve and external stimuli; but there is no real reaction of consciousness upon nerve, *and no real action and reaction of states of consciousness upon each other*."[12] Again, "Process-contents of consciousness do not stand in any relation of real conditioning to one another. It is not *pleasure* or *pain*, for instance, which conditions *desire* or *aversion*; nor is it *desire* which conditions *volition* or *reasoning*; but the *neural* or *cerebral actions* which condition the antecedents condition in their continuation the consequents also."[13] To make his meaning quite clear, Mr. Hodgson takes the example of a man turning aside to avoid a wheelbarrow. The old-fashioned view is "that the state of consciousness is a really operative link in the chain of events." This is a delusion. The true positive explanation is that the physical impression on the retina determines the nervous processes which result in the appropriate movement. The mental state is a mere *epiphenomenon*. "Throughout the process con-

Palæolithic period, average $1{,}606_{cc}$, and a collection of skulls of ancient Gauls reach $1{,}592_{cc}$. This does not seem very favourable to Evolution. Again, as regards the weight of the brain: Cuvier used to be triumphantly cited by materialists, as an example of great intellect, due to a very heavy brain—1,830 grammes (about 4 lbs.). The average British brain is about 1,400 grammes (3 lbs.). But in recent times cases of brains exceeding that of Cuvier have been found combined with very moderate abilities. A still more surprising fact is that Gambetta, whose mental gifts French materialists, at all events, will be the last to deny, was possessed of actually only 1,160 grammes (2½ lbs.) of cerebral material, an endowment inferior to that of the lowest tribes of savages. Undoubtedly, great intellectual power is, as a rule, accompanied by a large brain, but there are very serious exceptions to the law.

[12] Cf. *The Metaphysic of Experience* (1898), Vol. II. p. 283.

[13] Op. cit. Vol. I. p. 446.

sciousness is initiated by and depends on nerve-motion and not *vice versa*. . . . (The opposite view) would involve the assumption that at some point or other of the process, either consciousness began to act as a real condition (having previously been a conditionate only), or an *immaterial agent*, which had previously been dormant, was roused to activity. But neither alternative is positively conceivable; neither of them has any observed facts in its favour. On the other hand, we can render all the phenomena positively intelligible on the hypothesis of neural action above set forth."[14]

Dr. Hodgson is the ablest and most consistent exponent of psychological materialism at the present day; but his candid acceptance of the consequences of that theory seems to us to provide as perfect a *reductio ad absurdum* as we need desire. Were the avoiding of present visible obstacles the only operations to be accounted for, the comparatively simple psychical and physical processes involved might, perhaps, as in the case of reflex action, be thus mechanically explained. But a little reflexion suggests problems which it will require considerable courage to solve in this fashion. Thus: When the novelist is thinking out his plot, or the detective is striving to piece together the fragmentary clues of a hidden crime, does no *idea*, *feeling*, or *desire* which wakes up within him exert any influence on his subsequent *mental states?* Do his thoughts never "stand in any relation of real conditioning to one another?" When we say that the consciousness of having received a deliberate insult has excited anger and hatred which generated an implacable desire of revenge, and that this motive instigated the plotting and committing of a cunningly contrived murder, is our language throughout purely mythological? Is it possible to believe that the *feeling* of the insult has itself contributed nothing towards arousing the hatred, nor this passion towards planning of the revenge? Does the apprehension of the premisses of a syllogism play no real part in eliciting the *inference?* If materialism be true, Dr. Hodgson's conclusion is inevitable; the neural antecedents *and they alone* condition the neural consequents, the incidental phenomena of a conscious state which happened to accompany the former have no influence upon the incidental phenomena accompanying the latter. Unless we accept this conclusion, we are told we must admit that consciousness is really active or that "an immaterial

[14] Vol. II. pp. 315–318.

agent which had previously been dormant was roused to activity." We are glad to see the inevitable alternative so clearly and so candidly stated. The doctrine of an immaterial soul is surrounded with obscurities and difficulties which it would be foolish to ignore or to seek to conceal. We certainly cannot picture a soul by the imagination; still less can we imagine *how* it acts on the body, or *how* mental acts and nervous processes influence each other. But it is indifferent logic to deny the reality of an event because we cannot imagine the mode of its occurrence; and the inability of our imagination to conceive the nature of immaterial agency is a frail reason, indeed, upon which to reject the doctrine of a spiritual soul and embrace a system of materialism that makes such astounding demands upon our powers of faith.

Monism.—The most serious assault, however, which at present is being directed against the doctrine of a spiritual soul and future life is that of Monism proper. In its best known forms this metaphysical hypothesis, for it is essentially a *metaphysical* conception, has been styled the *Double-Aspect Theory* and the *Identity-hypothesis*, because of its maintaining that mental states and the concomitant nerve-changes are simply different "aspects" of one and the same being. It has been called the *New Spinozism* from its affinity to the metaphysical theory of the father of Modern Pantheism; and it has also been termed the doctrine of *Psycho-physical parallelism* from its denial of all interaction between the psychical and the physical processes which take place in the living being. This doctrine of *parallelism* might, of course, be united with a metaphysical theory of *Dualism*, as in the systems of Descartes and Leibnitz; indeed, it is to *Dualism* it naturally points, but now-a-days it is generally employed in the interests of *Monism* for the purpose of describing the supposed relations of bodily and mental states. Marked by important differences in the hands of its various exponents, Monism, in all its forms, adheres to the cardinal tenet that *Mind and Body are not two distinct realities but merely two "aspects," "sides," or "phases" of one being, and that there is no real interaction between mental and bodily states.* W. K. Clifford, A. Bain, Herbert

Spencer, Huxley, and among recent psychologists, Professor Höffding, are among the best known advocates of this theory; so we shall sketch and briefly examine their views.

The term **Mind-stuff** was invented by **Clifford** to denote the material out of which he asserts that human minds are formed. According to him there is attached to every particle of matter in the universe a bit of rudimentary feeling or intelligence. When the molecules of matter come together in certain forms and proportions, the attached atoms of mental life fuse into a complete self-conscious mind.[15] Neither the molecules of matter, however, nor the appended morsels of mind can have any influence on the other. At least, this is Clifford's doctrine at times: "The physical facts go along *by themselves*, and the mental facts go along *by themselves*. There is a *parallelism* between them, but there is *no interference* of one with the other."[16]

The only arguments suggested in defence of these doctrines are the assertions: (1) that Physiology has established an absolute and complete *parallelism* between psychical and physical facts; (2) that physics has proved the impossibility of any mutual *interaction* between them; and (3) lastly, the fact that Clifford's view is essential to the theory, that all of us, both mind and body, have been developed out of inferior organic forms and ultimately out of inorganic matter. Thus in his own words: "The only thing that we can come to, if we accept the doctrine of Evolution at all, is that, even in the very lowest organisms, even in the amœba which swims in our own blood, there is something or other

[15] "When molecules are so combined as to form the film on the under-side of a jelly-fish, the elements of mind-stuff which go along with them are so combined as to form the faint beginnings of sentience. When the molecules are so combined as to form the brain and nervous system of a vertebrate, the corresponding elements of mind-stuff are so combined as to form some kind of consciousness. . . . When matter takes the complex form of the living human brain, the corresponding mind-stuff takes the form of human consciousness, having intelligence and volition." (*Lectures and Essays*, 2nd Edit. p. 284; also *Mind*, Vol. III. pp. 64, 65.)

[16] Op. cit. p. 262.

inconceivably simple to us, which is of the same nature with our consciousness, although not of the same complexity, that is to say (for we cannot stop at organic matter, *knowing as we do* that it must have arisen by continuous physical processes out of inorganic matter), we are obliged to assume, in order to save continuity in our belief, that along with every motion of matter, whether organic or inorganic, there is some fact which corresponds to the mental fact in ourselves." (Op. cit. p. 266.)

Defenders of a spiritual philosophy are not necessarily opposed to Evolution, when that hypothesis is properly limited and defined: but Clifford's statement that *we know* all living beings "must have arisen by continuous physical processes out of inorganic matter," is almost amusing for its audacity. It is, of course, simply the reverse of the truth.. An overwhelming weight of scientific evidence and authority establishes the fact that *life is never evolved from inorganic matter.* Even scientists as unlikely to be prejudiced against the doctrine of abiogenesis as Huxley and Tyndall are forced to confess that evidence of a single case of spontaneous generation has never yet been adduced. As regards the other arguments, we may for the present merely call attention to the truth that even were complete parallelism, in the sense of reciprocal correspondence between every form of mental state and definite neural processes, fully demonstrated—hopeless though the prospect of this result be—nothing would have yet been effected towards the reduction of mental activity to a mere appendage of such nervous changes. As for the statement, that science has proved the non-interference of the two sets of phenomena, it is both false in itself and in conflict with Clifford's own teaching on other occasions, and with that of the school to which he belongs. The majority of that school teach that bodily processes, at all events, determine changes in our mental states.

Dr. Bain does not appear to go quite so far as Clifford. Mental life in man he considers to be a "subjective aspect" of bodily changes; but that there are "subjective aspects"

attached to all movements of every kind of matter he has not the courage to assert. This position, of course, leaves on his hands the awkward difficulty—why should this very curious "subjective aspect," of which there is no trace in the rest of the material world, suddenly manifest itself in the case of those portions of the universe which we call living beings? To atone, however, for the deficiency just mentioned, he is vigorous enough in insisting that mental life is but an "aspect" or "side" or "face" or "phase" of neural changes, and that therefore it has no reality independent of such changes, and no power of affecting their course. He strongly objects to the phrase, "Mind and body act upon each other." There is merely a continuous series of physical events with inactive subjective "aspects." "We have," he assures us, "every reason for believing that there is in company with all our mental processes, *an unbroken material succession*. From the ingress of a sensation, to the out-going responses in action the mental succession is not for an instant dissevered from a physical succession."[17] The neural changes are determined solely by neural antecedents: the material sequence carries with it the mental sequence, but cannot in the slighest degree be modified by the latter. Nevertheless: "The only tenable supposition is, that mental and physical proceed together as *undivided twins*. When therefore we speak of a mental cause, a mental agency, we have always a *two-sided cause;* the effect produced is not the effect of mind alone, but of mind in company with body. That mind should have operated on the body is as much as to say, that a two-sided phenomenon, one side being bodily, can influence the body; it is after all *body acting upon body*. . . . The line of mental sequence is thus, not mind causing body, and body causing mind, but *mind-body* giving birth to *mind-body:* a much more intelligible position."[18]

Herbert Spencer seems to hold approximately the same view as Dr. Bain, though his general system of Evolution would appear to lead on to Clifford's doctrine of *mind-stuff*. Mental states, he allows, cannot be identified with nervous processes. The two sets of facts are separated by "a difference which transcends all other differences." All forms of consciousness are, he teaches, resolvable into elementary units of feeling akin to electric shocks. These correspond to pulses of molecular motion transmitted through the sentient nerves. But the sensation of shock made known through our inner consciousness can never be analyzed into the physical movements observable, if at all, by our external senses. These

[17] *Mind and Body*, p. 131. [18] Op. cit. pp. 131, 132.

are his words: "When the two modes of Being which we distinguish as *subject* and *object* have been severally reduced to their lowest terms, any further comprehension must be an assimilation of these lowest terms to one another: and, as we have already seen, this is negatived by the very distinction of subject and object, which is itself the consciousness of a *difference transcending all other differences*. So far from helping us to think of them as of one kind, analysis serves but to render more manifest the impossibility of finding for them a common concept—a thought under which they can be united. Let it be granted that all existence distinguished as *objective* may be resolved into the existence of units of one kind (material), . . . and let it be further granted, that all existence distinguished as *subjective* is resolvable into units of consciousness, similar in nature to those which we know as nervous shocks, . . . can we think of the subjective and objective activities as the same? Can the oscillation of a molecule be represented in consciousness side by side with a nervous shock and the two be recognized as one? No effort enables us to assimilate them. *That a unit of feeling has nothing in common with a unit of motion becomes more than ever manifest when we bring the two into juxtaposition.*"[19] In spite, however, of the incompatible character of physical and mental processes, Spencer finally concludes that both are but "faces" or "aspects" of one and the same substratum: "Mind (*i.e.*, conscious-states) and nervous action are subjective and objective faces of the same thing."[20] The ground for this unification of mental and physical phenomena is the same as that urged by Clifford and Dr. Bain —the intimate correspondence between the two series. As to the nature of this one *ultimate reality*, of which mental and bodily activities are but diverse aspects, Spencer assures us that it is *unknowable*.

Criticism of Monism.—Each form in which the Double-Aspect theory has been advocated, stands exposed to numberless special difficulties, but here we have room to touch only on a few of the most general objections, which tell universally against every representation of the doctrine.

1. **Dilemma.**—The advocate of the new system must accept either of two alternatives. He must, with Clifford, look upon this "double-aspectedness" as a universal property of matter; or he must, with Dr. Bain, limit it to living beings. In the first case he has to make an absolutely incredible assumption without a scrap of evidence in its favour. In order to do away with the souls of a few living beings, who do not

[19] *Principles of Psychology*, Vol. I. § 62. [20] Op. cit. p. 140.

constitute the one-hundred-millionth part of the mass of the physical world, he has to assign a mental life to every grain of sand and drop of water on the earth. He has to ascribe to every molecule of matter in the universe something the nature of which cannot be imagined, and of the existence of which neither the experiments of science nor the observation of mankind has ever discovered the slightest trace. Such is the modest demand on our powers of faith made by scientists —who can, when it suits them, be so exacting in their demands for proof. Even Tyndall, sympathetic though he be with such views, is forced to declare: "It is no explanation to say that objective and subjective are two sides of one and the same phenomenon. Why should the phenomenon have two sides? There are plenty of molecular motions which do not exhibit this two-sidedness. Does water think or feel when it rises into frost ferns upon a window-pane? If not, why should the molecular motions of the brain be yoked to this mysterious companion consciousness?"[21]

Should he adopt the second alternative, the defender of this double-faced theory has to explain the unaccountable appearance of the subjective aspect where it presents itself in conscious beings. It is a new phenomenon, differing from all previously existing phenomena by "a difference that transcends all other differences." Whence does it come? Physicists will not admit creations out of nothing, and neither will they allow that consciousness is merely a new form of the material energy of the universe, even were such a transformation conceivable. If material force is *transmuted* into mental states, then, unless the law of the conservation of energy be abandoned, the reverse operation must also hold, and mental states must be capable of issuing forth in the form of physical action. Conscious mental states would thus be capable of acting upon matter: but this is precisely what advocates of Monism declare to be impossible. That mental acts cannot affect material processes is the most fundamental article of their creed. Accordingly, whichever of the two necessary alternatives he accepts, the anti-spiritualist finds himself in an equally unsatisfactory position.[22]

2. **Mental States not Composite.**—If we inquire more closely into the nature of this hypothetical "stuff," out of which intelligence, emotion, and volition are alleged to be manufactured, the absurdity of the doctrine is brought still more closely home to us. What is this material? Is it conscious?

[21] Cf. Mallock, *Is Life worth Living?* p. 180.

[22] Cf. Herbert, *Modern Realism Examined*, p. 71. Sects. 7—12 contain some very good criticism of this theory.

Most supporters of the theory, we believe, would answer, No. How then is it like our mental life? Does a multiplicity of unconscious acts constitute an act of conscious intelligence? If, on the other hand, we ascribe real but incipient consciousness to the molecules of matter, and if mental life is the outcome of their combination, it would seem that a mental existence ought to belong to all material objects with which experience presents us. Have plants, or their leaves, or the various parts of the human body minds of their own? Is a new steam-tug a thing of joy to itself? What are the emotions of a deserted coal-mine? Or is it only very *small* lumps of coal that have minds? Is the soul of carbon different in kind from that of nitrogen or oxygen?

But even were it granted that such allotments of subjective-aspect were attached to all molecules of matter, they would not solve the problem. We have already demonstrated the spirituality of man's intellect and will, and we have shown the peculiar, indivisible character of supra-sensuous acts, such as conception, judgment, reasoning, and self-consciousness; but in doing so we have disproved the double-aspect theory. The unity of consciousness cannot be an amalgam of morsels of subjective-aspect essentially dependent on extended molecules. Simple abstract ideas, judicial acts and free volitions, cannot be a mere compound of electric shocks or of unconscious units. They are indivisible acts, and they must pertain to an indivisible agent other than matter. As Lotze argues, analogical inferences from the combinations of physical forces to the fusion of mental states mislead, not only from the dissimilarity of the two classes of events, but from inaccuracy in describing the operations of the former. In nature two abstract 'forces' or 'motions' never coalesce to form a resultant. What really happens is that two *bodies*, moving or at rest, produce a motion of a *body* or *bodies*. Now movements or forces existing in this concrete way are not simple, but divisible into parts seated in the various molecules of the body. But in *thought*, especially in the unity of consciousness involved in judgment and self-knowledge, we have a real concrete, indivisible activity, which accordingly must pertain, not to an assemblage of separate molecules, but to a *single simple* agent.[23] Somewhat similarly James writes:

"The theory of mental units 'compounding with themselves,' or 'integrating' is logically unintelligible. It leaves out the essential feature of all the 'combinations' we actually know. *All the combinations which we actually know are* EFFECTS *wrought by the units said to be combined upon* SOME

[23] Cf. *Metaphysic*, § 241, and *Microcosmus*, Bk. II. c. i. §§ 5. 6

ENTITY *other than themselves*. Without this feature of a medium or vehicle, the notion of combination has no sense. In other words, no possible number of entities (call them as you like, whether forces, material particles, or mental elements) can sum *themselves* together. Each remains in the sum what it was; and the *sum* itself exists only *for a bystander* who happens to overlook the units and to apprehend the sum *as such;* or else it exists in the shape of some other *effect* on an entity external to the sum itself. . . . 'A statue is an *aggregation* of particles of marble; but *as such* it has no *unity*. For the *spectator* it is one; *in itself* it is an aggregate; just as to the consciousness of an ant crawling over it, it may again appear a mere aggregate.' (Royce.) . . . Musical sounds do not combine *per se* into concords or discords. Concord and discord are names for their combined effects on that external medium the *ear*. Where the elemental units are supposed to be feelings the case is in no wise altered. Take a hundred of them, shuffle and pack them as close together as you can (whatever that may mean), still each remains the same feeling it always was, shut in its own skin, windowless, ignorant of what the other feelings are and mean. There would be a hundred-and-first feeling there, if when a group or series of such feelings were set up a consciousness *belonging to the group as such* should emerge. And this hundred-and-first feeling would be a totally new fact; the hundred original feelings might, by a curious physical law, be a signal for its *creation*, when they came together; but they would have no substantial identity with it, nor it with them, and one could never deduce the one from the others, or (in any intelligible sense) say that they *evolved* it. Take a sentence of a dozen words, and take twelve men and tell to each one word. Then stand the men in a row or jam them in a bunch, and let each think of his word as intently as he will; nowhere will there be a consciousness of the whole sentence. We talk of the 'spirit of the age' and the 'sentiment of the people,' and hypostatize public 'opinion.' But we know this to be symbolic speech, and never dream that the 'spirit,' 'sentiment,' etc., constitute a consciousness other than and additional to that of the several individuals whom the words 'age,' or 'people,' or 'public' denote. The private minds do not agglomerate into a higher compound mind. This has always been the invincible contention of the spiritualists against the associationists in Psychology." [24]

[24] Op. cit. pp. 158–60. The italics and capitals are those of Professor James himself. His argument here is, it seems to us, perfectly sound, but, notwithstanding his disclaimer (p. 162), fatal to his own theory. How can " the present section of conscious-

Absurd consequences. — Advocates of psycho-physical parallelism as well as of all forms of materialism agree at least in this, that mental states cannot *act* on the body. The main object in describing conscious activity as *parallel* to, or as an *aspect*, or *phase* of a nervous process, is to emphasize its incapacity for the production of any physical change. If it be once admitted that mental agency is really operative *ad extra*, that conscious states do really originate bodily movements, then the one great excellence claimed for the monistic theories with which we are here engaged is abandoned.[25] The existence of an efficient energy distinct from material force is admitted, and the chief tenet of the spiritualist philosopher is granted. It is to guard against such a contingency that Bain and Höffding insist "that there is no rupture of nervous continuity;" and Clifford that "the physical facts go along by themselves," and "the mental facts go along by themselves." The admission of a second real agent capable of interfering with or modifying in the most infinitesimal degree the course of material events is absolutely fatal to all monistic anti-spiritualist systems. But we venture to doubt whether the astonishing consequences in regard to most of our beliefs—scientific as well as vulgar—which inevitably proceed from the denial of mental efficiency have been adequately realized by these writers.

Mind's efficacy in Evolution.—The theory of Evolution, for instance, will have to wear a somewhat altered appearance as a rational explanation of facts, if it be true that conscious states never influence bodily movement. The doctrine of

ness," the merely "passing thought" act as "bystander" to sum up the series of long past states into the unity of a Self? Or if James chooses the other alternative and says that the present thought in which I cognize the unity of my past states, is "an *effect* on an *entity external to the sum itself*" (of these states); is not this "entity" after all very like the vulgar common-sense soul contemptuously discarded because it "explains nothing and guarantees nothing." On this question see also pp. 47, 48, above.

[25] The idealist may maintain the real efficiency of mind, but he does so by denying the independent reality of matter—with the disastrous results already indicated. (pp. 113—116.)

natural selection in the animal kingdom is built on the assumption of *serviceableness* of pleasure and pain in the struggle for life. Herbert Spencer never wearies of expatiating on the *utility* of both the *agreeable* and the *disagreeable* qualities of action in the contest for existence. Pleasure and pain are according to him not merely the foundations of morality, but the prime agents in the development and perfecting of all sentient life.[26] Darwin is still more copious in showing how accidental actions, qualities, and experiences which afford satisfaction, *in consequence of that satisfaction*, emerge triumphant from among innumerable variations, and thus secure their own preservation. The beautiful colours and songs of several species of birds, for example, are held to be the result of long gradual evolution under the constant action of sexual selection—individuals inheriting richer attractions more easily securing mates. But what "utility" or "serviceableness" can fine colours or pleasant or painful feelings possess in the *struggle for life* if they never determine or modify bodily activity? If conscious states and cerebral processes are merely *parallel series* of events which never act on each other, how can the preference for agreeable feelings favour the production of the movements to which the feelings are attached? How can pleasure or pain exert a selective influence in favour of certain kinds of physical action?

Other Minds non-existent?—Again, if thought never really influences action, what proof have we that other *minds* than our own exist? We at present infer other minds because we look on certain actions and expressions of our fellow-men as effects of certain *feelings* and *volitions* akin to our own, and deem them incapable of happening except in consequence of such mental states. But according to the new theory these actions are nothing of the sort. They are merely the effects of previous neural groupings; and might have taken place just the same whether the mental states accompanied them or not. The latter are merely appended inactive "phases," or "epiphenomena," which can occasion "no rupture of nervous continuity." We may still, perhaps, infer the existence of other *brains*, but logically the gestures, words, and

[26] "Sentient existence can evolve only on condition that pleasure-giving acts are life sustaining acts." (*Data of Ethics*, p. 83.) "During the evolution of life pleasures and pains have necessarily been the incentives to, and deterrents from, actions which the conditions of existence demanded and negatived. . . . The pleasures of sympathy exceeding its pains lead to an exercise of it which strengthens it." (*Ibid.* p. 245.)

actions of our neighbours might have been precisely the same if *consciousness* had no existence.[27]

But reflexion discovers consequences still more surprising. The whole past history of the world, the building of cities, the invention of machinery, the commerce of nations, the emigrations of peoples, the rise and fall of civilizations, all that has been done on this planet by human beings, might have happened in precisely the same way if there had never awoke to consciousness a single human mind! All the pain and sorrow, all the joy and gladness, all the love and anger that we suppose to have governed the world's history might never have been, and that history *might have run exactly the same course!* The neural groupings, the cerebral movements, which were the true, ultimate, and *only* causes of the various actions of human beings, have never once been interrupted, modified, or interfered with by those "aspects" or "phases" which constitute the "parallel" series of conscious states, since the first man appeared on the earth. Given the original collocation of the material atoms from which the present cosmos has been evolved, and every event, down to the least incident of our daily life, was therein rigidly and sufficiently determined, even though no single act of intelligence or volition had ever wakened into life![28]

[27] "It is admitted that the feelings of others cannot themselves be perceived by any sense; certain bodily movements only are perceived, which are supposed to indicate feelings. It is admitted, further, that these movements proceed with the strictest physical sequence; in other words, that in the absence of feelings they would take place just as they do. It follows that mind leaves no trace of its presence in the movements *by which alone* it is revealed. What is this but to say it is a pure supposition, without a single vestige of evidence? The only evidence science can have of anything is that it is, or effects some change, some movement. Whatever effects no change, makes no sign in the material world, is to physical science non-existent." (Herbert, op. cit. p. 113.)

[28] This argument is stated with much force by Herbert. (*Ibid.* p. 133.) It should be borne in mind that the present argument does not involve any particular metaphysical theory of causality. Accepting even Mill's definition of causation as *invariable succession*, our contention would still retain its force. The defender of the double-aspect doctrine may of course *instinctively* attribute minds to other human bodies, but he has no rational grounds for believing in such minds; consequently he cannot maintain mental states to be constant *concomitants* or *conditions* of physical actions. The latter, he asserts, are unaffected by the former, and so might have occurred precisely as well without them. If the mind cannot modify or influence bodily movements, then, clearly, it contributes nothing to

4. **Meaningless Terms.**—Finally, the entire vocabulary used in the exposition of the theory, is a veritable museum of nonsensical and sophistical terms. Hyphens, ambiguous epithets, and cloudy metaphorical language are profusely employed in pretended explanations of facts of which no real account is given. What idea is really conveyed to the mind by such words as "double-aspect," "mind-stuff," "two-sided cause," "subjective and objective sides of the same fact," "undivided twins," "double-faced unity"? We know what is meant by "stuff" when we talk of the materials out of which a table or a suit of clothes is made, but the word becomes absolutely unmeaning when spoken of an intellectual idea, like that of *Being*, or of the simple cognitive act of self-consciousness. "Double-aspect" signifies, or ought to signify, two views or points of viewing what is known to be one and the same thing; but here we have two sets of facts or things "differing by a difference that transcends all other differences." Surely, then, to speak of the unextended mind and the material brain as "aspects" of the same fact, is merely a childish attempt to deceive ourselves with half-understood words.

Similarly, the terms, "objective side of a feeling" and "subjective side of a nervous current," when intended to be taken as a philosophical explanation, and not as mere metaphorical phrases expressive of ignorance, are a perversion of language. "The expression, 'a two-sided cause,' is one of those figures of speech which are the crutches of Metaphysics, and enable halting theories to make progress. We find the same difficulty in realizing in our mind the conception of a *two-sided cause* as we have in realizing a blue-sound or a three-sided motion."[29] A Cause is defined in Dr. Bain's own Logic, as "the entire aggregate of conditions or circumstances requisite to the production of the effect." But if mental states form part of the aggregate of conditions *required* to effect a given movement, then mind is no longer a mere "aspect" of physical processes: it is a *really efficient agent* which occasionally "ruptures the nervous continuity," and Mr. Bain's doctrine, in company with all other forms of materialistic monism, at once falls to the ground. If mental states do not co-operate in the production of physical changes, then they must not be described as past-causes, or the "side" of a cause, without self-contradiction.

the wonderful works of civilization, and, so far as these latter are concerned, might never have been. This is one of those curious but strictly logical consequences of this theory, which its supporters do not care to obtrude on public attention.

[29] Cf. M. Guthrie, *On Mr. Spencer's Unification of Knowledge*, p. 248.

Monism: Conservation of Energy and Law of Inertia.—To many minds the most serious attack in recent years on the spirituality of the Soul is that based on the doctrine of the *conservation of energy*. Though sometimes specially directed against *free-will*, the objection, if valid at all, disproves the possibility of *any* influence of mind upon body. Physical energy, defined as *capacity for doing work*, may be either *kinetic*, *e.g.*, that of the flying bullet, or *potential*, *e.g.*, that of an elevated weight. Numerous experiments in chemistry and physics go to show that in the transmutations of energy from one form to another none is lost or gained; and the results have been formulated in the statement: *The sum of the kinetic and potential energies of any isolated system of bodies remains constant.* This conclusion has been still further generalized in the form of the Law: *The sum total of energy in the universe always remains the same.* From this generalization the positivist psychologist passes to a further inference, the doctrine of "psychophysical, parallelism"—*mental and bodily changes never affect each other;* and then by one more logical leap to *Monism*—mind and body are mere diverse phenomenal manifestations of one *substratum*.

It has also been maintained that this final conclusion is confirmed, if not independently proved by the *principle of inertia*, Newton's first law of motion: "Every body continues in its state of rest or uniform motion in a straight line except in so far as it may be compelled by impressed forces to change its state."

Harald Höffding is perhaps the ablest exponent of this argument, so we shall cite from his *Outlines of Psychology*. The italics are ours:

"Material phenomena appear in the form of space. . . . This characteristic distinguishes them from states of consciousness, yet does not contain anything by which the material is sharply defined and closed off as a world in itself *For we might conceive these spatial movements as brought about by something non-spatial.* The material world would in that case lie open to influences from without. But scientific research makes such a possibility always more inadmissible. It now applies in all departments the principle that *every material movement must be explained by another material movement.* The

very first principle (the *law of inertia*) on which *natural science* is based, is that the state of a material point (rest or movement in a straight line) can be altered only through the influence of another *material point*.[30] . . . This principle cannot from its nature admit of rigid proof. It is the fundamental assumption with which natural science comes into existence. . . . The like holds true of a more special principle, namely, of *the conservation of matter and energy*. Modern chemistry is based on the assumption confirmed by numerous experiments that in all changes of matter the *sum* of the material atoms remains the same." (pp. 30, 31.) Living beings, Höffding assures us, are in no way an exception to this law. The old notion of a "vital force" governing the growth and reproduction of the living organism is illusory. "This doctrine is really only a mythological way of expressing the amazement which the unique character of organic phenomena excited." (p. 34.)[31]

Still less does the mind act upon the body or *vice-versâ*. "There is no justification for maintaining as a fact that *a bodily process causes a mental process or the reverse*. . . . The supposition that a causal relation may exist between the mental and the material *is contrary to the doctrine of the conservation of energy*, for at the point where the material nerve process should be converted (*sic*) into a mental activity a sum of physical energy would disappear without being made good by a corresponding sum of physical energy." (p. 55.) "It will be easily seen that it avails nothing to say that the mind may not be able to increase the *sum* of physical energy, but that it can alter the *direction* of the applied energy. A physical movement does not change its direction except under the influence of a physical force of a certain strength. *So that this subterfuge also of necessity makes the energy of consciousness a physical energy*." (p. 56.)[32] As there is a perfect correspondence

[30] The *law of inertia* is here mis-stated. As given above (p. 517) in Newton's words, it does not assert that the movement of a body *can* be affected only by the influence of another *material* agent. Newton himself would never have admitted such a principle. Yet it may be conceded that *physical* science prescinds from all but material agencies.

[31] Were Höffding not committed to this view we doubt if he would write thus to-day. The best authorities in biological science now admit that the attempt to explain life mechanically—so much in vogue twenty-five years ago—has failed all along the line; and that the present tendency is universally back towards vitalism. Cf. Prof. Haldane, "Vitalism," *Nineteenth Century* (Sept. 1898).

[32] Here is a truly naïve *petitio principii*. After copiously proving universally admitted facts, the writer slurs over the crucial question, and devotes just *two* lines, plus an abusive epithet, to establish

between mental and neural processes, whilst the *law of the conservation of energy* precludes real interaction between them, the only satisfactory scientific conception of their relations is that "Mind and body, consciousness and brain are evolved as different forms of expression of one and the same being." (54.) "Both the *parallelism* and the *proportionality* between the activity of consciousness and cerebral activity point to an *identity* at bottom. . . . We have no right to take mind and body for two beings or substances in reciprocal interaction." (64.)[33] In fine, "the **Identity-hypothesis** regards the mental and material worlds as two manifestations of one and the same being both given in experience." (66.) Still, lest the reader might begin to suspect that the scientific psychologist has after all lapsed into Metaphysics, he is reassured and comforted by the statement: "Concerning the inner relation

the fundamental thesis on which his attack upon dualism rests! The two lines are either a puerile and irrelevant truism, or a formal begging of the whole question in dispute. The assumption that *a physical movement is modified only by a physical force* is a truism for the astronomer, chemist, physicist, &c., *who abstract from all but physical forces*; but it is the precise point to be proved in regard to the *moral* sciences, ethics, economics, æsthetics, psychology, which all assume, *and find the same sort of verification for the assumption*, that *non-physical* forces—motives and volitions—direct physical movements. *What the Monist has to prove is, e.g.*, that the *ideas* of "Independence" or "British supremacy" have had *no real influence* in originating or in directing that special commotion of material particles and transmutation of physical energy called "the Boer war." For this, neither a question-begging epithet, nor an irrelevant truism will suffice. Assuredly the fact that the *physical* scientist may justly assume this law of inertia with only *approximate* proof in regard to *lifeless matter* does not compel the *moral* scientist to admit it without *any* proof, rigid or approximate, regarding *living conscious beings*.

[33] Surely the *parallelism* of two activities would point not to *one* but to *two* distinct *substrata*. Again: are they parallel in space, or in time? Or how? Are *both* continuous? Experience affirms mental states accompany only a fraction of neural processes; and present science professes profound ignorance of the character of the cerebral correlate of the higher rational activities. What, then, is the precise signification of this "parallelism" of the activities, *except their incapacity to meet*—which is scarcely a reason for their identification? Does the "proportionality"—*e.g.*, of a reasoning process to its concomitant nerve-commotion—refer to variation in *intensity*, or *spatial area*, or *rapidity*, or *duration?* Or has this half-conceived metaphor—on which *the whole weight* of the monistic inference here rests—any *consistent intelligible meaning whatsoever?* This is a specimen of the clearness and accuracy of thought of that "scientific" psychology which contemns the "metaphysician."

between mind and matter, we teach nothing; we suppose only that *one* being works in both. But what kind of being is this? Why has it a double form of manifestation, why does not one suffice? These are questions which lie beyond the region of our knowledge." (Op. cit. p. 67.)

Criticism: Metaphysics inevitable.—It may be justly urged that any positivistic attempt to disprove the interaction or the real duality of mind and body based on the *Conservation of Energy*, viewed as a generalization of physical science and prescinding from all metaphysics, is necessarily illegitimate and worthless. Every interpretation of this Law involves *some* metaphysical theory. The doctrine can certainly not be invoked as an established truth of positive science incompatible with real interaction between mind and body, whilst its own philosophical significance is altogether ignored. The notions of *causality*, *action*, *energy*, and the like, are derived, in the first instance, from the mind's own real activity and its immediate experience of exerting real influence over thoughts and bodily movements. (pp. 368, seq.) All our conceptions of *energy*, *causality*, *interaction* between *material agents* presuppose the experience of personal causality—of the real influence of mind on body. If it be an illusion to think that the mind *really influences* the body, it must be equally erroneous to suppose that *any* one body *really influences* another. What then, is the precise meaning of the "first principle of exact science" that "the state of a material point can be altered only through the *influence* of another material point?" It will not avail the positivist to turn round now, and say that by "causal action" or "influence" of material agents on each other, he only means *constant succession* or *concomitance*. For such constant succession or concomitance cannot be denied to obtain with respect to the mental and bodily processes. The truth is, the positivist Psychologist, by professing to abjure all metaphysics, evades the obligation of defining those metaphysical conceptions with which all real science is saturated, and then employs them alternately in the sense ascribed to them

by Hume or by Reid, by phenomenism or by common sense, as he finds convenient for his argument.[34]

2. **Constancy of Energy not a Necessary Truth.**—The law is not a necessary *a priori* axiom, but a generalization from experience. Now many writers urge that the law is not demonstrated to hold accurately for *any living organism;* and that there is no possibility of its ever being rigidly proved respecting the *universe as a whole.* The experiments establishing the exactness of the law, from the nature of the case, have been fully satisfactory only in reference to portions of inanimate matter; whilst the very point in dispute is its applicability to *living sentient beings.* The animal structure is an extremely delicate machine, in which the action of a relatively small force may liberate or transform a very large quantity of latent energy, pretty much as the faintest pressure of a hair-trigger pistol may explode a powder-magazine.[35] In such a case the *pouvoir décrochant*—the force which frees the stored-up energy—is so infinitesimally small as to be quite inappreciable when incorporated in the total result. In this view the law is admitted to possess *approximate* but not *absolute* accuracy in regard to sentient or rational beings.[36] Consequently there always remains room for the interaction of mind and body, though the total quantity of energy in the universe should thereby undergo infinitesimal variations.

3. **Mathematical Solutions.**—Distinguished mathematicians, however, have professed to reconcile the modification of bodily movement by the mind with the most rigid fulfilment of the law. One of the simplest solutions advanced is thus stated: "It is a principle of mechanics that a force acting at right angles to the direction in which a body is moving does *no work*, although it may continually alter the direction in which the body moves. *No power, no energy*, is required to deflect a bullet from its path, provided the deflecting force acts always at right angles to that path. . . . If Mind or Will simply deflect matter as it moves, it may produce all the consequences claimed by the Wilful School, and yet it will neither add energy nor matter to the universe."[37]

[34] Cf. Ladd, *Philosophy of Mind*, pp. 209—219.

[35] "As far as we can judge, *life* is always associated with machinery of a certain kind, in virtue of which an extremely delicate *directive touch* is magnified ultimately into a very considerable transmutation of energy." (Balfour Stewart, *On the Conservation of Energy*, p. 163.)

[36] G. Fonsegrive, *Le Libre Arbitre* (1896), pp. 315—326.

[37] Cited by Tait and Stewart, *The Unseen Universe*, p. 180. These eminent physicists, however, prefer a different solution. (*Ibid.* §§ 111, 112.) M.M. Cournot, de Saint-Venant, Boussinesque, and

4. **True Solution.**—The notion underlying most of the answers suggested—that the Mind or Will merely *directs*, *applies*, or *disposes of* the energy stored in the organism—contains, at least, part of the explanation; but their advocates seem to us frequently to err in representing the Mind as in a condition of excessive isolation from or independence of the body. Indeed, much of the strength of this difficulty is due to the erroneous conception of the mutual relations of soul and body prevalent among spiritualist writers since Descartes. In his theory (see above, p. 257), if the soul initiated or modified a series of bodily movements, it would do so after the manner of a *foreign* agent, and would therefore seem inevitably to alter the quantum of energy possessed by the alien material system with which it is supposed to interfere. But if, rejecting this ultra-dualism, we return to the Aristotelian conception according to which soul and body constitute *one* complete substantial living being of which the soul is the animating, actuating, or determining principle—the *formal cause*, whilst the body is the determinable, material, quantitative principle, the difficulty at once loses more than half its force. The question is now no longer whether a spiritual agent can excite or modify the movements of a foreign material system without augmenting or diminishing the energy of that system, but whether the conscious states of a sentient being can determine the actualization and direction of the latent physical energy of that being without changing its amount. For, in this view, the material energy manifested in movement was previously stored in the living organic tissues; feelings and volitions merely determine the *form* it shall assume. Mental acts thus modify not the *quantity*, but the *quality* of the energy contained in the system. The distinction between *quality* and *quantity* in all forms of energy is the key to the solution of the difficulty.

This is admirably insisted upon by P. Couailhac in his recent able monograph on the problem.[38] Quantity and movement are the special object of the exact sciences; but they do not exhaust the content of the universe. In every transition from potential to actual energy, the *qualitative* element, he rightly urges, is as real and influential as the *quantity*. *Direction*, which is the qualitative element of movement, is as real and important

others, have also invented various ingenious solutions based on more or less abstruse mathematics. To our mind, however, the chief value of these attempts is that they make prominent the complexity, obscurity, and uncertainty of the assumptions involved in applying the doctrine of Conservation to the living organism, and prove the groundlessness of the dogmatism of Monism.

[38] *La Liberté et la Conservation de l'Energie* (Paris, 1897), Livre IV.

as velocity and duration. In order that a material particle may move, it must take a definite path in space. But the quantity of energy—the velocity and the mass—being given, an indefinite variety of such paths conceivably lie open to it. It does not dispose of quality to say that the *direction* of the moving body is due to the *intensity* of the forces playing on it. This merely pushes the question back. The effect of these forces is due as much to their quality as to their quantity, and so the qualitative element must ultimately be traced back to a directive principle distinct from quantity. Passing to the more complex movements of living organisms which start from a germ cell and develop into an animal of a particular species, the qualitative efficiency of the energy which determines the lines along which the embryo is to evolve becomes still more prominent. Whilst the quantity of the energy of the living organism at any time is the resultant of the material elements borrowed from external nature, the form of this energy is determined by the organizing force of the germinal principle; though the action of the latter is again conditioned by the nutriment absorbed. Finally, in the living conscious being this qualitative determining factor takes a still higher form, its range of activity is wider, its power of applying, directing, and disposing of the energy stored in the organism is more varied and more flexible, but it cannot alter the quantity of the capital funded in the self-moving machine. If, then, it be the quality of the forces distributed in the nervous system which the directive power of the soul immediately determines, the liberation and control of a man's physical activity by his thoughts and volitions need not necessarily conflict with even the most rigid fulfilment of **the Law of the constancy of the quantity of energy.**[39] For a lengthy treatment of this subject, see "Energy," by the Author, in the *American Catholic Encyclopedia.*

The Law of Inertia, however, cannot be admitted to apply to *conscious* movements. Amongst the reasons for denying its validity, are these: (1) It is admittedly not self-evident. (2) It cannot be proved. (3) It at

[39] "La volonté peut éveiller et tirer de leur torpeur les forces disponibles de l'organisme, auquel elle est unie. Elle ne peut les accroître. Ces forces ont une limite, quand elle est atteinte, elles s'arrêtent ou fléchissent. Et il n'y a pas de tension de la volonté qui puisse les porter en avant ou les soutenir. . . . La fonction de la vie est de placer les forces physico-chimiques dans les conditions où peuvent se produire les combinaisons d'où résulte le tourbillon vital. La vie est *directrice*. Mais elle ne peut ni altérer ni perfectionner les éléments qui sont mis á sa disposition par la nature." (Couailhac, op. cit. p. 226.)

least *seems* to be directly contradicted by the internal experience of all men. (4) It would involve the incredible absurdities already dwelt upon. (pp. 513—516.) It is the unwarrantable application of this principle—not that of the constancy of energy—which is incompatible with dualism and the efficacy of mental action.

Agnosticism.—The final outcome of *Monism* is *Agnosticism*. As in establishing our own doctrine, we have indirectly refuted this creed—for since it professedly reposes not on reason but on faith, *creed* it is—we cannot dwell on the subject further here. Indeed, since the *Unknowable* declines to recognize the laws of logic, rational criticism would be obviously futile. In its dark continent the identification of thought and matter may be peacefully accomplished without the disturbing interference of either the profane scientist or the impertinent philosopher. Screened off from the inconveniences of public discussion, rebellious facts and repugnant principles can there be silently suppressed. The freedom, responsibility, abiding identity and individuality to which conscious experience testifies can be rejected as irrelevant evidence—because, of course, *no* evidence is accepted within the jurisdiction of the *Unknowable*. The difficulties of the theory which maintains that human thought has never influenced human civilization, are easily overcome—the resources of the *Unknowable* being equal to all emergencies. Enjoying the hospitality of its ample territory, the most violent contradictions and implacable inconsistencies can rest in tranquil repose. Its frontiers once crossed, the Monist has reached a hallowed asylum, into which even the most relentless persecution of logic or common sense cannot follow him. There, at last, all objections are answered, all difficulties are solved, all doubts are assuaged by the one great axiom so well—if not wisely—expressed by Dr. Hodgson: "*Whatever you are* TOTALLY *ignorant of, assert to be the explanation of everything else.*"

Additional Readings.—Coconnier, *ib.* c. ii.; Farges, *ib.* pp. 136—106; Ladd, *ib.* cc. 9, 10.

CHAPTER XXIV.

IMMORTALITY OF THE SOUL.

Immortality and Psychology.—We have now proved that the soul is a simple, spiritual, substantial principle; and we have criticized at some length the chief counter theories. The truths thus far established, though interesting in themselves, derive their main importance from their bearing on the question of a future life. This topic, however, cannot be isolated and kept strictly within the boundaries of psychology proper, for it is inseparably bound up with problems of other branches of philosophy. Immortality of the human soul presupposes the existence of God; and the most convincing arguments of a future life are deduced from ethics. But this fact merely evinces the solidarity of the great metaphysical questions, whilst the philosophical science of the human mind seems clearly to be the place where the discussion of its destiny ought to be undertaken.

Immortality and Theism.—Moreover, although rigid demonstration of a future life presupposes the existence of a Divine Ruler,—for were there no God, the present question would be idle and meaningless,—still it is worthy of note that some of the proofs of Immortality are amongst the most forcible arguments

for the existence of the Deity. Anyhow, the considerations to be advanced here are of a purely rational character, and prescind altogether from the assured certainty of an everlasting life which we have guaranteed by Revealed Religion.

Teleological Argument.—Our first proof will be that deduced from the nature of the faculties, aspirations, and yearnings of the human mind, and the manner in which they point to another sphere of existence in which they are designed to enjoy their appropriate objects. Notwithstanding the seeming success which temporarily marked the first assault of the theory of *natural selection* on the doctrine of final causes, it is now becoming more and more evident every day that the attempt to explain the universe and all it contains in a purely mechanical fashion, as the fortuitous outcome of the collision of blind forces, has completely failed; and that the theory of Evolution is hopelessly incompetent to solve even the simplest biological problems without ultimately falling back on a teleological conception of the world. At all events, evolutionists themselves are fully as insistent as pre-Darwin physiologists on the axiom that there is *no organ without its function*, that no activity or faculty is to be found in the kingdom of organic life which has not its fitting object, its appropriate end to serve. The eye would never have been developed unless there were in existence light and material objects to be seen. The mechanism of the ear would never have been evolved save to operate in a universe of sound. The senses of smell and taste exist only because there are real stimuli to exercise them. And each instinct discovered in the animal kingdom points infallibly to some real object by which it is to be gratified. "Everywhere in nature there is evident the law of correlation, of finality of harmonious reciprocity, of appeasement of real needs, and satisfaction of natural tendencies."[1] Even the rudimentary organ is held to establish conclusively the reality of the past or future occupation for which the

[1] Cf. J. Knabenbauer, S.J., *Das Zeugniss des Menschengeschlechtes für die Unsterblickkeit der Seele*, p. 5.

member was made. In fact, all the evidence gathered in behalf of Evolution, when impartially viewed from a larger and higher standpoint, merely confirms the main thesis of Natural Theology that the Author of the world is a Being of infinite wisdom who governs it in harmony with *reason* and according to *law*. If we now turn to Psychology for an accurate account of our mental aptitudes and tendencies, we shall learn that the Mind is the subject of activities and powers rising altogether above the needs of the present life; and that it exhibits talents and aspirations which find not their proper satisfaction here, but stretch out beyond the present existence, demanding a future state in which they may attain adequate realization.

Aspirations of the Intellect.—Man alone, of all creatures upon earth, has the power of looking back into the past and forward into the future. His mind, by the indwelling energy of its peculiar nature, strains and gazes out across distant epochs of time. Unlike that of the mere animal, its interest is not confined to the present *Now*. It naturally rises to the concept of *endless duration*. The mystery which surrounds this notion has ever been a stimulus to thought and speculation. It lies at the source of man's most universal and deep-seated intellectual cravings; whilst the most ardent admirers of the sagacity of the lower animals do not venture to suggest that the idea of a never-ending future exercises their intelligence or troubles their peace of mind. There is a similar attraction for the intellect in the notion of *space*. Thought is conscious of the power and the impulse to transcend the physical boundaries and impediments which fetter the bodily frame. It feels that, unlike material energies, it can in an instant reach out and soar beyond the utmost frontiers of the created universe. The conception of the *possible*, the *necessary*, the *universal*, as the schoolmen insisted, is the special fruit of man's intellect. The more the human mind is developed and perfected, the more it feels its affinity with realities which lie behind and beyond sensible experience. (See pp. 471, 472.)[2]

[2] Cf. Piat: "Notre pensée n'est pas close, comme celle des bêtes, dans une portion déterminée du temps et de l'espace; son élan natif l'emporte plus loin: de quelque manière qu'elle s'exerce, de quelque côté qu'elle se tourne, c'est toujours de l'Eternel qu'elle a en perspective. Or il y a quelque chose de significatif dans cette excellence de notre esprit. En face de l'éternité le temps ne compte pour rien. Si longtemps que nous ayons vécu, tout nous a encore

Higher rational activity, in fact, proclaims that the true and sufficient object of the yearnings of the soul must lie beyond the confines of this life circumscribed by corporeal conditions. If every organ has its fitting function, and every instinct its appropriate object, it is incredible that the highest aspirations of reason should be aimless, and the noblest energies of man should be ever emptying themselves into a void.

This same line of reasoning is accepted by as thoroughgoing an evolutionist as A. R. Wallace. He has written thus: "Those faculties which enable us to transcend time and space, and to realize the wonderful conceptions of mathematics and philosophy, or which give us an intense yearning for abstract truth (all of which were occasionally manifested at such an early period of human history as to be far in advance of any of the few practical applications which have since grown out of them), are evidently essential to the perfect development of man as a spiritual being, but are utterly inconceivable as having been produced through the action of that law (of Natural Selection) which looks only, and can look only, to the immediate material welfare of the individual or the race. The inference I would draw from this class of phenomena, is that a superior intelligence has guided the development of man in a definite direction and for a special purpose." (*On Natural Selection*, p. 359.)

Yearning of the Will: *Insatiate desire of Happiness.*—But the intellect is not the only faculty which speaks to us of another life; the conative side of man's being insists not less urgently on the same truth. In each living creature the collective tendencies which issue from its internal constitution form the complete expression of its *nature* or *essence*, and manifest the end which it is designed to realize. The specific tendency of the human being is *rational appetency*. This is the characteristic outpouring of man's being; through it, his true self-realization is to be accomplished. But since rational appetency follows upon intellectual cognition, and since this latter activity tends towards the universal and the infinite, ever insatiably conceiving better and more perfect objects than those presented by experience, so rational desire can never rest content with the goods and pleasures of this life.

manqué lorsque nous venons à mourir, si nous mourons tout entiers. Quand nous sortons de la vie, l'adaptation de notre pensée à son milieu connaturel n'a pas commencé; il reste entre notre idéal et nous une disproportion radicale. Il faut donc, pour que la finalité soit satisfaite, que notre existence se prolonge à l'indéfini." (*Destinée de l'Homme*, p. 159. Paris, 1898.)

We are not dependent, however, on abstract reasoning for the establishment of this fact. Our own consciousness, along with the sages, poets, and philosophers of every age, all iterate the same truth. There is implanted in our nature a yearning for happiness which can never be satisfied in our present sphere. This rational instinct exhibits itself in the lowest and hardest conditions of human existence; but the wealth, the comforts, the luxuries, the art and the science which civilization brings, are impotent to appease it. The power of conception ever exceeds the present reality. With each successive stage of mental development the craving becomes more and more conscious of itself, and it grows and expands, proclaiming ever more clamorously that it is not to be satiated with any finite creature. The brute animal lives normally in a state of content. Its faculties and instincts find their proper nutriment, and it is satisfied. But for man "the eye is not satisfied with seeing, nor the ear filled with hearing." Though master of the rest of creation, he is condemned throughout this life by the very constitution of his rational nature to be *un*-satisfied with his lot! Is it possible, that of all living beings on earth, man alone—and in his highest powers—is to be aimlessly dis-proportioned and mis-adapted to his environment? Is this highest of rational instincts destined to be universally frustrated? Are the loftiest and best yearnings of the noblest and best work in this rational universe to be for ever vain and illusory? and more vain and disappointing *precisely in proportion as by moral and intellectual culture he developes and perfects his highest faculties?*[3]

Ethical Argument.—It is, however, from the department of *Ethics* that reason puts forth the most

[3] "Il faut donc ou que l'homme soit dans la nature un monstre incompréhensible ou qu'il y ait pour lui quelque chose de plus que la nature. Il faut ou que la vie de l'homme n'ait aucun sens et n'en puisse jamais avoir . . . qu'elle devienne de plus en plus intolérable au fur et à mesure, que se déployant davantage, elle enferme plus de raison; il faut que la vie de l'homme soit impossible en droit ou qu'on la conçoive comme la première étape d'une évolution commencée qui doit s'achever ailleurs. Si tout finit avec le dernier soupir, l'homme est un être manqué; il est tel par nature; il l'est d'autant plus qu'il touche de plus près à son point de maturité. Or il n'est pas rationnel de croire à une antinomie aussi profonde: on ne peut admettre que cette même finalité qui s'accuse si visiblement dans toutes les espèces inférieures, s'arrête brusquement au plus haut degré de la vie et y fasse à jamais défaut." (Piat, op. cit. pp. 192, 193. Cf. Martineau, *A Study of Religion*, Bk. IV.)

irresistible demand for a future life.[4] Morality is an essentially *rational* phenomenon. The reality of right and wrong, of duty and virtue, of merit and responsibility, are amongst the most certain convictions of our rational nature. That what is seen to be clearly wrong *must not* be done, notwithstanding the temporal disadvantages which may ensue, is an axiom to which the intellect gives complete assent, however feeble the will may be in actual practice. But in the judgment that conduct entailing a sacrifice *ought* to be pursued, there is implied the further judgment that it cannot be ultimately *worse for the agent himself* to do that which is right. Our intellect, in fact, affirms that right conduct is always *reasonable*. The supposition that virtue can finally result in a maximum of misery for the agent; or that wickedness may effect an increase in the total quantity of his personal happiness is seen to be in conflict with reason, and to be destructive of all morality. It is impossible that perfect and fully enlightened reason can recommend us *to do* that which conscience categorically *forbids*. But if so, our permanent real interests cannot be injured by right conduct. *Duty cannot be in irreconcilable war with rational self-love.*

In the concrete.—The issue becomes clearer when we face the question in the concrete. Can it be equally well in the end for the successful swindler who amasses a fortune by the plunder of his clients, and for the upright man who honestly struggles through a life of poverty, and resisting temptation, dies in want? Can it be ultimately the same for the forger or slanderer and the innocent man, whose life he has ruined? Is there to be no difference, when the last breath is breathed, between the murderer and his victim, the adulterer and the chaste, the martyr or the saint and his malicious persecutor? History affords plenty of examples of bad men, with hardened conscience, prosperous to the end of their lives, and of virtuous men who, owing to their honesty, have died with the stamp of failure on their earthly career. Our whole

[4] The ethical proof, resting on *divine purpose* in the world, is itself *teleological*, but is conveniently separated from the former proof.

rational moral nature affirms that this cannot be the final outcome of things: that it cannot in the last resort be as well or better for those who violate the principles of justice, and those who faithfully observe the moral law seeking to conform their conduct to the ideal of right and holiness. *The first postulate of physical science is that the universe is rational.* Its most fundamental axiom, the *law of uniformity*, is based on this assumption. *Would it be a rational universe if vice is to be rewarded and virtue to be punished in the end?* Is it a rational universe if the moral life of mankind be founded on an *illusion?* Can the holiness of the world's saints, the virtues of its best heroes, the moral life of the mass of mankind have had their source and origin, their never-failing food and support in one huge hallucination?

Professor Sidgwick merely expressed this truth in the most moderate terms when, after all decorous hesitations and qualifications and sub-qualifications, he conceded that "the existence of a Supreme Being who will adequately reward me for obeying this rule of duty or punish me for violating it," is "a matter of life and death to the Practical (Moral) Reason," and finally concluded with the truest philosophical statement in his work. "The whole system of our beliefs as to the intrinsic reasonableness of conduct must fall, . . . without a belief in some form or other that the Moral Order which we see imperfectly realized in the actual world is yet actually perfect. If we reject this belief, we may, perhaps, still find in the non-moral universe an adequate object for the Speculative Reason capable of being in some sense ultimately understood. But the Cosmos of Duty is reduced to a Chaos, and the prolonged effort of the human intellect to frame a perfect ideal of rational conduct is seen to be foredoomed to inevitable failure."[5]

Immortality makes Morality always reasonable.—On the other hand, if the present life be, as the Schoolmen taught, only the antechamber to eternity; if

[5] *Methods of Ethics* (Edit. 1874), Bk. IV. c. vi.; cf. also Balfour, *Foundations of Belief*, pp. 339—354; and Mallock, *Is Life worth Living?* c. ix., also "Immortality," *American Catholic Encyclopedia.*

the happiness of Heaven means the perfection of man's highest powers and the satisfaction of his highest aspirations in a blissful union with the infinite source of all beauty and all good by contemplation and love; and if a life of virtue here consists in the perfecting of our nature and the preparation of it for that union with God, then we have an adequate foundation for all our ethical notions. And we are provided with an ideal of moral life and a conception of man's end, which explain and harmonize our ethical conceptions among themselves, and their relations with the facts of our temporal life.

Actual sanctions imperfect.—It is true, of course, that the present life is not devoid of moral sanctions, that extreme courses of vice generally meet with retribution, and that, as a rule, honesty is the best policy—at least where the police system is efficient. But it cannot be seriously pretended that this is always the case; and still less that each individual act of virtue, and every noble sacrifice for the sake of duty gains its just recompense. It is indisputable that in the lives of the great majority of men a certain judicious mixture of unscrupulousness would secure to the agent an increase in the dividend of the sources of happiness. It is urged also that the sanctions of conscience and of public opinion, compensate for all other deficiencies. We should be very sorry to unduly depreciate the value of a good conscience: but the assertion cannot stand the test of experience. It is generally only in the virtuous that conscience is sensitive; and good men probably suffer sharper pangs for smaller faults than the wicked do for grievous crimes. Indeed, the more abandoned the criminal, the fainter the internal moral chiding becomes; whilst agreeable elation or complacent self-satisfaction over his meritorious performances is not a kind of pleasure in which the truly virtuous man is wont to indulge. Finally, if belief in a future retribution be recognized as illusory, both the *menace* and the *promise* which make up the chief part of the sanction of conscience are annihilated. The claim put forward on behalf of public opinion as an adequate supplementary sanction is equally invalid. For, firstly, the censure of society cannot reach secret sins and a very large part of man's moral life; whilst it is extremely likely to err regarding *motives* on which the goodness or badness of conduct essentially depends. Secondly, the only public opinion for which the individual cares is that of his own class or neighbourhood; and this not infrequently is opposed rather than favourable to virtuous actions.

Formal Theistic Proof.—Formally assuming the existence of God as independently established in Natural Theology, the argument for a future life may now be thus enunciated: An infinitely wise and benevolent God could not have implanted in all men a yearning for happiness whilst intending this natural desire to be necessarily, finally, and universally frustrated. Nor could He as a just and holy legislator have imposed upon mankind His Moral Law whilst leaving it incomplete and imperfect through defective sanction. But if there be no future life for man, God has done this: hence we are bound to conclude that God has designed to continue the soul's conscious existence after death.

Argument from Universal Belief.—Another argument upon which much stress has always been laid is the practical universality of the belief in a future life. Such a conviction in opposition to all sensible appearances must spring, it was urged, from man's rational nature, and must be allowed to be true unless we are prepared to hold that man's rational nature inevitably leads him into error in a matter of fundamental importance to his moral life. To admit this, it was argued, logically leads to scepticism. Adequate treatment of this argument would require considerable space.

Scholastic Metaphysical or Ontological Argument.—In addition to the arguments just given, the schoolmen deduced a proof of the soul's future preservation from its nature as a simple spiritual being. This ontological demonstration, it must be admitted, has not the persuasiveness with the modern mind which it possessed in the schools. Nevertheless, when properly understood, its defensive value is considerable. It enables the spiritualist to meet all materialistic attacks by showing that the subject of our conscious life is constructed to resist the destructive agencies which corrupt material beings; and it furnishes a conception by which a future life becomes more intelligible. We shall briefly state it in its scholastic shape.

By *death* is understood cessation of life in living beings. Such cessation of life might conceivably be brought about by either of two causes: *annihilation* of the living being, or *corruption* of its vital principle. *Annihilation* means the reduction of the object into absolute nothingness. A creature

is, strictly speaking, *annihilated* only when it so ceases to be that no element of it remains. A being is said to be *incorruptible* when it is incapable of perishing either by dissolution into the constituent parts or elements which may compose it, or by destruction of the subject in which it inheres or upon which it depends for its existence. *Corruption* from the philosophical point of view may thus in scholastic language be of either of two kinds, *corruptio per se*, essential corruption, or *corruptio per accidens*, accidental corruption.[6] In corruption *per se* there is a dissolution of the being into its component principles, as in the death of a man and the combustion of firewood. A being was said to suffer corruption *per accidens* when put an end to *indirectly* by the destruction of the subject on which it depends. An *accident* perishes in this way when the subject in which it inheres is broken up or changed in such a manner as to be no longer a fit support for it, as in the case of the disappearance of the shape and colour from a ball of melting snow or butter. According to the opinion most commonly received among the schoolmen, the extinction of the vital activity of brute animals and plants is an instance of *corruptio per accidens*.

Now the Ontological argument claims to prove three propositions: (A) that the human soul is both *per accidens* and *per se* incorruptible; (B) that it can be annihilated neither by itself nor by any other creature; (C) that no sufficient reason can be assigned for supposing that God will ever annihilate it. It should be clearly understood that Almighty God could by an exercise of His absolute power[7] annihilate the human soul or any other creature. For *every* creature continues to *exist* and *act* only in virtue of the constant *conservation* and *concurrence* of God. But the argument proves that the soul

[6] "A Being is *incorruptible* if it does not contain within itself a principle of dissolution; it is *indestructible* if it can resist every external power tending to destroy or annihilate it If the indestructible and incorruptible Being is endowed with life, it is called *immortal*." (Kleutgen, op. cit. § 844.) The signification of these terms varies slightly with different writers. Kleutgen points out that annihilation is always possible to God by the mere withdrawal of His conserving act.

[7] The phrase *potentia absoluta* denotes the range of the Divine Power abstracting from all self-imposed degrees. Within its sphere is included the production of anything not involving a contradiction, such as would be, *e.g.*, a square circle. *Potentia ordinata* signifies the range of God's power as conditioned by His free decrees. Thus, if God has once promised a particular reward on the fulfilment of a certain condition, He cannot henceforward retract.

is fitted in its nature to survive, and that God is the only Agent by whom its destruction could be accomplished.

(A) *The Soul is incorruptible.*—It has been already demonstrated (1) that the soul is a substantial being, (2) that it is simple or indivisible, (3) that it is spiritual or not intrinsically dependent on the body for its action or existence. (c. xxi.) But a simple substantial being is incapable of corruption *per se*, for it is not composed of distinct parts or principles into which it might be resolved; and a spiritual substance is exempt from corruption *per accidens*, since it does not intrinsically depend on the body for its existence. Therefore the human soul is incapable of corruption in either of these alternative ways. Incorruptibility is thus a consequence of immateriality. If the mind were a function of the brain, or an aspect of nervous processes, then dissolution of the organism would necessarily involve destruction of the soul. The refutation of these hypotheses in our first three chapters has, consequently, removed the chief argument against the possibility of a future life.

(B) *The Soul cannot be annihilated either* (1) *by itself or* (2) *by any creature.*—Annihilation is the reduction of something to nothing. But this result cannot be the effect of any *positive* action; for every positive action must terminate in a positive reality. A positive act, other than that of creation, can only *change* the state of the materials upon which it operates. It cannot make them disappear altogether. Any action accordingly, whether of the soul itself or of another creature, could at most effect merely a change or modification in the soul. Annihilation is possible only by the withdrawal of the conserving or creative power which has sustained the being in existence. Now, as creation and conservation in existence pertain to God alone, He only can cease to preserve; and, therefore, He alone can annihilate. The argument has been thus concisely stated: "Inasmuch as it is a simple spiritual substance, the soul can come into existence only through the creative act of God; and, therefore, only through annihilation by God can it perish. Annihilation consists in the refusal of any further creative conservation: accordingly, He alone who preserves and sustains a being can let it sink back into nothing. In fact, no created force can subdue Omnipotence exercising creative conservation, so as to reduce into nothingness that which God preserves in existence. Divine creation and conservation consists merely in the effective volition that something *be*. Now, either God wills that the soul exists longer, or He does not will it. If He wills it, then His will can be overcome by no finite power. If He does not will it, then it ceases of itself to exist without any other agency being

cause of its cessation. Consequently, the soul can in no way be destroyed by any finite power."[8]

(C) *There is no reason to suppose that the Soul will ever perish.*—It has been now proved by the ethical and teleological arguments that the soul will not perish at death, and by this ontological argument that it is of its own nature incorruptible, and that it can be destroyed neither by itself nor by any created being; it only remains to be shown that there is no ground for supposing that God will ever annihilate it. The ultimate end and purpose for which the Almighty conserves the soul in existence is His own extrinsic glory, both objective and formal.[9] But this end remains for ever; therefore the act of conservation ought to be everlasting.

The only conceivable grounds which can be suggested for the cessation of God's preserving action are, (*a*) the incapacity of the soul to act when separate from the body, with its consequent inability to apprehend, to praise, or to love God, and (*b*) the unworthiness of the souls of the wicked to exist. As regards (*a*), the ethical argument proves that the soul must live at least for a time after death, and be capable of experiencing reward or punishment. It must, therefore, be endowed with intelligence and will, and so be capable of contributing to the formal glory of God. The mode, however, of its action, following the mode of its existence, must be different from that of its present state. (*b*) As for the wicked, it is at least *possible* that they may be preserved for ever to vindicate by their punishment the justice and offended majesty of God; though that this is a *fact* cannot be proved by *philosophy* alone. For, absolute certainty of eternal punishment, as of everlasting reward, is afforded us only by the infallible testimony of Holy Writ. The *congruity* of such unending punishment was deduced by scholastic theologians from consideration of the infinite majesty of the Person offended, and the infinite claims which He possesses over His creatures. The rebellion and ingratitude of the creature constituting an offence under a certain aspect infinite was held to be—even in the light of pure reason—not unfittingly punished by a penalty finite in

[8] Gutberlet, *Die Psychologie*, pp. 314, 315.

[9] The *extrinsic* or *external* glory of God is that given to Him by His creatures; *intrinsic* or *internal*, is that afforded by Himself. The former is finite, the latter infinite. Both kinds may be either *objective* or *formal*. The *objective* glory of God is that conferred by the mere existence of His perfections, whether manifested in Himself or in His works. The latter is compared to that reflected on the painter by his pictures. The *formal* glory of God consists in the recognition and acknowledgment of the Divine excellences, whether by Himself or by created intelligences.

intensity but unlimited in duration. The adequate treatment, however, of this difficulty would lead us into the territory of dogmatic theology.

Objections against the doctrine of a Future Life.—As the proofs of Immortality are nowadays attacked from various standpoints, it is most desirable to define accurately how much each can really establish. A want of clearness and precision on this point is not infrequently exhibited by defenders of a future life; and they sometimes forget that the use of an unsound argument, or the misuse of a sound one, has often seriously damaged a good cause. To us it seems best to admit frankly that whilst each of the ordinary proofs has some special merit, it is also subject to some particular defect or limitation; and that it is only by their collective combination that the complete doctrine can be satisfactorily established.

(1) *The ethical argument* demonstrates that there must be a future *conscious existence;* but it hardly proves that this must last *for ever.* For it would be difficult to show that God could not adequately reward and punish virtue and vice in a finite period. (2) The *teleological argument* also proves a future conscious existence in which the higher aspirations of Intellect and Will can be satisfied. And although it may not rigidly demonstrate that the future life must be *endless*, it points to that conclusion, at least in the case of the *good.* But it is more complex than the previous argument: it presupposes the formal establishment of the *law of finality* by Natural Theology or Science; and so its persuasive power is less. Further, respecting the future existence of the *wicked*, its logical force is distinctly weaker. (3) The argument from *universal belief* is subject to these same limitations. All three proofs merely establish the *fact* of a future existence. None of them suggest *how* this is to be reconciled with the tendency to decay witnessed in all living organisms. They simply leave us with the *antinomy* or seeming conflict between experience and reason unsolved. (4) Here the *ontological argument* comes to our aid. It removes the conflict by showing that the objections based on the corruption of

material beings lose their force when directed against the subject of thought and self-consciousness. It also shows that continuity of existence is *natural* to the soul; that is, that the soul is *apt* to endure, and that it is not liable to destruction by any created agency. But since this continuity of existence is a contingent fact, depending on the free-will of God, the simplicity or spirituality *alone* cannot prove that this continuity will be certainly realized. To secure this recourse must be had to some form of the *teleological* argument. Further, since in our experience consciousness is liable to interruptions; and since, as far as our knowledge goes, mental states are always accompanied by cerebral changes, the ontological argument, without still further help from teleology, would be unable to prove that the soul will be capable of eliciting conscious acts when separate from the body.

1. The answer to sundry difficulties will now be comparatively easy. Thus, for example, Professor James writes: "The substance (of the soul) must give rise to a stream of consciousness continuous with the present stream, in order to arouse our hope, but of this the mere persistence of the substance *per se* offers no guarantee. Moreover, in the general advance of our moral ideas, there has come to be something ridiculous in the way our forefathers had of grounding their hopes of immortality on the simplicity of their substance. The demand for immortality is nowadays essentially *teleological*. We believe ourselves immortal because we believe ourselves *fit* for immortality." (Op. cit. p. 348.)

It may be replied that the demand for immortality was teleological eight centuries ago in the time of Aquinas, and long before in that of Plato. The philosophers of the middle ages insisted much upon the *contingent* character of all created things. Not one of them would have put forward the simplicity of the soul as an argument for continuity of existence *except on teleological grounds*—as indicative of the intention of a wise and good God. It is an essential tenet of the scholastic philosophy (1) that the continuous existence of every creature depends on its free *conservation* by God and (2) that all its operations require the free *efficient*

concurrence of the Divine Being. *But all inferences as to the future free actions of God must necessarily be based on the doctrine of finality.* For the persistence, then, both of "the stream of consciousness" and of the substance of the soul, the schoolmen had to argue from the "providentia divina" or the "consilium Dei," which is merely the Latin for *theistic teleology.* But in proving the soul to be a simple immaterial being, and thus exempt from corrupting agencies, they believed they showed its conservation to be natural or in harmony with reason; whilst to them it would be evidently incompatible with Divine Wisdom to preserve in existence an inert soul devoid of action and consciousness.[10]

2. The same answer destroys the force of **Kant's** famous objection based on what he calls "the *intensive quality*" of the soul, which he thus stated: "The supposed substance (of the soul) if not by decomposition may be changed into nothing by gradual loss (*remissio*) of its powers, consequently by *elanguescence.* For consciousness itself has always a degree which may be lessened, consequently the faculty of being conscious may be diminished, and so with all the other faculties."[11]

[10] As an "encyclopædic ignorance" of scholastic philosophy widely prevails in English psychological literature of the present day, a few citations may be useful to show that the teleological argument was appreciated by St. Thomas. That all creatures are *contingent* he proves thus: "Hoc, igitur, quod Deus creaturæ esse communicat, ex Dei voluntate dependet; nec aliter res in esse *conservat*, nisi inquantum eis *continue influit* (infundit) esse, ut dictum est; sicut ergo antequam res essent, potuit eis non communicare esse, et sic eas non facere; ita postquam jam factæ sunt, potest eis non influere esse; et sic esse desinerent, quod est, eas in nihilum redigere." (*Sum.* 1. q. 104. a. 3.) But the soul is *designed* to exist for ever: "Unumquodque naturaliter suo modo esse desiderat; desiderium autem in rebus cognoscentibus sequitur cognitionem; sensus autem non cognoscit esse, nisi sub hic et nunc: sed intellectus apprehendit esse absolute, et secundum omne tempus; unde omne habens intellectum naturaliter desiderat esse semper; *naturale autem desiderium non potest esse inane;* omnis igitur intellectualis substantia est incorruptibilis." (*Ib.* q. 75. a. 6.) Again: "Impossibile est *naturale desiderium* esse inane; *natura nihil facit frustra.* Sed quodlibet intelligens naturaliter desiderat esse perpetuum, non solum ut perpetuetur secundum speciem, sed etiam individuum." (*Cont. Gent.* Lib. II. c. 55. Cf. *Ibid.* c. 79. ad 4.)

[11] *Critique of Pure Reason* (Meiklejohn's Translation), p. 246.

Undoubtedly if God ceased to conserve the soul it would at once cease to exist; and whether this happened suddenly or after a gradual waning of its activity, matters not a whit. But it would be in conflict with the wisdom of God to suppose that He could conserve the soul in an inert, unconscious condition, devoid of all activity. Further, the argument from Ethics, and the desire of happiness, in so far as they establish anything, prove that the future existence must be *conscious*. Kant seems to suppose that continuous conscious existence is deduced by the ontological argument as a necessary result of the simplicity of the soul, *apart from and independently of the divine conservation and concurrence*. The argument may have been employed in this illegitimate way by deists—certainly not by the schoolmen. For them the aspirations of the intellect, the desire of happiness and the simple immaterial constitution of the soul, which secures its immunity from corruptive agencies, were all so much teleological evidence of God's design to continue the soul's existence and to supply His efficacious concurrence requisite for its conscious activity in the future.

3. A disembodied spirit, it is affirmed, cannot be pictured by the imagination. "A spirit without a body," Büchner assures us, "is as unimaginable as electricity or magnetism without metallic or other substances." Science also refutes our doctrine. "Physiology," says Vogt, "decides definitely and categorically against individual immortality, as against any special existence of the soul." Again Büchner: "Experience and daily observation teach us that the spirit perishes with its material substratum." To observations of this sort we may reply that (*a*) as far as imagination goes we cannot picture the soul *with* the body. Neither can we imagine God, nor the ultimate atoms of matter. (*b*) The comparison of the soul to bodiless electricity is a complete misrepresentation of our knowledge of mind. Electricity and magnetism, as we have already pointed out, are presented to us only through sensible *movements*, whilst we have an immediate consciousness of the simple nature of mental energy. (*c*) Vogt's assertion is simply as false as his other dictum, borrowed from Cabanis, that "thought is a secretion of the brain." Physiology can say nothing more than that the action of the soul during this life is affected by the condition of the brain. (*d*) The final statement cited from Büchner is equally untrue. We most certainly cannot observe or experience the death of the soul; and we trust our arguments have shown that we may infer the contrary.

4. "The soul is born with the body, it grows and decays with the body, therefore it perishes with the

body."[12] Modern science has added very little to the argument stated with so much power by the Latin poet. Now, we have repeatedly pointed out that in the Scholastic system the human soul is *extrinsically* dependent on the body which it informs. Such a condition would completely account for all the correspondence observed, whilst *intrinsic* or essential independence remains. Such *intrinsic* independence combined with extrinsic *dependence* is thus advocated by Ladd: "That the subject of the states of consciousness is a real being, standing in certain relations to the material beings which compose the substance of the brain, is a conclusion warranted by all the facts. That the modes of its activity are correlated under law with the activities of the brain-substance is a statement which Physiological Psychology confirms: one upon which, indeed, it is largely based. . . . *All physical science, however, is based upon the assumption that real beings may have an existence such as is sometimes called 'independent,' and yet be correlated to each other under known or discoverable laws.* If this assumption could not be made and verified, all the modern atomic theory would stand for nothing but a vain show of abstractions. Upon what grounds of reason or courtesy—we may inquire at this point—does Materialism decline to admit the validity of similar assumptions as demanded by mental phenomena?" (*Physiological Psychology*, p. 607.)

The soul, moreover, as will be proved in a later chapter, is *created*, not derived, like the body, from the parents. It does not grow in the sense of being *quantitatively* increased; but, conditioned by the efficiency of the brain and sensory organs, it gradually unfolds its capabilities. It does not really decay with bodily disease, although since its sensuous operations are immediately dependent on the instrumentality of the organism, it must naturally be affected by the health of the latter. The argument can also be inverted. In many instances the mind is most powerful and active in the decrepit frame of the old; and at times, in spite of dreadful havoc from bodily disease, intelligence may survive in brilliant force to the last.

5. The argument from universal belief has been attacked on the ground that some peoples, and many individuals, both philosophers and non-philosophers, do not judge there is any future life. It may be observed in answer, that whenever the proof from universal consent is invoked, it only presupposes a *moral* universality. As regards the nations or tribes who have been asserted to believe in no future life,

[12] Lucretius, *De Rerum Natura*, Lib. III. vv. 446. seq.

advancing knowledge does not confirm such a statement. The greatest care is required in interrogating savages regarding their religious opinions. Inaccuracy in this respect has often caused the ascription of atheism to tribes later on proved to possess elaborate systems of religion and hierarchies of gods. Future annihilation, asserted to be a cardinal doctrine of Buddhism, is by the vast majority of the disciples of that sect understood to be not a return to absolute nothing, but an ecstatic state of peaceful contemplation.[13]

Final Objection.—There remains one sweeping objection which strikes at all the proofs alike. The insatiate desire for happiness, the intellectual demand for final equity, the seeming aptitude of an immaterial soul to survive, it is roundly asserted, afford *no guarantee that they will be realized.* The mind's inferences to the ultimate perfecting and setting right of things need not be valid; our intellectual craving for completeness, harmony, or symmetry in the universe does not prove their objective reality.

The answer is that the postulate here is not merely the satisfaction of some particular impulse. If those exigencies of our reason which demand a future life are doomed to disappointment, then there is an utter and enormous failure which involves radical perversity in the constitution of things. Science and Natural Theology alike assume as first principle and starting-point the *rationality* of the universe. But if there be no future life, then the fundamental principles of morality are in irredeemable conflict with the just claims of reason: the fount of seeming law, order, and finality is hopeless discord and senseless strife: the most imperious affirmation of our rational moral nature is one prolonged fraud: the ethical life of man, all that is highest and greatest in this world—that which alone is truly *good*—is a meaningless chaos. Intrinsic contradiction, absolute irrationality is the last answer both of science and philosophy!

It is true that some naturalistic writers adopt a lofty tone on this subject. The old-fashioned view of life and morality, they assure us, was base and ignoble. Virtue,

[13] On this argument, see Knabenbauer, op. cit.

we are told, is its own sufficient reward. Profound contempt is expressed for "the pains and penalties argument" of Christian philosophy. The doctrine of rewards and punishments is an "immoral bribe." Right conduct, we are informed with an unctuous austerity, ceases to be worthy of approval if the prospect of thereby attaining everlasting happiness is allowed to enter as a motive.

The academic philosopher from the university professorial chair—enjoying a comfortable income and agreeable occupation—may sneer at the moral convictions of human nature: but to the thoughtful man who gravely looks the stern realities of actual life in the face and contemplates the suffering of multitudes of mankind, such language must seem the most flippant and unworthy trifling. If this life be but a passing period of probation, and if there be a future state and an infinitely good and just God who will there apportion to all their just award, then difficult and obscure though the problem of existence be, *a rational solution is possible.* But if instead the universe be naught but an iron mechanism—whether idealistic or materialistic matters little—aimlessly and remorselessly grinding out tears, and pain, and sorrow; and if, when once this frail thread of conscious life is cut, all is over; then, for vast numbers of human beings hopeless pessimism is the only creed—and often and often suicide the most rational practical conclusion!

Here is a picture: "I think," says the poor dying factory girl, "if this should be the end of all, and if all I have been born for is just to work my heart and life away, and to sicken in this dree place, with those mill-stones always in my ears, until I could scream out for them to stop and let me have a little piece of quiet, and with the fluff filling my lungs, until I thirst to death for one long deep breath of the clear air, and my mother gone, and I never able to tell her again how I loved her, and of all my troubles,—I think, if this life is the end, and that there is no God to wipe away all tears from all eyes, I could go mad."[14]

[14] Cited in the *Grammar of Assent*, p. 312.

CHAPTER XXV.

SOUL AND BODY.

Individuality of the Human Soul.—There still remain sundry problems concerning the relations of soul and body, but the limits of our space compel us to compress our treatment of them into the smallest possible compass. On the individuality of the soul there is little to be added to what has been already urged in establishing its persisting identity (pp. 464, 465), and in criticizing James's view (pp. 485, 486). The conviction that I have an individual mind, insulated and complete in itself, distinct and separate from all other minds, rests on the testimony of self-consciousness, corroborated by the witness of other men concerning their own similar experiences. To those who reject this argument we can only put the question: By what other conceivable kind of evidence could the fact be better demonstrated?

Pantheism of mediæval Arabs.—Aristotle's obscure language concerning the nature of the *νοῦς ποιητικός* or *Intellectus agens*, afforded occasion to a philosophical heresy already alluded to (p. 309), which prevailed widely amongst Arabian philosophers of the middle ages. Aristotle speaks of this faculty as being "separate" from the body. The explanation of the paragraph offered by St. Thomas is, that the *Intellectus separatus* is held by Aristotle to pertain only to the spiritual

soul, and so, unlike the sensuous powers, is understood to be intrinsically independent of the organism. The Arab philosophers interpreted the epithet "separate" literally, and assumed the existence of one common or universal *Intellect* superior to all men, which in some mysterious way operates in the mind of each, and illuminates or excites it to intelligence. Only the *Intellectus agens* is made separate by Avicenna, but both *Intellectus agens* and *patiens* seem to be viewed as extrinsic by Averrhoes. Strange and fantastic as this doctrine appears, it has affinity to modern forms of Pantheism. Thus Spinoza taught that our minds are only *modes* of one infinite mind, which is itself but one of an infinite number of *attributes* that go to constitute the one, infinite, all-embracing *Substance*. Hegel held that all human consciousnesses are but transient *moments* or *stages* of the Absolute Spirit. According to Cousin, we know all things in the *Universal Reason*. Even the *Vision en Dieu* of Père Malebranche, and the Hyperphysical Idealism of Bishop Berkeley, bear some relationship to the Arabian conception. In this last view, what seem to be our intellectual operations are really the result of the working of the one common eternal Active Intellect. In the theory of the French Abbé, our mental acts are really our own, though their immediate objects are ideas in the one, all-embracing Divine Mind. Berkeley stands opposed to both in denying the extra-mental existence of material objects; he also looks on God as the cause, and apparently the *external* cause of *all* our cognitive states, sensations, as well as intellectual ideas. A common objection to all monistic theories is that they reject or distort the clear, distinct, and immediate testimony of experience for the sake of some dubious and obscure postulate of *unity*, or of some even more dubious *a priori* assumption that it is impossible for mind and matter to interact.

Unicity of the Soul in Man.—Plato allotted to the human body three really distinct souls,—the νοῦς, in the head, the θυμός, within the breast, and the ἐπιθυμία, in the abdomen. Some modern authors teach that there is in man distinct from the rational sentient soul a vital principle, the source of vegetative life. This theory used to be styled **Vitalism,** though that term now includes *Animism* and all doctrines which maintain the reality of a *vital principle* superior to the chemical and physical properties of matter. Others make the rational soul numerically different from the common

subject of sentient and vegetative activities. In opposition to these various hypotheses the Peripatetic doctrine, sometimes called **Animism,** holds that *in man there is but one actuating principle, the rational soul*, which is, however, capable of exerting the inferior modes of energy exhibited in sensuous and vegetative life. In this view the plant possesses merely a "vegetative soul," the brute a "sentient soul," containing virtually, however, the faculties of the vegetative principle. It is hardly necessary to remind the reader here that the proof of a spiritual principle in man is independent of all theories regarding the nature of vegetative "souls."

In Man the rational and the sentient soul are one.—This is proved by various considerations. (1) We have the testimony of consciousness to the most perfect identity between the mind which *thinks* and the mind which *feels*. Introspection assures us that it is the same being who understands or reasons, and is subject of sensations. (2) I can compare intellectual operations with sensitive states, and affirm the former to be more painful, more pleasant, more exhilarating, more depressing, more enduring, or more transitory than the latter. But this can only be effected by the two compared states being apprehended as modifications by one and the same indivisible subject. (3) The intimate interdependence of thought and sensation is inexplicable if they are activities of diverse subjects. In particular, no reason can be assigned why it is of objects apprehended through sense that the first intellectual concepts are elaborated by the understanding.

The principle of vegetative life in man is identical with this rational sentient soul.—This doctrine involves two theses: (A) That there is in man an active principle, which is the root of the vegetative functions; (B) That this active principle is not really different from the rational soul. We will begin with the former:

(A) *The vegetative principle in man, and in fact in all living organisms, is a special force or energy superior to the chemical and mechanical properties of matter.* This proposition is established by examination of the character-

istic differences which separate the animate from the inanimate world. These are amongst the chief:

Origin and Reproduction.—"*Omne vivum a vivo:*" The whole weight of scientific authority in recent times confirms Harvey's dictum that life proceeds only from life. Formerly, owing to the imperfect means of experiment, it was generally supposed that spontaneous or equivocal generation was a matter of every-day occurrence. Improvements, however, in the microscope, and advance in the science of Chemistry have completely discredited such a view. We now find scientists, like Tyndall and Huxley, affirming that living beings are produced only by living beings. The property of life comes only from a living agent, and such agents continue their race by the generation of other beings specifically like unto themselves. In lifeless matter nothing of this sort takes place, but new bodies may be formed by the accidental or artificial combination of almost any kind of stuff.[1]

2. **Nutrition, Growth, Conservation, and Decay.**—The living being from conception to death passes through a fixed cycle of changes constituting its life-history, and generically distinguishing it from all forms of inanimate matter. Starting from a single germ-cell the animate organism builds itself up after a regular process which is practically the same throughout the animal kingdom. By its peculiar inherent energy the fertilized ovum appropriates and adapts to its own use the surrounding nutritive matter. Assimilating this

[1] "I affirm that no shred of trustworthy experimental testimony exists to prove that life in our day has ever appeared independently of antecedent life." (Professor Tyndall, *Nineteenth Century*, 1878, p. 507.) Huxley declares that the doctrine of biogenesis, or life only from life, is "victorious along the whole line at the present day." (*Critiques and Addresses*, p. 239.) Elsewhere he asserts that "the present state of knowledge furnishes us with no line between the living and the non-living." (Art. "Biology," *Encycl. Brit.* 9th Edit.) Virchow describes the doctrine of abiogenesis as "utterly discredited." (*The Freedom of Science in the Modern State.*) Balfour Stewart and Tait state that "all really scientific experience tells us that life can be produced from a living being only." (*The Unseen Universe*, p. 229.) Tyndall, *Floating Matter in the Air*, p. 84, shows clearly the fallacy involved in every argument for abiogenesis hitherto advanced. Huxley gives a brief history of the question in his *Critiques and Addresses.*

substance it grows, and then divides into two distinct though connected cells. Each of these subdivide and by repetition of the process the number of cells soon becomes enormous. But this multiplication of cells speedily begins to reveal that the energy of the primitive germ is throughout all the operations working after a systematic plan. The embryo commences to take a definite shape. The new masses of cells, so rapidly being manufactured, are gradually formed into spinal chord, viscera, heart, sense-organs, etc.; and as time goes on the specific type becomes more and more distinct until we can recognize the well-marked form of the particular animal—the fish, the bird, the elephant, or the man. It used to be maintained by the older advocates of **Organicism** against *Vitalists* that life is merely the result of the *organization* of the living being; and it was believed that the future organization was contained in some way, "encased" or "pre-formed" in the primitive germ, and required merely to be evolved. But the progress of science and the establishment of the fact that the living body is built up by the accretion of a vast number of cells has rendered such a view untenable. Indeed every advance in science makes it more and more certain that organization is the *effect* not the *cause* of the vital energy. The fertilized ovum is not a ready-made miniature organism with differentiated members merely needing to be unfolded and magnified. On the contrary, it is a microscopic ball of protoplasm containing no rudiment of any organ. But this tiny spherical mass of living matter possesses the marvellous power of dominating the physical and chemical properties and affinities of other matter, of converting this into cells like itself, and of multiplying these and arranging and distributing them until it has built up the complete fully developed animal. The germ-cell thus *makes its own organism.* Throughout life a process of metabolism, of waste and repair is continued; and according as one or other is more active, we have growth or degeneration. The living being is ever actively *adapting itself* to changes in its environment. If any part of the organism accidentally suffers injury, this vital energy which compenetrates the entire mass at once lays a levy upon the remaining parts and combines their forces to repair the evil; and they all show sympathy and contribute out of their resources, or lessen their own demands till the damage is made good or the wound healed. This cycle of life has absolutely no counterpart in inanimate matter. The conservation of the latter is effected by a state of changeless repose. If increased it is by mere external addition or juxtaposition of similar substance. A mass of lifeless matter possesses no real

unity—no part having more than an accidental connexion with any other part. This is well illustrated even in the case of the crystal, so favoured by some anti-vitalists. (Vitalism has been discussed at length under the title "Life" in the *American Catholic Encyclopedia.*

These various features mark off by an impassable barrier the living organism from dead matter: and constitute against *Organicism* a cogent proof of the existence in living beings of a special dominating principle or energy superior to the properties and forces of inanimate substances. The several processes of nutrition, growth, conservation, and reproduction constitute a group of operations completely transcending the chemical and mechanical powers of matter. The innate tendency to build itself up according to a specific type, to restore injured or diseased parts, to conserve itself against the agencies perpetually working for its dissolution, and to reproduce its kind, manifest an internal principle which unifies, dominates, and governs the entire existence of the being. On the strength of the axiom that every effect must have an adequate cause, we must admit a special ground for vital phenomena in those material substances which possess life. It is true, of course, that life is subject to the conditions imposed on its existence by the chemical and mechanical properties of matter; and that many processes which take place in the living organism illustrate laws of chemical and mechanical

[2] "L'acquisition de la forme chez le cristal n'est en rien comparable à l'acquisition de la forme dans l'être organisé. Dans le premier cas, *et ce point est capital, il n'y a pas évolution*, acquisition graduelle, création progressive de la forme typique définitive: non, cette forme existe, complète, parfaite dès l'origine, dès la première apparition du cristal, alors qu'il est microscopique. Cette forme peut croître par *juxtaposition* de cristaux; mais quelque accrue qu'elle soit, elle demeure absolument semblable à elle-même dans tout le cours de son accroissement. Le cristal en partie brisé se répare mais de la même façon qu'il s'est formé: les cristaux subsistants servent d'appel, de centre de cristallisation; de sorte que la partie détruite se rétablit par juxtaposition. La reparation du cristal n'amène donc pas, comme celle de l'être vivant, une modification plus ou moins notable de forme et de structure: elle n'est jamais imparfaite et relative; elle est jetée dans le moule absolu du cristal primitif." (Dr. Chauffard, *La Vie*, p. 358. Cited by Coconnier, loc. cit. p. 186.)

action; but this is quite a different thing from saying that life is only the *result* of these properties. The more we know of chemistry and physics on the one hand, and the better we understand the nature of cellular activity on the other, the more hopeless do physico-chemical theories of life become.[3] We are justified, then, in assuming a new internal energy, a directing force which determines and governs the stream of activities described as the phenomena of life. This force is what is meant by the so-called "*vegetative soul*" or "*vital principle:*" and all the arguments proving its presence in the lower animals *a fortiori* demonstrate its existence in man.

We can now establish our second proposition: (B) *In man this vital principle is identical with the rational sentient soul.* The intimate union and mutual inter-dependence subsisting between the sensuous and vegetative activities cannot be accounted for on the supposition that two distinct agents or principles are at work. Organic changes and sensations arise simultaneously, and the extinction of vegetative life puts an end to consciousness. The vital principle is the force which governs the evolution and development of the organs of sensibility from the primordial germ cell; and pleasurable or painful excitations of these organs react on the vigour of the vegetative activities. Fear, hope, joy, anger, may instantaneously affect the action of the heart, stomach, liver, lungs, or the state of the nervous system generally; whilst conversely the atmosphere, narcotics, the action of the stomach, of the liver, circulation, and indeed nearly all physiological functions may modify the colour of our mental life.

[3] Cf. Professor Haldane: "To any physiologist who candidly reviews the progress of the last fifty years it must be perfectly evident that, so far from having advanced towards a physico-chemical explanation of life, we are in appearance very much farther from one than we were fifty years ago. We are now far more definitely aware of the obstacles to any advance in this direction, and there is not the slightest indication that they will be removed, but rather that with further increase of knowledge, and more refined methods of physical and chemical investigation they will only appear more and more difficult to surmount." (*Nineteenth Century*, 1898, p. 403.)

In a word, the arguments put forward to reduce the rational sentient soul to the condition of an aspect or function of the organism contain this much truth, that the ultimate root of physical life is identical with the subject of intelligence, and that the two classes of activities consequently condition each other. Finally, if the rational soul in man were a new entity superadded to the living being already animated by a sentient or vegetative soul, man would not be a single individual. He would be no longer essentially one, but two beings.

The facts concerning the origin of life, to which reference has been made in the present chapter, furnish another decisive argument against materialistic evolution. There is an impassable chasm between living and inanimate substances; there is another similar division between sensation and all purely physical phenomena; and lastly, there is a still greater gulf between the spiritual activities of self-consciousness and free-volition on the one side, and all merely sensuous states on the other. The attitude of men like Huxley and Tyndall on the problem of life, is an interesting psychological phenomenon. These writers vehemently insist upon *experience* as the only legitimate foundation for belief. They allow that experience does not afford a shred of evidence to indicate that life ever arises except from a living being. And then they conclude that life did arise spontaneously from dead matter in the distant past! The theistic alternative would, of course, be intolerable.

Scholastic Definition of Life.—The scholastics defined life as, *activitas qua ens seipsum movet*—the activity by which a being moves itself. The word *move*, however, was understood in a wide sense as equivalent to all forms of change or alteration, including the energies of sentiency and intellectual cognition as well as local motion. The feature insisted on as essential is the *immanent* character of the operations. An *immanent* action is one which proceeding from an internal principle does not pass into a foreign subject, but perfects the agent. All effects of non-living agents are, on the contrary, *transitive*. Notwithstanding the multitude of attempts made by successive philosophers and biologists, the definition of the schoolmen has not been as yet much improved upon.[4]

[4] Bichat's definition is well known: "Life is the sum of the functions which resist death." This is not a very great advance if

Difficulties.—The solution to an objection often raised in various forms against the doctrine of the last chapter, as well as against that of the present or of the next, may also be indicated here. It is argued that a *corruptible* principle must be really distinct from an *incorruptible* one; but sentient and vegetative principles are admittedly corruptible; therefore the rational spirit in man cannot be identical with the root of inferior life. Or, if it is, then it must be mortal. To this it may be answered that a soul or vital principle capable of merely sentient or vegetative activity perishes on the destruction of the subject which it informs, and is accordingly corruptible; but that this is not the case with the root of the inferior species of life in man. Sentiency and vegetation are not in him activities of a merely sentient subject. They are, on the contrary, phenomena of a rational soul endowed with certain supra-sensuous functions, but also capable of exerting lower forms of activity. There can be no reason why a superior principle cannot virtually include such inferior faculties. Scholastic philosophers have always taught that the virtue of exerting organic functions is inherent in the human soul, but that these activities are suspended when the soul is separate from the body after death. In the case of man, therefore, the root of sentiency and vegetative life is not corruptible.

It is sometimes urged, that the existence of a struggle between the rational and sensitive powers shows that both proceed from diverse roots. The true inference, however, is the very opposite. The so-called "struggle" is, of course, not a combat between independent beings within a supposed arena of the mind. It is one indivisible mind which thinks, feels, desires, and governs the vegetative processes of the living being. But precisely because the subject of these several activities is the same they mutually impede each other. Violent excitement of any one kind naturally diminishes the energy available for another.

death can only be described as the cessation of *life*. "Life is the sum of the phenomena peculiar to organized beings." (Béclard.) "Life is a centre of intussusceptive assimilative force capable of reproduction by spontaneous fission." (Owen.) "Life is the two-fold internal movement of composition and decomposition at once general and continuous." (De Blainville, Comte, and Robin.) These definitions, starting from the physiological point of view, aim merely at summing up the phenomena of vegetative life, and exclude intellectual activity. Mr. Spencer with his wonted lucidity, defines life as "the continuous adjustment of internal relations to external relations."

Union of Soul and Body.—We have criticized at some length (c. xxiii.), the accounts of the union of mind and body furnished by Monism: we must now turn to those of Dualism. Of spiritualist theories the most celebrated are: (1) that of Plato, (2) Occasionalism, (3) Pre-established harmony, (4) the doctrine of Matter and Form. The first three are all forms of exaggerated Dualism; the last alone recognizes the essential unity of man.

Ultra-dualistic Theories.—(1) The rational soul, according to **Plato,** who historically comes first, is a pure spirit incarcerated in a body for some crime committed during a former life. (p. 255.) Its relation to the organism is analogous to that of the rider to his horse; or of the pilot to his ship. Since it is not naturally ordained to inform the body, the soul receives nothing but hindrance from its partner. This fanciful hypothesis, it is needless to say, does not receive much favour at the present day. There is no real evidence of such a pre-natal existence; and the doctrine would make man not one, but two beings accidentally conjoined.

(2) Geulincx and Malebranche, logically developing Descartes' doctrine of the mutual independence of soul and body (pp. 256—259), explain their union by the theory of **Occasionalism** or **Divine Assistance.** Soul and body are conceived in this system as two opposed and distinct beings between whom no real interaction can take place. It is God alone who effects changes in either. On the *occasion* of a modification of the soul He produces an appropriate movement in the body; and *vice versa.* All our sensations, thoughts, and volitions are immediate results not of the impressions of material objects upon us, but of God Himself; and similarly our actions are due not to our own, but to the Divine Will. We have here the theory of *psycho-physical parallelism* plus the Divine Agency. The doctrine of Occasionalism, however, is not confined by Malebranche to the interaction of soul and body. No created things have, in his view, any real efficiency. The *First Cause* is the *only* operative cause.

The establishment of the genuine activity of secondary

causes in general, we leave to the volume on Metaphysics;[5] here it is enough to point out the errors of Occasionalism within the sphere of Psychology. This theory is superior to those criticized in chapter xxiii., at least in this, that it certainly provides an *adequate* cause for the events of life. But in doing so it renders purposeless the ingenious machinery of the various sense-organs. It makes illusory the testimony of consciousness to personal causality in the exercise of volition and self-control. It conflicts with the irresistible conviction, based on the experience of our whole life, that our sensations are really excited by the impressions of external objects, and that our volitions do really cause our physical movements. Finally, Occasionalism involves the gratuitous assumption of a continuous miracle, removes responsibility from man, and makes God the author of sin.

(3) The theory of **Pre-established Harmony,** invented by Leibnitz, substitutes for the never-ceasing miracles of Occasionalism a single miraculous act at the beginning. Soul and body do not really influence one another, but both proceed like two clocks started together in a *divinely pre-arranged correspondence.* Leibnitz's system is the most thorough and consistent reasoning out of the theory of *psycho-physical parallelism;* and it excels the hypotheses of Clifford and Höffding in that it offers an *intelligible* explanation of the parallelism, whilst they give *none* at all. But it does so by invoking a *miracle.* Our objections to this theory are substantially the same as to the last. In both, the union between mind and body is accidental, not essential; and we have in man really two beings instead of one.[6]

[5] Cf. Rickaby, pp. 308—313.

[6] See also pp. 262—264. Another theory, that of "Physical Influx," constitutes the union of soul and body in their mutual interaction. This account, however, is either merely a statement of the fact that they *do influence* each other, or an explanation which would dissolve the substantial union into an accidental relation between two juxtaposed beings. Cudworth invoked the assistance of a *plastic medium*—an entity intermediate between matter and spirit—to solve the problem. But this would merely double the difficulties.

The Aristotelico-Scholastic Doctrine.—The most satisfactory theory is the old Peripatetic doctrine. This explanation was formulated by Aristotle, and later on adopted by St. Thomas and all the leading Scholastic philosophers. The soul is described by these writers as the *substantial form* of the living being. This being is conceived as the resultant of two factors,—the one active and determining, the other passive and determinable. The first is called the *Form*, the second the *Matter* of the being. The general problem of the nature and relations of *Matter* and *Form*, which runs through the entire Scholastic system of Philosophy, belongs especially to Cosmology. Here we shall merely offer a few brief words on the question, and refer the English reader desirous of obtaining a thorough grasp of the subject to Father Harper's *Metaphysics of the School*, especially Book V. chapters ii. iii.

Aristotle's four Causes.—Aristotle resolves all kinds of causes into four great classes; the *final cause*, the *efficient cause*, the *formal cause*, and the *material cause*. The last two are intrinsic, the first two extrinsic to the effect. The *final cause* is the end in view—the good for the sake of which a thing is done. An *efficient cause* is a being by the real activity of which another being is brought into existence. The *material cause* is the reality out of which the complete bodily substance is made. The *form* or *formal cause* is that reality in the complete bodily substance which gives to it its proper being or essential nature. These four species of causes are easily distinguished in the production of a statue. The material principle is the iron, bronze, or stone—the stuff out of which the particular statue is wrought. The formal principle is the determining figure or shape, by which the statue is made to represent Napoleon or Nelson.[7] The efficient cause is the sculptor, his hammer, chisel, etc. The final cause is the satisfaction, fame, or money which the artist has in view in the production of the work.

Scholastic development.—Now, all things are created by God for His own greater glory. They are manifestations of His excellence, exhibitions of His power and wisdom; or, in

[7] It should be borne in mind that *materia prima* never exists as such; there is no matter which is in the Scholastic sense actually devoid of all form. The bronze, for instance, which stands in the relation of matter to the Nelsonic form, is conceived as distinguished from iron or carbon by its own specific form.

the case of intelligent beings, they both *manifest* and *recognize* His excellence. We have thus in God the first efficient cause, and the ultimate final cause of every creature. Furthermore, in the Scholastic system all material beings are viewed as the product of two con-created constituent factors—the one passive and recipient, the other active and determining. The first is styled the *matter*, the second the *form*, and both are called *substantial* principles inasmuch as by their coalescence they constitute one complete substantial being.[8] The *form* is the factor which determines the *essential nature* of each being. Thence proceed all its specific activities. As in Aristotle's view the *prima materia*, the ultimate substratum, is alike in all substances, their specific differences are due to dissimilarities of kind in the actuating co-efficient. The distinctive properties of iron, carbon, and gold have thus their root in the different *formal* elements entering into the constitution of each.

The Soul the "Form" of the living being.—*In living organisms the vital principle is the substantial form.* It is this determining factor which defines the essential nature of the plant or animal; and from it proceed the activities by which the being is separated from other species of things, whether animate or inanimate. A *substantial form* is accordingly defined as *a determining principle which by its union with the subject that it actuates constitutes a complete substance of a determinate species.* It should, however, be clearly understood that the proposition, "The soul is the form of the body," stands on a quite different footing from the general doctrine of "Matter and Form" as applied to inanimate substances.

Argument.—It has already been proved that there must be in each living being, and therefore *a fortiori* in man, a vegetative soul, or vital principle, to which is due the natural unity of activity comprising the phenomena of his life. And it has been also shown that this principle must be different from, and superior to, the properties or forces of inanimate matter. But such a principle must be the substantial form of the living human being. For, since *actio sequitur esse*—since every *action* of an agent flows from the *being* of that agent—the principle which is the root of the natural activity of a substance must be the determinant of its being and nature. Consequently, as the vegetative soul is the source of all vital activities, it must be the determining or actuating principle of

[8] The *substantial* form differs from the *accidental* form in the fact that the one is an essential constituent, the other a mere accidental mode or determination which conceivably might be removed without affecting the nature of the substance, *e.g.*, heat.

the living being; but this is equivalent to saying that it is the substantial form of the living being.

Or the question may be approached otherwise thus: The vital principle is really different in nature from its material co-efficient. Furthermore, the vital principle is not a mere accidental determination capable of removal whilst the substance remains complete. On its extinction the nature of the creature is destroyed, and the living being is changed into a lifeless aggregate of matter—a substance or substances of completely different species. The vegetative soul is thus a substantial principle upon which the very being of the substance depends. In other words, by its union with its material co-efficient the vegetative soul constitutes the active living being. That is, the vegetative soul, or vital principle, is the substantial form of the living body.

If the vegetative soul in living beings is the form of the body, it follows at once that in man, since the vegetative and rational soul are identical, the latter must be the substantial form of the human body. The rational soul must also be the *only* substantial form in man. For man is one, complete individual being, specifically distinct from all other beings. Were the human body, however, actuated by more than one substantial form, man would be, not one, but an aggregate of individuals, since each substantial form would constitute with its subject a complete substantial being of determinate species.

The Form is source of Unity and Identity.—It is on the permanence of the substantial form that the identity of the individual depends. The material constituents of the living body are nearly all changed, as we have before stated, in the course of a few years, yet we affirm that the man of sixty is identical with the boy of six: the soul has persisted unchanged. It is the same simple informing principle which reduces the different parts and organs of the body to the unity of a single being. Neither a bale of cotton nor a bucket of water forms *one being;* each is but a mere aggregate of parts. Even a watch or a steam-ship—although the parts are unified by its end or purpose—wants the unity of being which is exhibited in man, in the brute, and in the plant. Though working towards a common end, all the parts of the machine retain their chemical and physical properties in complete vigour and mutual independence. In the living being, on the other hand, there is no such isolation. The various parts are compenetrated by the informing principle, their individuality is merged, their several tendencies unified, their natural properties transformed and subordinated by this dominating and enlivening force.

Complete and incomplete Substances.—Both Matter and Form are sometimes called *substances* by the Schoolmen, inasmuch as their coalescence results in a *substantial being*. Except the human soul, however, no *forma* or *materia prima* can exist *per se* apart. The epithet *incomplete* is occasionally used of inferior forms to express this circumstance; this adjective more properly, however, connotes the fact that the union of these factors gives rise to *one complete* composite substance. Even the human soul, though capable of subsisting in itself apart from the body, is styled an *incomplete substance*, since it possesses a natural aptitude to form with the body a single *complete* substance. An *integral part* of one complete being, *e.g.*, a man's hand, is also spoken of as an *incomplete substance*. The terms *constituent principle*, or *substantial principle*, seem less likely to mislead now-a-days than the word *substance* if employed to designate the essential coefficients of composite substances.

Soul and Body combined into one Nature.—Moreover, the union of soul and body results in a single *nature*. The nature of a being is simply its essence viewed as the source of its actions. But in the living animal the various processes of growth, sleep, motion, and sensation, are not operations of the soul or body alone, but of the being as a whole. They are activities of one nature. An individual nature conceived as a complete being subsisting in itself, and not communicated to or coalescing with another, is called by the Schoolmen a *suppositum* or *hypostasis*. The *suppositum* is, therefore, the entire and ultimate source of all operations. Hence the axiom: *Actiones sunt suppositorum*. When the *suppositum* is endowed with intelligence it is termed a *person*.

Soul and Body one Person.—Since introspection and external observation establish that our vegetative, sensitive, and rational activities have their source in and belong to one and the same Self, they prove that body and soul are combined in a *personal* union. A *Person* is defined in scholastic language as *a suppositum of a rational nature*, or *an individual and incommunicable substance of a rational nature*. Some modern writers frequently speak as if the Mind or Soul were the human person; others as if self-consciousness, or memory, or continuity of consciousness and character

(p. 488) constituted personality. It is, indeed, not practicable in ordinary language to distinguish constantly between the *mind's* consciousness of itself and the *person's* consciousness of self—nor is it desirable, since it is by the *rational mind* that the living *composite person* is capable of self-consciousness. But the theories which identify the soul and the person, or worse, *conscious activity* and the person, are seriously erroneous. Locke's definition of a Person as *a self-conscious substance* is also inaccurate. Strictly interpreted this would render a sleeping man or an infant not a person, and an interruption of consciousness would break up the personality of the individual. J. F. Ferrier's language is similarly exaggerated when he asserts that "a being *makes* itself I by thinking itself I," and that "self-consciousness *creates* the Ego;" and Professor Ladd seems to us to fall into the same error when affirming, as he frequently does, that the mind *is* its own *conscious activity;* that "where there are no mental states there we cannot speak of the real existence of mind." (op. cit. p. 145.) Memory and self-consciousness *reveal* but do not *constitute* personal identity; and the true human person is neither consciousness, nor soul, nor body, but the complete Ego—the living rational being arising out of the substantial union of both principles.[9]

The reasoning in the present question may have been grasped with some difficulty by the reader unacquainted with the Scholastic system. Fortunately, however, the problem of the exact nature of the relations between Soul and Body is of

[9] For a complete treatment of the notions, *persona*, *suppositum*, etc., see Rickaby, *Metaphysics*, Bk. II. c. 2. The terms *substance*, *essence*, *nature*, severally denote the same object, but connote more especially different features. *Substance* points to the general fact of *existence per se; essence* points to the *reality of which the being is constituted; nature* signifies the *essence as principle of activity*. *Suppositum* implies that the substance, essence, or nature subsists in itself in possession of such *complete individuality* as to be incommunicable or incapable of being assumed into another being. The invention of the term is due to the dogma of the Incarnation. In Christ, the Church teaches, there is *one Person, one rational "suppositum,"* but two *natures*. The Human Nature of our Lord does not of itself constitute a *Person*, or subsist *in se*, but by the subsistence of the Divine Nature.

very secondary importance from a philosophical point of view, as compared with the vital questions: Is there an Immaterial Soul at all? and, Is there reason for supposing that such a Soul will have a future life?

Change in meaning of terms.—The terms *Matter* and *Form*, with their derivatives, have had as varied and extensive an application as any words in the language. The importance of what is signified by each has been so changed that the original usage is almost completely inverted. The Scholastic followers of Aristotle used these words as equivalent to *Potentia* and *Actus*. *Potentia* signified possibility—the potential, the unrealized, the incomplete or indeterminate. *Forma* and *Actus*, on the contrary, connoted *full actuality*—the *last complement of reality*, the *final determination*, or *complete realization of being*. Now-a-days we speak of merely *formal* observance, unreal *forms*, and trivial *formalities;* whilst *material* is equivalent to important. The transition has been going on for a long time; but in strictly philosophical literature, Kant has done most to bring about the change. Whereas with Aristotle, Matter and Form are ontological or extra-mental principles of real things, with Kant they are constituents of subjective knowledge. The German philosopher, as we have already pointed out, uses the term "form" to denote a purely mental mould or character, which the mind imposes on the "matter" of knowledge. The latter, though of course a mental activity, is supposed to be excited or contributed from without. *Formal* is thus equivalent to *unreal*, or *objectively non-existent*. *Material* truth is *real* truth, or agreement with extra-mental reality as far as that is possible; *formal* truth is mere subjective consistency. Kant, however, retains something of the ancient application of the term in as far as he conceives the "material" element in cognition to be in itself of a chaotic *indeterminate* nature, requiring to be perfected and wrought into rational intelligibility by the imposition of the subjective determining factor. In addition to Kant's influence, popular experience of the unimportant character of accidental forms, *e.g.*, the shape as contrasted with the contents of a pudding, has also contributed to the change in the meaning of the word.

Aristotle's definition of the Soul.—We ought now to have rendered intelligible and justified Aristotle's celebrated definition: ἡ ψυχή ἐστιν ἐντελέχεια ἡ πρώτη σώματος φυσικοῦ ζωὴν ἔχοντος δυνάμει, or ἡ πρώτη ἐντελέχεια σώματος φυσικοῦ ὀργανικοῦ —"the soul is the first entelechy of a natural organized body potentially having life," or "the first entelechy of a natural body capable of life." By *entelechy* is meant in the Peripatetic philosophy an actualizing or determining principle,

as opposed to a recipient or determinable subject—*form* as contrasted with *matter*. The epithet, *first*, implies that the soul is the *primary* form by which the nature or specific substance of the creature receives its determination in the order of being. It is contrasted with *secondary* or *accidental* forms, *e.g.*, heat, colour, motion, which may supervene when the *primum esse*, the first complete substantial being of the object, is constituted. A *natural* or *physical* body, signifies that the subject of the soul is not a mere *artificial* aggregate. The adjective, *organized*, expresses the fact that the body is composed of heterogeneous or dissimilar parts adapted for separate functions. The last words of the definition mean that the soul is united not with an *actually* living being, but with an organism capable of exercising vital activities when informed by the soul.

Readings.—St. Thomas, *Sum.* 1. q. 76; Father Harper, *Metaphysics of the School*, Bk. V. cc. ii. iii.; Regnon, op. cit. Livre IV.; Coconnier, op. cit. cc. iv. v.; Farges, *Matière et Forme*; Kleutgen, op. cit. §§ 808—842; Mercier, *La Psychologie*, Pt. III. art. 3.

CHAPTER XXVI.

SOUL AND BODY (*continued.*) OTHER PROBLEMS.

Locus of the Soul.—There has been much discussion among philosophers, Ancient and Modern, regarding the precise part of the body to be assigned as the "seat" of the soul. Some have located it in the heart, others in the head, others in the blood, others in various portions of the brain. The natural inference from such a diversity of opinions is that no special area of the organism is the exclusive dwelling-place of the vital principle. The hopelessly conflicting state of opinion on the question would seem to be due to the erroneous but widely prevalent view, that the simplicity of essence or substance possessed by the soul is a spatial simplicity akin to that of a mathematical point. As a consequence, fruitless efforts have continually been made to discover some general nerve-centre, some focus from which lines of communication radiate to all districts of the body. The indivisibility, however, of the soul, just as that of intelligence and volition, does not consist in the minuteness of a point. The soul is an immaterial energy which, though not constituted of separate principles or parts alongside of parts, is yet capable of exercising its virtue throughout an extended subject. Such a reality does not, like a material entity, occupy different parts of space by different parts of its own mass. In scholastic phraseology it was described as present throughout the body, which it enlivens, not *circumscriptive*, but *definitive;* not *per contactum quantitatis*, but *per contactum virtutis*. Its presence is not that of an extended object the different parts of which fill and are

circumscribed by corresponding areas of space, but of an immaterial energy exerting its proper activities ubiquitously throughout the living body. As it does not possess extension, it is not susceptible of *contact* after a quantitative manner, yet it puts forth its peculiar virtue, and acts with the same efficiency as if it possessed a surface capable of juxtaposition with that of a material body.

The Soul is not confined to any particular spot within the organism.—The argument may be formulated thus: The site or *locus* assigned must be conceived either as extended or unextended. If the latter, then: (1) all hope of any physiological justification of the selected spot must be abandoned, since the smallest cell, and *a fortiori* every general nervous ganglion, must occupy an extended space; and (2) no particular unextended point has better claims than any other; therefore on this hypothesis the soul might with equal reason be located in almost any part of the body. If the site allotted be extended, then the chief merit claimed for this view is abandoned. If the simple soul is allowed to be capable of inhabiting a really extended locality, the exact area of the district is of little philosophical importance: the soul's indivisibility is equally unaffected whether the space be a cubic inch or a cubic foot.

The Soul is present, though in a non-quantitative manner, throughout the whole body.—*It is, moreover, so present everywhere in the entirety of its essence, although it may not be capable of ubiquitously therein exercising all its faculties.* The proof of the previous proposition implicitly establishes our present doctrine; but reflexion on the thesis defining the union of soul and body recently proved, completes the argument. The soul, since it is the substantial form of the body, vivifying and actuating all parts of its material subject so as to constitute one complete living being, must by its very nature be ubiquitously present in the body. For it is only by the *immediate communication of itself* that it can so actuate and vitalize its co-efficient as to constitute a single substance. Again: since the soul is an indivisible essence or being, whenever it is present it must be there in the entirety of that essence or being; consequently, the entire soul is present in the whole body and in each part—*tota in toto corpore et tota in qualibet parte.*

Difficulties.—The chief objections urged against the present thesis seem to be the following: (1) The soul is the subject of sensations, but these, it is asserted, are originally felt only

in the brain, and by experience thence transferred to the peripheral extremity of the irritated nerve; consequently the soul exists only in the brain. (2) It is impossible to imagine how a simple or indivisible Being can be simultaneously present in several parts of an extended space. (3) If the soul is thus diffused throughout the body, it must be capable of increase and diminution with growth; and also of occasional amputation of portions of its substance.

We may observe in reply: (1) Even if the brain alone be the centre of sentiency, yet the entire organism is the subject of vegetative life, and must be throughout animated by the energy which dominates the continuous processes of waste and repair. (2) Imagination is no test of possibility; we have experience only of the modes of action of things conditioned by space of three dimensions, and so cannot picture the being or action of an agent free from such limitations. We are similarly unable to imagine how unextended volitions can move extended limbs, or how spatial pressure can excite any mental state, but we have shown the absurd consequences which follow from the denial of the universal conviction of mankind on these last points. (3) The soul is not *diffused* throughout the body like water in a sponge. It must be conceived as an indivisible essence, without mass or quantity, exerting energy and putting forth its virtue throughout the animated organism. Those activities, however, which require a special organ are limited to the district occupied by the bodily instrument. In so far as the material subject by the limits of which vital activity in general is defined and conditioned, increases or diminishes, the soul may be said in figurative language to experience *virtual* increase or diminution—an expansion or contraction in the sphere and range of its forces; but there is no real *quantitative* increase in the substance of the soul itself.

Phrenology.—In the early part of this century, the physicians Gall and Spurzheim elaborated a "Physiognomical system," which pretended to determine precise localities on the surface of the brain where various mental powers are situated. **Gall** marked out the skull into twenty-six, and Spurzheim into thirty-five divisions, each of which was supposed to cover a definite field of the brain constituting the "organ" of some particular mental aptitude. The theory thus assumed above two dozen primary faculties or propensities, such as those of homicide, property, theft, wit, number, secretiveness,

etc., lodged in separate compartments in the surface of the brain. Consequently, by measurement of human skulls, the relative vigour of the several propensities could be easily discovered, since special "bumps" or protuberances indicated, it was supposed, greater or less endowment in the corresponding faculty.

Phrenology, Craniology, or Cranioscopy, as this pseudo-science was called, has long since fallen into complete discredit, under the destructive criticism of both Psychology and Physiology. The scheme of "primary" faculties was arbitrary and artificial in the highest degree. The powers and aptitudes enumerated are not isolated or independent in the manner implied. Many of them are complex capabilities involving varied forms of mental activity. Moreover, intellectual faculties cannot be conceived as located in organs in the way represented. The progress of physical science, on the other hand, has proved the erroneous character of the views of the phrenologists concerning the physiology of the brain.

Localization of Cerebral Functions.—Nevertheless, though Phrenology in its originally ambitious character is now generally acknowledged to have been exploded, Cerebral Physiology has for some twenty years past been working diligently at the kindred question of the *localization of brain functions*. The leading scientific authorities in the second quarter of this century unanimously declared themselves against the hypothesis of *localization* in any form. Flourens, Magendie, Longet, and other distinguished writers pronounced, on the strength of numerous experiments and observations, that scarcely any particular portion of the cerebral substance is essential to the performance of any particular psychical operation.[1] Consequently, the classical

[1] "On peut retrancher, soit par devant, soit par derrière, soit par en haut, soit par côté, une portion assez étendue des lobes cérébraux, sans que leurs fonctions soient perdues. *Une portion assez restreinte de ces lobes suffit donc à l'exercise de leurs fonctions.* A mesure que ce retranchement s'opère, toutes les fonctions s'affaiblissent et s'éteignent graduellement. . . . Enfin, dès qu'une perception est perdue, toutes le sont; dès qu'une faculté disparait, toutes disparaissent." (Flourens.) Cf. Bastian, *Brain as an Organ of Mind*, p. 520.

Physiology from 1820 to 1870 proclaimed that the brain *as a whole* was the *single organ* of the mind, that the *quantity*, not the *locality* of the brain which is destroyed affects mental activities, and that the degree of imbecility induced is, roughly speaking, in proportion to the amount of cerebral matter removed.[2]

Some experiments, however, of the German physiologists Fritsch and Hitzig, in 1870, threw serious doubts on the then prevalent doctrine, and a new movement of research, which still continues, was initiated, with the result of completely overthrowing the old teaching. By a series of elaborate experiments on the brains of dogs, monkeys, and other animals, Ferrier, Hitzig, Munk, Luciani, and more recently Flechsig and Von Bechterew, have established a fairly definite theory of localization of "motor-centres"—that is, of areas in the cortex of the brain the irritation of which produces movements in particular limbs. The cerebral areas corresponding to some of the senses have also been made out with tolerable accuracy, others with less definiteness. Of the physiological concomitants of particular intellectual activities nothing is at present known, though some progress—how much is as yet uncertain—has been made towards the determination of "association-centres."

Method of research.—In the study of cerebral functions three chief lines of investigation present themselves: (*a*) Experiment by stimulation and extirpation of particular portions of the brains of the lower animals; (*b*) Cerebral Pathology, or the science which deals with brain diseases in human beings; and (*c*) Comparative Anatomy and Histology, which examine the structural connexions of different parts of the brain and nervous system throughout the animal kingdom. Thus, the stimulation by electricity of certain areas in the

[2] "Sur des chiens, des chats et des lapins, chez un grand nombre d'oiseaux, j'ai eu occasion d'irriter mécaniquement la substance blanche des hémisphéres cérébraux; de la cauteriser avec la potasse, l'acide azotique, le fer rouge, etc.; d'y faire passer des courants électriques en diver sens, *sans parvenir jamais à mettre en jeu la contractilité musculaire:* même résultat négatif en dirigeant les mêmes agents sur la substance grise des lobes cérébraux." (Longet.) Cf. Surbled, *Le Cerveau*, p. 149.

cortex of the brain of dogs, monkeys, and other animals, is found to excite movements in the neck, arms, fingers, legs, tongue, etc. Conversely, the extirpation or destruction of these same portions of the brain temporarily suspends the power of movement in the corresponding limb. Again, *post-mortem* examinations often show that atrophy and disease of the cerebral substance of these areas have been concomitant with paralysis of the appropriate limb. Moreover, several cures of such local paralysis have also been effected by the venturesome remedy of trepanning the skull and removing tumours found to exist where anticipated.[3] Finally, comparative study of the structure of the brain in different species of animals tends to establish the identity of the "areas" constituting the "motor-centres" of the several limbs; and it also shows that the number and definiteness of such "areas" increase in proportion as we rise in the animal kingdom and examine more highly specialized brains. And quite recently the study of embryonic anatomy has enabled Flechsig to reach valuable results by determining the date at which certain neural connexions are completed, and nerve-fibres attain maturity and are capable of functioning.

Results.—By these various methods of research **Ferrier** succeeded in mapping out on the surface of the brain above a dozen "motor-centres." Successive explorers have subdivided and largely increased the number of these areas. They are mostly situated in the vicinity of the summit of the cerebrum, about midway between the top of the forehead and the back of the head—technically in the neighbourhood of the *fissure of Rolando* and the *calloso-marginal fissure.* (See, at the beginning of the book, Fig. vi. and Fig. vii., 1, 2, 3, 5, 6, and a, b, c, d.) The cortical areas on which *visual* impressions are "projected," that is, the spaces in the surface of the brain with which the images of sight are believed to be directly connected, are located mainly in the occipital lobes, in the hind portion of the cerebral hemispheres. (Fig. vii. 13, 13′.) Injuries here cause, it is alleged, not merely blindness, as in the case of retinal disease, but actual derangement of the faculty of visual imagination. (*Seelenblindheit.*) The *auditory* area is allotted to the *upper convolution of the temporal lobe* (Fig. vii. 14); and "word-deafness," "auditory asphasia," or inability to image, and consequently to understand articulate sounds, even whilst general hearing remains, was shown by Wernicke to be occasioned by lesions in this district. Previous to Wernicke, in 1861 **Broca** had found that *motor-asphasia*, or the disorganization of the faculty of intelligent

[3] Cf. Surbled, *Le Cerveau*, pp. 239, seq.

articulate speech, was caused by injuries in the *third frontal convolution*, which lies a little to the front of the subsequently discovered hearing-area. (Fig. vii. 9.) The difficulty of ascertaining the nature of the sensations of taste and smell of animals when subjected to experiments has made the localization of the cerebral correlates of these latter senses much more dubious. Indeed, we are warned by some of our best physiologists to receive with considerable caution even the most confident assurances of enthusiastic observers, especially when once they pass beyond the comparatively simple problem of determining motor-areas.[4]

Notwithstanding the considerable progress made in exploration, much of the brain, especially in the frontal region, being "silent," or not responsive to stimulation, its precise functions have remained unknown. For this reason there has been a constant tendency among physiologists to assume that this unoccupied cerebral territory is "the seat of general intelligence," without, however, venturing to explain clearly what they mean by this vague phrase. We have already shown the absurdity of attempting to conceive the higher rational activities as spatially situated in or exerted by bodily organs; but as we suggested in the first edition of the present work, these unclaimed districts may supply the material basis for memory, imagination, and those internal sensuous faculties upon which intellect is more immediately dependent. We now find that the progress of cerebral physiology during the last few years tends to confirm this conjecture—which is indeed as old as St. Thomas.[5]

[4] Thus Professor Foster, in the latest edition of his able *Text-book of Physiology*, reminds us that the cessation of particular sensations occasioned by lesions in particular parts of the cortex of the cerebral hemispheres "does not prove that the cortex of the hemispheres is the 'seat' of the sensation, . . . it only proves that in the complex chain of events by which sensory impulses give rise to full conscious sensations the events in the cortex furnish an indispensable link." (Pt. III. p. 1094.) And elsewhere: "The interpretation of the results in which we have to judge of *sensory* effects, are far more uncertain than when we have to judge of motor effects. We have to judge of signs our interpretation of which is based on analogies which may be misleading." (*Ibid.* p. 1077.)

[5] Mediæval cerebral anatomy was naturally in a rudimentary stage, and some of the reasons assigned by the Schoolmen for allotting faculties to particular localities are quaint; but St. Thomas's theory of localization—borrowed, however, from the Arabian physiologists—is still of interest: "Est ergo (interior) *Sensus Communis* a quo omnes sensus proprii derivantur, et ad quem omnis impressio eorum renuntiatur, et in quo omnes conjunguntur. Ejus enim

Thus the recent contribution of **Flechsig** lies in the advance he has made towards the establishment and closer definition of what he calls "association-centres" as distinguished from the previously acknowledged "projection-centres"—the motor and sensory areas in direct connexion with sense-impressions and movements. To the former he allots quite two-thirds of the cortical substance of the human brain, reserving only one-third for the latter, whilst in most of the lower animals the distribution is reversed. Of these higher centres he affirms that "they are apparatus which combine the activities of the various special senses, inner and outer, into higher unities. They are *association-centres* of sense-impressions of different qualities, visual, auditory, etc. They make their appearance accordingly as subject of a 'co-agitation,' as the Latin language had prophetically characterized *thought*, and they may therefore be specially termed "association or co-agitation centres."[6]

organum est *prima concavitas cerebri, a quo nervi sensuum particularium oriuntur*, . . . Secunda vis interior est *Phantasia* . . . et hujus *organum* est *post organum sensus communis* in parte cerebri quæ sic non abundat humido sicut prima pars cerebri in qua situm est organum sensus communis et ideo melius potest retinere formas sensibiles re absente. (Nam humidum bene recipit, et male retinet: siccum vero e contrario bene retinet et male recipit.) . . . Tertia vis sensitiva est *Æstimativa* (vel *Cogitativa*). . . . *Organum* autem hujus potentiæ ponitur in *brutis* in *posteriori parte mediæ partis cerebri*. In *hominibus* autem *ejus organum ponitur in media cellula cerebri*, quæ *syllogistica* appellatur . . . (et hæc facultas) quæ in aliis animalibus dicitur *æstimativa naturalis*, in homine dicitur *cogitativa*, quæ per quamdam collationem hujusmodi intentiones adinvenit. Quæ etiam *ratio particularis* dicitur, quia scilicet est collativa intentionum individualium sicut ratio universalis intentionum universalium . . . Quarta vis sensitiva interior est *Memorativa*. . . . *Organum* autem hujus potentiæ est *in posteriori concavitate* cerebri." (*De Potentiis Animæ*, c. iv.)

[6] *Gehirn und Seele*, pp. 22—24. Cf. the scholastic doctrine on the *Sensus Communis* and *Vis Cogitativa*, p. 93, above; also the last note. Although judging from the stormy past history of cerebral physiology, Flechsig's theory of *association-centres* is not likely to remain long unchallenged, his methods of investigation are sound. But he needlessly damages the value of good scientific observation and experiments by mixing facts with dubious metaphysics and crude materialistic hypotheses, when he lapses into language of this sort: "Man is indebted for his spiritual superiority in the first degree to his association-neuron. Anatomy, comparative anatomy, and clinical experience combined show decisively that these association-centres are the chief subjects of the spiritual life, and that consequently they may and ought to be designated 'spiritual-

As the chain of reasoning by which the reality of these higher centres is determined is necessarily more complex, and the evidence more fragile than that by which the "projection" motor and sensory areas are defined, we must be cautious in assenting too easily to the facts claimed to be established, before they are thoroughly confirmed—and even then care will be needed for their correct *interpretation*. The circumstance, too, that serious lesions involving the destruction of large quantities of brain in this region without appreciably affecting any mental operations are frequently met with, ought to warn us of the precarious character of even the most plausible inferences in this subject.[7]

The "motor-centre" is usually found on the side of the head opposite to the bodily member to which it is specially related; but *speech*, and other psychical operations not belonging definitely to either side of the organism are generally dependent on physical processes in the *left* hemisphere, except in the case of left-handed persons, who, it is said, are "right-minded" or rather "right-brained." The disease of aphasia in *right-handed* persons is, as a rule, accompanied by a lesion in the *left* frontal convolution. It seems also fairly proven that symmetrical portions of the brain in the right and left hemispheres are capable of performing similar functions; and it is chiefly—though not exclusively—in the relations subsisting between these corresponding parts that we find exhibited the *law of substitution*, which has constituted such a serious objection, or at all events limitation, to the value of all theories of localization.

Objections.—On this general fact, together with negative instances presented by Pathology, the case of the opponents of localization mainly rested. It is true, said they, that irritation of a motor-area excites movement in the corresponding limb, and conversely, the extirpation or destruction of this part of the brain temporarily extinguishes or enfeebles the power of movement; but, nevertheless, if the animal be kept alive, it may after a few days recover complete use of the member again. In other words, some new portion of the cerebrum is

centres,' 'organs of thought' (*dass sie somit als geistige Centren als Denkorgane bezeichnete werden dürfen und müssen*)." (*Ibid.* p. 61.) After what we have already urged (pp. 240—246, 466—472), we trust it is unnecessary to dwell further on the ineptitude of describing any mass of cerebral matter—whether frontal or occipital, cortical or sub-cortical, as a "spiritual centre" or an "organ of thought." Higher intellectual activity may presuppose as a condition certain concomitant sensuous and cerebral processes, but the agent or subject of such spiritual activity must be an indivisible being.

[7] Cf. Ladd, *Physiological Psychology*, pp. 265—268, 296, 297.

capable of adopting the suspended function.[8] The part most fitted to do so seems to be in the first place the symmetrically corresponding area on the other hemisphere, and then the cerebral substance immediately surrounding the damaged centre. In addition to this difficulty *post-mortem* examinations have revealed several cases in which a very large part of one side of the brain, and even a not inconsiderable portion of both were atrophied or decayed, although no derangement in psychical operations, or in the action of the corresponding limbs, had been noticed during life.

These objections admonish us how imperfect our knowledge of the relations between the brain and psychical action still is, and they also show how little foundation there is for materialistic dogmatism. At the same time we do not think they are conclusive against the doctrine of localization in *every* form. They indisputably demonstrate that the "centres" are not instruments of an absolutely fixed and permanent character like the external sense-organs. But they do not disprove the statement that the various sentient and motor operations of the soul, both presentative and representative, are, in ordinary conditions, specially dependent on particular parts of the brain; whilst the evidence on the other side makes this latter assertion well-nigh incontrovertible. They establish, however, that the principle which dominates the living organism has, within certain limits, the power of adapting to its needs and employing as its instruments other than the normal portions of the cerebrum.[9]

[8] According to Goltz: "It is not possible, by extirpating any amount of the substance of the cortex on either side, or on both sides, to produce a *permanent* laming of any muscle of the body, or a total loss of sensibility in any of its parts. It is, however, possible thus to reduce an animal to a condition of almost complete idiocy. . . . No part of the cortex of the brain can, then, be called the *exclusive* organ or centre of intelligence or feeling; but the psychical functions are connected with all of its parts." (Cf. Ladd, op. cit. p. 298.) Goltz's chief experiments were performed on three dogs, one of which he succeeded in keeping alive for eighteen months deprived of nearly all the brain substance. The extirpation was effected gradually in small pieces at considerable intervals. The psychical effects, however, seem to be quite different when the removal of cerebral material is rapidly executed, though in such cases the animal speedily perishes. See W. von Bechterew, *Bewusstsein und Hirnlokalisation*, pp. 38—45.

[9] The original researches of Dr. Ferrier on this subject are to be found in his work, *The Functions of the Brain*. Bastian's volume, *The Brain as an Organ of Mind*, c. x. contains a history of theories of Phrenology and Localization. Cf. also the article "Brain" in *Chambers' Encyclopedia* (Edit. 1888); "Physiology," *Encyc. Brit.* (9th

Although from a strictly methodical standpoint this topic would have been more appropriately dealt with at the beginning of this volume, we have preferred to handle it here at the end of Rational Psychology. We believe that its philosophical significance, or insignificance, can be better estimated, and the precise worth of materialistic deductions drawn from the doctrine of localization more accurately measured at the present stage of our work. The statement that the progress of Physiology has discredited or disproved the doctrine of the spirituality of the soul, is so frequently to be met with that it is extremely desirable the student should have at least a general notion of the character and value of the most recent investigations in Cerebral Physiology. Vague sweeping assertions, especially when uttered by men distinguished in Physical sciences, often give rise to a completely mistaken idea of the nature of the "recent advances in Physiology." We trust that our sketch of the subject will assist the reader to appreciate the true worth of such materialistic declarations.

Mode of Origin of the Soul.—Of philosophers holding erroneous ideas regarding the origin of the human soul, some have conceived it as arising by *emanation* from the Divine substance; others as derived from the parents. The former theory starts from a Pantheistic conception of the universe, and is in conflict with the simplicity and absolute perfection of God. The hypothesis that the soul is transmitted to the offspring by the parents—and hence called the theory of *Traducianism*—has taken a variety of forms. Some writers have maintained that the soul, like the body, proceeds from the parental *organism*: others that it comes from the *soul*. This latter opinion was advocated in Germany, in the early part of this century, by Frohschammer, under the title of *Generationism*. The soul in this view is generated, or perhaps more accurately speaking, created by the parents. Rosmini taught that the sentient principle arises by generation or

Edit. 1885); Calderwood's *Relations of Mind and Brain*, pp. 77—122; Ladd, op. cit. Pt. II. cc. i. ii. (1887); Foster, *Text-book of Physiology* (1895), Pt. III. c. ii. §§ 7—9; Surbled, *Le Cerveau* (Paris: Retaux-Bray, 1890); and W. von Bechterew, *Bewusstsein und Hirnlokalisation*. (Leipsic, 1898.) The most considerable recent original work, however, is P. Flechsig's *Gehirne und Seele*. (Leipsic, 1896.)

traduction, and is afterwards converted into the rational soul by a mysterious illuminative act of God, through which the intellect is awakened to the idea of *being*.

Traducianism, whether understood of a corporeal or incorporeal seminal element, is an inadmissible theory. As regards the derivation of the rational soul of the child from the body of a parent, it is obvious that such a supposition is based on a materialistic conception of the nature of the mind. *Nemo dat quod non habet*: a spiritual substance cannot proceed from a corporeal principle. The derivation, however, of the rational soul from the soul of a parent is equally untenable. Every human soul is at once a simple and an immaterial substance. Consequently, the hypothesis of any sort of seminal particle or spiritual germ being detached from the parental soul is absurd. If the soul of the child, moreover, were generated or evoked out of the potencies of matter, it could not be a spiritual being endowed with intellect and free will, and intrinsically independent of matter.

Creation.—Opposed to these various theories stands the doctrine according to which *each human soul is produced from nothing by the creative act of God.* The acceptance of this thesis is a logical consequence of the rejection of the previous views. By *creation* is meant the calling of a being into existence from nothing, the production of an object as regards its entire substance. The material things which we meet around us are a result of *transformation* or change, not of creation—though of course their ultimate constituents must have been originally created. A spiritual being, however, cannot be effected by any such process of transformation. If produced at all, it must be formed from nothing. Now, the human soul is a spiritual substance, whilst at the same time it is of finite capacity, and therefore a contingent being. But because of its contingent and limited nature it cannot be self-existing; it must have received its existence from another being. On the other hand, inasmuch as it is a spiritual being intrinsically independent of matter, it cannot have arisen by any process of transformation; for, if it did

so arise it would necessarily depend as to its whole being on its subject. Finally, since God alone, who exists of Himself, and who alone possesses infinite power, can exert the highest form of action, calling creatures into existence from nothing, the production of the human soul must be due immediately to Him.[10]

Difficulties.—The chief objections urged against the doctrine of creation are the following: (1) The sentient-vegetative soul in man is of the same *genus* as that which informs the brute; consequently, since the latter is generated by substantial transformation, so is the former. (2) Like end must have like origin; but the human soul is immortal; therefore it must never have had a beginning. (3) The theory of creation involves continuous exercise of miraculous power on the part of God. To these difficulties the following answers may be given: (1) If the root of sentiency and vegetative life in man were an organic principle completely and intrinsically dependent on the body, as it is in the lower animals, then there would be no ground for affirming a special mode of origin in the case of human beings. But, although man's soul is generically related to that of the brute, it is separated from the latter by a specific distinction which involves this different mode of genesis. (2) The second objection has seemed very forcible to some minds, and we find even Dugald Stewart[11] holding that it destroys the argument for everlasting life based on the simplicity and incorruptibility of the soul. Yet when we reflect and demand proof of the assumption on which the objection is based none is forthcoming; and it is certainly not self-evident. God alone is without beginning, but He can will to exist whatever is not intrinsically impossible, and He may will it to last for ever. Consequently, there can be no absurdity in His creating from nothing a simple incorruptible being which He designs never to perish. (3) A miracle is an interference

[10] The proof of this is based on the fact that in creation the effect depends *solely* on the efficient cause. It is, therefore, the highest and noblest mode of action, and consequently must proceed from an agent endowed with the highest form of being—self-existence. A creature cannot even play an *instrumental* part in creation; for the function of an instrument is to dispose and arrange the pre-existing materials, but antecedently to the creative act there are no such materials. Cf. Boedder, *Natural Theology*, pp. 126, seq.

[11] Lotze's defective view as to the nature of *substance* leads him into a similar error. Dr. Martineau's work, *A Study of Religion*, p. 334 (2nd Edit.), has some good observations on this point.

with the laws of nature, but in the given case creation of souls, when the appropriate conditions are posited by the creature, is a law of nature.

Time of its Origin.—*When* does the human soul begin to exist? Plato taught that previous to its incarceration in the body the soul had from all eternity resided among the gods in an ultra-celestial sphere. (p. 255.) The theory of **metempsychosis** or Transmigration of souls, has been held under one shape or another by many Eastern thinkers. It is, however, in all its forms, a gratuitous hypothesis. It is based on the false view which conceives body and soul as accidentally and not substantially or essentially united in man, and it possesses not a vestige of real argument.

Among modern philosophers, Leibnitz has considered human minds along with all the other "monads" to have been created simultaneously by God, at the beginning of the world. All souls were conserved in a semi-conscious condition inclosed in minute organic particles ready to be evoked into rational life when the fitting conditions are supplied. Proof or disproof is here out of the question. If a writer asserts that his own soul, or that of anybody else, existed centuries ago in an unconscious state, we cannot demonstrate that the proposition is false; we can only point out that there is no evidence for such a statement. It is simply a gratuitous assumption. No sufficient end can be conceived for the sake of which such an unconscious life could be vouchsafed to the soul, and, consequently, it may be rejected as an unwarrantable hypothesis.

The Schoolmen taught that the rational soul is created precisely when it is infused into the new organism. The doctrine took two forms. Following the embryological teaching of Aristotle, St. Thomas held that during the early history of its existence the human fœtus passes through a series of transitional stages in which it is successively informed by the vegetative, the sentient, and, finally, by the rational soul. Each succeeding *form* contains eminently and virtually in itself the energies and faculties of that upon which it is consequent. The advent of the rational

soul only occurs, St. Thomas maintained, when the embryo has been sufficiently developed to become the appropriate material constituent of the human being; and this rational soul itself subsequently exhibits a gradual development in the manifestation of its powers, exerting at first merely the inferior forms of vital activity, later on sentiency, and only long after birth its higher rational faculties. The embryonic history of man is, then, in this view, that of a progressive evolution in the course of which the future rational being passes through a series of transitory stages not unlike the various grades of life to be found on the earth.[12]

The rival theory, which seems to have much in its favour, held that the rational soul is created and infused into the new being in the originating of life in conception; and that it is this rational soul which by the exertion of its inferior vegetative functions directs the growth and development of the embryo throughout its course.

Doctrine of Lotze and Ladd.—On this question of the origin of the soul, Professor Ladd, to whom we have frequently been able to refer in terms of agreement, seems neither very satisfactory nor very clear. "*Whence comes the mind of every man?*" he tells us, "is a question with which metaphysics—especially in the crude form in which it is found in theological (Why not add 'and *scientific*'?) circles—naturally busies itself." Having rejected the traducianist and evolutionist hypotheses, he asserts that "the creationist theory of the origin of the mind in the form in which it is popularly

[12] See Harper's *Metaphysics of the School*, Vol. II. pp. 553—561. Having shown that St. Thomas's teaching of a "progressive development of being" in all embryonic life is in harmony with the most recent physiological science, he urges that "this theory serves to throw light on the perfection of the cosmic order. . . . For, the truth of the teaching for which we are contending once admitted, not only must we acknowledge a gradual evolution of the whole complex and multiform universe of material substances from a few simple elements created in the beginning; but it is also manifest that this wondrous evolution is, so to say, more or less epitomized in the germ-history of each living individual in that universe. Successive Forms march through the captive Matter gradually evolved from the predisposed Subject; till they reach their climax where the potentiality of Matter fails, and the creative power of God supplies the needed Form." (p. 560.)

conceived is no less unwarrantable or even unintelligible." He deems the doctrine that "God produces an entity called the soul, and puts it ready-made, as it were, into the body," to be absurd. His own view is that "the origin of every mind, so far as such origin is knowable or conceivable at all, must be put at the exact point of time when the mind begins to *act* (consciously); its origin is *in* and *of* these first conscious activities. Before this first (conscious) activity the mind is not. But even thus it cannot be admitted that any mind springs into full being at a leap, as it were. For the origin of every mind is in a process of development."[13] In brief, the soul's conscious "activities are its existence." This is virtually Lotze's conclusion (*Metaphysics*, § 244); and flows from his theory that a being *is* merely what it *does*.

Criticism.—This view, which, maintaining the soul to be a "real being," distinct from the body, yet constitutes the essence of the soul in conscious activity, is in the first place exposed to serious difficulties based on the facts of periods of unconsciousness. The objection of the "naïve metaphysics" of common sense is not precisely that which Professor Ladd suggests: "*Where* then is the mind in deep, dreamless sleep?" (loc. cit. p. 386.) But: "Does the mind *in its entire reality* cease to exist every time that *conscious activity* ceases? or, Has a man's soul no more reality during a state of coma from which he recovers, than it had a thousand years before he was born?" The logical consequence of the doctrine that the human soul begins to exist only at the first moment of consciousness—or rather, if we understand Professor Ladd rightly, at the dawn of *self-consciousness*—would seem to be that the human infant is without a soul.

The objection to creation as implying the insertion of a "ready-made" soul is based on an unfair representation of the doctrine. All spiritualists who, like Ladd and Lotze, maintain the existence in the adult being of a soul really distinct from the organism must necessarily admit its primary origin to have been *abrupt*—the first appearance of a particular being of a *totally new order*, and so even the "modified creation" which Ladd accepts inevitably involves this same distasteful notion of "ready-madeness." The truth is that the most rational view and that least exposed to difficulties of this kind, is that form of the scholastic doctrine which teaches that in the origin of the new human being the creative action is exerted according to universal law prescribed by divine wisdom, in the act and at the instant in which the incipient vital principle is evoked in the germinating cell.

[13] *Philosophy of the Mind*, pp. 363, 364.

Origin of the First Human Soul.—Darwinian Theory.—The modern doctrine of Evolution ramifies into a large number of sciences, and its satisfactory discussion involves a multitude of questions pertaining to Biology, Geology, Physical Astronomy, Rational Theology, and Scriptural Theology. The business of the rational psychologist, fortunately for us, is neither the Theology nor the Philosophy of the Evolution hypothesis, as applied to the animal species or even to the body of man: our official concern is with the *Soul*.

The Human Soul cannot be the result of the gradual evolution of a non-spiritual principle.—This proposition is the logical outcome of the chief doctrines on which we have insisted throughout the volume. The argument by which we have established that each individual rational soul owes its origin to a Divine creative act, proves *a fortiori* that the first of such souls must have thus arisen. Since even the spiritual soul of a human parent is incapable of itself effecting a spiritual soul in its offspring, it is evident that the merely sentient soul of a brute could still less be the cause of such a result. Again: the human soul, as we have shown, possesses the spiritual powers of Intellect and Will, and is therefore itself a spiritual principle, intrinsically independent of matter; but such a being could never arise by mere continuous modifications of a vital energy intrinsically dependent on matter. Self-consciousness, Free-will, Conscience, are all facts *sui generis* which could never have been produced by the gradual transmutation of irrational states. In a word, all the proofs by which we established the spirituality of the higher faculties, and of the soul itself, demonstrate the existence of an impassable chasm between it and all non-spiritual principles, whether of the amœba or the monkey. The special intervention of God must, therefore, have been necessary to introduce into the world this new superior order of agent—even if He had previously directed the gradual development of all non-spiritual creatures by physical laws.

SUPPLEMENT A.

ANIMAL PSYCHOLOGY.

Comparative Psychology.—The aim of a "comparative" science is to examine and compare the varying manifestations of some phenomenon, or group of phenomena, in different classes of objects. *Comparative Anatomy* thus seeks to ascertain the likenesses and differences exhibited in the structure of different species of animals. *Comparative Philology* in the same way endeavours to trace the history of cognate words by contrasting the various forms which they have assumed in different languages. The science of *Comparative Psychology*—were anything deserving the name of science on the subject attainable—would similarly investigate the nature of mind by comparing its manifestations in man and the various species of animals.

Some recent writers seem to expect that immense benefits will accrue to Psychology by the employment of this method of comparative study, which has undoubtedly done much to illuminate obscure facts in other branches of knowledge. Now, premising that in our view Human Psychology, or Psychology proper, ought to base its doctrines on a careful study and comparison of the mental phenomena of human beings of all races, of all ages, and of all stages of intellectual and moral cultivation; and, further, admitting that assistance may be derived, especially in the investigation of the lower appetitive, emotional, and cognitive activities from the observation of animal life, we must, nevertheless, frankly confess our belief that in the science of the Mind the comparative method will never be very fruitful in positive results.

Difficulties of Animal Psychology.—It must not be forgotten that Psychology differs essentially in character from all these other departments of knowledge in which the new method has proved so effective; and, moreover, the difference is of a kind which tells directly against the application of that method. In the other comparative sciences we can directly examine the specimens selected from different groups; here we cannot. Nay, as acute a thinker as Descartes was found to deny that there are any such specimens in existence at all. The anatomist can study with as much ease and security the vertebral column of a fish, or an elephant, as that of a human body. The philologist can investigate with as much confidence the growth of a word in a foreign language as in his own. But real knowledge of the mental states of the dog or the bee is utterly impossible to the psychologist. This difficulty can never be effectually bridged over. Careful reflexion must convince us that, no matter what pains and industry be devoted to observation of the actions of the lower animals, our assurance regarding the genuine character of their subjective states can never be more than a remote conjectural opinion.

Knowledge of other Minds.—The existence of any other human mind than our own, it should be remembered, is believed not on the strength of direct intuition, but of a mediate analogical inference. By a process of perception, which we have described in chapter vii., we come to know the existence and character of our own body, and of the material objects which act upon us. Of prominent interest amongst external things are certain bodies strikingly similar to our own. In our own case we find that the impressions of some of the external agents cause particular mental states within us, which, in turn, give rise to definite physical actions observable by our external senses. Noticing the similarity of antecedent and consequent in the case of organisms like our own, we insert in them an intermediate conscious link as effect of the former and cause of the latter. The essential elements in the argument are the similarity of organisms and the like character of the resulting

actions. Of these latter, *language* is incalculably the most important, especially in indicating to us the *quality* or *nature* of the consciousness of these other beings. It is at once a measure of intellectual development, and the great medium of intercommunication. Consequently, its absence is, on both grounds, fatal to scientific inductions regarding the minds of brutes.[1]

The value of the other factor in the argument clearly depends on the degree of likeness subsisting between the compared organism and our own, especially as regards the brain and nervous system. We know from experience that slight modifications in the conditions of the brain affect gravely the character of human consciousness. But the profound differences which separate man's brain from that of the nearest allied animal, are sufficiently insisted on by our adversaries when this course suits the special question in hand. Accordingly, if we obey the oft-repeated advice of Herbert Spencer on other subjects, and freeing ourselves from the "crude anthropomorphism of the child and the savage," impartially estimate the strictly scientific value of the evidence, we shall be speedily forced to admit that the grounds for the analogical inference to the character of the intellectual or emotional states of the monkey, the dog, or the elephant, are very slender indeed, whilst our conjectures as to the quality of the mental activity of insects are utterly worthless.[2]

[1] "The total absence of language makes our best inferences but feeble conjectures. . . . It is clear that we cannot ascertain the precise bearing of articulate speech on thought and feeling until we are capable of directly observing a type of consciousness in which this instrument is wanting; and this is a sufficiently remote possibility. Yet one may roughly infer that the absence of language implies the lack of many of the familiar properties of our own conscious life. . . . Is it not probable that the most rudimentary idea of self follows by a long interval the degree of intelligence involved in linguistic capacity?" (J. Sully, *Sensation and Intuition*, pp. 16, 17.)

[2] Careful and acute observer of the physical habits of animals as Darwin was, there is scarcely an author of any importance who has erred more seriously in theorizing about the nature of the mental faculties of beasts. Even a psychologist as sympathetic with evolutionism as Dr. Sully cannot ignore the mistakes of the

Descartes' theory: Animals machines.—Were this fact realized, the Cartesian doctrine, which appears so strange and absurd to the unreflecting mind, would probably have commanded a much larger following than it has ever received. In Descartes' view, the lower animals are merely machines so ingeniously constructed that the various impressions always meet with appropriate responsive movement, although no conscious state intervenes. The fact that elaborate and complicated operations such as walking, writing, playing the piano, handling tools, are often carried on without making themselves felt, has been urged in favour of this hypothesis. Moreover, recent experiments on the bodies of animals from which the brain or head had been removed, go to prove that complicated movements requiring the co-ordination of several muscles may sometimes be performed by the organism without sensation. Nevertheless, we hold the Cartesian theory to be unsound, and accordingly we proceed to the establishment of our thesis, that:

At least the higher Animals are endowed with Sentiency.—(1) Many of the movements, of the cries, and of the expressive acts of brutes are inexplicable in regard to their origination, direction, continuation, and cessation, as the result of unconscious forces. Such complicated operations, for instance, as the search for suitable twigs by the bird in the construction of her nest, the movements of a terrier at the sound of his invisible master's voice, the eager way in which the dog bounds towards him and barks, and the manner in which beasts of prey capture their victims, completely transcend the capabilities of merely physically co-ordinated forces. (2) The *educability* of the lower animals is incompatible with the purely mechanical theory. We can train dogs, horses, lions, and bears to respond to words or arbitrary signs by

naturalist in this field. (cf. loc. cit.) Romanes begins his work on *Animal Intelligence* (pp. 1—6) with an account of the nature of the inference by which we attribute consciousness to animals, but immediately lapses into the vulgar anthropomorphism of the unreflecting mind, as soon as he proceeds to describe and discuss the character of brute intelligence. It is interesting to note how this writer can here, when it suits his object, appeal to "Common Sense" against the "Sceptic." This sudden reverence for vulgar prejudice is a little odd. G. H. Lewes' statement, that "the researches of the various eminent writers who have attempted an Animal Psychology *have been further biassed by a secret desire to establish the identity of animal and human nature*" (*A Study of Psychology*, p. 122), receives abundant and forcible illustration in both Romanes' works, as well as in Darwin's chapters on this subject.

definite movements of a complicated character,—an impossible process if they were merely machines. (3) Finally, the ingenious construction of the various sense-organs, and their similarity in many of the superior species of brutes with those possessed by men, confirm the doctrine that brutes are endowed with a faculty of sensuous apprehension. It would appear also from such facts as the barking of dogs in their sleep, the flight of defenceless animals at the sound of an enemy's voice, and the resort of most brutes to particular places for food, that they possess some of the internal sensuous faculties, such as organic memory and imagination. How far these powers in animals resemble the corresponding faculties in man, we are unable to determine. The most striking of these internal aptitudes is that directive principle of action which in common language is called *instinct*. Its character, however, will be better understood when we have distinguished between animal and rational intelligence.

Animals are devoid of Intellect or Reason.—We have (c. xii.) exhibited at length the nature of this faculty, the essential characteristic of which consists in the apprehension of the *universal*. The ground for our present proposition lies in the fact that the brute creation do not exhibit various signs which would inevitably be manifested by sentient beings endowed with intellectual faculties:

1. **Mode of Action.**—The lower animals do not show that individual free variation in method and plan of action, and that intellectual progress which ought to mark the presence of personal intelligence. Thus, animals of the same species, when in similar circumstances, exhibit a striking specific uniformity in their operations. They all seek their prey, build their nests, and foster their young in the same way. Amongst rational beings, on the contrary, we find in everything the signs of individual personality. The ants and bees in the time of Moses or of Aristotle worked as perfectly as their descendants of to-day; and geese and sheep acted not more awkwardly. There is no evidence that during all the time brutes have existed upon the earth, they have invented a single mechanical instrument, lit a fire, or intelligently transferred a useful piece of information from one generation to another. The few trivial instances cited here and there of some animal seizing a club or other rude implement that fell in its way, only establish the more clearly the enormous chasm which separates the brute from the rational being.

The certainty possessed by us that animals are incapable of the most elementary inventive activity, is clearly shown by the fact that, on the discovery of a few rough but similarly

pointed flint stones in Palæolithic strata, those writers who maintain the specific identity of animal and human faculties were the very first to assert that these rude contrivances are the work, not of an intelligent *beast*, but of a rational *man*. The division which separates the simplest exercises of reason from the highest forms of animal intelligence, is thus felt to be impassable. But if any species of animals were endowed with intellect or reason, they could not have remained all these ages in the condition in which we find them. Sentient beings possessed of reason or personal intelligence would be certain to make use of their intellect in attending to, comparing, reflecting upon, and reasoning about the various pleasant or painful impressions by which they were affected. They would in this way be led to introduce modifications and improvements into their methods of work, they would invent tools and try changes to suit their surroundings; and, stimulated by curiosity—the most primitive and useful form of the desire of knowledge—they would inevitably make intellectual progress. It is absolutely incredible that beings capable of universal ideas, or of the simplest acts of generalization and inference, should have been unable during all these thousands of years to invent such a rude tool as the stone arrow-head of the Palæolithic age. In spite, therefore, of the occasional performance of apparently ingenious or complicated actions, we must conclude that the lower animals have not intellect.

2. **Rational Language.**—No beast yet discovered is capable of making use of a system of rational signs, whilst all races and tribes of men are found to be endowed with intelligent speech. Both man and brute are capable of expressing feeling; and some animals, such as the magpie and the parrot, can be trained to utter articulate sounds: but rational language, which is radically distinct in kind from these phenomena, is possessed by man alone. The essence of rational speech is the expression of *thought*, the communication of *universal ideas*. Thus in the utterance of the proposition, "This water is cool," there are involved the universal ideas of cool, and of water, as well as the most abstract notion of all, that of *being*, which is expressed in the copula. Similarly the phrases, "Milk hot nice," and "Big Bow-wow" (horse), of the infant just learning to speak, presuppose intellectual abstractive operations of a grade immeasurably beyond that to which the most intelligent animal has ever attained.[3]

Whether thoughts be manifested by vocal or visual signs

[3] Cf. chapter xvi., Mivart, *On Truth*; also his *Lessons from Nature*, c. iv.; and Max Müller, *Science of Thought*, c. iv.

is unimportant; but beings endowed with reason and associated together could not remain without inventing some means of rational intercommunication. The reflective activity of intellect combined with the social instinct would inevitably lead these beings to manifest their ideas to each other, were such ideas in existence. The cries of one animal, of course, often serve to awaken the rest of the flock to threatening danger or prospective enjoyment, but these utterances differ in nature from rational language. They are merely indicative of concrete experiences, and the whole process is easily explicable by the well-known action of the laws of association. There is no ground for supposing that such sounds differ in kind from the emotional expressions of man.[4] Parrots have organs capable of uttering all the sounds in the alphabet and they can be trained to articulate short phrases with wonderful distinctness, but this fact shows only the more conspicuously the absence of real *intelligence*. No bird has yet been produced, which combines even the most familiar words in *new orders* so as to form other intelligible propositions. The most accomplished parrot is separated from the child by an immeasurable distance in this respect.[5]

[4] Deeper study of the history of language shows so clearly the immensity of the chasm between man and brute that students of Philology are inclined even to exaggerate its importance as compared with the other *differentiæ*. Thus, Max Müller asserts that: "The one great barrier between man and brute is *Language*. Man speaks, and no brute has ever uttered a word. Language is our Rubicon, and no brute will dare to cross it." (*Lectures on the Science of Language*. First Series, p. 340.) Professor Whitney is also very emphatic at times on this point: "Moreover, man is the sole possessor of language. It is true that a certain degree of power of communication . . . is exhibited also by some of the lower animals. . . . But these . . . (acts such as the dog's bark, etc.) . . . are not only greatly inferior in their *degree* to human language; they are also so *radically diverse in kind* from it that the same name cannot justly be applied to both." (*Life and Growth of Language*, pp. 2, 3.)

[5] "Animals and infants that are without language are alike without reason, the great difference between the animal and infant being that the infant possesses the healthy germ of speech and reason, only not yet developed into actual speech and actual reason, whereas the animal has no such germs or faculties capable of development in its present state of existence. . . . We cannot allow them (brutes) a trace of what the Greeks called *lógos*, *i.e.*, reason, literally, *gathering*, a word which most rightly and naturally expresses in Greek *both* Speech and Reason." (Max Müller, op. cit. Second Series, p. 62.) "The animal without Language is as incapable of abstraction and of what we specially designate *Intellect*, as, without wings, it is incapable of flight." (G. H. Lewes, *A Study of Psychology*, p. 123.)

3. **Moral Notions.**—Again, if the lower animals possess intellect, they must be moral beings capable of notions of right and wrong, merit and desert, justice and injustice; and they must be accountable for their acts. But, in spite of our anthropomorphic tendencies, the universal judgment of mankind has ever refused to attribute morality or responsibility to beasts. We may, indeed, at times inflict pain on them in order to attach unpleasant recollections to the performance of certain actions, and we may apply moral epithets to them in a metaphorical way, somewhat as the farmer describes a particular soil or pasture as kind or ungrateful; but a moment's reflexion will always speedily assure us that we never really consider the lower animals to be free responsible creatures. We make a very clear distinction in our mind between the moral character of the act by which a horse kicks a man to death, and that by which one man murders another.

4. **Absurd consequences.**—Finally, if the ingenious operations performed at times by the lower animals are to be assigned to a personal intelligence similar in kind to that of man, then, to several species, notably ants and bees, admittedly very low down in the scale of life, there must be attributed intellectual endowments far exceeding those of man himself, as well as those of the highest animal organisms. But this is obviously absurd. The true conclusion from these various considerations is that man's cognitive powers differ from those of the brute not simply in *degree*, but in *kind*. He is endowed with a personal intelligence, with a faculty of forming universal concepts, of reflecting upon himself, of communicating his thoughts to others, and of apprehending moral relations. They are utterly incapable of eliciting any such acts as these. They frequently surpass him in the range and subtilty of special senses, and still more surprisingly in the possession of certain mental aptitudes of a complex but uniform character comprehended under the term Instinct, but they are separated from him by the boundary which divides rationality from irrationality.

Instinct.—The various ingenious operations performed by the lower animals are usually allotted to *instinct;* but about the inner nature of this endowment, it seems to us that very little is yet positively known. The epithet *instinctive* is frequently employed in a wide sense to include acquired habits of action, original dispositions to any form of movement, whether random or purposive, and also purely reflex actions devoid of all antecedent or concomitant consciousness. In modern Psychology there is a tendency to confine the adjective to *conscious* acts which are *connate* or *unlearned*, *complex*, and *purposive* in character. Strictly speaking, Instinct is not a

continuous impulse towards a special mode of action, but an aptitude by which this impulsive action in response to particular stimuli is directed or guided.

Scholastic view of Instinct.—Schoolmen placed this faculty among the *internal senses*, with the title of *Vis Æstimativa*. Conceived according to their view and in harmony with common usage, *Instinct* may perhaps be best defined as *a natural aptitude which guides animals in the unreflecting performance of complex acts useful for the preservation of the individual or of the species.* In the Scholastic system the *Vis Æstimativa* is a property of the sentient soul, analogous though inferior to rational judgment in man. It is of an organic character, but involves more than the direct response of the special senses. It does not merely distinguish between pleasant and painful impressions, but guides the animal in a series of movements remotely serviceable to its nature. The lamb, St. Thomas observes, does not flee because the colour or form of the wolf is disagreeable, and the bird does not collect twigs for its nest because they are attractive in themselves; but both animals are endowed with a faculty which under appropriate conditions is excited by these phenomena to guide them in the execution of an operation ulteriorly beneficial to their nature. Yet neither has a consciousness of the formal relation of such an act to the end to be attained; neither may have had any previous personal acquaintance with that end; and neither is led to the act by a process of reasoning. It must not be forgotten, however, that to say a particular operation is due to *instinct* or to *Vis Æstimativa* is not to *explain* it; but merely to distinguish it from certain activities, and to group it with others the cause of which is still unknown.

Nature of Instinct.—The essential features of Instinct are well described in the following passage: "The character which above all distinguishes *instinctive* actions from those that may be called *intelligent* or *rational*, is that they are not the result of imitation and experience; that they are always executed in the same manner, and, to all appearance, without being preceded by the foresight either of their result or of their utility. *Reason* supposes a judgment and a choice: *instinct*, on the contrary, is a blind impulse which naturally impels the animal to act in a determinate manner: its effects may sometimes be *modified* by experience, but they never *depend on it.*"[6] Again: "One of the phenomena fittest to give a clear idea of what ought to be understood by Instinct is that which is presented to us by certain insects when they lay their eggs. Those animals will never see their progeny,

[6] Milne-Edwards, *Zoologie*, § 319. Cf. also p. 213, above.

and can have no acquired notion of what their eggs will become; and yet they have the singular habit of placing beside each of those eggs a supply of elementary matter fit for nourishing the larva it will produce, and that even when that food differs entirely from their own, and when the food they thus deposit would be useless for themselves. No sort of reasoning can guide them in doing this, for if they had the faculty of reason, facts would be wanting them to arrive at such conclusions, and they must needs act blindly."[7] Such facts, which might be multiplied indefinitely, prove that animal "intelligence" is different, not in *degree*, but in *kind* from human intellect. Although *uniformity* is the most marked characteristic, there is also observable in many instincts a certain flexibility by which they can be modified, and adapt themselves within limits to altered circumstances.

The Origin of Instinct, together with the formation of sense-organs, has ever been one of the most insuperable difficulties to those who deny the creation of the universe by an Intelligent Author. Here especially the ingenuity of evolutionists has been severely taxed to find some plausible explanation of the phenomena. Two chief views have been advocated, but each has suffered severe handling from supporters of the rival hypothesis; and the probabilities against either explanation, when carefully thought out, seem to us so enormous as to render them incredible.

(1) **Theory of Natural Selection.**—According to Darwin, the great majority of animal instincts have been formed by *natural selection* operating on chance variations in actions and organs. Those fortuitous acts which proved beneficial to the agent, giving their authors an advantage in the struggle for life, tended to be preserved and increased by heredity and survival of the fittest in each generation. Isolated acts first casually and of course rarely performed have thus, it is held, been converted into the wonderfully stable and complex

[7] *Id.* § 327. Cf. Janet's *Final Causes*, pp. 86, 87. "The young female wasp (sphex), without maternal experience, will seize caterpillars or spiders, and stinging them in a certain definite spot, paralyze and deprive them of all power of motion (and probably also of sensation), without depriving them of life. She places them thus paralyzed in her nest with her eggs, so that the grubs, when hatched, may be able to subsist on a living prey, unable to escape from or resist their defenceless and all but powerless destroyers. Now, it is absolutely impossible that the consequences of its action. can have been intellectually apprehended by the parent wasps Had she Reason without her natural Instinct she could only learn to perform such actions through experience." (Mivart, *Lessons from Nature*, p. 201.)

tendencies now exhibited in the instincts of insects, birds, fish, and mammals.

(2) **Theory of "lapsed intelligence."**—Herbert Spencer and others object that such fortuitous beneficial actions could never, or only in an infinite time, result in the complex system of co-ordinated movements seen in many instincts. They themselves maintain that instincts are the outcome not of accidental movements, but of actions originally performed *consciously to satisfy a need* or attain an end. Such intelligent actions, by frequent repetition, became automatic or acquired reflexes. (p. 218.) They were then transmitted by heredity as organic modifications, being increased and perfected by practice in successive generations. All the more ingenious instincts are thus instances of "hereditary habit," "lapsed intelligence," or "congealed experience" of the race.

Criticism.—(1) Both Darwin and Spencer assume that habits of action, or modifications of nerve structure, acquired during the life of the individual, are transmitted by heredity. This postulate is absolutely essential to the theory of hereditary habit, and scarcely less so to that of natural selection; but it has suffered the most damaging attacks in recent years, especially from **Weismann.**[8] This eminent biologist maintains with a great weight of argument that modifications wrought in the organism during the life of the individual are never transmitted by heredity. Such accidental changes do not modify the *germ-cells*, and so cannot be inherited by the offspring. He allows, of course, that individual characteristics are transmitted, and also that the *germ-cells* undergo individual variations and may be affected by disease, poison, nutrition, and the like; but he holds that they are not affected by such indirect and superficial influences as the exercise of particular organs and functions. Consequently, increasing strength of faculty is not transmitted and accumulated by continuous exercise during the history of the race. Otherwise, he justly contends, the mathematical, musical, and other special talents seen to be inherited in particular families ought to manifest themselves growing from generation to generation, whereas, as a rule, "the high-water mark of talent lies, not at the end of a series of generations, as it should do if the results of practice were transmitted, but in the middle."[9] He further subjects to severe criticism the stories of inherited mutilations, *e.g.*, horn-less cows and tail-less cats, said to be born of accidentally maimed parents; and he shows clearly the utterly unreliable character of the

[8] See his *Essays upon Heredity* (English Translation), 1889 especially Essays iii. and viii.

[9] *Essays on Heredity*, p. 96.

evidence in regard to the facts. Finally, he gives the results of numerous experiments undertaken by himself, which all go to prove that such organic modifications or mutilations are not inherited. Thus "among 901 young mice (the entire progeny) produced by five successive generations of parents whose tails had been cut off after birth, there was not a single example of a rudimentary tail or of any other abnormity in this organ. Exact measurement proved that there was not even a slight diminution in length."[10] In fact, though Weismann's own theory of heredity does not appear to have yet met with wide acceptance, his destructive criticism is deemed by the most competent biologists to have disproved the assumption of the transmission of habits or modifications of the nervous system acquired during the individual life. This conclusion seems to us absolutely fatal to Spencer's theory, and so enormously to increase the already sufficiently numerous probabilities against the Darwinian view as to make the latter quite incredible when carefully and impartially weighed.[11]

(2) To suppose with the "lapsed intelligence" theory that the various ingenious operations now done instinctively by many species of insects and birds, were originally performed with conscious purpose, is to ascribe to the less evolved remote progenitors of animals still low down in the scale of life a supra-human intelligence.

(3) Further: Many of the most important and most complex instincts are connected with the function of reproduction, and several of these instinctive processes in the case

[10] Op. cit. p. 432.

[11] The chief arguments urged for the inheritance of experience are: (*a*) The rapidity with which the instinct of timidity is said to be awakened and increased in wild animals on desert islands, in the second and third generations after they have been invaded by man. (*b*) The apparent transmission of the results of training in domesticated animals, *e.g.*, in pointers and sheep-dogs. To this it has been replied: (*a*) The alleged facts have not been observed with sufficient accuracy; nor is their precise nature clear. The shyness of the second generation may be simply the result of individual experience and parental training operating from birth onwards on a hitherto latent form of a universal animal instinct. (*b*) The development of particular faculties and dispositions in domesticated animals is much more probably due to the *artificial selection* pursued in crossing promising breeds, than to the transmission of the organic effects of training. Thus, if puppies with the longest tails were selected for breeding purposes and their tails also frequently pulled, a race of dogs with abnormally long tails would probably be speedily produced; and yet the elongation might be due entirely to the process of selection and not to that of pulling.

of certain insects, *e.g.*, the nuptial flight of the queen-bee, and the laying and arranging of their eggs by other insects, occur only *once* in the individual life. What then is the meaning of the saying that such instincts are the result of *habitual* experience in past individual lives? Would it not be as reasonable to anticipate that a man should unconsciously draw up his will by reflex action because during many generations each of his ancestors have performed the operation once in their lives, or to expect that babies born of Christian parents should at once exhibit an instinct for baptism, as to explain the parental operations of a may-fly preparatory to its decease by acquired habits of its ancestors? On the other hand, in what way is the natural selection theory better off? For according to that view the extremely complex movements of instinct must be the gradually built-up product of an enormous number of fortuitously beneficial actions.[12]

(4) Again: The peculiar instincts of **neuter insects**, *e.g.*, of working bees, which do not reproduce their kind but leave this office to another class endowed with quite different habits, are an additional difficulty to both the "lapsed intelligence" and Natural Selection theories. This argument has been so admirably stated in the following paragraph that I quote it at length: "Neuter insects which do nothing to propagate their race can do nothing to transmit instinct or anything else. Yet these neuters do all the work of the community, and require the most complicated instincts to do it. To fit them for their object, even their bodily form has often to be entirely different from that of the males and females; and in some species the neuters destined for different branches of work differ entirely from one another. Thus in one kind of ant there are working neuters and soldier neuters, with jaws and instincts extraordinarily different. Yet these neuters are the offsprings of males and females, none of whom, and none of whose ancestors, ever did a stroke of work in their lives. How can their instinct or its instruments have possibly been developed by *Natural Selection* only? . . . Selection, Mr. Darwin answers, may be applied not to the individual only, but to the race, in order to gain the required end. The good of the race requiring the production of neuters, thus variously modified in form and instinct, those fertile insects may alone survive which tend to produce neuters so modified:

[12] "An instinct is nothing else than a series of given acts; a modification of instinct is, therefore, a particular action which becomes fortuitously intercalated in this series. How can we believe that this action, even though it were by chance several times repeated during life, could be reproduced in the series of actions of the descendants?" (Janet, *Final Causes*, p. 257.)

and thus may natural selection suffice for the production. The realms of imagination are no doubt infinite, and within their sphere such ramifications of fortuity are perhaps conceivable; but have we not reached the bursting strain of improbability? That direct descent should develop the geometrical instinct of the working bee is hard enough to believe, but here the difficulty is raised to the square. And even if the improbabilities thus piled up be not overwhelming, still the explanation so suggested does not avail so much as to touch the case of slave ants. They exhibit an instinct beneficial, not to their *own race*, but to *another;* it can be of no advantage to the tribe from which they are taken that so many of its members should be dragged away to bondage, or, at any rate, if it were so, why should that tribe fight to prevent it, and suffer mutilation and death in the struggle? By what possible process can it have been brought about, that black queens and drones should have been so selected as to produce neuter insects, which will make good slaves for red ants, at the same time handing on to their progeny an instinct that makes them perish in the attempt to avoid that very service for which they have been so laboriously prepared?"[13]

(5) Finally, the extreme complexity of the movements exhibited in many instincts, especially where the exercise of different members and organs have to be combined and the actions of numerous independent muscles correlated, are, as Spencer has recognized, incompatible with origination by fortuitously and independently varying movements. Fractions or parts of the movement that go to make up many instinctive operations would be not only useless but harmful to the author. Yet they could not all have co-operated at the right time by chance.[14] Indeed, many instincts would be fatal to their owners unless they were comparatively perfect. How they could have arisen by insensible modifications is inconceivable. Nevertheless, it is not impossible that some instincts originally of a more indefinite character may have been perfe ted, and modification effected in others by natural selection and environment. But the attempt to explain the origin of all instincts in this way appears to us doomed to hopeless failure. Certain writers on this topic seem to imply that *a false theory is better than none*, and that since no more plausible "scientific" hypothesis is forthcoming than the two criticized

[13] J. Gerard, S.J., *Science and Scientists*, p. 118. (London: Catholic Truth Society.) The reader will find packed into this little shilling volume much searching criticism of materialistic evolutionist theories and "facts."

[14] Consider the case of the sphex given in note 7.

we must accept either of them. We confess this does not seem to us a very scientific temper of mind.

Animal "Souls."—The investigations which we have now made into the character of the operations of the animal "soul," render clear the deductions we are justified in drawing concerning its nature, origin, and destiny. The whole weight of analogy proves that in the brute, as in man, the vegetative and sentient principles are identical. This animal "soul," however, *is not a spiritual substantial principle:* it is not a substantial form *intrinsically* independent of and *separable from* its material subject. This doctrine follows immediately from the theses established above. The animal manifests no spiritual activity. It is not endowed with rational intellect; consequently, not with free-will. In other words, all the mental actions exhibited by it are of the lower or sensuous order, and therefore intrinsically or essentially dependent on a material organism. We are accordingly led to conclude that the ultimate principle from which these operations proceed is itself intrinsically and essentially dependent on matter. *Actio sequitur esse;* as a being is, so it acts; but all the mental acts which we are justified in ascribing to animals are of an organic or sensuous character. Therefore we are bound to infer that the animal "soul" is essentially dependent on the material organism and inseparable from it. It is, consequently, incapable of life apart from the body, and it perishes with the destruction of the latter. On account of this intrinsic dependence on matter, the souls of animals were spoken of by the Scholastics indifferently as *material* and *corporeal*. They did not, however, intend by these terms to imply that the principle of vital activities is a bodily substance of three dimensions. They simply meant to teach that it depends absolutely on the material subject which it actuates, just as the heat depends on the matter of the burning coal, and the stamped inscription on the wax. They maintained, moreover, that though not spiritual, the vital principle in animals must be of a simple nature, inasmuch as the activity of sentiency which proceeds from it is a simple immanent operation.

The animal soul is thus, in Scholastic language, a substantial form *completely immersed* in the subject which it animates. Accordingly, it does not require a Divine Creative act to account for its origin in each successive being any more than a Divine Annihilative volition to effect its destruction. It is a result of substantial transformation produced by generation. An existing vital energy is capable, by its action, of reproducing or evoking from the potentialities of matter a new energy akin to itself. But, as at present new

life ever proceeds only from a living agent, so *a fortiori* in the beginning the primordial act by which animal life was first educed from the potentialities of matter must have been that of a Living Being.

SUPPLEMENT B.

HYPNOTISM.

Hypnotism (ὕπνος, sleep). The interest awakened in recent years in the subject of Hypnotism, and its connection with other mental phenomena make it seem desirable that we should devote what space we can afford to it here.

Historical Sketch.—Towards the end of last century an Austrian physician named Mesmer professed publicly in Paris to heal all diseases by "animal magnetism." The treatment was so called from a "magnetic" power supposed to be exerted over living beings by certain persons or objects more than normally saturated with the mysterious influence. The magnetization was effected by passes, contact, or fixation of the eyes, but was often accompanied by ceremonies of a superstitious and sometimes of an immoral character. In 1714 mesmerism was examined by a commission of the Royal Society of Medicine of France. The commissioners decided against the reality of the alleged magnetic force. They explained the effects of the magnetization to be due to the influence of imagination and imitation, and they declared the beneficial results claimed for the new curative treatment to be more than counterbalanced by the dangers, physical and moral, attendant on its employment.[1] Later on the Holy See also condemned mesmerism, or rather the superstitious or immoral use of methods of magnetism included under that name. For three-quarters of a century the magnetic art had fallen into general disrepute; but during the past twenty years it has again come into prominence under the title of *Hypnotism*. The new method of treatment, however, at least as employed by medical men of standing, is stripped of the former superstitious and objectionable practices, though certain grave dangers inevitably remain attached to its use. To hypnotism thus understood as excluding spiritualism, occultism, clairvoyance, and the like we confine ourselves here. Experiences of these latter kinds, whether viewed as preternatural or merely abnormal phenomena, must be dis-

[1] Cf. Binet and Féré, *Animal Magnetism*, pp. 1—30.

cussed individually—especially with respect to the evidence as to matters of fact in each particular case.

Process of hypnotization.—The subject is requested to gaze fixedly at some object, such as a button, suspended at a little distance from his eyes and above his head; or to stare into the eyes of the operator; or to listen to a monotonous sound such as the ticking of a watch; or "passes" are made in front of his face and chest. After a time he often gradually falls into a drowsy or lethargic condition, like that preceding or following on ordinary sleep. This is a milder form of the hypnosis or hypnotic trance. Dr. Bernheim and the physicians of the Nancy School ordinarily induce the hypnosis by simple *suggestion* of the idea. Thus the patient being seated, the doctor says, in a quiet, authoritative voice: "Gaze fixedly at me and think of nothing except of falling asleep. You feel your eyelids heavy: you are very drowsy: your eyes grow more and more fatigued: they wink: your sight is becoming dimmer and dimmer: your eyes are closing: you cannot open them! Sleep!"[2] If the operation is successful, the subject passes into the hypnosis, from which he is awakened either by blowing on his face, by making passes in the opposite direction, or by an emphatic "Awake!"

Characteristics of the hypnotic state.—The trance thus induced may be of any degree of intensity, from a slight feeling of drowsiness to profound somnambulistic sleep. Different writers variously classify these states. Charcot's division of stages into *cataleptic*, *lethargic*, and *somnambulistic* is the best known; as it is also the most generally attacked.[3] That adopted by Wundt of *drowsiness*, *light sleep*, and *deep sleep*, are as convenient as any other; though the state must not be identified with normal sleep.[4] In the lighter forms of the hypnotic influence the subject is quite aware of what goes on around him, and can remember the various incidents afterwards, but he feels perhaps slightly drowsy. The chief peculiarity of the state is that the subject is in a condition of *rapport* or special relation with the hypnotizer, which is shown by his susceptibility to suggestions from the latter. In the deeper stages the subject loses connexion more and more with all other objects save the hypnotizer and the particular experiences which the latter suggests. When he awakes he cannot remember, or only very imperfectly, the incidents of the hypnotic state. Amongst some of the more remarkable phenomena are the following:

[2] H. Bernheim, *De la Suggestion et de ses Applications à la Thérapeutique*, pp. 2, 3.

[3] See A. Moll, *Hypnotism*, pp. 48—52.

[4] *Human and Animal Psychology*, p. 329.

Inhibition of voluntary muscles.—The operator authoritatively tells the subject that he cannot pronounce his own name, or open his eyes, or move his legs; and immediately the subject is helplessly paralyzed in regard to these acts, somewhat as one feels when suffering from nightmare. Or in a deeper stage the subject is commanded to hold out his arm, and is next assured that it is impossible to withdraw it. The arm then assumes a rigid cataleptic condition, and remains thus extended for a longer period than the subject could voluntarily sustain it in his normal state.

Illusions and hallucinations.—In a still more profound stage illusions can be successfully suggested. The hypnotized person is easily persuaded that a glass of water is tea, wine, or vinegar, or *vice versa*. Or, his attention is directed towards an imaginary cat, bird, or flower which he thereupon perceives as a real being. Still more curious are the "negative" illusions. The operator asserts emphatically that some particular member of the company has left the room; and this individual thenceforth becomes invisible to the subject, although the latter distinctly perceives all the other persons and objects in the apartment. The subject may be made to adopt some other character, as that of a policeman, a nun, a little child, or an old woman; and not infrequently acts the part remarkably well. In this deeper somnambulistic stage the actions suggested by the experimenter are almost invariably executed, even though they be absurd, unpleasant, or ridiculous.

Amnesia and "deferred suggestions."—A common feature of the deeper forms of the trance is complete forgetfulness when awakened, of the incidents which have just happened, although they may be perfectly recalled in a future hypnosis. Nevertheless post-hypnotic suggestions or orders given during the trance with regard to future actions are often faithfully performed at the appropriate time when the subject has been restored to his normal waking state, although no recollection of the suggestion be retained. The subject simply feels a vague impulse to perform the action. It is in this force of "deferred suggestions" that the value of hypnotism as a therapeutic agency lies. But here also is obviously one of its gravest dangers. The patient, when hypnotized, is assured that he will awake in good health, that his neuralgia or dyspepsia will have ceased; and the malady accordingly disappears. Or, if ordered to do something on a future occasion, he will feel, when the circumstances arrive, an inexplicable impulse to perform the act; and this craving, it is said, possesses in some instances an overmastering force which renders the subject miserable until the deed is

accomplished, or the occasion for it has passed completely away.

Exalted sensibility.—In certain cases the sensibility of the perceptive faculties seems to be heightened in a marvellous manner, so as to enable the hypnotized subject to apprehend faint stimuli that would in the normal state be indiscernible. How far certain strange, extraordinary phenomena of this class are to be ascribed to hypnotism proper, it is very difficult to decide. At all events authenticated cases of the kind do not seem to occur in legitimate clinical practice like that of Bernheim at Nancy. On the other hand, a writer as little likely to extend unduly the territory of the preternatural as Professor James, is very frank in his confession of belief in the reality of occurrences at "séances" given by certain "mediums," as altogether inexplicable by hitherto known natural causes.[5]

Whether the human intellect can ever naturally work more efficiently in the hypnotized state seems even more open to doubt; though it is not impossible that the suspension of inferior cerebral centres may in particular circumstances set certain higher mental processes in a freer and more unimpeded condition of activity.[6]

The percentage of persons hypnotizable is variously stated by different experimenters, partly owing to their differences of view as to the genuineness of the lighter form of Hypnotism. Thus: "Bottey gives 30 per cent. as susceptible, Morselli 70 per cent., Delboeuf over 80 per cent., whilst Bernheim refuses the right to judge of hypnotism to all hospital doctors who cannot hypnotize at least 80 per cent. of their patients, and Forel fully agrees with him."[7]

Men, according to some writers, are as hypnotizable as women, soldiers being particularly good subjects. The susceptibility of the subject increases with the frequency of the operation, and the induction of a morbid "hypnotic habit" is one of the serious evils attending on frequent hypnotization. As

[5] *Principles of Psychology*, Vol. I. p. 396; and *The Will to Believe*, p. 319.

[6] Such would seem to be the view of St. Thomas in regard to some states. But though he lays down the general principle, he is rather considering the possibility of *supernatural* communications: "Anima nostra, quanto magis a corporalibus abstrahitur, *tanto intelligibilium abstractorum fit capacior*. Unde in somniis, et alienationibus a sensibus corporis magis divinæ revelationes percipiuntur, et prævisiones futurorum." (*Sum.* I. q. 12, a. 11. Cf. Coconnier, *L'Hypnotisme franc*, p. 361.)

[7] Moll, *Hypnotism*, p. 47. Only a small percentage, however, reach the deeper stages.

to whether we can be hypnotized against our will, it is generally admitted that if a person has already often submitted to the experiment, he may sometimes be hypnotized without his consent. It is also agreed that certain neurotic or hysterical patients can be hypnotized from the first time against their desire. As regards normal healthy persons, if they decline to comply with the conditions, the hypnotizer can do nothing. It is also generally held that an abnormally susceptible subject can be safeguarded from future abuse by the suggestion that he can never be hypnotized save by some particular person.

Theories concerning Hypnotism.—According to Charcot and the Paris school at least the deeper hypnosis is a nervous disorder, found only in hysterical patients, and exhibiting itself in the three stages of cataleptic, lethargic, and somnambulistic trance.[8] On the other hand, the Nancy school, whose view now generally prevails, advocate not a *physical* but a *psychical* explanation of the phenomena. They teach that the hypnosis is not a nervous disorder but a state possessing close affinity to natural sleep. For them the essence of hypnotism is *suggestion*. They explain the contrary conclusions of their rivals, as due to the fact that the experience of the latter is confined chiefly to the neurotic patients of the Salpêtrière hospital; and they urge that the phenomena of the three stages and other features insisted on by Charcot's disciples can all be accounted for by suggestion and imitation.[9] Still, as has been justly observed, "what *needs* explanation here is the fact that in a certain condition of the subject suggestions operate as they do at no other time."[10] The matter is confessedly exceedingly obscure, and no satisfactory answer is yet forthcoming; nevertheless, some considerations connecting hypnosis with more familiar mental phenomena may be usefully indicated.

Hypnosis.—First, then, the hypnotic trance, though not identical in any stage with natural sleep, clearly bears affinity to the latter state, especially to that type of it exhibited in *spontaneous somnambulism*. It is induced by similar means, and the lighter forms resemble the drowsiness which precedes or succeeds sleep. We have pointed out how the apparent reality of the dream results from the cessation of the corrective action of the external senses and the suspension of the power of reflective comparison whilst the exaggeration of the impressions which succeed in penetrating into the sleeper's mind is due to the circumstance that they secure a

[8] Cf. Binet and Féré, op. cit. cc. vi. vii.

[9] Cf. Bernheim, op. cit. c. vi.

[10] James, *Principles of Psychology*, vol. ii. p. 601.

monopoly of his consciousness. (p. 176.) These facts help towards the explanation of some of the phenomena of hypnotism.

Fixation of attention: "Rapport."—The primary effect of the concentration of attention involved in all the methods of hypnotizing is to starve out all rival impressions and thoughts. This seems to bring on a condition of somnolence in regard to all surrounding objects, except the operator who has induced the state by directing the fixation of the subject's attention. This peculiar "rapport" with the hypnotizer preserved throughout the trance is the chief feature by which this artificially induced sleep is distinguished from normal sleep. Even in ordinary sleep, the senses are not altogether closed. There is exerted a certain "selective" reception of impressions, and those which fit in with the current of a dream may have an abnormally intense effect. It is, indeed, sometimes possible, if we hit upon the current of a dreamer's thoughts, to direct them by suggestions. But in the hypnosis instead of this imperfect casual relation with *any* body, there is a fixed stable *rapport* with *one* person who possesses an absolute monopoly of the subject's consciousness. The subject by the voluntary strained fixation of his attention on the hypnotizer has fallen into a trance in which his attention is henceforth riveted, or involuntarily fascinated by the latter. Why the subject's attention should become thus "clamped" we cannot tell.

Abnormal suggestibility.—The power of suggestion is a familiar fact already sufficiently illustrated. If the thought of a rat being in the room, or of a worm crawling up my back, is suggested to me, I am uncomfortable until I convince myself that it is not true. As St. Thomas teaches, the representations of the imagination win assent unless contradicted by sense-perception or reason. (p. 178.) In proportion to the vividness of the idea and the completeness of the suspension of the other faculties will be the intensity of the illusion. Again, *vivid ideas* of *action* tend to realize themselves. A lively conception of a word or gesture expresses itself in a faint movement of the appropriate muscles. But attention, whether voluntary or extorted, enormously increases the force of an idea or sensation. It augments the excitability of the nerve tracts and cerebral centres engaged, it suppresses the enfeebling effect of competing stimuli; and it concentrates mental energy on the object of interest. But in proportion as the trance is more profound all rival experiences seem to be excluded, and the faculties of the subject are receptive only of the suggestions of the hypnotizer, which consequently acquire very exceptional force.

Inhibition.—Even in waking life, our *power* of action is much dependent on our *belief* in our ability to act. The partial conviction that we cannot or can perform a certain movement goes far to make it impossible or possible for us. But in hypnosis the conviction of inability can be made absolute by simple suggestion, and the voluntary control of the subject's muscles is suspended as completely as in a nightmare. The hypnotizer cannot, as is sometimes erroneously said, directly rule the Will of the hypnotized: but he can determine, at least in extreme cases, the movements and perceptions of the latter by suggesting the images which excite his motor and sensory nerves and cerebral centres.

Suggested illusions.—The same principles help to explain both the negative and positive illusions of hypnosis. Even in waking life, when the attention is engrossed by some other subject, a man may gaze at an object without perceiving it; he may walk through a crowded street with as little notice of the sights which assail his eyes, as if it were empty; even an acute pain may remain unobserved by him. This is the ordinary character of the somnambulism of normal sleep and of the hallucination of the monomaniac. The attention is absorbed by some dominant thought or *fixed idea*, and the chief difference in the case of hypnosis is that the thought which is to dominate is determined by the operator. If he chooses to concentrate the mental energy of the subject on a phantasm of the imagination, since all initiative or voluntary use of reason is inhibited, hallucination is inevitable. That suggestions made under such favourable circumstances not only possess exceptional force at the time, but also produce an enduring impression which will work itself out later on. appears natural enough. There is probably also something in the cerebral conditions of hypnosis which renders the brain peculiarly susceptible to suggestions of the time.

Amnesia.—The forgetfulness of the events of the hypnotic state during the following waking period, and their recollection in a subsequent hypnosis, have their parallel in the obliviscence of dreams and somnambulistic performances in the daytime. The memory of our waking experiences presents us with analogous facts. The recollection of a past cognition seems commonly to involve, or at least to be facilitated by, the reproduction of part of the frame of mind in which the incident occurred. Each mental act forms an integral part of an environing conscious state connected with a network of nervous conditions, and when these are completely changed as from the sleeping to the waking state, remembrance of experiences of the former condition are naturally difficult. We have alluded to this before in dealing with "alternating

personalities." (pp. 490, 491.) The retention in a latent subconscious form of an impulse to carry out a deferred suggestion when the appointed circumstances arise may perhaps be explained in the same way. The man who, engrossed in conversation, automatically posts a letter, owing to a friend's request, as he passes a pillar-box, executes, it has been justly said, a "deferred suggestion," of which he may have been oblivious from the moment he received the letter until he finds his pocket empty on arriving home; and he may be then utterly unable to recall the incident. In many, if not all cases, the performance of complex post-hypnotic suggestions seems to involve a relapse into the trance state.[11]

Ethics of Hypnotism.—The morality of hypnotism is a question rather for Ethics or Moral Theology than for the Psychologist, so a very few words must suffice here: (1) It is admitted on all hands that hypnotism is attended by serious peril to health of both body and mind when practised by unskilled persons and irresponsible charlatans. Epileptic fits, hysterical paroxysms, and permanent mental and nervous disorders have been induced by ignorant experimenters. Accordingly several continental governments have wisely made public exhibitions and the practice of hypnotism by other than duly qualified persons a penal offence. (2) Further it is generally agreed that frequent hypnotization, especially when the profounder stages are induced, brings on a morbid *hypnotic habit*, besides rendering the subject unduly subservient to the influence of the operator. Obviously this latter consequence may be attended with serious dangers.[12]

[11] See Coconnier, *L'Hypnotisme franc* (Paris, 1897), cc. xii.—xiv. This is an able and judicious work on the subject. There are good chapters also in Meric's *Le Merveilleux et la Science*.

[12] The grave words of Wundt are worth recording: "Hypnotism as a therapeutic agency is a two-edged instrument. If its effects are strongest when the patient is predisposed to it in body and mind, or when suggestion has become a settled mode of treatment, it may obviously be employed to intensify or actually induce a pathological disposition. It must be looked upon, not as a remedy of universal serviceability, but as a poison whose effect may be beneficial under certain circumstances. . . . (Some assert) that the hypnotic sleep is not injurious, because it is not in itself a pathological disposition. But surely the facts of post-hypnotic hallucination and the diminution of the power of resistance to suggestive influences furnish a refutation of this statement which no counter-arguments can shake. It is a phenomenon of common observation that frequently hypnotized individuals can, when fully awake, be persuaded of the wildest fables and thenceforth regard them as passages of their own experience." (*Lectures on Human and Animal Psychology*, pp. 334, 335.)

How far a subject can by hypnotism be led to commit a crime is much disputed, but it is clearly unlawful to suspend or diminish in this way the use of our free-will and intelligence without adequate reason and due precautions. (3) Where hypnotism is employed for illicit purposes, or in connexion with superstitious practices as in spiritualism, occultism, clairvoyance and the like, it is evidently immoral. (4) If, however, the question be put: Is hypnotism ever allowable? the true answer seems to us to be that of the moral Theologians who teach[13] that in certain circumstances the use of hypnotism is permissible. The conditions usually prescribed are: (a) There must be a grave reason to justify the suspension of reason; and we would add that the gravity increases in proportion to the completeness of the abdication of free control involved. (b) Sufficient guarantee should be had as to the character and competence of the operator. (c) Some adequately trustworthy witness, such as a parent, husband, or guardian should be present when a person submits to being hypnotized.

[13] Génicot writes: "Vitatis conatibus superstitiosis, et adhibitis cautelis supra explicatis, licet seipsum ob gravem causam hypnotizanti tradere. . . . Graves causæ ob quas licite hypnotismus adhibeatur, sunt præsertim duæ; curatio morborum quibus sanandis desit aliud medium prorsus innocuum; et progressus quarundam scientiarum, puta medicinæ vel psychologiæ, his experimentis obtinendus. Præterea censemus hypnotismum licite adhiberi, ad tollendas, vel saltem minuendas, quasdam malas propensiones quæ, ob vehementiam suam, libertatem tollunt vel extenuant, puta propensionem ad suicidium, ad liquores inebriantes, &c." (*Theologiæ Moralis Institutiones*, vol. i. § 275 (1898). Cf. Lehmkuhl, *Theologia Moralis*, vol. i. n. 994; Sabetti, *Theologia Moralis*, § 209; Coconnier, op. cit. cc. xxi.—xv.; Pucceroni, *Casus Conscientiæ*, § 89 (1895).

SUPPLEMENT C.

REPLY TO MR. W. H. MALLOCK'S CRITICISM.

The fourth edition of this work was honoured by an elaborate attack from Mr. W. H. Mallock in a long article entitled, "Religion and Science," in the *Fortnightly Review*, of November, 1901. His own view, expounded in a series of essays in that Review, seems to be that not only do belief in a Personal God, free-will, a spiritual soul and a future life find no support in Science or deductions from Science, but that Psychology, Biology, and Physics exclude and negate all these beliefs, that "the facts put before us by Science form an absolute affirmation of monism, and monism is the absolute negation of religion." (*Fortnightly*, Oct. 1902.) He therefore maintains that the attempts of myself and other "Apologists" to harmonize science and religion, or to justify any of these beliefs from a scientific study of the mind are "futile and worthless," and further that my own arguments are self-contradictory. Mr. Mallock himself, though admitting an irreconcilable conflict between science and religion, defends the latter on these grounds: (1) "Contradictions are involved in all existence," and "Religion contradicts Science no more than each contradicts itself." (*Ibid.* p. 696.) (2) The ethical argument: Life is not worth living, unless the religious assumptions are true.

My reply in general is that in all those places where Mr. Mallock's criticism seems effective he has misrepresented my arguments—of course not intentionally. Unfortunately, though he quotes me over a score of times, he only gives the references twice, so that the ordinary reader cannot consult the context. Yet no one knows better than Mr. Mallock how vital this is in philosophical criticism. As my space is limited, I must be very brief in answering his objections.

(1) Mr. Mallock starts by representing modern defenders of Theism as resting their case almost entirely on the fact that science has disproved the doctrine of the spontaneous generation of life from inorganic matter. He next groups me with these "recent apologists of Religion," and then devotes four pages of criticism to show (*a*) that my argument is insufficient to prove the existence of a *conscious* or *intelligent* Being, and therefore is worthless. (*b*) That my own reason-

ing and language in other parts of my book prove its worthlessness. "Father Maher has unintentionally adopted almost the exact language employed by Tyndall. . . . 'In matter I discern the potency of life,' the only difference being that according to Tyndall the Power which evokes this potency is immanent in matter, and according to Father Maher it is a separate personality which is exterior to it," but there is nothing to prove that this Personality must be conscious. (*c*) Further, Father Maher has unintentionally "misrepresented in the grossest manner possible what the leading men of science have really said on the subject. . . . F. M. quotes Tyndall and Huxley as affirming that living beings are produced only by living beings, and adds that according to them 'there is not a shred of evidence to support a contrary conclusion.' What they really say is not that spontaneous generation has never taken place, and that life as we know it is not due to this process, but that the process has not been discovered taking place now, and that experiment thus far has been unable to reproduce it. That it has taken place in the past is the very thing they affirm, and that all the analogies of the Universe show that it must have done so." (*Fortnightly*, Nov. 1901, pp. 812—816.)

To (*a*) it may be replied on the part of Theists generally that this argument is only one, or rather a part of one of several arguments which co-operate in the proof of the existence of God in the full sense of a self-existing, infinite, intelligent, free Being, and that even if taken by itself it does not immediately establish all the attributes of God it is not therefore worthless. A fact may be valuable evidence, it may exclude a rival hypothesis, or it may supply a precious link in one chain of reasoning, even though it should not establish the whole thesis to be proved.

On my own part the answer is still easier. My book is a treatise on *Psychology*, not on *Natural Theology*, and I may incidentally allude to the bearing of some psychological truth on the doctrine of Theism without being bound to expound the whole proof of the existence and attributes of God.

(*b*) Nowhere in this book does my reasoning prove this argument to be worthless. To point out against materialistic scientists that the first Author of life must *a fortiori* have been a self-existing *Living* Being does not prove that this Being may be *without* consciousness. (Cf. p. 584.) It is shown in Natural Theology that a *self-existing* being must be infinite and intelligent. The small difference between my language and that of Tyndall covers a wide divergency of thought. It is not the same thing to conclude that a printed page of a book has been educed from the properties or

potentialities of a quantity of type by a *type-setter* and that it has been evolved by *the type themselves*.

(*c*) The reader can test the validity of Mr. Mallock's charge of "gross misrepresentation" for himself. If he will turn back to page 547, he will find that I there give the *exact words* of Huxley and Tyndall affirming that spontaneous generation never takes place *now-a-days*, whilst the very point of my argument in the conclusion on p. 551 is precisely what Mr. Mallock accuses me of concealing, viz., that these scientists affirm "that life did arise spontaneously from dead matter in the distant past," and that they are illogical in so doing. When Mr. Mallock or any other writer indicates how "all the analogies of the universe" prove that life arose by spontaneous generation from inorganic matter in the past, it will be time to discuss that suggestion.

(2) Mr. Mallock next attacks my proof of the spirituality of the soul. Professing to express my arguments "as far as possible in my own words," he writes thus: "We all admit," Father Maher begins, "that man possesses intellect, but 'intellect is a faculty specifically distinct from sense' (*a*). We can see that it must be so by considering what intellect includes. 'It includes attention, judgment, reflexion, self-consciousness. the formation of concepts and the processes of reasoning (*β*). Let us, he says, take the one act of self-consciousness. This cannot be 'dependent essentially on a material agent, for the peculiar nature of this aptitude is fundamentally opposed to all the properties of matter' (*γ*). And what is true of consciousness is true of all the faculties of intellect. F. M. triumphantly cites the dictum of Tyndall that 'the chasm between the two classes of facts remains intellectually impassable' (*δ*). 'There is,' he continues himself, 'an absolute contrariety of nature between mind and matter,' and he sums up his case by saying that 'to endow an extended substance with an indivisible spiritual activity' such as 'self-consciousness would be a metaphysical impossibility beyond the power of God' (*ε*). 'Therefore,' says Father Maher, 'the intellect or the rational soul of man is evidently distinct from the body through which it operates and which it employs, and being distinct is essentially capable of surviving it'" (*ι*). (*Fortnightly*, p. 818.)

In reply I need only refer the reader back to chapter xxi., and especially to pp. 464—473, in order to let him see what a travesty this is of my argument. Mr. Mallock professes to give my reasoning as far as possible in "my own words," but he omits to tell his readers that these words are taken from half a dozen widely separated parts of my book, and that more than half of them are extracted from later chapters

which presuppose the thesis to have been already proved. As Mr. Mallock gives no hint that his quotations are from different contexts, I have inserted the Greek letters so that the reader may be able to examine them himself. Here they are: (α) p. 230, (β) p. 231, (γ) p. 472, (δ) p. 497, (ε) p. 499, (ι) p. 535!

Mr. Mallock next confounds two different things carefully distinguished by me, the *simplicity* and the *spirituality* of mental activities. He then represents me as proving the spirituality of the soul by the non-spatial character of its activities. This proof he triumphantly refutes as a mere assumption that "what is unimaginable cannot exist," and confirms his refutation by my own statement elsewhere "that imagination is not a test of possibility," and by my doctrine that the consciousness of the lower animals though also non-spatial is essentially dependent on the organism and perishes with the latter. "It is idle, therefore, to argue that man's life contains a principle independent of the material organism, merely because the phenomena of man's consciousness are non-spatial or non-extended, and between the non-extended and the extended there is an absolute contrariety, for there is the same contrariety between the mind and the body of an animal, and yet the two arise and perish together. . . . The whole argument from the contrariety between conscious life and matter is therefore valueless." (*Ibid.* p. 819.)

My answer is to refer the reader to page 469, where I explicitly point out the difference between the *spirituality* and the *simplicity* or *non-spatial character* of a mental activity. I there state formally at the beginning of the thesis concerning the spirituality of the soul that the principle of conscious life in the lower animals though *non-spatial* is yet *not* spiritual. I then prove, not from *consciousness*—which the animals possess—but from *self-consciousness*, from *thought* and from *free volition*, of which the animals are devoid, that the human soul is *spiritual*. Nowhere in this proof do I appeal to the "non-spatial" quality of consciousness. My argument is not, it is unimaginable *how* non-spatial consciousness can be dependent on an extended organism, but that it is positively unthinkable that self-consciousness, thought, or free-volition can be acts of a bodily organ.

(3) Mr. Mallock next attacks my thesis that animals are devoid of intellect, ascribing the following *six* arguments to me. I shall distinguish them with capitals:

(A) "The principal contents of the intellect according to Father Maher are these—'attention, judgment, reflection, self-consciousness, the formation of concepts, and the processes of reasoning.' According to Father Maher, the

animals possess none of these; for as each of these is a part of the intellect, if the animals possessed one of them they would possess in some degree at all events that mysterious faculty which he argues is possessed by man alone." (*Ibid.* p. 820.) Having elaborately refuted this "argument," Mr. Mallock continues: (B) "But attention, judgment, and self-consciousness are not the faculties of intellect on which Father Maher mainly relies when he is endeavouring to show that in the animals intellect is demonstrably absent. The crucial faculty of the intellect on which his argument mainly rests is the faculty of forming concepts. If nothing else is evident, this at least he says is so—that men can form concepts and the animals can not. In the forming of concepts —these are his own words—'the spiritual activity of the intellect is best manifested.' Let us consider this point," &c. (*Ibid.* p. 821.) (C) "Father Maher shows his secret and uneasy sense of how weak and unconvincing are his *two main lines of argument* by his endeavour to supplement them with others which unfortunately are weaker still. These supplementary arguments are as follows: First, all the actions and feelings of animals are purely sensuous." (D) Secondly, animals unlike men make no progress, the geese of the days of Moses were as wise as the geese of to-day. (E) Thirdly, though the lower kinds of mental activity—such as memory and imagination—are referable by physiological science to particular portions of the brain, *the highest faculties* of all cannot be so located. Though nominally *they* "may employ as their instrument" this portion of the brain or that, *they* are free within limits, if necessary, to use any portion *they please*. The higher faculties then are demonstrably separable from matter. (F) Finally, man's powers are admittedly superior to those of the lower animals; but there is no corresponding difference between the animal brain and the human; therefore man's superior powers are demonstrably independent of the brain. Let us therefore take these arguments in order." (*Ibid.* p. 822.)

I have given this long extract to make it quite clear that I am not mis-stating Mr. Mallock's representation of my reasoning, and in order that the reader may be able to observe for himself Mr. Mallock's methods of criticism. Let him now turn back to pp. 583—586, where he will find this thesis stated in special type, and my four arguments given. He will notice that of the six "arguments" ascribed to me and then triumphantly refuted by Mr. Mallock, only *one* (D) has been used by me in any form. I invite him to compare Mr. Mallock's representation with the original, pp. 583, 584, and then to draw his own conclusions. That I

could not have used these statements as arguments to prove the alleged thesis would have been evident to any cautious reader had Mr. Mallock only given the references. Here they are: (A) with its quotation refers to pp. 231—234; (B) to pp. 235—237; (D) to pp. 583, 584; (E) to p. 571; (F) to p. 502; (C) I cannot find anywhere. In other words, my proof of this most important thesis is, according to Mr. Mallock, scattered in fragments throughout 350 pages dealing with many different topics. Yet he has been good enough to say with respect to my proofs that I have "expressed and arranged the arguments with great skill and lucidity."

Further, the reader will observe that of the five "arguments" ascribed to me, but which I have *not* used, to prove that animals are devoid of intellect, *four* are based on fragments extracted from the body of the book, where I treat of Human Psychology, not from the Supplement on Animal Psychology, where alone I deal with this question. I have deliberately separated the discussion of the faculties of man from that of the animals, because our assurance regarding the former is based on introspection, whilst regarding the latter it rests on mere analogical inference. (cf. pp. 580, 581.) A reader may accept the chief truths with respect to the former, yet profess nescience concerning the latter. As regards the "arguments" in detail, (A) (B) and (C) are obviously utterly absurd. (D), the reader can contrast with the original on pp. 583, 584.[1]

If the reader compares (E) with the original on p. 571, he will see that the scope of my section on the localization of brain functions is totally misrepresented by Mr. Mallock. He will also be not a little astonished to discover how Mr. Mallock has changed my conclusion respecting the power of the vital principle to heal wounds of the brain and to adapt other portions to perform the functions of the injured parts. My words were: These objections establish "that *the principle*

[1] Against (D) Mr. Mallock objects (1) that many nations of mankind have not progressed, and (2) that "in all progress in the arts the human hand has admittedly played as large a part as the intelligence." It may be replied: (1) The rudest savage who points an arrow-head or kindles a fire exhibits an intellectual "progress" separated by a chasm from that of the brute, whilst the immense variety in the stages of human civilization proves the vast *capacity* for such progress in man compared with the rigid limitations of the animal. (2) Mr. Mallock's second objection is subverted by his first. The lowest savages, whom he places on almost the same level as the ape, have as perfect a hand as the most civilized man. The backwardness of animals in general and the forwardness of civilized man must therefore be explained by

which dominates the living organism has within certain limits the power of adapting to its needs and employing as its instruments other than the normal portions of the brain." (p. 571.) What Mr. Mallock makes me say is: "Although normally *they* (the highest mental faculties) may employ as *their* instrument this portion of the brain or that, *they* are free within limits, if necessary, to use any portion *they please. The higher faculties*, then, *are demonstrably separable from matter.*" Comment is unnecessary. The same is true with respect to F. See p. 502.

(4) Finally, Mr. Mallock completes my confutation thus: "All these arguments (A, B, C, D, E, F) imply the supposition that by observation, inference, or otherwise we can learn with *complete precision* what the mental life of the animals is, . . . but when in a supplement Father Maher comes to deal with Animal Psychology . . . he turns round on himself and bluntly and contemptuously denies the very postulate on which the whole of his *previous* contention rested. He tells us practically that we can know nothing about the animal mind at all. . . . How can he base an argument for man's essential difference from animals on the fact that the animals are incapable of universal concepts, attention, judgment, emotions not wholly sensuous, if all our knowledge of their character is merely remote conjecture." (p. 824.) The italics throughout are mine.

Mr. Mallock himself has created the alleged contradiction by ascribing to me these five arguments which I have *not* employed. He further strengthens that charge by telling his readers that *after* having made use of these arguments which imply "that we can learn with complete precision what the mental life of animals is," I "turn round on myself," &c. Now the reader will observe (1) that I have not used the alleged "arguments;" (2) that it is at the *beginning of my first discussion* of the mental faculties of the lower animals that I warn the reader *before*hand of the exact nature of the evidence and of the limitations to our knowledge of animal

some other cause. But the argument has been finally disposed of by recent facts. There have been many examples in late years of men deprived of their hands or arms from infancy, who exhibit the greatest dexterity and skill in the use of their feet and toes. If then, as is the case, men without hands have acquired the arts of painting, drawing, knitting, sewing, playing the violin, using hammer and chisel, &c., there can be little doubt that were they endowed with the fore-paw of the gorilla, which is so much superior to the human foot as a prehensile instrument, there are few important mechanical arts from which such persons would be precluded.

minds through absence of introspection and language, and (3) then infer, not from the absence of concepts or judgments, which are unobservable, but from the absence of certain *modes of action* and of *language* in which intellect, were it present, would inevitably manifest itself, that this faculty is absent. For this purpose it is not necessary "to know with complete precision" the positive qualities of the mental life of animals. I then confirm this proof with two additional arguments *ex concessis*, based on the admissions of opponents. The reader will thus see what little ground there is for the charge of self-contradiction, and from these examples of his methods he will be able to appreciate at its just value Mr. Mallock's general criticism. The reader desirous of a fuller treatment of Mr. Mallock's objections, will find it in my reply to him in *The Fortnightly Review*, February, 1903.

I am happy to acknowledge here that in the following number of that Review he retracted as erroneous his statement that I had misrepresented Tyndall on the question of the Origin of Life.

INDEX.

ABSTRACT CONCEPTS. *See* Concept.

ABSTRACTION, and attention 232, 233, 236, 250; intuitive 294; comparative 299; scholastic theory of 305, 313; meanings of 307.

ACCIDENT. *See* Substance.

ACTIVE, powers 34, 208; touch 74—78; intellect 308.

ACTUS elicitus 217; humanus 395.

ÆSTHETIC emotions 435—440.

AGNOSTICISM, Spencer on 122; outcome of monism 524.

ALTRUISM 280, 430.

ANALYSIS of sensation 48; and synthesis 298; of judgment 315—318; of ratiocination 320 seq.

ANALYTIC judgments 266, 289.

ANGER and Fear 429, 430.

ANIMALS, psychology of 14, 15; 579 seq.; its difficulties 580; sentient 582; irrational 583 seq.; instinct of 586 seq.; souls of 593.

ANTINOMIES, Kant's 267.

APPERCEPTION, Leibnitz on 263; transcendental unity of 266; historical sketch 358; nature of 359, 360; and perception 359; and education 360.

APPETENCY, faculties of 29; sensuous 208—220; and movement 210; rational 378 seq.; and emotion 426, 428.

APPETITUS; elicitus et naturalis 208; irascibilis 209, 426.

A PRIORI FORMS, Kant's 117 seq., 267; Spencer on 286.

ASSENT and consent 318, 319.

ASSISTANCE, theory of 258, 553.

ASSOCIATION, mental and idealism 110—114; and perception 125 seq.; and memory 180 seq.; laws of 181 seq.; reduction of laws 184 seq.; physiological counterpart 188; cooperative and obstructive 189; secondary laws 190; history of doctrine 201 seq.; indissoluble 204; and the beautiful 437.

ASSOCIATIONISM, school of 230; and necessary truth 282—286; and conscience 337—340.

ATTENTION, motor force of 219; supra-sensuous 232, 233; Balmez and Lotze on 243—247; and abstraction 297, 298; special treatment of 345 seq.; expectant 219, 350; and volition 346, 406; and genius 351.

AUDITORY Perception 145, 146.

AUTOMATA, conscious 503, 582.

AUTOMATIC movement 218.

AXIOMS, cf. Necessary truths.

BEAUTY, cognition of 166, 435—438.

BEING, idea of, Rosmini on 264; origin of 296, 297.

BELIEF, history of views on 326—328; nature of 328; and knowledge 329, 330; causes and reasons of 331—334; effects 335.
BERKELEYAN theory of vision 108.
BINOCULAR vision 142—144.
BODY, perception of my own 104, 105, 127—132; idealist theory of 110—113; primary qualities of 152 seq.; dependence of mind on 499 seq.; union with soul 553 seq.
BRAIN, structure of 44, 45; development of 150—152; relation to thought 241, 468—470, 496—502; functions of 564—572.
BRIDGMAN, case of Laura 135.

CATEGORIES, Kantian 267, 268.
CAUSES, Aristotle's four 555.
CAUSALITY, Hume on 110; Kant 119, 120; principle of 291; notion of 368—370; and free-will, principle of 419.
CHARACTER 391—393.
CHEMISTRY, MENTAL 204.
CHILD, growth of knowledge of its own body 131, 132; of other objects 133, of other minds 134, of distance 141; growth of its brain 150, 151; periods of development 151, 152; its memory 200; power of movement 212—217; its intellect 297—302; acquisition of language 303; powers of attention 354; consciousness of self 361 seq.; cognition of time 373 seq.; self-control 387.
CHOICE, deliberate 382; and free-will 409—411.
CO-ACTION, physical 395.
CŒNESTHESIS 63, 69, 71.
COGITO, ERGO SUM, Descartes' starting-point 257, 258.
COGNITION. *See* Knowledge.
COLOUR, sensations of 84, 85; blindness 173.
COMMON sensibility 69; sense 96; sensibiles 153 seq.
COMPARATIVE Psychology 15, 579 seq.; abstraction 298.
COMPARISON, supra-sensuous 233, 242—246; and discrimination 298, 299; and judgment 315.
CONATION, 30, 384. *See* Appetency.
CONCEPTS, nature of abstract and universal 235—238, 240; controversy on 248—251; Bain, Sully, and Stout on 272—278; formation of 292 seq.; Aquinas on 304—313; direct and reflex universal 294, 295, 310; and spirituality of soul 467, 471, 472.
CONCEPTUALISM 248. *See* Concepts.
CONSCIENCE, scholastic view of 335; modern theories of 336—344; authority and genesis of 339, 340; a spring of action 342; sentiments of 440, 441.
CONSCIOUSNESS and Psychology 11, 26; latent 355; grades of 361; development of 362; unity of 240, 366; discontinuity of 366; duality of 106, 466; double 9, 487—492; and free-will 406—413.
CONSENT and Assent 318, 319; and free-will 409—412.
CONSERVATION of energy 421, 517.
CONTACT, sense of 71 seq.; double 131.
CONTIGUITY, association by 183, 186, 187, 188.
CONTINUITY of pleasure 223, 225; attention 348; of consciousness 366.
CONTRAST, association by 181, 184; feelings of 224, 225, 432, 433, 436.
CORRESPONDING points of retina 142.
COSMOLOGY, and Metaphysics 3; and Psychology 6.
CREATION of soul 573 seq.; Ladd on 576.
CRITICISM, Kant's theory of 265 seq.
CURIOSITY 433, 434.

DARWINISM. Cf. Evolution.
DECISION 382, 409—411.
DEDUCTIVE method in psychology 5, 18, 461; reasoning 321, 322.
DELIBERATE action 381, 395, 408.
DELUSION and illusion 171.
DESIRE and belief 172, 333; analyzed 378; and pleasure 379; Aquinas on 380; volition and intention 384; and free-will 417.
DETERMINISM 394 seq.; and fatalism 397, 398.
DEVELOPMENT, of external perception 125 seq.; cerebral and mental 150—152; of power of movement 212—217; of thought and conception 295 seq.; of self-consciousness 361 seq.; of cognition of time 373 seq.; of self-control 385—392; of language 456 seq.
DISCIPLINE, moral 390, 391.
DISCRIMINATION 232, 272, 273, 298, 315.
DISTANCE, perception of 139 seq.
DOGMATISM and criticism 266.
DOUBLE contact 131; consciousness 487—492; aspect theory 492, 505 seq. *See* Monism.
DOUBT, Cartesian 257, 258.
DREAMS, nature of 176—178.
DUALISM, epistemological 102 seq.; psychological 553.

EDUCATION of senses 125 seq.; of memory 200; of locomotive faculty 212—217; of attention 354; and apperception 360; of will 385 seq.; and rivalry 434.
EGO and MIND 1, 2, 104 seq.; cognition of 361 seq.; false theories of 474 seq.; mutations of 487 seq. *See also* Self and Mind.
EMOTIONS 221, 425 seq.; various 427 seq.; genesis and nature of 443; Aquinas on 444; classification of 446; expression of 449 seq.
EMPIRICAL PSYCHOLOGY 3—5, 19, 26, 394, 460. *See* Experimental.
EMPIRICISM 230, 254, 270, 475.
ENERGY, conservation of 421, 512—524.
ENTELECHY 560, 561.
EPISTEMOLOGY 98, 271, 368.
ESSENCE, abstraction of 302, 305, 307, 312; and Substance 559.
ETHICS and Psychology 8; and genesis of conscience 337 seq.; and free-will 399 seq.; and immortality 529 seq.
EVOLUTION, and intuitive necessary truths 286; and conscience 340, 341; and expression of emotions 450—454; and efficiency of mind 513, 514; and origin of soul 578; and origin of instinct 588 seq.
EXPECTATION, 219, 350, 376, 377.
EXPERIMENTAL Psychology 17, 54—61, 137—139.
EXPRESSION of emotions 449 seq.
EXTENSION, tactual 73; visual 87; immediate perception of 106; abstract idea of 371; virtual of the soul 469.
EXTERNAL WORLD, reality of 99 seq.; perception of 101 seq.

FACULTIES, defined 28, 36; classification of 28 seq.; attacks on 36—39; mutual relations of 39, 40; intellectual 229 seq.
FALLACY and illusion 171.
FANCY 170.
FATALISM and determinism 397, 398.
FEELING, defined 221; faculty of 221, 226, 442, 443; Aristotle's theory 222 seq.; modern theories 226 seq.; nature of 40, 41, 226, 227; and emotion 425 seq.; genesis and nature of 443—446.
FORM, Kantian 117 seq., 263—270; and matter 555—558.
FORMAL OBJECT 64, 96, 241, 305

FREE-WILL 394 seq.; and Psychology 394; defined 395; proof ethical 398; psychological 406; metaphysical 413; objections against 416 seq.
FUNCTION and faculty 28, 29, 314, 320; of the brain 565.
FUNDAMENTAL sense 94, 95.

GENERAL notion. *See* Concept.
GENERALIZATION 294, 295, 299.
GENERATIONISM 572.
GENERIC images 237; Sully, Stout, and Peillaube on 276—278.
GENESIS and validity of cognition 98 seq.; of belief 283; of moral judgments 339, 340; of conceptions 367.
GENETIC METHOD 14.

HABIT 183, 188, 190, 388 seq.
HALLUCINATION 171—179.
HEARING, sense of 80—83; perceptions by 145.
HEDONISTIC PARADOX 380.
HEURISTIC METHOD 256.
HYPNOTISM, history of 594; induction of 595; nature of 595 seq.; theories of 598; phenomena 599 seq.; ethics of 601.
HYPOTHETICAL REALISM 102 seq.

IDEAS, Hume's view of 110; and impressions 163; association of 181 seq.; motor force of 218, 219; universal 235—238; controversy about 247 seq.; origin of 252 seq.; theory of innate 253, 257, 265; adventitious 257. *See* Concepts.
IDEALISM, theory of 99, 108 seq.; and physical science 113, 114; and other minds 100, 111, 116; various meanings of 263; German 270; and materialism 114, 271; monistic 494.
IDEALIZATION 166, 167.
IDENTITY, recognition of 195, 238, 240; consciousness of 362—366; mind's 464 seq.; Hume, Mill, and James on 475 seq.; ruptures of 487 seq.
IDENTITY-HYPOTHESIS 515.
ILLATIVE FACULTY 332.
ILLUSIONS 171—179.
IMAGES, Aquinas on 86; and impressions 163; and concept 273—276; generic 237, 276—278.
IMAGINATION, sensuous 92, 164 seq.; productive 165; æsthetic 166; scientific 167; and illusions 171 seq.
IMITATION 214, 456.
IMMORTALITY 525 seq.; and Theism 525; teleological proof of 526; ethical 529; universal belief in 533; ontological proof 533; objections to 537 seq.
IMPULSIVE ACTION 211 seq., 381, 384.
INNATE ideas 253, 255—257, 265; intuitions 282, 283.
INCONCEIVABILITY of opposite as test of truth 283—288.
INDISSOLUBLE association 283, 329.
INDUCTIVE method in Psychology 5, 6, 11 seq., 460; reasoning 321, 322.
INERTIA, Law of 517, 523.
INFERENCE, unconscious 28, 107, 127; analysed 320—324.
INFINITE, idea of 370, 371.
INSEPARABLE association 283, 329.
INSTINCT 213 seq.; and voluntary action 214, 216, 384; moral 337; expressive 449 seq.; animal 586; origin of 588 seq.
INTELLECT and sense-perception 126; supra-sensuous 229 seq., 467; functions of 292 seq., 314.
INTELLECTUS AGENS 303 seq.; possibilis 308.
INTENTION and motive 384, 385.
INTENTIONALIS 30, 52.
INTEREST 353, 354.
INTERNAL senses 32, 93—96.
INTROSPECTION, method of 11 seq.; difficulties of 20 seq.; how improved 25.

INTUITION, intellectual of necessary truth 289—291; moral 337.

JUDGMENT, supra-sensuous 233—235, 243; synthetic *a priori* 266; defined 314; analysis of 315—318; moral 337.

KNOWLEDGE of mental states 11 seq.; faculties of 29 seq.; scholastic view of 51 seq., 304 seq.; genesis and validity of 98, 324, 325, 339, 367.; of other minds 110, 111, 116, 133, 514; of extension 101 seq., 137; of animal minds 580; relativity of 157—161; theories of general 255 seq.; and belief 329, 330; of self 361 seq.; of the soul's nature 459 seq.

LANGUAGE and Psychology 13, 14; and thought 302, 303; and free-will 405, 406; origin of 454—458; cerebral seat of 567, 568; peculiar to man 585.
LAUGHTER 439, 440, 445.
LIBERTY, physical and moral 395.
LIFE, future 525 seq.; origin of 547; definitions of 551, 552. *See* Soul.
LOCAL character of sensations 73; signs 130, 131, 136.
LOCALIZATION of sensations 128 seq.; of brain functions 565 seq.
LOCOMOTIVE faculty 211 seq., 220.
LOCUS of the soul 562 seq.
LOGIC and Psychology 7; of cognitions 325, 326; of practical life 324, 325.
LUDICROUS 439, 440, 445.

MATERIA PRIMA 556.
MATERIAL WORLD. *See* Idealism.
MATERIALISM 230, 495 seq.; and Idealism 114, 271.
MATHEMATICAL conceptions 250, 251. *See* Necessary truths.
MATTER and form 555—558, 560.
MEASUREMENT of sensation 54 seq.
MEMORY 179 seq.; defined 179; and reproduction 180; and recollection 181; and association 182 seq.; and retention 191; and recognition 195; intellectual 197—199; training of 200; and abiding identity 464—466.
MENTAL STATES, simplicity of 47, 48, 80, 510, 511.
MERIT and free-will 401, 402.
METAPHYSICS and Psychology 3, 394, 460; and perception 98; and conservation of energy 520. *See* Philosophy.
METEMPSYCHOSIS 573.
METHOD of Psychology 13 seq., 460.
MIND, defined 1, 2; difficulties of studying 19 seq.; and its faculties 36; a real unity 39, 464—467; Idealism and other minds 100, 111, 116, 133, 514; distinguished from Ego 1, 2, 104, 558; unconscious modifications of 355—357; cognition of 361 seq.; identity of 464 seq.; real efficiency of 513—515. *See also* Soul.
MIND-STUFF 506, 510, 511.
MINIMA VISIBILIA 355, 356.
MONADS, Leibnitz's 262.
MONISM, Spinoza's pantheistic 260, 262; various forms of 493 seq.; idealistic 494; materialistic 495 seq.; the double-aspect or identity-hypothesis 505 seq., 509—516; Höffding's and conservation of energy 517—523; and agnosticism 524.
MORAL faculty 334 seq.; sense 336; intuition and instinct 337; sentiments 337, 342, 440; obligation and free-will 398 seq., 405.
MOTIVE 380; and intention 384.

MOVEMENT, sense of 75—77; faculty of analyzed 210; automatic, reflex, impulsive 211, 212, 218; development of voluntary 212 seq.; random and instinctive 213; voluntary 216; classified 218; ideomotor 218.
MUSCULAR sense 49, 74—78.

NAMES and conception 302, 455.
NATIVISTIC theory of perception 130, 135.
NATURAL SELECTION 588. *See* Evolution.
NATURE 393, 558, 559.
NECESSARY TRUTHS, Kant's view 119, 266—269, 282; associationist 282—286; evolutionist 286—289; intuitionalist 289—291.
NERVOUS system described 44—46.
NEW SPINOZISM 261, 505. *See* Monism.
NOMINALISM 248, 272—278.
NON-EGO 104—107.
NOUMENA, Kant's view 117 seq., 266—277; knowledge of 158, 280.

OBJECT, objective, subjective 1, 13 seq.
OBLIGATION, consciousness of 336 seq., 440; and free-will 398, 399.
OBLIVISCENCE 206.
OCCASIONALISM 258, 259, 553, 554.
ONTOLOGY 3, 5; ontological proof of immortality 533 seq.; ontologism 258—260.
OPTIMISM 263.
ORECTIC or conative. *See* Appetency.
ORGANIC sensations 69 seq., 78.
ORGANICISM, physico-chemical 548.

PANTHEISM 485, 486. *See also* Monism.
PASSION 221, 425, 426, 444.
PATHOLOGY, mental 16, 17, 487 seq.; cerebral 566.
PERCEPTION and sensation 49; by species 51; validity of 98, 102; nature of 101 seq.; immediate and mediate 102; theories of 108 seq.; development of 125 seq.; tactual 127 seq.; visual 135 seq.; auditory 145; gustatory and olfactory 146; and instinctive belief 149; and imagination 163; intellectual 231 seq.; of relations 244 seq., 272 seq.; intuitive of necessary truths 289.
PERIPATETIC. *See* Scholastic.
PERSON 104, 558, 559.
PERSONALITY, double 487—492. *See* Person.
PHANTASM 163, 236—238, 274—277, 306 seq.
PHENOMENA. *See* Noumena.
PHILOLOGY and Psychology. *See* Language.
PHILOSOPHY, meaning of 3 seq.; and science 9; and psychology of perception 98 seq., 110 seq.; of free-will 394 seq.; of the mind 460 seq. *See* Metaphysics.
PHRENOLOGY 564 seq.
PHYSIOLOGY 9, 15, 43, 150, 188, 193, 365, 420, 465, 496 seq., 541, 547.
PLASTIC MEDIUM theory 554.
PLAY-IMPULSE 212, 215.
PITY, analysis of 430—432.
PLEASURE-PAIN of sensations 78, 82—88; Aristotle's doctrine 222 seq.; other theories 226 seq.; and attention 353; and desire 379.
POSITIVISM 279—281.
POWER, Mental. *See* Faculty.
PRE-ESTABLISHED Harmony 262—264, 554.
PRIMARY qualities of matter 152—157.
PSYCHOLOGY, defined 1; scope 2 seq., 460; its relation to philosophy 3 seq., 98 seq., 394, 460; to logic 7, 325; ethics 8, 338 seq., 398 seq., 529 seq.; physio-

logy 9, 43 seq.; method and sources of 11 seq., 460; comparative and animal 15, 579 seq.; experimental 17, 54—62; attacks on 19 seq.; Kant's 267—269; rational 5, 6, 18, 459 seq.; importance of 3, 4, 460.
PSYCHOMETRY and psychophysics 17, 18, 48, 54—62.
PSYCHOPHYSICAL - PARALLELISM, of Leibnitz 264, 554; of Monists 505 seq., 515; of ultra-dualists 553, 554.
PRACTICAL reason. *See* Conscience.
PURPOSE 385.

QUALITY of sensation 46, 58, 78, 80, 82.
QUANTITY of sensation 48, 54 seq.

RATIONAL or spiritual activity, 30, 31, 229 seq.
REACTION-TIME, 59—62.
REALISM, theories concerning material world 100 seq.; transfigured 122; concerning universal ideas 247 seq., 255.
REASON, meaning of 230; Kant on 230, 267; moral 334 seq.
REASONING 320 seq.
RECOLLECTION or reminiscence 179, 197.
RECOGNITION 195, 464 seq.
REFLEX ACTION 46, 211, 218, 389, 589.
REFLEXION, intellectual 238, 361 seq.
RELATIVITY of sensation 90—92; of knowledge 92, 157 seq., 280; law of 90, 274, 275.
REMINISCENCE 179. *See* Recollection.
REMORSE 400, 401, 428, 441.
REPRESENTATION. *See* Ideas.
REPRODUCTIVE imagination 165; faculty 180.
RESPONSIBILITY 402—404, 441.
RETENTION and recollection 179 theories of 192 seq.; relation to attention 352; and identity of mind 464 seq.; and James' theory 480 seq.
RIVALRY, feelings of 434, 435.

SCEPTICISM 99 seq.
SCHOLASTIC doctrine on, division of faculties 33, 34; perception by species 51—54; relativity of sensation 91, of knowledge 160; internal senses 92—95; primary and secondary qualities of matter 153; imagination 164; reminiscence 180; retention 192; sensuous and intellectual memory 198, 199; mental association 201—203; appetency 208, 395; universal ideas 248—250; necessary truth 289—291; intellectual abstraction 305—313; judgment 316; conscience 335; knowledge of the soul 364, 365; time 347; emotion 426; substance 462; incorruptibility of soul 533—537; definition of life 551; union of body and soul as matter and form 555—557; origin of soul 576; on instinct 587; animal souls 593. *See also* Aquinas in Index of Authors.
SELF and Mind 1, 2, 104, 558; cognition of 362 seq., 474 seq., 558; abstract concept of 365; control of 385 seq.; disruption and mutations of 487 seq.; emotions respecting 427 seq. *See also* Mind.
SELF-CONSCIOUSNESS 27, 238, 239, 473; development of 361 seq.
SELF-CONSERVATION 212, 215, 227, 450.
SENSATION, indefinable 42; process of 43; quality and quantity 46; objective analysis of 47, 86; and perception 49, 50; measurement of 54 seq.; various kinds of 63 seq.; subjective 172; Balmez on 242 seq.; and attention 345.

SENSE, external and internal 32; described 42; classification of 63, 64; muscular 63, 75; taste 65; smell 67; touch 68; temperature 70; contact 71; sight 83; comparison of various 99; internal 92; common 93, 96.
SENSIBILITY, absolute 56; common 69; discriminative 73, 77.
SENTIMENT, defined 221; moral 336, 441. *See* Emotion.
SENSUS, internus 92, 95; communis 93; fundamentalis 94; intimus 95.
SIGHT, sense of 83—87, 88; growth of perception by 135—142; binocular 142.
SIMILARITY, association by 180 seq.
SIMPLICITY of conscious states 48, 86, 510—512; of soul 466—469.
SMELL 67, 68, 146, 147.
SOUL, defined 1, 461; more fully 484; by Aristotle 560; knowledge of 364, 365; substantiality of 461; identity 464; simplicity 466; immateriality 469; James's attack on 481; immortality 525; incorruptibility 534; individuality 544; unicity 545; vegetative 546; union with body 553; "form" of the living being 556; locus of 562; origin of 572; evolutionist view on 578; of animals 593. *See also* Mind.
SPACE, immediate perception of surface 74, 87, 105 seq., 110 seq., 136—140; real 120, 269; abstract concept of 371.
SPECIES 51—54; 308 seq.
SPIRIT and Mind 1, 2.
SPIRITUAL faculties 30, 31, 229 seq.; soul 469—473.
SPONTANEOUS action 381, 395.
STRIVING faculties 30, 208, 384.
SUB-CONSCIOUS modifications 27, 355—357.
SUBJECTIVE, meaning of 1; method 11, 12; sensation 172; "aspect" 260 seq.
SUBLIME, the 438, 439.
SUBSTANCE, Hume on 110; Kant on 267, 269; genesis of notion 299, 368; validity 462 seq.; complete and incomplete 558; and essence 559.
SUGGESTION 181. *See* Association.
SUPPOSITUM 558, 559.
SYMPATHY analyzed 430—432.
SYNDÆRESIS 335.
SYNTHESIS, in judgment 316; in reasoning 320.
SYNTHETIC, *a priori* judgments 266, 281, 282.

TABULA RASA, mind a 271, 306.
TACT 323; nature of 332.
TASTE 65, 66.
TELEOLOGICAL, idealism 263; proof of immortality 526 seq.
TEMPERAMENT 393.
TEMPERATURE, sense of 70.
THINGS-IN-THEMSELVES. *See* Noumena.
THOUGHT, supra-sensuous 231 seq., 470; development of 292 seq.; and language 302; judicial 314; ratiocinative 320; logic and psychology of 325.
TIME, Kant on 117, 121; cognition of 372 seq.; Aquinas on 372, 374.
TOUCH, sense of 68 seq.; development of 127 seq.; and sight 141.
THRESHOLD of consciousness 56.
TRADUCIANISM 573.
TRANSCENDENTAL, unity of apperception 266; truths 291.
TRANSFIGURED REALISM 122—124.

UNCONSCIOUS mental processes 27, 355; Leibnitz on 263.
UNDERSTANDING 23 seq.; Kant on 267.
UNITY OF CONSCIOUSNESS 240, 366, 382, 468; and duality of 466; double 487—492.

UNIFORMITY of nature 376, 423.
UNIVERSAL ideas. *See* Concepts.
UTILITARIANISM 338.

VALIDITY and genesis of cognition 98, 257; of beliefs 283, 286; of conscience 338—341.
VEGETATIVE faculties 33, 357; soul 546 seq., 556, 576.
VERBUM MENTALE 310.
VIS, æstimativa and cogitativa 93 seq., 569, 587.
VISION, *en Dieu* 258. *See* Sight.
VITAL sense 69; principle 546.
VITALISM 518, 545—552.
VOLITION, and attention 346; and desire 384. *See* Will.
VOLUNTARY movement 210 seq., 217; belief 333, 334; attention 347, 406—408; action 395.

WILL and cognition 39, 40; and belief 327, 333; and conception of causality 369; volition and desire 384, 417; fiat of 219, 382; freedom of 394 seq.; spirituality of 473.
WIT and Humour 170, 171.
WONDER, emotion of 433.

WELLCOME LIBRARY INSTITUTE

AUTHORS CITED OR REFERRED TO.

ABELARD, 248.
ALEXANDER, S. 404, 407, 413.
AQUINAS, ST. THOMAS, on classification of faculties 29, 33, 34, 41; *species* 52—54; mediate perception 52; touch 68; after-images 86; relativity of sensation 91; cognition of individuals 94; *sensibilia communia* or primary qualities 153 seq.; relativity of knowledge 159; images and illusions 164; dreams 177; reminiscence 180; organic memory 192; intellectual memory 198; rules for memory 200; mental association 201—203; pleasure 224, 225; sense and intellect 235; moderate realism 249; and G. H. Lewes 250; necessary truth 289; compared with W. James 294; intellectual abstraction 312, 313; with Mill and Ueberweg 314—316; on volition and cognition 318, 319; moral reason 335; our knowledge of the soul 364—366; time 372—374; attention to a single object 349; desire of pleasure 380, 381; and James on nature of emotion 444; dependence of mind on body 500; teleological proof of immortality 539; localization of brain function 569; embryonic evolution 575, 576; instinct 587. *See* also Scholastic in General Index.
ARISTOTLE 18, 31, 33, 51, 68, 71, 93, 102, 153, 179, 201, 222—226, 249, 393.
AUGUSTINE, ST. 38, 187, 192.
BAIN, ALEXANDER 41, 63, 77, 91, 110—115, 147, 205, 212, 227, 272—275, 282, 283, 327, 341, 415, 432, 449, 499, 507.
BALDWIN, F. MARK 48, 130, 168, 169, 196.
BALFOUR, ARTHUR 124, 281, 332, 340, 341.
BALMEZ, JAMES 90, 242—245.
BASTIAN, H. C. 76, 565.
BELL, SIR C. 449.
BERKELEY, 108, 109, 154, 236.
BERNSTEIN 67.
BINET, A. 487, 488.
BIUNDE 185.
BOEDDER, B. 200, 201, 261, 309, 310, 311, 574.
BROCA 565.
BROWN, THOMAS 37, 447.
BÜCHNER 497, 498, 540.
BUTLER, BISHOP 343.

CALDERWOOD 197.
CARPENTER, W. B. 135, 144, 172, 177, 178, 387, 389.
CHESELDEN 138.
CLARKE, R. F. 8, 256, 342.
CLIFFORD, W. K. 506, 507.
COCONNIER 218, 302, 470, 549.
COMTE, A. 21, 279—281.
CONDILLAC 242, 243.
COUAILHAC, M. 522, 523.
COURTNEY, W. L. 477.
CUDWORTH 342.

D'ALEMBERT 137.
DARWIN, C. 450—452, 578, 588 seq.
DEMOCRITUS 51.

Descartes 101, 108, 154, 227, 256—258.
Dewey, J. 4, 210.

Fechner 56—59.
Ferrier, James 363.
Ferrier, David 566, 577.
Fichte 270.
Flechsig, P. 566, 569, 570.
Flourens 565.
Fonsegrive, G. L. 402, 409, 521.
Foster, M. 568.
Franz, Dr. 138.

Galen, 393.
Gall, 564, 565.
Gerard, J. 591, 592.
Geulincx 258.
Goldscheider 64.
Goltz 571.
Grant Allen 227.
Green, T. H. 234.
Guthrie, M. 516.
Gutberlet, C. 36, 129, 199, 502, 535, 536.

Haldane, J. 518, 550.
Hamilton, Sir William 5, 26, 34, 35, 41, 50, 51, 63, 102, 103, 108, 155—157, 167, 187, 193, 439.
Herbart 36, 358.
Herbert, T. H. 510.
Hering 58.
Hagemann, George 304.
Harper, T. 555—576.
Hartley 203, 337.
Helmholtz 80, 85.
Hobbes, 91, 203, 430, 431, 439.
Hodgson, Shadworth 503, 505, 524.
Höffding 4, 5, 186, 187, 425, 517—524.
Hume 110, 154, 203, 238, 282, 326, 336, 343, 475, 476.
Hutcheson 336.
Huxley 497.

Janet, Paul 496, 501.
Janet, Pierre 356, 487, 491.
James, William 150, 151, 283, 290, 297, 401, 408, 443, 444, 476—486, 491, 492, 512.
Jevons, S. 20.
Jouffroy 363.
Jungmann 29, 37, 435, 442, 443.

Kant 34, 63, 96, 117 seq., 157—159, 227, 231, 265—270, 282, 342—358, 370, 474, 475.
Knight 477.
Kleutgen 281, 534.

Ladd, G. T. 5, 37, 58, 217, 421, 471, 472, 498, 501, 576.
Lange 358.
Lecky 341, 342.
Leibnitz 262—264, 358.
Lewes, G. H. 29, 63, 117, 250, 251, 417.
Locke 20, 96, 108, 109, 115, 154, 203, 270—272.
Lotze 131, 136, 217, 240, 245—247, 446, 463, 464, 466, 468, 511, 576.
Lucas, Herbert 420.

Ollé-laprune 319, 320, 331.

Maas 185.
Mahaffy, J. P. 121, 137, 267.
Malebranche 258—260.
Mansel 422.
Marion, H. 384.
Margerie, A. 465.
Martineau, J. 102, 158, 215, 339, 343, 396, 411.
Maudsley, H. 21—24, 195, 405, 416.
Max Müller 14, 142, 303, 456, 457.
M'Cosh 102, 163, 291.
Mendive, P. J. 304, 309.
Mercier, D. 301, 302, 311.
Mill, John Stuart 22, 110—115, 205, 206, 282—286, 379, 398, 476.
Murray, T. Clarke 63, 64.
Myers, F. 351.

Noël Léon 399, 407.
Newman J. H. 324, 329, 332, 441, 543.

Pascal 324.
Payot, Jules 387, 389, 390.
Peillaube 277, 302.
Piat, C. 295, 296, 304, 412, 527, 529.
Plato 247, 255.
Porter, Noah 103, 137, 149, 163.
Preyer, W. 138, 151, 362.

Regnon, T. 291, 385.
Reid 20, 34, 49, 50, 102.
Ribot, T. 36, 58, 194, 489.
Richter, Jean Paul 362
Rickaby, John 26, 251, 263, 268, 313, 330, 462, 463, 554.
Rickaby, Joseph 344.
Roscellinus 248.
Rosmini 94, 95, 264, 265.
Ruskin, J. 437, 438.

Salis Sewis 71.
Schleiermacher 36, 38.
Scripture, E. 60.
Sidgwick, Henry 339, 343, 396, 405, 410, 413, 531.
Smith, Adam 336.
Spalding 139.
Spencer, Herbert 35, 48, 116, 122—124, 155 157, 186, 227, 286—289, 296, 418, 419, 424, 448, 449, 452—454, 496, 498, 508, 509.
Spinoza 226, 260, 412.
Stewart, Balfour 521, 547.
Stewart, Dugald 20, 34, 102, 574.
Stöckl 71.
Stout, G. F. 37, 248, 278, 346, 347, 349, 359, 366, 416.
Suarez 93, 95, 96, 199, 307.
Sully, James 37, 61, 62, 171, 177, 205, 275—278.
Surbled 502, 567.

Taine 36, 48.
Tetens 34.
Thackeray 386.
Thomas, St. *See* Aquinas.
Tyndall 16, 496, 497, 510.

Ueberweg 120, 121, 316.

Venn, J. 422, 423.
Vives 203.
Von Bechterew 571.
Vorländer 36, 38.

Ward, James 91, 92, 151, 376.
Ward, Wilfrid 320.
Ward, William George 282, 285, 383.
Weber 54—59.
William of Champeaux 248.
Whitney 457.
Wundt 454, 601.
Wyld, R. S. 143.

STONYHURST PHILOSOPHICAL SERIES.

EDITED BY RICHARD F. CLARKE, S.J.

1. **Logic.** By RICHARD F. CLARKE, S.J., formerly Fellow and Tutor of St. John's College, Oxford. Second Edition. Price 5s.

2. **First Principles of Knowledge.** By JOHN RICKABY, S.J., late Professor of Logic and General Metaphysics at St. Mary's Hall, Stonyhurst. Third Edition. Price 5s.

3. **Moral Philosophy (Ethics and Natural Law).** By JOSEPH RICKABY, S.J., M.A. Lond.; late Professor of Ethics at St. Mary's Hall, Stonyhurst. Third Edition. Price 5s.

4. **Natural Theology.** By BERNARD BOEDDER, S.J., Professor of Natural Theology at St. Mary's Hall, Stonyhurst. Second Edition. Price 6s. 6d.

5. **Psychology: Empirical and Rational.** By MICHAEL MAHER, S.J., D. Lit., M.A. Lond. Fifth Edition. Eleventh to Thirteenth Thousand. Price 6s. 6d.

6. **General Metaphysics.** By JOHN RICKABY, S.J. Second Edition. Price 5s.

Supplementary Volume.

Political Economy. By C. S. DEVAS, M.A. Oxon. Sometime Examiner in Political Economy at the Royal University of Ireland. Second Edition. Rewritten and Enlarged. Fourth to Sixth Thousand. Price 7s. 6d.

Opinions of the Press.

PSYCHOLOGY.

"Father Maher's admirable volume has reached its fourth edition. It has been re-written and considerably enlarged. Already regarded as one of the best handbooks on the subjects, in its revised and enlarged form it will not fail to approve itself still more to the teacher and the student. . . . It deserves all the success it has met with."—*Scottish Review.*

FIRST PRINCIPLES OF KNOWLEDGE.

"It is a hopeful sign of the times that a Catholic professor should freely enter the lists of debate in opposition to acknowledged masters of recent philosophy. The Jesuit Father is no respecter of persons."—*Journal of Education.*

"In the two volumes named below (*First Principles of Knowledge* and *Logic*), we have set forth in clear and vigorous English the doctrine of knowledge and the principles of reasoning taught by the learned and subtle Aquinas in the thirteenth century, but adapted to the needs of students and controversialists of the nineteenth century by teachers who, like St. Thomas himself, are able to discuss doubts without doubting, to hold converse with

sceptics of every school, and still to hold to the faith. . . . To those who would like to know exactly the form that philosophy takes when she enters the service of 'The Church' the volumes may be commended."—*Inquirer*, Sept. 21, 1889.

MORAL PHILOSOPHY.

"The style of the book is bright and easy, and the English (as we need not say) extremely good. . . . The manual will be welcome on all sides as a sound, original, and fairly complete English treatise on the groundwork of morality."—*Dublin Review.*

"The style is popular and easily intelligible; the principles are fully illustrated by concrete examples."—*Church Quarterly.*

NATURAL THEOLOGY.

"This volume considerably increases the debt which English-speaking Catholics owe to the Jesuit Fathers who have brought out the 'Stonyhurst Series' of philosophical manuals. It is really a treatise *de Deo* dealing with the proofs of the existence of God, the Divine attributes, and the relation of God to the world—in plain intelligible English, and adapted to the difficulties raised in our own country at the present day. The author is evidently well acquainted with Mill, Spencer, Huxley, and other contemporary writers; they are quoted freely and clearly answered."—*Dublin Review*, October, 1891.

GENERAL METAPHYSICS.

"*Metaphysics* is not a popular study, but Father Rickaby has done his best to popularize it. He expounds the idea of Being with its nature, existence, and attributes, and other notions less general, as substance, causality, space, and time. He ought to succeed in dissipating the common prejudice that metaphysics is mere cobweb spinning."—*Bombay Advertiser.*

POLITICAL ECONOMY.

"A concise but extraordinarily comprehensive text-book, with plenty of human interest, attractive—if now and then rather slight—illustrations from real life—and last, but not least, a clear, and on the whole a correct, exposition of the elements of economic science."—*Speaker.*

LOGIC.

"An excellent text-book of Aristotelian logic, interesting, vivid, sometimes almost racy in its illustrations, while from first to last it never, so far as we have noticed, diverges from Aristotelian orthodoxy."—*Guardian.*

"Though Father Clarke mainly concerns himself with Formal Logic, he occasionally, for the sake of edification, makes excursions into wider fields. Adopting the standpoint of 'moderate realism,' he directs his chief attack against the limitation of the Principle of Contradiction, the nominalist statement of the Principle of Identity, and the theory of conception set forth by Mill. The arguments usually employed in these time-honoured controversies are marshalled with much vigour. . . . The uncontroversial portions of the book are extremely clear, and the descriptions of the various forms of syllogism as little dry as their subject-matter permits."—*Saturday Review.*

LONDON: LONGMANS, GREEN, & CO.