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ELEMENTS OF PSYCHOLOGY

GEORGE CROOM ROBERTSON

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Elements of Psychology

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EDITED FROM NOTES OF LECTURES DELIVERED AT THE COLLEGE, 1870-1892

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INTRODUCTORY NOTE

In accepting the flattering invitation of the Editor of this series that I should contribute to it two manuals compiled from George Croom Robertson's college lectures on Psychology and Philosophy, I am doing some injustice to the memory of my revered teacher and friend in order that thereby I may render him a larger justice. It is true that in the opinion of scholars most competent to speak—of Professors Bain, Sully, and James Ward—while it were good that no teaching of such a man should be lost, it would have been repugnant to Professor Robertson's own feelings to see his extemporary discourses in print. They know how he drew a sharp distinction between the style suitable for oral teaching and that appropriate to the literary registration and publication of one's ideas. And the truth and aptness of the spoken matter would of course be liable to every degree of deflexion in passing through the reporting medium. But this compilation does not pretend to clothe the author's ideas in a literary style such as he himself would have approved. The discrepancy in the two styles is illustrated in these pages. The lecture on the growth of the Mind,

not to mention other shorter portions, I have copied *verbatim* from a bundle of the author's notes, entrusted to me by Mr. Charles Robertson, it being, I believe, a chapter in a manual of psychology he was then intending to write. Its flow is smoother, its periods more polished than the more abrupt movement in other lectures. Speaking however as a student of mental philosophy, and not of literature, and without presuming to judge for others, I should have no hesitation in preferring to be led up and into the subject by the more colloquial, direct, and vigorous utterance of the oral style. But this may be in part the effect of treasured associations. That the reporting has at least been so done as to be no unfaithful reflexion of that style is testified to by Mr. Charles Robertson, with whose sanction, promptly and generously accorded, the lectures have been published. 'I recognise,' he writes, 'my brother's thought and manner of expression reproduced with wonderful fullness and accuracy, and feel I am face to face with him.'

As to the more serious objection of a discount on accuracy as to fact and point inevitable in such notes as a student, struggling with the difficulties of his subject, is qualified to take, I may modify if I cannot obviate it by stating the sources and extent of my materials. Twenty-five former students of University College London, who studied under Professor Robertson, have been good enough to send me at my request the notes of the lectures he delivered in their hearing. The response was in nearly every case so prompt and effective that my materials soon amounted to a fairly continuous record of the general and special courses of lectures

as delivered, annually or otherwise, during twenty-one of the twenty-five years of his professoriate; and to have published the whole would have filled at least a third volume. Subjoined are the names of my contributors, to whom I here again offer my hearty thanks:—George A. Aitken, Esq.; Rev. Martin Anstey, M.A.; Mrs. Archer Hind (Miss Laura Pocock); Mrs. Sophie Bryant, D.Sc.; Herman J. Cohen, Esq.; Professor W. Hall Griffin, B.A.; Rev. Isidore Harris, M.A.; H. Frank Heath, Esq., B.A., Ph.D.; Rev. Alfred Hills, B.A.; Principal J. Viriamu Jones, M.A., F.R.S. (University College S. Wales and Monmouthshire); J. Neville Keynes, Esq., M.A., D.Sc.; Benjamin Leverson, Esq., B.A.; Rev. S. Levy, B.A.; J. W. Manning, Esq., M.A.; Miss Dorothy Marshall, B.Sc.; Andrew Ogilvie, Esq., B.A.; Miss Mary A. Robertson, M.A.; Ernest C. Robinson, Esq., M.A.; G. Armitage Smith, Esq., M.A.; President J. G. Schurman, M.A., D.Sc. (Cornell University); Rev. E. H. Titchmarsh, M.A.; H. J. Tozer, Esq., M.A.; Miss Frances A. Welby; Sidney White, Esq., B.A., LL.D.; Miss Eva Whitley, B.Sc.

To some I am more especially indebted, either because (as in the case of Principal Viriamu Jones and Mr. Levy) their notes had been taken down in shorthand and then written out in full, or as being otherwise especially adequate. Collation of these MSS. with my own notes has enabled me to expand, supplement, and verify the latter so as to effect a reproduction better, it may be, at times in its compositeness than any one report, however faithful, could have been. Professor Robertson did not write out his lectures, nor did he leave notes of any except those on Psychology. He

himself regretted that he had not in earlier years written out immediately afterwards what he had just delivered. While lecturing he made no use of notes. He became so intensely absorbed, not only in his subject, but in following the process of its assimilation by every member of his class, that he consulted only the look on their faces. But it was just this considerate procedure of not pressing on to reel off so much of his subject per hour, but of letting his pace in exposition keep time with the signs of following comprehension in his hearers—a wise considerateness to which I have elsewhere borne testimony[1]—that made it possible for all who would to take faithful and readable notes. It tended at times to cause arrears in treatment, and some condensation or omission at the close of a course. But it has enabled me to compile this manual, such as it is, without adding in the text a sentence of my own. I could even add 'or a clause,' since all that I have inserted were merely to expand elliptical utterances that, when spoken as he spoke them, were clear enough. The passages prescribed for reading were those prescribed by himself[2]; the footnotes are also portions of his lectures, where not otherwise indicated, being either parenthetical remarks, or drawn from arguments pursued more in some years than in others, and which, while pertinent, did not

[1] *Mind*, April, 1893:—'George Croom Robertson as a teacher.'

[2] Those in this volume were prescribed in the last course he delivered in Psychology (1891). I have only added, for preparatory reading, references to passages in certain works referred to by him, but not precisely specified. The headings of the lectures and sections, introduced to help the reader, are also mine.

easily admit of being welded with sufficient simplicity of handling into the particular line I had selected to follow. Woven together, and imperfectly woven, as the lectures are from many strands, the warp and the woof are the work of George Croom Robertson.

Injustice to his thought in its full expression and ideal exposition there is and must be. The book on Hobbes, in the series of *Philosophical Classics for English Readers*, and the *Philosophical Remains*, edited by Professor Bain and Mr. Whittaker, are with us to vindicate the style, and, so far as those writings go, the trend and quality of his thought. They represent the limits to which his strength, handicapped by illness, and sorely taxed by professional duties, could reach in surplus effort. But the best of that strength was spent, and more than spent, on his pædagogic work. It was from the Grote Chair to us, his keenly interested though immature critics, that he outlined and to some extent 'bodied out,' as he would have said, and that with a frankness and fullness never given to his literary utterances, those philosophical judgments, growing directly out of his psychological theories, which he did not live to express fully to the world. I need hardly say there was nothing esoteric in this. Had he lived there can be little doubt—at least to the reader of the philosophical manual—but that in his own fullness of time he would have further developed and set down much on which he was reserving judgment till he found leisure for the strain of supreme concentration. It is doubtful whether, in view of the precarious state of his health, he would have also completed the manual

of psychology which illness, and then his promise to write the volume on Hobbes, compelled him to lay aside. That he would have persisted in his intention of resuming it had he, on resigning his professorial and editorial posts, been able to foresee with some confidence the coming of several years of healthful leisure, instead of the gloomy outlook of uncertain strength and lonely bereavement that remained for him, is probable. Many important treatises on Psychology, when he ceased lecturing, were just appearing, or about to appear; nevertheless, with his strong convictions on certain psychological theories, and with the extreme explicitness with which he evolved his own philosophy out of its psychological basis, it is not likely that he would have given his philosophical principles any adequate expression without also setting forth that basis as it ordered itself in his own consciousness.

Meanwhile, between us and what might or would have been wrought Death has stood; and it was left for his pupils to choose either to suffer his oral teaching to have reached its term of usefulness, and the theories and doctrines worked out in it to remain in oblivion, or, by comparing what they had recorded, to preserve somewhat of them in some such form as is here attempted, even though it were at the risk of doing what he himself, not foreseeing an end so untimely, would scarcely have sanctioned. At the instigation of Professor Croom Robertson's distinguished countryman, the Editor of this series, and of Professor Sully, his successor in the Grote Chair, with the encouragement also of Mr. Stout, his successor to the Editorship of *Mind*, I chose the latter

alternative. I have tried to make students of a succeeding generation acquainted with the methods of a great methodologist, and with the philosophic standpoints of a teacher who for many years worthily represented and further developed the best traditions of a great school. This way it has seemed possible to render his thought and the memory of his work a truer justice than by letting discretion wait in silence on counsels of perfection.

At the same time the lectures, following as they do in the rank and file of an educational series, are not, in their first intention, a memorial production. To the student reader, whose interests they are of course especially intended to serve, they should afford not merely an introduction to psychology and also to philosophy, but an introduction to philosophy by way of psychology—more especially to philosophy under the aspect of theory of knowledge (epistemology) by way of the psychology of the process of coming-to-know. No other two manuals so adapted, to the best of my belief, exist. No one has more stoutly upheld the claims of psychology to the rank and dignity of a natural science than Croom Robertson. Dealing as it does, like other natural sciences, with phenomena as we find them, and, like other 'abstract' sciences, with phenomena under a certain aspect, namely, of subjective experience and its manifestations, it calls, so he held, for the most rigid scientific procedure that it was possible to apply. And, as expounded by him, the study of mind became almost as forcible an organon for instilling the principles of scientific analysis as one of the experimental quantitative sciences. To resolve the complex

into the simple, to show clearly the distinction and the bond when classifying, to elicit what was really the ground-notion of a class, to explain the less general in terms of the more general, to detect among phenomena the law of their happening, and to verify it by a question of crucial test,—all this really simple procedure, uniformly and consistently carried out, gradually and deeply impressed on the mind the unity of that scientific procedure which it is the true aim of any teacher to impart. Read as giving some insight into that procedure as applied to the matter, and adjusted to the standpoint, of psychology, this volume should prove of permanent value, even though the progress of research may render some of its conclusions invalid. Still more should this hold good for it when read as a groundwork for the philosophical principles in the companion manual (*Elements of General Philosophy*). The student should none the less remember that the lectures are, as they were bound to be, elementary. They were and are meant to be no more than a first guide to more thorough reading in 'the Books' (as the Professor used to call the collective literature on the subjects in question), not to supersede that oral instruction on which he used to insist as of almost vital importance in his own field.

It may be well to add a few words on those more specially prescribed treatises to which the psychological lectures formed at times and to some extent a running commentary. The Professor usually set two handbooks for constant reading, varying one of them every few years—either it might be Professor Sully's *Outlines of Psychology*, or Pro-

fessor Clark Murray's *Handbook*, or Professor Höffding's *Outlines*. In prescribing the last, as soon as Miss Lowndes's translation appeared, he remarked that, in addition to more solid virtues, its presentation was thoroughly interesting, and that its un-British methods and standpoints afforded an instructive comparison. Advanced students were repeatedly recommended to master Dr. Ward's article, 'Psychology.' Passages in Mr. Spencer's treatise and in Taine's *De l'Intelligence* were always decreed. But as the pupil of Professor Bain, and as representing in essential points that school of which he is the most direct and eminent outcome, the lecturer made the manual of *Mental Science* at once the most constant and most closely criticised subject of his hearers' study. In the course of years his treatment diverged more and more from that followed in the manual; but he not only continued to recommend it as on the whole best 'covering the ground,' but found in the criticism of it the best way of throwing his own position into relief as well as of sharpening the critical insight of his class.

Finally, for kind assistance in reading the proofs and for valuable advice on many points of style and matter, my very grateful acknowledgement is here rendered to Mr. Charles Robertson and to Mr. Thomas Whittaker, Editor of the *Philosophical Remains of George Croom Robertson*.

Caroline A. F. Rhys Davids.

February, 1896.

CONTENTS

LECTURE		PAGE
I.	PHILOSOPHY OF MIND AND THE SCIENCE OF PSYCHOLOGY	1
II.	THE PLACE OF PSYCHOLOGY AMONG THE SCIENCES	6
III.	CONSCIOUSNESS; ITS CONTINUITY. PSYCHOLOGICAL ANALYSIS	12
IV.	THE ULTIMATE FACTS IN PSYCHOLOGICAL ANALYSIS	19
V.	THE 'SUBJECT' OF SUBJECTIVE EXPERIENCE. OBJECTIVE PSYCHOLOGY	26
VI.	PHYSIOLOGICAL PSYCHOLOGY	32
VII.	CONCOMITANCE BETWEEN MIND AND BODY	40
VIII.	GROWTH OF MIND. THE STAGE OF SENSE	47
IX.	GENERAL SENSE. SPECIFIC ENERGY OF NERVE	58
X.	THE SPECIAL SENSES	67
XI.	GENERAL CONSIDERATIONS ON THE SENSES	75
XII.	MUSCULAR SENSE	83
XIII.	ACTIVE SENSE AND QUALITATIVE DIFFERENCE IN SENSATION	89
XIV.	SENSATION AND SENSE-PERCEPTION	94
XV.	THE PSYCHOLOGICAL THEORY OF OBJECTIVE PERCEPTION	100
XVI.	THE PSYCHOLOGICAL THEORY OF OBJECTIVE PERCEPTION (*continued*)	107
XVII.	THE PSYCHOLOGICAL THEORY OF OBJECTIVE PERCEPTION (*continued*)	112

LECTURE		PAGE
XVIII.	The Psychological Theory of Visual Perception	118
XIX.	The Psychological Theory of Visual Perception (*continued*)	125
XX.	Mental Construction. Representative Imagination	132
XXI.	Representative Images, Normal and Abnormal	138
XXII.	The Laws of Representative Consciousness	144
XXIII.	Suggestion and Association	154
XXIV.	Resolution of Association into the Laws of Intellection	160
XXV.	Thought. Percept, Image, Concept	165
XXVI.	Percept and Concept; their Interdependence and Evolution	171
XXVII.	Thought, Logic, and Language	177
XXVIII.	Feeling as Subjective Affection	185
XXIX.	Feeling and Intellection. Expression. Sense-Feeling	191
XXX.	Emotion	198
XXXI.	Classifications of the Emotions. Explanations of Pleasure and Pain	206
XXXII.	Æsthetic Feeling	213
XXXIII.	Conation and its Modes	219
XXXIV.	Modes of Conation (*continued*). Instinct	227
XXXV.	Volition and Control	237
XXXVI.	Attention and the Ego	247

APPENDIX.

	On Theories of Latent or Unconscious Mental Modifications	253
	INDEX	263

ELEMENTS OF PSYCHOLOGY

LECTURE I.

PHILOSOPHY OF MIND AND THE SCIENCE OF PSYCHOLOGY.

Introductory.

Some words of introduction to our subject are necessary: but I shall here be very brief. Notice first the title of this Chair[1] or class. It is unique, and the result of a series of accidents of which no more now. But what is its rationale? Is it adhered to in the course?

'Logic' is dealt with in the second term, and 'Philosophy' more directly in the third. And Ethics, whatever else it may mean, and although it does not come explicitly into the title, is generally allowed to be Philosophy, just as Logic also, whatever else it means, claims also, and with reason, to be Philosophy. We have still to prove that in dealing in this course with Psychology, we are consistent with the title. How far is Psychology a part of the 'Philosophy of Mind'?

[1] I. e. of the Grote Chair, University College, London:—'Philosophy of Mind and Logic.'—Ed.

Psychology and Philosophy.

What does Psychology mean?

The word Psychology, which began to be used in the course of the seventeenth century, but in England not until the middle of this century, means Mind *plus* Reasoning or Science—Science of Mind—just as Biology is the Science of Life. Now, as *Science* of Mind, Psychology is concerned with *Philosophy* of Mind. And this brings me to my first point.

The term Philosophy, while it is not exhausted by science, may be considered to include science and may be used to mean science. It is a word with a great history. With the Greeks from 600 to 300 B.C. it meant the equivalent to what we now seek to convey by the term science, viz. a body of reasoned knowledge. But now that science has acquired the meaning which Philosophy used to bear, Philosophy has come to be used in a special sense and with a distinct meaning. Where we now say Physics or Science of Nature, Newton said Natural Philosophy, or Philosophy of Nature. And all science which did not deal with what was called Nature was distinguished as Mental and Moral Philosophy. Thus when this chair was founded, Philosophy of Mind meant Science of Mind, or Psychology. But Philosophy means more than Psychology, and more than Science. It may in the modern sense be loosely defined as the analysis of the ultimate notions that underlie all the sciences. Moreover it includes Logic and Ethics, nor is it even then exhausted. But we may *begin*, if we may not *end*, by regarding Philosophy of Mind as Science of Mind. For us at this stage let Philosophy of Mind be this science of Psychology.

Psychology as a Science among the Sciences.

What now is meant by a science of anything?

Science is knowledge acquired by reasoning, knowledge not merely 'picked up' by experience, but which, given by experience, has been systematised by way of reasoning. This holds good for every particular science. What therefore we are now concerned with is *reasoned knowledge about Mind.*

Note here how students of Mind must in a way face all knowledge. For if Science be reasoned knowledge, and reasoning be a function of the Mind, they alone can say what Science is by defining what reasoning is.

How can we best set about getting a reasoned knowledge of Mind? Our chief difficulty lies in the nature of Mind. In any other science you can easily grasp the meaning of its subject. But I cannot tell you what Mind, the subject of these lectures, is. I cannot produce it and put it on the table; and I cannot draw it. Let us try to get a definite notion of it by classifying the sciences and striking out all with which it is not concerned, so as to see where among them we may place Psychology. For all progress of knowledge is by way of Assimilation; i. e. by finding something already known to you with which you may connect the new knowledge.

Science is general knowledge, for all reasoned knowledge is general. But some knowledge is more general than other knowledge, and the less general is dependent, as to its rank, upon the more general. Let us take four of the sciences which in their scope are representatives of all Science, and fundamental, or, as they have usefully been called, Abstract sciences,—and by abstract I mean sciences dealing with different ASPECTS of things, or with things viewed in certain

aspects *only*. And let us proceed to tabulate them according to Decreasing Generality and Increasing Speciality, viz.—

(1) Mathematics, dealing with things in respect of Quantity, or the quantitative aspect of things.

(2) Physics, dealing with things in respect of Motion (Quantity assumed).

(3) Chemistry, dealing with things in respect of (atomic) composition (Quantity and Motion assumed).

(4) Biology, dealing with things in respect of Life (Quantity, Motion, and Atomic Composition assumed).

Each of these is less general and more special than its predecessor. And to them we may add as (5) Psychology, dealing with things in respect of Mind, and thus, the other four properties or aspects being assumed, presenting a yet more special aspect of things. More things *live* than things which are *mentally endowed*.

Note that we may go yet further in specialising, and rank as (6) Sociology, dealing with things as having sociality. Only things having mind will form societies. Again, we might have classed before Mathematics Logic, considered as the most general of the sciences, in that it deals with things as thinkable, or under the aspect of relation in general.

Note too, as to the rest of the sciences, that in proportion as they become more concrete, they become more descriptive and less explanatory: relatively speaking, they are Science in the making. And as concrete, they deal with *kinds*, and not with aspects, of things. Botany is concrete; plants are kinds. Biology is abstract; life is an aspect.

We have now gained my second point, and that is, that from this point of view, and from this only, namely that of

generality in scope, Mind may be regarded as a kind of Life, and hence we have found a place for Psychology. It is an abstract science, more special than Biology, more general than Sociology. But, as I shall proceed to show, this is not *the* place of Psychology.

For LECTURE II read:—

Bain. ch. i, commencing at § 3; Höffding. I, § 1.

NOTE. Höffding should be read in subordination to Bain.

LECTURE II.

THE PLACE OF PSYCHOLOGY AMONG THE SCIENCES.

Scheme of Fundamental Sciences.

OBJECTIVE.	SUBJECTIVE.	
[Logic]		
1. Mathematics.	Psychology.	
2. Physics.		
3. Chemistry.	*Regulative doctrines or disciplines (not sciences) dependent upon Psychology.*	*Logic.*
4. Biology.		*Æsthetics.*
5. Psychology		*Ethics.*
6. Sociology.		

Why, and in what sense, does Psychology occupy, and alone occupy, this second column?

Mind as Life.

What is it to have life? Take a tree, and this piece of chalk. The one deports itself in a way very different from the other; it grows, respires, moves. What is it *to have Mind*? Take a tree and a dog or a man. Both the latter in one respect will deport themselves very differently from the former. Strike each, and see. What is it *to be social*? To act in a way very different from beings who are unsocial. Under such a purely external aspect, that of deportment, behaviour, outward manifestation, we *can* regard Mind. I do not say we *ought* to do so. Now our left-hand column is concerned

with things as they behave, or appear to us; and of such external aspects Mind, as a kind of behaviour, apparent to all of us at once, may be regarded as one.

Mind as Subjective Experience.

But is this aspect of Mind all that we mean by Mind? Every one of us has a 'mental experience': this is not external deportment. Not that Psychology is therefore out of place in the left-hand column. We infer the presence of mind in others by external deportment, whatever more we know of ourselves. But we do not *only* mean, that a man throws his arms about in a certain way, and the like, when we say he has mind; we mean more, and something requiring a new kind of phraseology. For the acts above spoken of are signs of something which we are otherwise conscious of; in fact the ultimate expression for mind is Consciousness. And we may say, that our former conception of mind is *external manifestation of consciousness*. Mind is the name for a certain kind of experience each finds he has *for himself*; whatever else it means, it stands for a certain something I experience in and for myself. When we shut our eyes upon the great and varied spectacle of external nature, another spectacle, great and varied, lies open to the view of an 'inner eye.' Not only do we see ourselves as moving bodies in one vast outer world of earth and sun and stars, but we are each of us also aware of somewhat falling under our own peculiar ken. The pleasure that I have in looking at a landscape is part of *my* experience, and not yours, though you may be looking out upon the same stretch of wood and river. You may be wholly indifferent, while I am thrilled with delight; or if you too are not unmoved, your pleasure is yours as mine is mine. Or again, the scene

may for me call up some long-past memory; while you, as you gaze, may be picturing instead some change in the prospect to be wrought in coming years.

This inner personal experience of each of us is what we more especially call *mental*, and we distinguish the Mind to which it is referred from the World or Nature whereby we seem to be affected. Or rather, we suppose one world of things, and over against it a multitude of minds that are variously affected by it as they take it in. From this point of view also, Mind is often spoken of as *subject* in relation to the World as *object*, and the word *subjective* expresses very aptly that kind of personal experience just called 'mental' in opposition to the *objective* world, or world of objective experience that we seem to have in common. Words here are ever inadequate; we grope for them; nevertheless we may with relative determinateness say that *mind is a name for subjective experience*—subjective as 'lying under' the ken of each of us immediately, as what is personally, individually, specially experienced, as what is, in a peculiar and intimate sense, mine and not thine. And *subject is the name for the possessor of this special experience.*

Thus far at this stage. Let the student take up the terms as useful for *mental* experience proper. They suggest a division by which we may rail off our other sciences from mental science proper. In the former we have *objective aspects* of things; they seek to take account of all the various aspects and departments of the world of objective experience in which we live and move. 'Objective' is 'what lies over against' us —'in the way of' me, as e.g. this piece of chalk. In objective science we think, not so much of ourselves or of things as personally related to us, as of the objects—'chalk,' 'dog,' 'ant-hill.' Here there is no direct reference to the

knowing self or subject, though an indirect reference there always is [1]. 'The chalk is on the table' is an objective statement; chalk or table is nothing to me; I relate them one to the other. But take an expectation, a determination, grief, remembrance. At once there is involved, *Whose* expectation? Yours? Mine? Who is the subject of it? And it is because mind is a something which has its full and fundamental meaning only as it is subjectively, and not objectively, regarded, that we must make room for psychology in another and unique column. Our science is double-faced in a way different from any purely objective science. As objective science psychology is only supplementary to subjective psychology, and has no meaning apart from it. We attribute mind to others because we see in them the same outward manifestations that are apparent in ourselves. It is only a very shallow examination of mind which concludes that it can be studied just like any other object. Let mind be studied through the nervous system and external manifestations by all means, but let it be borne in mind that we have something 'not without' far more important to study.

[1] This is proved by the very phrase 'objective experience.' The things or objects of common life and physical science—stones, trees, and the like—do also in a manner concern the psychologist or mental inquirer. However we may view, or speak of, objects out of relation to mind, they must for this be *known* or mentally apprehended. Mental experience, as regards our landscape, includes not only the different feelings or imaginations excited in you and me, but also the *vision* of wood and stream that we seem to have in common. My sight of a tree is as much mental as any state of grief or joy, and is in truth not less personal to me—not less subjective in one respect, however it may be called objective in another. There is, in fact, a wider and a narrower use of the word 'subjective,' and it is in nothing short of the widest sense that psychology must be said to deal with our subjective experience.

Psychology a Natural Science.

Here be it noted that, were it not for mathematics, we might have called the Objective Sciences *Natural* Sciences—though not all of them in the narrower sense of 'natural.' In the wider sense 'natural' covers all science. All science properly is natural, else it is not science. Natural is not merely external, or infra-human nature, but *whatever we find* and can take account of, or have experience of. *'Natural' nowadays rather indicates method than matter.* Psychology, then, is just as much a natural science as physics; and as such it calls equally for rigid scientific procedure. Now we cannot expose mind for analysis like a plant, yet each can observe its working in his own experience more closely, more certainly, than anything else.

Consciousness.

Mind is a name for all our experience *as we are conscious of it.* CONSCIOUSNESS (*con scire*) is what I am *aware of* in the most intimate way, 'with' or in relation to myself, what I 'know with myself.' And within consciousness we have the fact of Self-consciousness—not so much the having this or that experience as that it is an experience specially of Me, of my Ego. Consciousness, for me, will include my perceiving of objects as well as my feeling of pleasure or pain—when, namely, I am communing with myself or, as we otherwise express it, 'reflecting,' or 'looking within.' Now there is nothing which the sciences take account of objectively that psychology does not take account of subjectively. All objects as such come within the range of our consciousness, and this objective consciousness together with the subjective consciousness of our own thoughts and feelings as such make up the

whole of our mental experience. Things as knowable, together with the knower—these are the materials of the psychologist.

For LECTURE III read :—

Höffding, I, §§ 4–6, 8; Ward, pp. 42, 45.

Cf. also G. C. Robertson on Maudsley's *Physiology of Mind: Philos. Remains*, p. 353 (*Mind*, ii, 235).

LECTURE III.

CONSCIOUSNESS; ITS CONTINUITY. PSYCHOLOGICAL ANALYSIS.

So far then we have seen (1) that Philosophy must in the first place concern us *as Science*, and (2) the peculiarity of Psychology and the kind of place it takes when connected with the other sciences. I said that this peculiarity calls for special language. Let us discuss further some of these special terms.

Mind and Metaphor.

If we speak of mind as 'internal,' 'inner' experience, to contrast it with external things, it is not for any really definite meaning we can attach to it by those expressions. The mind of each of us is not in a strict sense inside any of us. Even 'subjective' is just as metaphorical and belonging to external description as any other term. In 'conscious experience' we get a word significant, expressive, and not borrowed. 'Conscious' and 'consciousness' are slightly metaphorical too, but let no more be said against them; they grew up for psychological purposes and—without closing the question whether mind and consciousness are commensurate, whether there is not mental experience which is not consciousness—the latter word is a useful general term for the whole of our mental experience. It is not surprising to find that our psychological language is metaphorical.

Language originally was merely for work-a-day purposes of life. Mankind had to live before it could think. 'Perception,' e.g., meant a thorough grasp of anything by the hand, but is now used in psychology in a very special metaphorical sense.

Psychologising by Introspection.

The terms 'self-consciousness,' 'reflexion,' 'introspection,' as we have seen, express, each and all of them, the peculiar standpoint of one who is 'psychologising,' or subjectively observant. In saying 'I perceive an object,' there is either no reference, or no prominent reference, to mind or self, but in saying 'I *perceive* an object,' I am conscious to myself, in the reflective or introspective attitude, that I am knowing, and that my knowing is of the special kind called perception. All these words, *consciousness*, *reflexion*, *introspection*, seek to mark what is peculiar to mental experience as such; and the reference away from things or objects becomes still more marked when, instead of consciousness, we speak of *self*-consciousness. 'Self-consciousness' here implies no moral emphasis, but only a self-occupied state of mind. 'Reflexion,' which is more metaphorical, suggests the mind bending back upon itself; 'Introspection,' the mind looking within. Here again is metaphor. Beware of the objective force of 'intro' clinging to it. Now Psychology is said to depend upon, to be developed by, the method of Introspection.

Comte[1] and others, e.g. Dr. Maudsley[2], maintain that observation by way of introspection is not only useless but impossible. For, they say, in observing our states of mind we lose them, or at least modify them, as e.g. when we

[1] *Positive Philosophy* (London, 1875), vol. i, pp. 381, 389; on 'interior observation.'

[2] *The Physiology of Mind* (London, 1876), ch. i.

try to analyse a feeling of sorrow or a burst of indignation. It is not however true that an analysis of toothache takes away the toothache. Nor is the modification induced by the intellectual phase of attention without value in the analysis of mind. However it be the case (as cannot be denied) that such observation needs to be very carefully made and tested before the observer can take his own conscious experience as duly representative of the conscious experience of others, this may make psychological inquiry difficult, but does not make it unscientific. Its opponents have always forgotten that so-called external or objective observation, as practised in the physical sciences, itself implies the validity of subjective observation. Not to say that the simplest act of looking at a physical object is after all, in one sense, a subjective process, there is certainly involved, in anything that can be called a scientific observation of physical objects, a comparison of present with previous impressions. This has no value, unless it be assumed that a purely subjective representation can be attended to and made to stand for the original experience. But this is just what is assumed by the psychologist when, being in a state, say, of feeling, he begins to practise introspection and seeks to determine the character of the state in itself and as related to other states. In reflecting upon the feeling he has indeed ceased to feel; or to feel so intensely, but he has the feeling still as much before him as the physical inquirer has before *him* all the past experience which he uses to interpret his present impressions. Without making light of the difficulties attending introspection, we may therefore rest satisfied that there is no reason why it should not, when properly conducted, lead to results of a purely scientific character.

For the present, then, we may take these three terms

as synonymous expressions for observation which is the *opposite of external*—for observation of consciousness, or subjective experience. This, when we investigate the scope of it, divides itself into two parts, objective consciousness and subjective consciousness. Objective consciousness is consciousness of objects. 'That pillar supports the ceiling.' Here is the objective point of view. But if I examine the sensations, judgment, or belief expressed in that statement, I require the attitude of introspection, of subjective consciousness. Consciousness includes both kinds of experience.

The Fundamental Datum of Psychology.

Now I maintained that mind, in our fundamental conception of it, is a name for our subjective experience. E. g. through your presence and your actions here and now, which are objective manifestations, I infer in you mind. I do not dwell on these; I credit you directly with mind; they have a meaning *only* in terms of subjective experience. So for animals. A dog howls: we say, it is in pain, putting ourselves at the subjective point of view of the dog, and ascribing to it feelings more or less akin to our own. Subjective experience is our primary or ultimate datum, the Alpha or Omega—which we please—of Psychology, and cannot be explained in terms of any other kind of experience. Metaphysically, we may question, What is the bearer of this subjective experience, what is its Subject? But for Psychology the fact of that experience is ultimate and our starting-point.

The Business of the Course.

What does this subjective experience include? Of what, in what ways, are we conscious? What are the scientific

conditions of our consciousness? What are the Laws determining our conscious experience? *How may we describe in order to explain?* For science has to find the law of a certain kind of fact or phenomenon, and this is the business of our course. Let the student first see, before proceeding farther, that he gains at least a general view of what lies before him, such for example as Professor Bain gives in his Division I, or Mr. Spencer in his chapter on 'The Composition of Mind.' He should read also Hamilton's *Metaphysics*, Lecture XI, on the 'Classification of Mind.' And let those students who compare their other reading with Dr. Ward's articles on Psychology, note that his more abstruse classification differs from mine more in appearance than in reality.

The Continuity of Subjective Experience.

The first thing that strikes us in our conscious experience is the CONTINUITY of it. It is *coherent*. Mind, I repeat, has the character—a character adequately brought out only by Dr. Ward among psychologists—of continuity as its most prominent, salient feature. As we sit silently with closed eyes, there is for each of us a flow of consciousness in a certain continuous manner. And if my eyes are open my consciousness has still the character of continuity. But now it is more complex; it includes, besides that flow with closed eyes, this large mass of objects before me, constituting a 'continuum'—book on paper, paper on table, table on floor, and so on. And besides all this I am conscious of a certain amount of feeling; a desire to make myself understood; a belief that those to whom I am speaking, are, while looking at me, in a state of anxiety to understand; a determination not to be longer than an hour—all inextricably

interwoven with this consciousness of objects. The continuity gets broken off, periodically, for instance, in sleep, in dreamless sleep, dreamland being a kind of middle ground. But waking and healthy consciousness is a continuity, though varying indefinitely as to its fullness, just as a literal, objective flow, such as a river, may vary in fullness, breadth, rapidity. Or as a 'web' may vary in the complexity and colour of the weaving, or a 'stage' be more or less occupied by actors struggling to obtain a hearing. To all of these has conscious experience been likened.

Mental Analysis.

But if we simply attend to its continuity we shall get no further than description, more or less poetical. What we want is scientific treatment of mind, and science in the first place is ANALYTIC. Analysis is the way of insight. Science is insight by way of analysis. Afterwards, it is synthetic. Your psychology is worthless if it end not, as to its final aspect, as it began, viz. with a continuity. But as a child, crying out for pain, breaks up its continuum, so must psychologists do deliberately, breaking up (a very metaphorical term, I grant) this initial aspect to attend to particular facts of mind. And this is possible; e. g. annoying sounds of students romping in the corridor come into my consciousness: to the extent I am annoyed, so far may my consciousness be particularised in a separated strand. It may be singled out and identified; to *this* extent we are scientific observers, though it be not the whole of consciousness.

What are the terms for these strands? English psychologists, for better for worse, use STATES OF MIND. Some purists object to the term on different grounds. Alternative terms are 'elements,' 'facts,' 'moments,' 'phenomena,' of

consciousness. Another word admissible for this or that state of consciousness is 'presentation.' This corresponds exactly to *Vorstellung*, the word used by German psychologists for what Lewes called a Feeling. Any 'moment' within the continuous flow of consciousness can be called a presentation. *Vorstellung*, when indicating such a general moment, is often incorrectly translated '*re*presentation.' The room in which I am sitting is my presentation; so is this ink-bottle, if I fix my attention on it, or so is a pain arising in my finger. If, again, my consciousness be withdrawn from all that is present, and I think of my house some miles away, the image called up is my presentation; but it is in this case also my *re*presentation, for it is an image, and not what I perceived an hour ago actually before me.

Whichever term we select, our business is to explain consciousness in so far as it can be resolved by analysis; and in so far as we do this we shall be proceeding scientifically.

NOTE.—On the twofold standpoint of observation (usually called Methods) in psychology, the student may profitably read Professor Bain's article—'Introspection and Psycho-physical Experiment,' *Mind*, ii (N. S.), 42.—ED.

For LECTURE IV read:—

Bain, ch. i, from § 3; Höffding, IV; Ward, pp. 39-44.

LECTURE IV.

THE ULTIMATE FACTS IN PSYCHOLOGICAL ANALYSIS.

Nature of Mental Analysis.

We have looked at consciousness in a twofold aspect; as not an aggregate but a continuous whole or continuum, and then—since attending to this collective character yields an object of interest but no science—as a succession of mental facts or congeries of states. And we have committed ourselves more or less to the word 'state,' claiming to be able to distinguish different states of consciousness as relatively simple or complex. In attending to a state, we have so far broken up the continuum. But beware of supposing that consciousness is necessarily in one state at a time; rather it is in many, one being prominent. I may hear a sound from without and yet continue my lecture. Or some bad news may colour all the transactions of the day. We may be in ten states at once, states various and multiple. Herein comparison is possible, and herefrom we may form general assertions applicable to particular states. Mind, it is true, is not a thing that can be broken up into separate parts or divisions, as Professor Bain's procedure suggests; nor compounded, as Mr. Spencer's phrase 'composition of mind' seems to imply; but it does admit of being held apart, in idea, for consideration, and this or that phase being

distinguished, e.g. a toothache, languor, determination. Mankind have gradually devised forms of speech to distinguish this from that in mental experience, making, for purposes of life in regard to mind, a beginning of that which science carries on and tries to render perfect.

The scientifically Ultimate Facts in Mental Analysis.

Is there now any general way, at starting, of getting, and expressing in compendious form, a survey of all the facts of mind?

The view of mind which commended itself to psychologists from Aristotle till this century is now abandoned, the view, i. e., of mind as an aggregate of powers or faculties, arranged oftener than not under two groups, viz. intellectual and active faculties or powers. The term 'faculty' has been used both carelessly and carefully. Hamilton, in his *Metaphysics*, gives a conception and statement of a more careful use, into which we can go later on [1]. For descriptive purposes terms of faculty are useful. But science only describes with a view to explain, and faculty-psychology has not explanatory efficacy. Aristotle himself did not work on this line, but his scheme suggested it. It has been tried long enough.

Tripartite classification of Mind. Phases of Mind.

But it was Hamilton to whom mainly we owe the introduction from Germany of a threefold classification dating from about the middle of last century, the scheme of more than one thinker, that notably of Tetens, one of Locke's many German disciples, which was adopted and promulgated by Kant. It is now widely admitted, though with varying

[1] Vide *Elements of General Philosophy*, Lect. XII.

phraseology, that our whole mental experience presents three DISTINGUISHABLE PHASES; not parts or divisions—we separate parts, we distinguish phases—but states or facts of consciousness, which may be exhaustively described for purposes of science—i. e. for subsequent explanation—in terms of three heads; and these heads, in Anglo-Saxon phrase, are FEELING, KNOWING, WILLING. Every fact of consciousness may be brought under one or more of these heads; and this is the best way of distinguishing facts of mind for purposes of after-, or further, inquiry.

Now to 'Knowing' I prefer INTELLECTION, and to Willing, CONATION: my reasons I shall set out directly.

Intellection, then Feeling and Conation—such is the order generally adopted, which I shall presently follow. But while there is good reason for taking it at this stage, I do not keep to that order in getting our general view. In the first instance our order will be Feeling; then Conation in connexion with it; lastly Intellection. When dealing with the phases in detail, which is the second step in our analysis, I shall revert to the former order.

Feeling.

Feeling, for me—and, I believe, for everybody—is the name for all those mental experiences which consist essentially in our *being affected*, or *acted upon*, or more specifically *passively affected*. Affection is a better term than Feeling, and would be quite unexceptionable were it not for its narrower popular sense. As it is, I cannot get on without it.

See here how notable and deplorable is the state of psychological language! We cannot talk in terms of Feeling without using the phrase 'to be affected,' yet how ambiguous is this! 'To be passively affected' is perhaps more what

is needed. Feeling is that phase of mind when one is *affected by* anything. Professor Bain falls back on a term which is safe if carefully used—'Feeling is excitement.' Yet here again there is a narrower sense. 'To be affected' is, after all, the more *ef*fective term.

We have no adjective corresponding to the substantive 'feeling.' True, the newspapers say, 'he spoke in feeling terms,' but such usage is not psychological. In psychology the adjective 'emotional' corresponds to the noun 'feeling.' Hence it should be borne in mind that the adjective 'emotional' has a wider significance than the noun 'emotion.'

Pleasure and Pain.

Feeling is practically summed up for us in two words, mutually related:—Pleasure and Pain. In pleasure we are pleasurably affected; in pain, painfully affected. Do our pleasures and pains constitute the whole range of our feelings? Can we be affected neither painfully nor pleasurably? Does e.g. the feeling of my clothes, or my contact with the floor, affect me in neither the one way nor the other, but 'neutrally'? For the present, however, we need not take this question into consideration.

Feeling in Popular Use and in Psychology.

In the terms Pleasure and Pain science adheres to the meaning of common usage. But Feeling as now used in psychology is a very late word. In popular use it means (*a*) the sense of touch (we Scotchmen claim even to 'feel a smell,' and with considerable psychological justification), (*b*) emotion, (*c*) consciousness in general, e.g. this table does not 'feel' when I strike it. To this meaning Mr. Spencer's usage is nearly related, as was that of Lewes. For Mr. Spencer,

Feeling is any distinguishable mental fact, anything you can distinguish in mind for separate scientific treatment. But by the majority of modern psychologists Feeling has come to mean those mental experiences in which we are affected in the forms of pleasure and of pain.

Conation.

Conation is intended to suggest just the opposite of Feeling, the antithesis of subjective affection. They are, as it were, the two poles of consciousness, viz. being affected passively—overtly acting. Professor Bain and most psychologists use Will (or Volition). I follow Hamilton in this term Conation (from *conor*, I try), which presents a parallel to the German use of *Streben*, *Bestrebung*, as distinct from *Wollen*, *Wille*. Will (or Volition) is too special a term for something so generic as a phase of mind. It is one thing 'to desire,' another 'to will.' But both are covered by the more elementary term Conation, or 'tending to act.'

Connexion between Feeling and Conation.

While between Feeling and Conation there is antithesis, there is also relation. Conation is always activity determined by Feeling, feeling-guided action, the response to, reaction on, a feeling. I want to open the door. My anxiety is a certain subjective feeling which *results* in my opening the door. Feeling has its inevitable result in Conation, Conation its indispensable source in feeling. Conation is action for an end, and that end is always, in the first or last instance, expressible in terms of feeling, viz. the production, maintenance, or abatement of some feeling. Feeling need not be a salient point in Conation; it may be nearly submerged; it is always *there*.

Intellection.

Do conation and feeling sum up what we mean by mind? In opening the door there was conation, and feeling, but was there not something between the two, connecting them? There was knowledge, intelligence, that doors *can* be opened. I know (or guess) something to be a door, therefore I go to open (or try to open) it. Thus when we will in connexion with feeling, there is also bound up herewith and brought about that state of mind called knowing, cognition, intellect or intellection.

I prefer the last term. It corresponds in form better than intellect to conation. Better than all it indicates an active *process* of mind. 'Cognition' and 'knowledge' always have, beyond their psychological import, implications of a philosophical nature. You cannot use the word 'know' without implying *the object known*. 'Intellection' (and its adjective 'intellective') brings out only the subjective function. 'Intelligence' may take too wide or too narrow a meaning, viz. either consciousness or cleverness.

Discrimination and Assimilation.

Whenever we are intellective, we are always so that we may be described as in a state which is a compound function of discrimination (negative aspect) and assimilation (positive aspect): e.g. we discern a speck on the horizon, i.e. we discriminate it from the rest of the horizon, and we recognise it as a ship, i.e. we assimilate it to our past naval experience. Discrimination is saying what a thing is *not*, Assimilation is saying what it *is*. These are termed by Professor Bain, Consciousness of Difference and of Agreement. And he adds a third function, Retention. But be it noted that this is not on a level with the other two, but rather implied in them.

Relation of Intellection to Feeling and Conation.

Intellection unites both the other phases of mind. When we are intellective it is in consequence of having been affected. How could I say that that was a pillar, or the speck a ship, without being affected by way of my sight? Intellection also implies activity. All terms of intellection imply activity, e.g. perception, conception (a taking hold), especially voluntary attention, which is conation. Intellection, then, in a sense, comes between feeling and conation, facing both ways. Can we have any one of them without the others? No, not in any real sense. We may single out one for examination; we may describe our 'states' in terms of one, the predominating aspect, but we *are* not now the one, now the other, and we ought indeed to describe the states in terms of all three. E.g. there is the bell! We are affected by its sound; we discern and identify it as a bell; but we are mainly conative in consequence—I the lecturer, to finish, my hearers to depart. Towards special cases of purely one phase we can only approximate. To say certain states are emotional, intellective, conative, only means that one aspect is uppermost.

For Lecture V read:—

Höffding, I, § 8 *e*; Spencer, Pt. II, ch. ii; Ward, p. 39.

LECTURE V.

THE 'SUBJECT' OF SUBJECTIVE EXPERIENCE. OBJECTIVE PSYCHOLOGY.

We saw in the last lecture, by help of the bell, that in so far as we were intellective, we were so on a base of feeling, which led, through intellection, to an impulse to action. Many cases cannot be so clearly resolved into all three phases, but note here only that the three are distinguishable, not separate.

Mr. Spencer's classification of Mental Elements.

Now it is tempting to try to resolve all three into two, if not one. Let us have a word on Mr. Spencer's 'Composition of Mind.' His view is, that mind may be resolved into two elements, Feelings and Relations between Feelings.

On the face of it he neglects Conation. Under which, we might ask him, are we to class it? Mercier, a Spencerian —advanced students should read him[1]—calls Will a feeling. A good case might be made out for the other alternative. In so far as will is action for an end, you start from a basis of feeling and you work to a result of feeling; and this

[1] *Mind*, ix, x; *The Nervous System and the Mind* (London, 1888); *Sanity and Insanity* (Contemporary Science Series), especially ch. iii. (London, 1890).

makes will a 'relation between feelings.' But whatever Feeling may mean for Mr. Spencer, his 'relations between feelings' correspond to our Intellection. But since Feeling is his widest genus for any fact of consciousness, he calls these 'relations between feelings' themselves feelings. Has he justification for this? and Lewes? and others? In popular language, as we saw, yes. 'The table does not feel' means it is not *conscious*. *We* shall use Feeling in a more special sense, narrower, as we have seen, than theirs, and yet wider than that other popular sense of touch.

The Subject of Mental Phenomena.

Feeling, intellection, conation—any experience that can be described under one of these phases is *mental*; and for us mind is an aggregate of experiences and the collective name for those three. But what is it that experiences the experiences? What is the bearer of them[1]? Well, with this, the profoundest of all questions underlying all mental experience, we are not fitted to deal now. We cannot at this stage consider the question of personality, of the 'ego,' 'me,' 'moi.' To this indefinite subject there is a reference in all mental experiences[2]. It is involved in all language. It is inextricably mixed up with our experience. 'I am aware of the door.' What is it that refers to the 'aware,' viz. that personal 'I'? What is it in intellection, feeling, conation, that knows, is affected, acts? Without reference to such a subject, there can be no science of mind. But it is

[1] Professor Höffding says too much, Professor Bain too little, about this. The former proposes to avoid metaphysical discussion, yet really drags it in and mixes it up.

[2] Note that it is by no means the case that all mental facts or phenomena equally suggest, or are equally referable to, a subject.

a problem we must work up to, and then consider under Philosophy. Meanwhile, without raising the psychological, still less the philosophical, import of the Ego, we can—nay, we must—regard mind in the first instance as an aggregate of phenomena. To apply scientific process, we must treat any subject *phenomenally* (not in the misused journalistic meaning). And just as in physics we might examine the *motion* of a ball without being concerned about the constitution of the ball itself, so we can talk about mind as mental phenomena, appearances, manifestations, experiences, *without considering what it is that has to experience.* This admitted, we may proceed at once to a detailed consideration of our three phases.

Objective Psychology.

Or, first, since we are to consider mind as an aggregate of phenomena, is there any kind of phenomenon dealt with by science, which is in relation to mental phenomena—which is *more especially* in relation to them? Living beings, and, in particular, human beings, exhibit physiological phenomena. Many of these, much that goes on in the body, has no direct relation to our mental experiences, and conversely. From this point of view psychology is a highly specialised physiology. Within the human organism there is the nervous system, and it is that nervous system of which the functions are in more immediate relation to our conscious experience. This has come to be understood only within the last two or three centuries. Aristotle had a great misconception of the nervous system as related to, or connected with, mind. He strongly insisted on the connexion of mind and body in a general way. But his entire ignorance of physiology, especially that of the nervous system, precluded

him from entering into detail and from seeing the particular connexion between the two. He would have told us that, when he was thinking, feeling, or willing, something went on in his heart; that all sense-organs contributed streams going to the heart by way of the heat of the blood, and there resulting in consciousness; and that the brain, 'being cold,' served but as a refrigerator, tempering the heat of the heart[1].

Since then, very slowly in the ancient world and only fully since the beginning of the seventeenth century and Harvey's discovery of the circulation of the blood, it has revealed itself that among all physiological processes the most important for psychology are the nervous processes, and that Mind, as a name for a set of active processes, has its bodily explanation in the nervous system. Mind is related to the body. I will to raise my arm: I raise it. Through what? Through the nervous system. Through it mind is related to body. Hence we need to consider it to some extent. Such inquiries constitute the science of Physiological Psychology, or we may also use the term Psychophysics, the science, that is, of mind as related to the nervous system. The term 'Mental Physiology' should be carefully avoided.

Comparative Psychology.

Can we say that Physiological Psychology is co-extensive with Objective Psychology? No; it is but a part of the latter. It is not only in connexion with the functions of the nervous system that mind can be objectively considered. The whole frame of things, the sum of natural processes, has been thought a manifestation of mind, of self-conscious personality. Certainly all the varied products of human art, from flint

[1] Vide *De Generat. Animalium*, ii, 6; and Grote's *Aristotle*, p. 480.

arrowheads, or rude scratches on pottery, to steam-engines or the Venus of Milo, are evidences of thought and feeling and desire. All forms of speech and literature, all manners and customs or social usages, the varied forms of religious worship, the whole recorded drama of human history, are but so much more material that may be used for the study of mind. All these are facts of the objective world, and the study of them with a view to discover the full range of mental phenomena is known as Folk-psychology (*Völker-psychologie*), or consideration of the manifestations of mind as shown in the manners and usages of peoples. Still farther, we may add to the account the ways and habits of the lower animals as manifesting mind, a study which has of late been of considerable service in the furtherance of psychology. Again, Infant Psychology is now considered rightly as a very important branch of mental science, and falls within this same field of Objective or Comparative Psychology, there being little or no direct relations between us and a child on the subject of consciousness.

All these are inquiries into the facts of the objective world, yet they have a subjective meaning, which the stars, for instance, have not. Never must it be forgotten that there can be no study of this kind without an implied, if not express, reference to the properly mental experience of which we are each subjectively conscious. Nobody who considers can doubt this for a moment.

Physiological Psychology.

Between Subjective and Objective Psychology comes Physiological Psychology. Mind in man proceeds in connexion with certain bodily processes. We may call habits, &c., products of mind, but they go along with, are con-

COMITANTS of, mental processes. Think what your gestures are to you, and what they are to me. All human communication proceeds by means of this concomitance. And since two or three hundred years folk have understood that all bodily processes which are of real account for, are directly in relation with, mental experience, are those of the nervous system. Working inwards, we have got from the universe to the nervous system.

This concomitance justifies further considerations.

For LECTURE VI read:—

Bain, I, ch. ii; Höffding, II, §§ 1–7; Spencer, Pt. I, ch. iii and vi.

Or the main facts respecting nervous structure and function may be studied in any text-book of physiology, such as Huxley's or McKendrick's.

LECTURE VI.

PHYSIOLOGICAL PSYCHOLOGY.

Physiological department of Objective Psychology.

The term 'psycho-physics' expresses that department of physiological psychology which aims at establishing definite quantitative relations between physiological and psychological experiences, between stimulus and sensation. The corresponding adjective, 'psycho-physical,' is used in a wider sense to denote the observation of mind in relation to the bodily organism. For without considering the organic conditions of mind, I can know nothing except about my own mind, I am a 'solipsist.' Solipsism is that view of the universe which takes into account the subjective experiences of one's own mind only. It is only a solipsist who can do without the physiological department of psychology. Once we look beyond the purely subjective side, physiology is imperatively needed. A purely subjective psychology is indeed conceivable; e.g. Dr. Ward's article in the *Encyclopædia Britannica* proposes to proceed entirely apart from any kind of physiological consideration. Nevertheless, at some critical points the author finds himself compelled to take into account physiological phenomena. And indeed there are departments of psychological occurrences, or certain kinds of mental phenomena, of which it is perfectly vain to take any account

without reference to their physiological implications. No definite explanation can be given of sense or sensation without a certain reference to bodily phenomena. If so, it becomes our duty to interweave with our subjective inquiry, and to refer as much as we can to, definite objective or physiological considerations. If so, it does seem necessary at the beginning to get some definite understanding of what in particular this nervous system is, to which we sometimes make reference, and at other times would like to refer, inasmuch as its processes stand in such special relation to mental processes. Our psychology should be as physiological as we can make it[1].

We take account, then, of nervous processes in mental science, first of all because it is a fact that they accompany mental states, and that without a reference to them we leave the scientific statement of the ascertainable conditions or circumstances of mental action incomplete. But there is a still more cogent theoretic reason for bringing forward the physical side of the case, and the practical reasons are of the most obvious kind.

First, as to the fact of the connexion. Evidence of the most multifarious kind and overwhelming in quantity is

[1] Mr. Spencer lays such stress on this, that he works into his psychology through physiology. In his general system of philosophy his book on the *Principles of Biology* comes before his *Principles of Psychology*, and hence he is quite right to approach it by means of physiology. It is impossible to study mind without backward reference to bodily phenomena; we are else acting like ostriches. At the same time the science of life and the science of mind should not be mixed up. The two studies must be taken apart. Professor Bain begins subjectively, and then, in his second chapter, with admirable judgment deals with the nervous system before proceeding to analyse sense-consciousness. Professor Höffding's principle of treatment is practically the same.

considered now to justify the assertion that every conscious experience whatever has concomitant with it some brain-process [1].

Process of inference by which we relate Mind and Nerves.

Bodily processes which have a mental import are always ultimately, or primarily, nervous processes. Mr. Spencer's discussion of the nervous system is often too vague or assumes too much, but his chapter entitled 'Æstho-physiology'—not a happy term—in which he deals with the connexion between subjective experience and nervous processes, is good and instructive respecting mental process objectively regarded, and nervous process subjectively regarded. Following his indications I prepare my hearers for the study of this chapter.

How do I get the inference that mental and nervous processes are connected? The former I apprehend directly: of the latter in *me* I know nothing directly. Follow the steps of the inference by which I arrive at my own nervous system. Starting from a connexion, obvious to myself, between my mental experience and the general movements of my body, I next come to assert a connexion between *your* movements and a mental experience in *you* somewhat like mine; also in the case of lower animals than you. Next, by experimental observation of organisms living and dead I associate actions with nervous system. And thus I infer a nervous system in myself, with which my actions, and therefore my mental experiences, are associated.

Nature of the relation between Mind and Body.

What is the *nature* of this relation? Does our generalisa-

[1] For a statement of the proofs of the connexion let the student read Bain, p. 5 (ch. ii).

tion about it work both ways? Science says, there is reason to believe that *every* mental process has concomitant with it a nervous process in some organised body. But as to the specific character of the nervous process accompanying every mental process we are much in the dark, and probably shall ever be. Till we are *not* in the dark, till it can be demonstrated in detail, *no one can compel you to accept the general statement.* However, no law in the physical world has been, can ever be, demonstrated in every particular.

Take the other way. You can *not* say, you can only imagine, many as are the psychological propositions which speculators have sought to establish on the belief, that to every nervous process there is some subjective process, or what can be interpreted in terms of subjective experience. As to the question of the possibility of an unconscious, or sub-conscious mental life, this is legitimate speculation, but the universality of the relation between nerves and mind is not made out as that between mind and nerves is. With every psychosis is concomitant a neurosis; but we cannot in the same way say, With every neurosis is concomitant a psychosis. The nervous system has other work to do than in connexion with mind, whereas mind always involves activity of a nervous system. To resume in other words:— Apart from the processes of the nervous system there is nothing which we can call consciousness. When we are subjectively conscious in any way some nervous changes are going on. When certain nervous changes take place, we have reason to believe that the subject of them is conscious. These facts together establish the validity of Physiological Psychology. Wherever a physiological statement does not admit of having a corresponding psychological statement made along with it, it is to be regretted.

And there is no mental state but should admit of a conceivable expression in terms of physical process.

The theoretic or scientific reason for trying to get a physical expression wherever possible is that physical phenomena admit of more definite investigation than subjective mental phenomena. Those mental states, like sensations, for which we are able to assign with some accuracy the specific nervous conditions, are those which are best understood, and this, we may fairly suppose, is because they lie so exceptionally open to investigation in their bodily aspect. Changes in the nervous system can often be studied by the same exact methods of measurement that are now applied to physical phenomena; and in determining the nervous fact we determine at least something about the corresponding mental fact.

The Nervous System.

What more now is important to add? This nervous system, which is of such account for our life generally, is made up wholly of two kinds of constituents—fibres and cells, which we may represent by lines and circles respectively—and appears as a large contorted mass in the skull, produced down the spinal column with many branches, like an inverted tree. The first thing to notice in those constituents is their extreme minuteness; fibre and cell must be massed together before they are visible to the naked eye. Nerves consist of compound bundles of fibres, and these are white. When cells are massed together into ganglionic clusters they have a greyish appearance. Of nerve-fibres and nerve-cells there are millions distinguishable in the human system. And fibres and cells are in physical connexion with each other. Fibres always end in cells, and cells are always prolonged into fibres.

Nerve Function.

What goes on within the nervous process?—for it is nervous *function* that concerns us more than structure. Some kind of change. Of what kind? Motion, as in all material change. 'Nerve-currents' sounds learned and knowing, but is rash. Something nevertheless does go from cell to fibre, from fibre to cell. We may image the very simplest expression of nervous motion like Fig. 1, or, because of the multitude of involved fibres and cells, grouped in inter-related 'centres,' like Fig. 2; the arrow-heads indicating disturbance propagated to a cell, and passing out again by another disturbance. The disturbance going inward is known as 'stimulus.' The stimulus effects 'liberation of energy' in the cell. The energy liberated passes out by another fibre in molecular disturbance known as 'impulse.' Stimulation, liberation of energy, impulse, are all of them modes of molecular change, and this is only to be understood as change of motion. Different parts of the nervous system look differently to us, yet at every point within it where you can trace any action, it is found to be reducible to this simple scheme. What is in all this of importance for *us* is to bear in mind the two constituents and the two-fold function throughout the nervous system: cells and fibres grouped into nerve-centres and nerves, cells predominating in the former, fibres in the latter: the former, acting as storehouses of energy; the latter, mainly, as conductors of motor disturbance. And the conductivity of nerves is twofold. Consider the spinal cord (*sp. c*). Each of its branching nerves

Fig. 1.

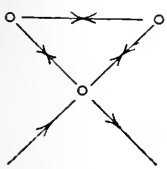


Fig. 2.

has two roots, an anterior and a posterior root. Separate at the root, they are connected for a space, then separate again. The posterior nerve (*p*) consists of fibres, the processes of which go inwards. The anterior nerve (*a*) consists of fibres, the processes of which go outwards. And these two sets of processes are called respectively AFFERENT and EFFERENT. Stimulus is conveyed by the former, impulse by the latter. This is simple on the face of it, but the proportion of one to the other is less so. A slight stimulus may cause a very varying amount of impulse. A prick may cause me to lift one hand, two hands, cry out, even swoon. The nervous system is so inter-related that it may act in parts or as a whole.

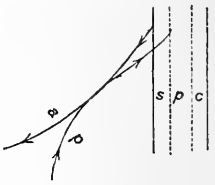


Fig. 3.

Not all nerves have double roots. All spinal nerves are so provided, but some of the cerebral nerves are purely motor (efferent), others purely sensory[1]. The optic nerve e. g. is purely sensory (afferent).

I repeat, any working of nerve, however complex, follows the scheme given above. But not necessarily according to the *whole* of it. The bell is tanging, and in response to that stimulus the class-students' ears may be stopped. But if I, after being silent, begin to speak, there seems to be action going out, which is not in response to action going in—*apparently*—for before me are the expectant faces of those students. Still, in a better example we might see 'going out' without 'going in.' In other words, there are certain kinds of conscious experience which are, or appear to be,

[1] 'Motor' is a purely physiological term; 'sensory' has unfortunately also a psychological meaning. It is better to use by preference the purely physiological terms 'afferent' and 'efferent.'

'centrally initiated'; but, as a matter of fact, much that appears to be so, if inquired into far enough, may be shown to be 'peripherally initiated.' Whether or no there be *spontaneous* activity in the nervous system, it is certain that human beings (and animals) vary greatly in the amount of response made to any given stimulus.

For LECTURE VII read:—

Bain, Bk. I, ch. i, § 5; Höffding, II, § 7; III; Hamilton, *Lectures on Metaphysics*, Lect. XVIII.

Spencer, Pt. I, ch. vi, § 41.

LECTURE VII.

CONCOMITANCE BETWEEN MIND AND BODY.

Nervous Functions (continued).

CONSIDER more closely the nerve-centres. In them, as we saw, energy is stored up and ready to be liberated when a stimulus is brought in along an afferent nerve. Leaving aside the question whether that energy can be set free without a stimulus, mark that all centres are conductive to higher centres, except the highest, viz. the cerebrum. The spinal cord is itself an aggregate of centres all having a relative independence, i.e. capable to some extent of liberating impulse without first propagating the afferent stimulus to the brain. And as lower centres may be channels by which molecular motion is directed upwards, any higher system in reference to the lower system has a function of control. The control can be *co-ordination*, such as e.g. is needed to produce a complex action. The cerebellum is believed to have in the main a co-ordinating function. But the action of the higher centres is also *inhibitory*. A higher centre may stop the action of a lower centre, as e.g. in checking the withdrawal of a member which is undergoing injury, or the utterance of a cry. 'Higher' means more complex in the sense of containing all that the 'lower' contains, so that the action performed in the lower centres is

repeated in the higher. Thus the highest, or brain, is in connexion with the whole nervous system, and is a representation of, is liable to be affected from, and is liable to act upon, the whole nervous organism. And this is not true of any other centre. What goes on in the brain, however, is only a fact of molecular motion of a complex nature.

Certain nerve-processes are of account, not for us as psychologists, but for physiologists alone. For example, if a nerve of the spinal cord is excited, it *may* result *immediately* in a motor discharge, in a closed circuit of nervous action involving no higher centre. Such are Reflex Actions, and are unaccompanied by consciousness. Even they are in a way of account for us, inasmuch as reflex action is the base of all more complex actions which *are* so accompanied; and again, action going on in the nervous system in a mechanical, unconscious way is part of the work even of the brain. I say again, all neurosis is of the *reflex type*. In all cases of psychosis, therefore, the accompanying neurosis is of this type. And much action, now reflex or automatic, was originally conscious; of which more later on. Whenever there is neurosis on occasion of which we are conscious, it goes by way of the brain; unless it go so, we are not conscious.

Again, any action in the nervous system leaves a trace behind it in that system, and the oftener any particular action is repeated the more is the modification of structure and in function effected by its traces perpetuated, both as to stimulus, circuit, and impulse. This may help us to understand what, treated subjectively, would seem to be inexplicable, namely, memory.

Cerebral Localisation.

During the last twenty-five years efforts have been made to

identify areas of the brain with conscious experience. For the simpler conscious experiences called Sense this has been accomplished; at least various facts, though rather of a negative kind, have been made out in that direction. *Complete* cerebral localisation, however, has not been settled even in the simplest forms of consciousness, and may never be [1]. Thus far only we affirm: (*a*) to every psychosis a neurosis, (*b*) we have reason to *believe* that there is no part of the nervous system where changes may *not* go on *without* being accompanied by consciousness, but that (*c*) the cerebral hemispheres are those parts which *must* be called into play before any nervous process can be accompanied by consciousness. Some think this statement to be quite beyond question, but I do not think it quite so certain that the cerebrum must necessarily be involved.

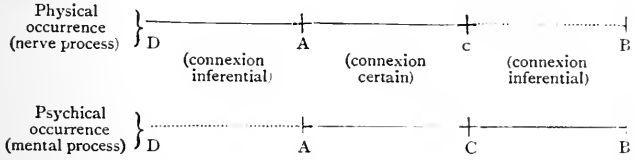
Subconscious Mental Processes.

In connexion with the consideration of such nervous actions as *appear* to us to have no conscious accompaniment we may still ask, whether they have indeed no connexion with our subjective experience? Or is there such a thing as unconscious mental life? Are mind and consciousness commensurate terms? Or are we, in mind, to take account of more than consciousness? This question has of late times been raised from the physiological point of view; but it was suggested long ago, before the study of physiology had reached its present pitch of development. Nearly two centuries ago

[1] Phrenology was built up on the assumption of the relatively independent action of different parts of the cerebral hemispheres. Gall's theory was based on an imperfect knowledge of the brain. It is possible that what is now called cerebral localisation may lead to a scientific phrenology, but as yet the data are insufficient to prove much. Cf. *Mind*, vol. ii, p. 92, on Ferrier's *Functions of the Brain*.

Leibniz raised the question from a purely subjective point of view, and found the hypothesis of *unconscious* mental experience to be necessary in order to explain our *conscious* experience.

A certain nerve-process has only to be complex enough for consciousness to arise. Now suppose it is a little less complex: is there then nothing at all corresponding to consciousness? The difference between a reflex act and a simple conscious act is only one of degree of complexity: is there then nothing comparable with consciousness connected with the reflex act? Let us picture by a diagram a view of the relation between mental experience and brain process:—



At a certain stage in these two lines A—C, there is signified a concurrence of the two processes of which there can be no doubt, e.g. when I open my eyes, I have visual sensations of this room. If I close them, I get none. We also know there is a great deal of mental experience of which we are certain, but which on the corresponding physical side is broken, because we do not know what particular correspondence there is (C—B). We say there is correspondence by inference, by analogy only. So also we find a whole range of nervous process which has no mental accompaniment, all e.g. that goes on below the brain in so far as it is reflex. Now is there not after all, in relation with such nerve-processes, (D—A) below the brain (according to the principle of continuity)

some corresponding procedure of unconscious mental experience? Be not misled by the seemingly sharp contradiction between conscious and unconscious experience. The fact is that there are all degrees of consciousness, from the fully conscious down to the sub-conscious. Hence it becomes a grave question, where does the sub-conscious stop?

Concomitance or Parallelism.

You will find in Prof. Höffding's chapter on 'Mind and Body' reference to various views as to the relation of mind and body, but at the beginning of our course such considerations are premature. What we need now do is to express the fact that mind and nervous processes are related. The best term for this is Concomitance. There is reason to believe that whenever we have anything of mental experience, there is a fact of nerve-process *concomitant* with it. *Why* there should be such concomitance we cannot now consider. The word Parallelism is used synonymously with concomitance, but it carries us too far if it suggests that when there is a nerve-process there is a fact of mental experience [1]. The parallelism does not hold both ways. And neither term conveys the implication of any *causal* relation, least of all that the nerve-process is the cause of the mental experience, which is the Materialist standpoint. The psychical process is not in the least accounted for or explained by the physical process. Mark me here—I protest against such careless phrases as 'brain thinks.' It is stark nonsense! As a material organ, it is the seat of a process expressible in terms of motion. Because *we* are thinking, cerebral processes are going on. The brain does not think: it *moves*. Again, we

[1] Strictly, we can only speak of a parallel between two physical events, not between a physical and a psychical event.

must specially guard against such a blunder as lies in saying that sensation travels along a nerve or is located in the brain. Sensation is a fact of our conscious experience, a fact of Mind, arising on occasion of the brain being excited in a certain way, but not to be *located* in the brain any more than in any other part of the organism. In the nervous system, which consists only of matter, any change is intelligible to us ultimately only as some kind of motion. It may not be visible; it may, that is to say, be *molecular*, but still it is only motion. We are familiar with the fact that all changes of bodies or media are ultimately reducible to modes of motion, as e.g. sound, light, heat; and again in chemistry, where a chemical reaction is only a rearrangement of atoms in space, i.e. motion. The nervous system is a physical thing, and, just as we consider that a flash of electricity passing through a telegraph-wire sets up a molecular motion within the wire, so this is all that we can suppose to take place in the nervous system when a sensation is produced. When, for instance, I prick my hand, a disturbance has passed into the brain, and then I become conscious, and then goes out that kind of motor change which causes me to draw back my hand. Molecular change, which is ultimately motion, goes in, and only motion comes out, but sensation does not go in; it is only bound up with the motion when consciousness is aroused. Nor does volition come out; it is bound up with the outgoing motor disturbance. Sensation, consciousness, cannot be said to *be anywhere* in the same sense that a disturbance can be said to be in, or travel in, a nerve. There is merely a case of thoroughgoing concomitance, concurrence or parallelism—let us say, a *concomitance of disparate processes*. We can never make a physical disturbance *pass into* a psychical disturbance. This implies

the important fact that there is no accounting for mind in terms of matter, though we *may* explain matter in terms of mind. But this is metaphysical ground.

NOTE.—For further discussion on *Subconscious Mental Processes* see Appendix.—ED.

For LECTURE VIII read Bain, Bk. I, ch. i, § 4; Höffding, V, *A*.

LECTURE VIII.

GROWTH OF MIND. THE STAGE OF SENSE.

Correlated Procedure.

So far for a general view of mind, together with a brief survey of the nervous system as specially related to mind. We have seen that the nervous system is one *liable to be impressed*, or acted upon, physically, and also *able to send out* impulse, to act. It has its *passive* side, on which it is *receptive*, and its *active* side, on which it is *effective*. It has, thirdly, its central parts, through which the two sides, affection and reaction, are held in relation with one another. Now in as far as the system is simply affected or excited (whether from without or otherwise) we have the physical condition corresponding to what we are subjectively conscious of as Feeling. In as far as the system is effective, we have the physical condition corresponding to what we are subjectively conscious of as Willing or Conation. And in as far as the system is at once affective and effective—reaction in full and activity co-ordinative of the variety of impressions to which it is subjected—we have the physical condition corresponding to what we are subjectively conscious of as Knowing or Intellection. This process of grouping or co-ordinating among centres prior to energy sent out is one of fabulous complexity. All conscious processes, however, even the very

simplest feeling, coincide with a complex nerve-process. And for that matter any psychosis whatever is essentially complex, in itself and in its concomitant neurosis.

Stages of Mental Life.

Reverting to our original subjective point of view, which for us is primary and fundamental, we ask what kind of mental experience are we first specially to study?

We have this great phantasmagoria of mental experiences, which we have tried to express in a variety of ways more or less figurative, and our business is to see whether we can class those mental experiences that are like each other and marked off from others, and if there is a thread of law running through them all. The business of science is a mustering, classification, comparison of facts for finding out the laws involved in them.

Development and Growth of Mind.

Now in seeking a scientific procedure for our psychology we find ourselves at this stage in a position to consider mind in an aspect that is of the first importance as regards both science and practice. The mental life proceeds in a uniform relation with the life of the bodily organism, more especially with the nervous system; and as the life of the body may be expressed by saying that it develops and grows, it is inevitably suggested that there must be a corresponding development and growth of mind. Now whenever it can be said of anything that it develops and grows, there is no more effective way of studying its nature than by tracing the successive stages of its life; while it is only thus that there can be any thought of intelligent practical training.

Though they have a direct application to the mental life

of which we are subjectively conscious, the notions of Development and Growth may at first be more easily grasped in reference to living bodies. Development in this case is to be understood as the gradual unfolding of the distinguishable but interconnected parts called organs out of an appearance of uniformity, and Growth as a progressive modification, through activity, of those organic parts as they become developed. The seed, for example, develops into the plant with all its varied parts, and growth accompanies the development at every stage. Both processes go on in relation to the circumstances in which the living thing finds itself, and are liable, as these are modified, to be promoted or arrested. But while an organism cannot develop except in circumstances in which it can live and grow, its development depends less on circumstances than on its original nature and constitution. In like circumstances (natural or artificial) different germs will develop differently; and even the growth of whatever is developed will always be limited by the original possibilities of development, both as to kind and amount, inherent in the living thing.

Turning now to the subjective point of view, we may speak, in no indefinite sense, of mind as developing and growing. Our conscious experience, when we reflect upon it—and we have already so reflected[1]—has a distinct appearance of continuity while becoming ever fuller and more varied. It has grown in the sense that it has steadily increased in extent and content, and it has developed by the opening up, from time to time, of new mental horizons. The circumstances also of this development and growth admit of more or less consistent and definite statement. We can distinguish a part that is due to personal initiative from the experience that

[1] Vide Lecture III.

seems rather as if it came to us; and in this again a part that comes, as it were incidentally (through contact, as we say, with the world of nature), from that which has been communicated (by parents, teachers, and others, in the social state into which we are born). Further, we can allow for an original mental constitution by supposing that each man's conscious experience from the first has its own peculiar range and complexion. My earliest feelings, impulses, &c., will, in like circumstances, be other than yours. While we are fitted, as human beings, to develop a common consciousness not shared by the lower animals, we differ at the same time as to what we may each of us mentally become.

It is thus quite possible to speak of mental development and growth from the strictly psychological point of view; but the view is rendered much more definite when there is coupled with it a reference to the bodily conditions of mental life. In particular, we are thereby helped to conceive of the individual as endowed originally with definite mental capacities; for each of us comes into the world with a nervous system so organised that the influence of circumstances is at once seen to have its limits. Organised, however, as the nervous system is at birth, it is then but imperfectly developed, responding with a small number of re-actions to a few simple impressions, or expending its energy in random movements; and so we can the better understand how contracted and inchoate must have been our earliest mental experience, which was there before we became self-conscious, and which, when we became self-conscious, could no longer be recalled. As the development of the system is then known to proceed, through childhood and youth, in dependence upon its inherent powers more than upon (though not without) the presence of soliciting circumstances, we may more distinctly comprehend how new

phases of mental life should from time to time manifest themselves, for which no explanation is to be sought in the foregoing conscious experience. While, again, the growth of the nervous system as a whole, and of its various parts, at each stage of development, evidently proceeds in relation to the physical circumstances naturally present or artificially supplied, so may we more clearly see how the mind will expand and acquire this disposition or that according to the nature of the incidental experience or express instruction it receives.

Even so, however, though rendered more distinctly intelligible, the development (as distinguished from the growth) of mind does not admit of being traced in detail. For this there is required a far more exact knowledge than we yet have of the actual development of the nervous system as well as of the relation of its different parts to the variety of mental functions. We can but judge generally that, as mental advance is bound up with the nervous system in the living human body, it follows a course that may be variously modified and specially may be arrested, but cannot be indefinitely hastened or prolonged. Such a general conviction is of great practical value, warranting, as it does in education, the most particular regard to all the ascertained conditions of bodily well-being. No mental regimen can be truly effective that involves the least neglect of the conditions under which there can be a healthy natural development of the nervous system in the body. But even in the practical view, the condition has chiefly a negative import, and precise positive injunctions are not to be looked for till the actual process of development can be specifically traced.

The case of growth is different. Growth of mind, at every stage of development, is represented by the word

Experience, or rather, what we call Experience subjectively is growth physically. The more frequently any feeling is experienced, or any intellectual combination is formed, the more liable is that feeling to be experienced, the more fixed that combination becomes. Physically, in the one case, the seat has become more highly charged with nervous energy, and in the other case some definite cross-connexion has been carved out. And it is not impossible to express the conditions under which mental experience becomes widened and fixed, in relation with what is known of the conditions of growth in the living organism. At present, however, our insight into mind as growing or developed is to be used for laying out the field of inquiry in such fashion that explanation may afterwards become possible.

Now there is a very simple and obvious way of viewing mind as manifested at *stages*, which seems the most effective for this purpose. We know that our consciousness is something that grows, develops, or expands. We are aware of this for ourselves; we know that our consciousness expands as *we* grow and learn. And though we do not remember our earliest years, we can understand what went on in us by reason of what we suppose goes on in infants. Adult consciousness is more manifold and complex than infant consciousness. If our consciousness has grown and is growing, we must suppose it has been doing so according to some definite laws. We are bound to suppose that, if we mean to have any science of it. It might seem as though nothing were so free as mental experience. Then where are the laws involved in it? If we are to know anything definite about it, we must seek for laws, and before we seek, we have in a definite way to muster our experiences, classify them, put together those experiences that resemble one another.

Reasons for commencing Mental Analysis with Sense.

Now my answer as to my procedure is based on my opening remarks. We are to begin with the consideration of that kind of mental experience called Sense, or Sensation. From several points of view, sense comes before us with special claims to be first considered. Not all psychologists who begin in the same way make this justification of their procedure.

1. 'Look within' and you will admit, that, *whatever else* we can say of consciousness, we are always having a series of fresh and new feelings or affections; it is the most salient fact; our conscious experience is continually being added to in some way. How, for instance, would my class know my thoughts during a lecture without the sounds of my voice, or the sight of what is on the blackboard? And the one term herefor is our being *sensible* of somewhat. Our consciousness may not be aggrandised by bare sense-experience, but the sense-experience *must be there.*

2. At the dawn of memory, we see by our own experience and the conscious experience of children, that our consciousness was then predominantly a sense-consciousness. In all its three distinguishable (though blended) phases of Feeling, Intellect, and Will, we may note an earlier and a later stage. Some feelings are clearly manifested before others, and the like is true of cognitions and volitions. The feelings that are called sense-feelings or, simply, sensations (taste, touch, &c.), are almost without exception excitable in some form from the beginning of life, while those more specially denominated Emotions or Sentiments (love, sympathy, &c.) for the most part become manifest only later on. The knowledge of sensible things, distinguished as sense-perception or,

simply, perception, is obtained at a time when general knowledge, called Conception or Thinking, remains still in abeyance. And, in like manner, the power of willing is first manifested in control of the bodily members, which may be called sense-action. In short, SENSE may be used as a comprehensive designation to cover all the primary manifestations of mental life.

3. Conscious experience then first offers itself for study in the mode of sense. Take any consciousness of developed form, e.g. consciousness of the pillar in my class-room. See what it involves; analyse it, break it up, and you will see that, whatever goes to make up that consciousness, the salient facts are what we call sense—sense of colour, of hardness, of sound when it is struck, and so on. Whatever else the pillar may be, it is an aggregate of sense-experiences, resembling each other in several respects, yet each of them for us a simple, distinguishable experience—simple, as not to be further analysed. Sense-experiences in their ultimate form are constituents of consciousness.

4. Now, to show the importance of physiological considerations, refer to those conditions in the nervous system on which our sense-experience depends. The system consists of members, the brain, &c., which are removed from direct communication with other material objects. Communication takes place by way of *nerves*. And if the brain is, properly speaking, liable to be acted upon and to act, only by nerves, then, if there is one kind of mental experience that is bound up with nerves, it is this kind that should occur to us to study—that experience, in other words, which involves both nerves and centres. We best oppose to the central parts of the nervous system its peripheral parts, or, more especially, the limited external surface which constitutes, not all the

peripheral parts of the nervous system, but the periphery of the body. Let us then define sense from a physiological point of view, though it be a mental fact. Sense is the name for a certain simple kind of subjective experience, which arises for us when brain is called into play in connexion with the peripheral parts of the nervous system. Brain may be called otherwise into play, as e. g. when I in thought estimate that $12 \times 13 = 156$, but whenever we have got a sense-experience along with excitation of brain, there is also a process going on in the peripheral parts of the nervous system. And this is our definition from the physiological point of view.

But we saw that those peripheral parts were twofold, afferent and efferent. In our analysis of sense have we to take account at once of both? Professor Bain begins with that simple kind of conscious experience which, he believes, arises with the efferent nerves, and only in the second place goes on to deal with that kind of conscious experience which arises in connexion with afferent nerves, i. e. with sensation. Whether sensation should also include the former kind is a moot point. That sense is connected with stimulus of the brain through afferent nerve-fibres, is the extent to which psychologists in this matter agree.

Sense as related to the Three Phases of Mind.

What is the relation of sensation to the three ultimate phases of mind? Professor Höffding has no hesitation in bringing sensation under Cognition. Later on he gives grounds for modifying this view, for when he proceeds to Feeling and Will he is as ready to take account of sensation as he was in Cognition; he does not bring in sensation definitely, yet he makes express reference to it. Sensation then

has not that exclusive reference to cognition which his exposition to start with would seem to imply. Professor Bain, on the other hand, devotes a preliminary section (Book I) to Sensation before dealing with the three phases, and implies that sense has a relation to all three. I agree with Professor Bain and go further. He professes to deal with Sense before he comes to Intellection, &c., yet in point of fact, at various parts of Book I (pp. 47–50; 62–66), he is already, in connexion with Sense, dealing to a certain extent with Intellection. So for Feeling and Conation. We must be more explicit.

Have we under the name of Sense got a fourth phase of mind? Not another phase, but a *stage* of mental experience. I mean, that every phase of mind can be observed by us at the stage of sense. Intellection, e. g., can be either sense-intellection or not. We have, at the stage of sense, to take account of mental experience as it partakes of all three phases. We can view it in respect of sense-feeling, sense-intellection, sense-conation. This view is not really at variance with those of Professors Höffding and Bain.

Children's minds are at work at the sense-stage. This does not mean that sensation by itself gives a complete account of the child's mind. However early we take account of consciousness, we are bound to suppose that in the mind of children we can discern the three phases. If children were not intellective, affected, conative at the beginning, they would never become so; but while they are all this, they are so pre-eminently on occasion of sense. There comes a time when consciousness is not pre-eminently sense-consciousness, when we pass more and more out of the stage of sense. Care must be taken in using the word 'stage,' or it may be perilous, because it suggests that when we pass from the sense-stage we have done with it. But it lasts as long as life.

There are cases of disease where human beings have lost exclusively all sense-experience; at least one such case is recorded, where not only taste, hearing, &c., but even touch was gone. Such a person could hardly be conscious at all. The same happens to us every night when we sleep; whenever sensation is cut off, asleep we go. This justifies us in saying that, no matter how aggrandised our consciousness, if we do not continue having sensations, our mass of consciousness is of no use. But, relatively to other modes of consciousness, it is so much more prominent and engrossing at the beginning of life, that we may with good reason speak of it as the initial stage of mind; and there is no more effective way of stating the problem of psychology than in this form: that we have to seek for an explanation of the phenomena of adult consciousness as arising out of the sense-experience of early life.

For LECTURE IX read Bain, pp. 27–35; Höffding, VI, *A*, § 1, *a*.

LECTURE IX.

GENERAL SENSE. SPECIFIC ENERGY OF NERVE.

Sense, for Psychology, is Simple and Ultimate.

We found that to get a definition of Sense, or Sensation, we were compelled to connect it with, and refer it to, nervous processes. It either *seems* not to be, or *is* not, resolvable into anything simpler. And as this is not the case with every kind of conscious experience, we have some reason for beginning our analysis of subjective experience with Sense. Again, consciousness is broken into in a way for which the previous phase does not furnish us with any adequate reason. Thus we can say in a manner our conscious life *begins* with sense.

My Procedure.

Some psychologists, e.g. Professors Sully and Clark Murray, before proceeding to give a detailed exposition of Sense, have a number of considerations on the General Doctrine of Sensibility; and both proceed to consider how our consciousness is *quantitatively* related to the physiological circumstances which attend it. We however shall *first* map out what are the main kinds of sensation, and then consider what are the ultimate relations between sensation and stimulus as treated in what is called Psycho-physics.

The Seats of Sensation.

When we deal with sensation there is a conviction that we have a certain number of senses. We talk popularly about five kinds of sensation, corresponding to the five organs of sense—skin, tongue, nose, ear, and eye. We *distinguish* sensations from the organic point of view; we *connect* them with manifest organic parts. By organ of sense we mean something 'through' which we have a certain kind of sense-experience. But remember always that sense arises neither in fibre nor in brain, but 'in' consciousness. Let students correct for themselves gross errors herein in some of the books (not those I have named for reading).

Quality and Quantity of Sensation.

From the subjective point of view how do we distinguish and connect sensations? We are aware they have something in common, yet something peculiar to each, constituting different kinds of sensation. For 'kind' use QUALITY of sensation; sound and colour differ *qualitatively*. Sounds, &c., differ also in *quantity*, i.e. in intensity, but the fundamental distinction is that of quality, both as between different senses and within the same sense. There is e. g. a difference between sweet tastes and bitter, and again between kinds of sweet and kinds of bitter.

Special Order of Sensations.

Assuming for the moment the adequacy of the popular fivefold distinction of sense, we find that these five can be disposed in a certain order. Let us substitute for Touch the more comprehensive term, Skin-sensibility, and range them thus:—

Skin-sensibility.
Taste and Smell.
Hearing and Sight.

According to what is this order? According to the principle followed in our order of objective sciences, an order of *increasing speciality*. The quality, if we read downwards, becomes of a more marked, pronounced kind. There is in sound and colour something more specially distinctive than in most skin-sensibility, in which there is a certain vagueness. Consciousness yields us a greater variety of tastes and smells than of skin-sensations, and a still greater of sounds and colours.

Again, if we refer to the corresponding organs we find a corresponding increase of speciality. Eye and ear are the most highly specialised organs of sense. The skin constitutes a relatively unspecialised organ. Democritus had a theory of development of the senses, which was that skin-sensibility was the first and fundamental sense, and of it all the others were specialised kinds. This brilliant suggestion has received a great deal of support from modern biology, but cannot be said to be established. That taste and smell are modifications of skin-sensibility is possible, but eye and ear are not merely such. Nevertheless we can say this much, that our order exhibits increasing speciality in three ways—subjectively, organically, biologically.

General, Organic, or Systemic Sensibility.

Our order then, if read upwards, indicates decreasing speciality, i.e. increasing generality. What is that general sensibility which gives meaning to the criteria of speciality? It must be such that those criteria are wanting. On the physical side, the general characteristics are that the nerves involved in it are nerves not provided with specially constructed endings. In the flesh, the skin, the internal organs of the body, there is a large supply of afferent nerves,

connected with the main centres, but ending simply in those organs. Sensations that we have in connexion with those organs are not clearly distinguishable one from another with the definiteness characterising special sensibility. We may do our best to classify this large mass of general sensibility, as Professor Bain e. g. has done, but we must say, that in psychological character it is essentially vague. It was not till the end of the last century, about 1796, that, through Cabanis, what is now called general sensibility came to be distinctly analysed. Other designations for it are (*a*) *Organic Sensibility* (cf. Bain), all parts of the organism subservient to life being, as such, organs or seats of general sensibility. (*b*) *Common Sensibility*, used also in physiology. (Note here that *sensus communis* is an old term and ambiguous: *common sense* in philosophy has acquired another and a definite meaning of its own, adopted by the school of 'common-sense philosophers,' headed by Reid.) (*c*) *Sensus Vitalis.* (*d*) *Systemic Sensibility*, or sensibility connected with the life of the body as a system. Neither 'organic' nor 'systemic' offers so good and direct an antithesis to 'special' as 'common,' or 'general.' Nor does the word 'special' commit us to the popular but incorrect number of five senses.

Distinction between General and Special Sense.

Now the difference between general and special sense cannot be shown subjectively in a definite way; it can only be done by a reference to physiological accompaniments. And this follows from the conclusion we came to above, that sense itself as a whole has the physiological conditions very evident, and therefore cannot be adequately explained without a reference to these phenomena.

The peculiarity of special sense is that it has a certain

definitely marked quality, and is so divided off in consciousness that there is no danger of confusing it with any other sense whether general or special. It is true that it is very common to apply the language of one sense to another, e. g. 'loud colour,' &c., and furthermore, I will not say that confusion never takes place between two senses, as in taste and smell, where some sensations are difficult to distinguish, as will be noted later on[1]. But whereas we may say with relative determinateness that special sensations have a well-defined *qualitative* character, it is almost impossible to explain the differences in general sensations in the same way. It is true, in turn, that among them there *are* marked peculiarities, as e. g. between a racking pain and suffocation, but the difference is not like those between the special senses.

Now this is as far as we can go by a subjective treatment of the subject, and so we must fall back on physiological characteristics, as we have already had to do in the case of general sense. In the case of all the nerves of special sense, the afferent nerve-fibres end more or less at the periphery, not simply as fibres, but in certain minute structures which vary in the case of the different senses, and which help us to define the differences we experience subjectively. These other structures make the irritability greater than it otherwise would be. They are called by Mr. Spencer *multipliers of disturbance*, and may be compared to a thorn which, when run into the skin, increases the irritability of the nerves around it. Among them are the papillae, or peripheral organs of touch, the retina, and the peculiar endings in the tongue, where the nerves end in a different manner at the tip from those at the back. In the general senses these nerve-

[1] Cf. Lecture X, p. 70.

endings are usually absent, and we shall see that the more highly organised or specialised is the structure of these endings, the greater is the speciality of the special sense.

Specific Energy of Nerve.

To whatever it may be due, whether to peculiarity of nerve-endings or peculiarity of cerebral endings, we find that a particular nerve is normally or regularly responsive to a particular kind of stimulus, but yet is found to respond to other kinds of stimulus in such a uniform way that the quality of the consciousness is always of the same kind. This is called the doctrine of the specific energy of nerve. For instance, light is produced by the vibration of the ether acting upon the optic nerve through the retina, and if this kind of stimulus be applied to any other but the optic nerve no effect is produced. In the same way there is one nerve which responds to waves of sound. But if you treat the optic nerve with a stimulus of pressure or electricity, consciousness of light is produced; so, too, will the auditory nerve respond in its normal way when pressed upon. Taste in particular states of health is also affected analogously, and so is the olfactory nerve, a bad odour, e. g., being smelt just before a fit of epilepsy. Specific energy of nerve has been variously explained, but not satisfactorily; let it suffice us here, however, that the doctrine is of real account in psychology in fixing the distinction of one special sense from another.

There are, nevertheless, two partial exceptions to the rule, viz., (1) we find a case where the same stimulus acting on two different kinds of nerves produces different conscious experience, and (2) there is a case where one and the same nerve is differently affected by different stimuli.

(1) The same waves of ether acting on the retina produce

colour, on the skin, temperature. This shows that light and heat do not reside in the stimulus, but are differentiated by our specific nerve-endings. Nothing shows more clearly the efficiency of the nerve-structures in both cases. The range of stimulus common to the two senses is limited. If the wave-frequency is reduced we still have a sensation of heat, but none of light. If the wave-frequency is increased, colour is still produced while heat dies away, as in the case of the violet rays.

(2) The tip of the tongue is supplied by the nervus trigeminus; at the tip we have the senses of both taste and touch developed, the latter to its highest pitch. Though both these senses are supplied by the same nerve, there is reason to believe that the fibres have in each case different endings. When these two kinds of endings are stimulated together there arises a confusion, such e. g. as the effect that a substance like mustard produces (cf. Bain, p. 38).

General Sensibility concluded.

Let us now dispose of general sensibility. It constitutes the beginning of sensibility in this sense, that if all the special senses are developed from skin-sensibility, and skin-sensibility is developed from general sensibility, then the last is fundamental to all the rest. Cabanis, again, maintained (cf. Höffding) that in all probability we have it before birth, prior to the exercise of the organs of *relation*, as those of special sensibility are sometimes called in view of our entering through them into external relations. The fact that we have no memory of this pre-natal sensibility proves nothing. There is every reason to believe that organic sensibility plays its part in the development of the individual from the beginning, and it is certainly fundamental.

Its character in adolescent or adult consciousness is chiefly that of feeling in its proper sense, of affection either pleasurable or painful, and especially of the latter. Many modes of organic sensations are unknown to us save as sources of pain. When our vital mechanism is working rightly, we know nothing of it in detail, but on occasion of disorder, e. g. of the liver, we get sensations of the most depressing kind. Certain other modes, however, of general sensibility are pleasurable, e.g. a sense of warmth, or moderate repletion. All that we sum up in the terms, physical comfort or discomfort, sense of ill- or well-being, *bien-être*, *malaise*, cœnæsthesis, is to the greatest extent organic or general sensibility. Even though particular modes of it may not figure in consciousness as pleasurable, it does not follow that they do not *tell on* consciousness. Once more, our general sense of being is a collective sensible experience, made up of all our feeling at any given moment, containing some elements of special sense, but into which organic sense generally enters.

We have further good grounds for stating, that into our *consciousness of self*, as of an individual, of myself, of being myself, organic sensibility enters as the fundamental factor and nucleus, round which is gradually developed the ego, as distinguished from the non-ego. Herein organic sensations attain to great psychological importance, however unfitted they may be, from the fact that they are non-localisable, to become sources of the knowledge of objects.

Finally, in respect of Conation organic sensibility has a marked character. Every mode of experience which is markedly pleasurable or painful has a great conational importance, even though it may not take the form of overt action. Some of the most fundamental active impulses of our nature

have their root in organic sensibility; e. g. there is no understanding appetite without reference to it.

We now leave the 'stage' of organic sense after having considered from it all the three phases. Describable mainly in terms of Feeling, it has small intellectual importance, but contributes by *collective* action some knowledge of the 'inner' or subjective world, and, by particular action only, clues to states of the organism as such. And it is of great conational importance.

For LECTURE X read Bain, Book I, ch. ii, from p. 36.

LECTURE X.

THE SPECIAL SENSES.

In resorting to the special senses, we find this marked contrast to general sensibility, that distinctiveness is the very note, discrimination the very essence, of them. And we have already seen (though it is much overlooked) that the speciality of the special senses is not properly understood till it is grasped that they are not equally special.

Skin Sensibility.

Notice now the double relation of skin sensibility, arising from its complex character. It is the bridge between general, and the other forms of special sensibility. The following diagram will indicate its position:—

General	Organic Sensibility	
	Skin Sensibility	
	Taste and Smell	Special
	Hearing and Sight	

Why do I speak of skin sensibility at all? In order to get away from the special limitations of the word 'touch.' Why does Professor Bain put touch before taste? Because he looks more to intellection. But our point of view is to find out what sense is as sense. Why skin sensibility rather than touch? If Professor Bain be read on Touch, it will be seen that he

considers not only touch proper, which he describes as contact and pressure, but also temperature, the sense of which is connected, in ways both general and special, with the skin. Hence it is well to use the wider and more comprehensive term, skin sensibility. The question then arises, whether touch and temperature are merely different qualities of the same sense, or not? No, we can, it is true, get them both together, as when I put my finger on the table, getting both contact and temperature, but they are independent variables. The fact that there are skin sensations which, as touch or temperature, become in certain circumstances pain, does not prove them one and the same special sense, but connects them with *general* sensations. We do not begin to feel pain of touch or temperature, until the skin becomes injured or disintegrated. And that is the very thing which arises in organic sensibility. Skin pain is indeed the commonest, the mos typical of all pains, the one we are most exposed to. Pricks, cuts, the greater part of the pain in operations—in all such we suffer skin pain, on occasion of injury to the organism. Hence in our skins we are still in the region of organic sensibility[1], and any sensation of temperature in the skin can always be regarded as a specialised mode of the general sensation of heat.

Some[2] declare that pain is, in addition to touch and temperature, a third form of sensibility. It is true, on the one hand, that in certain cases of disease persons, while

[1] Skin sensibility appears to be more vitally connected with organic functioning than any other special sense, not excepting taste and smell (V, p. 70). Any of the special senses may be lost without involving death, except skin sensibility. Patients who have lost this sense go to sleep inevitably and die shortly.

[2] E. g. Mr. Spencer.

retaining a sense of touch, lose the capacity of feeling pain through pricks. On the other hand, touch and temperature pass by insensible degrees into pain, when the excitation has reached a certain pitch, so that pain seems due to degree or mode of excitation of the same nerve-fibres. Again, we have not the same proof that there are different fibres for pain and touch, as we have that there are different fibres for temperature and touch. In these there is every reason to believe that each kind of sensation is connected with different nerve-*endings* and different *fibres* of the same nerve. At parts of the skin we have touch and temperature, at others temperature and not touch. Investigations even seem to show that on a minute scale there are heat-spots and cold-spots on the skin, where we feel only heat and only cold respectively[1]. Hence skin sensibility is a complex, a nest, or matrix of sensations, nor perhaps has research yet exhausted its specialisations. And each mode of it is both general and special. How far special? In so far as contact, shifted the fraction of a millimetre on the skin, may indicate a change in feeling from heat to cold or to sense of touch only. The sensations of touch proper are highly discriminable, of considerable qualitative variety, indefinitely numerous. As to the physiological conditions, the nerve-endings of touch vary greatly at different parts of the body, the full import whereof will be evident later. They are, to take extremes, very different at the tips of the fingers and tongue from those in the interscapular region of the skin. That such differences exist and are parallel with subjective differences is characteristic of special sense. Touch, therefore, and temperature, though nearly related to general sensibility, are essentially special as well, and constitute, as we have said, a bridge between the two.

[1] Cf. Donaldson, 'On the Temperature Sense,' *Mind*, July, 1885.

Taste and Smell.

These should be studied in Bain. There is a reason for considering them together. They are related by a marked affinity, statements about the one mostly holding good for the other. Both are special, manifesting qualitative differences and by way of special peripheral organs. Each is in relation with a mode of organic sensibility, viz., alimentation and respiration, respectively, to the organs of which taste and smell are as door-keepers. Thus each is complex. Relishes, e. g., and disgusts or nauseous tastes, as distinct from simple tastes, include organic sensibility of the alimentary canal. 'Fresh air' and 'closeness,' as distinct from simple odours, involve organic sensibility of the respiratory organs. Again, burning and bitter tastes and pungent smells involve skin stimuli and other nerves, besides those of the organs of taste and smell. Between these two organs there is physical continuity, namely, at the back of the mouth. Corresponding to this we find in subjective experience that tastes and smells are often mixed up together, run into each other, e. g. savours and flavours. Again, they have both been called the chemical senses, because in both cases the stimulus takes the form of a chemical process. Tasted things must be liquid or moist, smelt things must be gaseous [1].

Both organs are in continuity with the skin; indeed, if the term, skin, be extended so as to include all the mucous membrane in mouth and nostrils, then there is a sense in which taste and smell may both be regarded as specialised skin-sensations, as touch of a certain kind, both mentally

[1] When we speak of 'savour' we seem to be talking of smell, but are really speaking of taste; when we talk of 'flavour' we seem to be speaking of taste, but are really speaking of smell. Cf. the fact that flavour is lost when we are suffering from catarrh.

and physiologically. The tongue, e. g., which is the organ of taste, is also the most highly differentiated part of the organ of touch. At the tip, the same nerve both touches and tastes, but by different filaments, ending differently. Again, the tongue is also an organ of temperature, a pungent taste involving stimulation of temperature-nerves as well as of gustatory nerves. The same holds good of the nostrils. Taking snuff affects both olfactory and tactile nerves.

Coming to the residuum of tastes proper and smells proper, we find that many are markedly pleasurable or painful. For many, on the other hand, a neutral character is claimed. There is also a vast range of qualitative variety. In the difference between an alkaline and a saline taste you are discriminatively affected, rather than pleasurably or painfully affected. Now, under the circumstances, where the difference between these tastes is the most marked fact, are they not describable in terms of feeling? Yes, because we are affected, i. e. feeling. Whereas, I say, the salient feature of 'sweet' and 'bitter' is their character of feeling, the salient feature of other tastes is their character of qualitative difference, discrimination, intellection.

Sight and Hearing.

Still confining ourselves to bare sense, we will couple also hearing and sight. Considered purely as sense, I think that hearing is perhaps the most specialised of all the special senses, but sight, though less highly specialised as mere sense, is of far greater importance for perception. Subjectively taken, they are so far related, that what we say of the one as sense, we can say of the other, e. g. we can speak of a 'loud colour.' Nevertheless hearing gives its language to sight, rather than vice versa. It is because of its extreme

specialisation that Taine[1] selected hearing as the sense to describe in full detail, saying the other senses could be understood in terms of this. This, in our present order, would be a reason for taking sight first as less specialised. But it is at the same time a reason for commencing with hearing, inasmuch as this sense gives clues to the understanding of sight.

The organ in each case is unique, for not only is there to each a special nerve having the sole function of transmitting sounds or sights, but it ends in an extremely complex apparatus, the proper sensitive surfaces in which are not visible externally. It is in these sensitive structures that ear and eye stand so far above other sense-organs. In the ear, its external part or pinna, and its middle part or tympanum, are merely appendages to the internal ear or labyrinth, helping to make stimulation effective, the last, viz. the 'fibres of Corti,' being the only sentient part. The 'semi-circular canals' in the ear are not concerned with hearing, the nerve which supplies them not going to the auditory centre. Stimulation of them seems to be connected with sensations of equilibrium and rotation, and this consciousness of co-ordination must either be added as another special sense, or be included under General Sensibility. In the eye, the sensitive structure or retina, where the physical stimulus of ether-vibrations is changed to nerve-process, is spread like a curtain over the back of the eye, and has, though only $\frac{1}{16}$ inch thick, at least eight different layers, only two of which are nervous, the others merely promoting the stimuli. The eye is in this respect the very acme of a specialised sense-organ. Unlike the other senses, the stimuli necessary to affect the nerves of sight and hearing can be precisely

[1] V. *De l'Intelligence*, Paris, 1885; liv. III, chap. i.

determined, and again, their high development has caused the special branches of physics, optics, and acoustics to be constructed.

Coming to the subjective side, note the relation between hearing and taste or smell. Sounds are painful or pleasant, and the latter we often call 'sweet,' the former 'harsh.' But the range of discriminable sounds is vastly greater than that of discriminable tastes and smells. Professor Bain proceeds from *quality* of sounds to deal with *quantity* of sounds. The fact that he did not do so under Taste and Smell indicates the greater development in the sense of hearing. The former senses can be *distinguished* as varying in intensity, but in the case of sounds the degree of intensity can be *measured* with the greatest precision. Moreover, quantity of sound can be subdivided into Intensity and Amplitude. Again, we differentiate sounds as notes, tones, or musical sounds, and as noises. The former are distinguishable in a third respect, viz. Pitch, and in another, that of Timbre or clang-tint (*Klangfarbe*). Another distinctive kind of auditory experience is that of a certain concurrence of sounds we call Harmony and Discord, and of sequences of sounds we call Melody. However, these have their analogues in well-ordered successions and combinations of tastes. There are, so to say, harmonies and melodies of taste. But there is nothing in gastronomy corresponding to the high development attained by physical and physiological acoustics.

With Light we may also deal quantitatively as well as qualitatively, and equally with sound, we can give expression in physics and physiology to the different effects we are conscious of in sight. Next, is there in light a corresponding distinction to that between sounds and noises? Yes, there

are sensations of sight as such, i. e. light and sensations of *colour*. And in colour we can distinguish the result of variety in rate of ether-vibrations, just as pitch depends on rate of sound-vibrations, but there is little proportion between the two, the range in pitch lying between 16 to 20 and 36,000 vibrations per second, that in scale of colour from 400 to 800 billions per second. Nevertheless, whereas in sounds there is the possibility of duplication over and over again, yielding a series of 'octaves,' the whole range or gamut of colour is for us exhausted within one single octave, from red to violet. The analogy is there, but it is a likeness with a difference. You will find that the detail of sound is better made out and understood than is the case with colour, proving that hearing is the most specialised sense. There are, moreover, harmony and melody analogues in colour, but here again there is less exactness and definiteness possible. It is in hearing that we see what sense for us, as sense, can come to.

For LECTURE XI read:—

Höffding, V, *A*, §§ 4, 5; I, 8*d*; Sully, *Outlines of Psychology*, pp. 40–43; Ward, pp. 50, 51; 53, 54; Croom Robertson, *Philosophical Remains*, 'The Senses.'

NOTE.—It is not till he deals with Feeling that Professor Höffding gives a very fairly detailed account of the different senses. He makes little account of sensation in connexion with Cognition, but takes great account of it as a mode of Feeling.

The lecturer used to refer advanced students to Ladd's *Physiological Psychology*, Part II, for a detailed account of research into the quantity and quality of sensations.—ED.

LECTURE XI.

GENERAL CONSIDERATIONS ON THE SENSES.

Radical Differences in Sense.

Reviewing what we have found in sense, we find we can say nothing about the most highly specialised sense, hearing, that we cannot to *some* extent say of every other special sense. Yet while there is a certain continuity between them, there is always from one point of view a complete break. Each special kind of sensation has a character apart and of its own. And this marked subjective difference corresponds to difference in the special organs.

Relativity of Sensation.

Thus it is possible that we might have more kinds of sensation if we had more organs. For the physical processes which give stimuli to such senses as we have are a very small part of all the physical processes going on around us. And they give those stimuli within a very limited range: e. g. we only hear sounds, when the air-vibrations are at a certain rate. Vibrations at other rates may be going on of which we, through the limitation of our sense of hearing,

know nothing. Similarly with ether-vibrations. The sense-affections are therefore purely relative[1]. Again, the same physical process that appears to skin-sensibility as heat, appears to sight as light, ether-vibrations being the medium of both heat and light. The same physical process appears differently to different senses—or may not appear (directly) at all. Actinic rays affect the photographer's plate, but not our retina.

Quality and Quantity of Sensation.

Of the *general* characters of sensation, quality is the most fundamental. Every sensation, whatever else it has, must have a qualitative aspect distinct both from other kinds and within the same kind. And the more special the sense the larger number or range of qualitatively different sensations does it include.

Next, sensations not differing qualitatively may, within the same sense, differ quantitatively: e.g. the same note of a piano may differ in intensity or degree, may be soft or loud. Thus quality and quantity are apparently independent variables. Speciality of sense finds expression in quantity as well as quality. Consider, e.g., the quantitative range of sight and sound as contrasted with that of taste and smell.

This aspect of intensity of sensation has been well studied by the science of psycho-physics. Sensation depends upon stimulus. Now stimuli, being facts of the external world, may be viewed quantitatively; we may take a unit of stimulus, or any multiple of it. Since stimuli then can be considered quantitatively, and sensations also differ in intensity, are

[1] Cf. Hamilton, *Lectures on Metaphysics*, Lect. VIII, pp. 141-145 (Ed. Mansel and Veitch).

there definite numerical relations between the latter taken subjectively? and if so, can there be any fixed relation between degrees of stimulus and subjective intensity of sensation?

'Weber's Law.'

Weber and Fechner, from thirty to forty years ago, inquired into the existence of such a relation, and held that they had succeeded in framing a law of the relation between sensation and stimulus quantitatively expressed, termed the Psycho-physical Law, all investigations leading up to it being (then) known as psycho-physics. *Intensity of sensation does not increase at the same rate as intensity of stimulus. For intensities of sensation to increase in arithmetic progression, intensity of stimulus must increase in geometric progression.* Thus to increase to 101 intensity in sensation expressed as 100, we may require an increase in stimulus of 100 to 110, but to raise intensity to 102 the stimulus must be raised to 121.

A certain degree of stimulus-intensity is necessary before it is effective at all: this is known as the *threshold*, and the value of the stimulus at that point gives the threshold-value of that sense to which the stimulus is applied. The difference in degree of stimulus necessary to take effect is called 'the least observable difference.'

Is Intensity a fundamental distinction?

This psycho-physical law is probably not an ultimate law. It is still a doubtful point whether, however we seem to distinguish quantity from quality in consciousness, intensity may be no fundamental distinction, but explainable in terms of quality.

This doubt, raised by later psycho-physical research as to the reality of intensity as regards sensation, brings up the question how far it is wise to substitute its opposite 'extensity' for *mass* or *volume* among the quantitative aspects of sensation as Dr. Ward does[1]. To me it seems—that to introduce this special aspect in order to establish later on a theory of perception with respect to extension is begging the question of extension later on. The notion of extension belongs to the more complex subject of perception, and not to sensation at all. Intensity had better establish itself first, before it brings in its parallel expression Extensity. If intensity were to fall *quâ* fundamental distinction, it would drag extensity with it.

Sense considered Emotionally and Intellectually.

We must now proceed to consider the senses from a point of view other than their relative speciality. The experience we have from a sense is psychologically to be regarded in a twofold way: (1) such as it appears to consciousness with respect to the pleasure or pain it produces, in other words, from its emotional aspect; and (2) as it is of account to us from its intellectual aspect, in other words, as it enters into the fabric of our knowledge.

The Senses as affording Emotional Values.

It is quite plain that each of the senses presents us with states of consciousness which we can most adequately describe as feeling, that is, as the case may be, either pleasurable or painful. Looked at from this side, the senses will

[1] V. Art. 'Psychology,' *Encyclop. Brit.*

show a great difference. Sweet and bitter tastes, to a child at any rate, are distinct pleasurable and painful experiences. So for fragrant smells and mal-odours, sweet and harsh sounds. Lower in the scale of specialisation, in organic sensibility, we cannot say that to every mode there are both of these aspects, for some are pleasurable only, some painful only, while others, it is true, are known under both aspects. The special senses however have both positive and negative, i.e. pleasurable and painful, emotional values. And it will be possible to order the senses from this point of view, although this cannot be done by taking both values into consideration together, inasmuch as those senses which afford the greatest amount of pain do not in all cases afford the greatest amount of pleasure. Skin-sensibility, e.g., affords some of the acutest pains we can feel, while the majority of its non-painful sensations are rather neutral than pleasurable.

If then the senses are to be ordered either from the point of view of pleasure or pain, the former is on the whole preferable, since in this way we can most definitely and usefully order them. And we shall find accordingly, that sight and hearing will come last as affording the greatest *variety* of pleasure. For it is in regard to the *variety* and *continuity* of the pleasures afforded by the senses that we must consider them, since *de gustibus non est disputandum*. People will never agree as to which sense affords actually the acutest pleasure, though they may agree as to which affords the highest *range* of pleasures and which affords those that *last longest*. If we consider mere intensity of pleasure at the moment of production, there seems no doubt that some kinds of organic sensibility rank highest; and so also for pain; cf. toothache pains. But we can see plainly, that

there is nothing like the pleasure produced by music and by hearing generally in the case of the lower senses, and whoever has entered into these pleasures has an abiding possession in them. A feast, even if you have tasted it, yet have it not at the present moment, is not worth much. Apart however from hearing and sight, it is difficult to order the other senses, though we mark that *the more elaborated the structure of the special sense-organ, the more abiding is the pleasure got from it.*

The Senses as entering into the fabric of our Knowledge.

If we proceed to order the senses with regard to their intellectual value we shall get a very different order from that which had regard to speciality. In either case organic sensibility comes first as being at once least intellectual and least special, although, as we have seen, it has some intellectual value of a very special sort, while in intensity of pleasure and especially of pain it ranks high.

Order of Increasing Speciality.	*Order of Increasing Intellectual Value.*
Organic Sensibility.	Organic Sensibility.
Skin-sensibility.	Temperature.
Taste and Smell.	Taste.
Sight and Hearing.	Smell.
	Hearing.
	Touch and Sight.

Here we see that the mode of skin-sensibility we call touch becomes under the second head of the highest importance. It is only in the case of some animals, such as the dog, that smell ranks higher than touch in this

respect. Smell is put higher than taste, intellectually, because it gives us knowledge of things *at a greater distance* than taste, and so *a fortiori* does hearing. And in respect of knowledge *got through speech*, hearing ranks first of all; it is in respect of knowledge got directly in sense-perception that touch and sight excel it. But sight remains after all the one pre-eminent sense, heading as it does in both categories.

Now there is a law we find implied but not actually stated by Professor Bain, viz. Wherever a sense is found to stand high in regard to its value with respect to knowledge, there is always a large range of feelings connected with it which are neither pleasurable nor painful. In organic sensibility, e.g., *all* feelings may be ranked as either pleasures or pains, but of most touches and sights we must say that they are neutral; we are neither pleasurably nor painfully, but only DIFFERENTLY, affected by them; in fact our consciousness is to be described as discriminative, and we know that discrimination is the mark of intellection. Our three most intellectual senses afford us eminently a variety of discriminable experience. An orchestral conductor, e.g., with a great variety of instruments being played around him, can single out any one that goes wrong. Again, we can distinguish many touches at once, many objects of sight at once. But tastes and smells tend to fuse indistinguishably; still more so organic sensibility. If the organs of sense are compared it will be seen that those of touch and sight lend themselves to many simultaneous impressions, that of hearing somewhat less so, and those of the rest much less. It does not matter, e.g., to discrimination whether we taste sugar with the front or back of the tongue, or smell with the right or left nostril. But in the retina and the skin, we find that

stimulation of different tracts is connected with sensations variously discriminated.

For LECTURE XII read:—

Bain, pp. 12–14; 17–24; Höffding, V, *A*, § 6; Sully, pp. 65–70; Bain, *The Senses and the Intellect*, 'Feelings of Muscular Exercise,' § 11 and footnote.

Also cf. W. S. Mackenzie, *Mind*, July, 1887; G. C. Robertson, *Mind*, vi, p. 120 et seq.; *Mind*, xv, 524; or in *Philosophical Remains*, pp. 317–324; 392–396.

LECTURE XII.

MUSCULAR SENSE.

Consciousness and Motor Impulses.

We must now return to the consideration of a point we left over till the present, viz. whether there is a conscious experience in connexion with the *efferent*[1] side of the nervous system? All the sense-experiences we have hitherto considered were those in which we are *passively affected*, i. e. in which the brain has been roused by *afferent* nerve-fibres. Now we saw that disturbances passed out again by efferent nerves producing always (except in the case of the glands) *muscular contraction*, these nerves terminating in muscular fibre. Muscles are connected with bones, hence their contraction causes motion in space, and accordingly efferent discharges are called motor impulses, because they result in visible motion. *All* nervous disturbance is motor, but it is in itself of the kind of motion called molecular, and is to a certain extent hypothetical. By motor here we mean the overt *results* of nervous activity, and not the process itself. So the question becomes, When there is an outgoing or motor impulse, or *innervation* of muscle, is there an accompanying conscious experience? If there is, of what nature is it? and upon what does it depend? Since, however, by 'motor' we mean overt results of nervous activity, and since

[1] Lect. VI, p. 39.

we may get a sense of activity put forth without visible movement, it is perhaps best to avoid the term and frame the question thus:—Have we any form of conscious experience accompanying muscular action whether it results in movement or in strain?

Direct Consciousness of Activity put forth.

All psychologists agree that we have a sort of sensation in connexion with muscular contraction, a sort that cannot be referred to any of the special senses, and is properly to be described as a mode of organic sensibility. This sensibility arises from the stimulation of *afferent* nerve-fibres distributed amongst the muscles, which fibres are affected when the muscle contracts, either violently as in cramp, or more gently as in ordinary muscular movements. And when the muscles have contracted, the resulting sensation is dependent, not only on the stimulation of afferent fibres ending in the muscle, but also on that of other afferent fibres ending in the joints and in the adjacent internal organs, as well as in the sensitive skin lying over the muscles, which contributes an element of special sense. Many important psychologists think that our conscious experience in connexion with muscular activity is exhausted by this account.

But Professors Bain, Wundt, and others do not agree to this. They hold that, beyond any kind of conscious experience depending on the stimulation of afferent nerve-fibres in and about muscle, there is an initial fact of experience in connexion with the contraction of muscle which depends, not on any stimulus that is *received*, but on the *sending out* of the impulse from the brain, and thus is related to the action of efferent fibres. This is the muscular sense proper. Wundt calls this experience *sensations of innervation*; they are held

to arise in the very act or fact of motor impulse being sent out from brain-centre to muscle.

The point has been much contested. There is a something in the sensation of putting muscles into action that can never be explained by the stimulation of afferent nerve-fibres. True, from the nature of our constitution, we never have this factor of active conscious experience by itself[1], but have it always mixed up with other, mainly organic, sensibility. But that there is an independent factor, a residuum of conscious experience not expressible in terms of stimulation of nerve-fibres, is, I think, indubitable. The accompanying organic sensibility swells the effect, but apart from this organic sensibility of muscular contraction and of adjacent parts, we do have consciousness of outgoing energy; we are conscious, I repeat, not only at the moment of contraction, but also before, at the emission from the brain, at the stage of innervation itself. Professors Bain and Wundt are too exclusive; they admit none of the many elements contended for by the other side, as they might do without surrendering their position. The evidence, I admit, is very difficult, the facts allowing of interpretation either way. And this is just because the sense is so complex. There is no case I have seen but bears a possibility of twofold interpretation. But the evidence *tends* my way. And if we are to reason upon anterior probabilities, we may ask, why should we *not* be conscious when the brain sends out, as we are when the brain receives? There is all the difference in the world between our *being affected* and our *acting*. Why should I be conscious only in 'being affected'? But I reject the extreme position, that consciousness had by me on

[1] Professor Bain, by his order of treatment, rather leads us to suppose that we *can* have it in isolation.

occasion of acting is muscular sense *only*: I accept the contributions from the other side.

Muscular Sense, as Sense, is Unique.

Now note, that if we call this fact *muscular* sense, then the term 'sense' must be extended so as to apply to conscious experience that arises when the brain is called into play in *any* connexion with the peripheral nervous system, by aid both of afferent and efferent nerves. But muscular sense *stands apart.* In our consciousness of putting out muscular activity there is a something *not* brought about in direct connexion with a stimulus from without, *not* expressible in terms of passive sensation, *not* on a line with the modes of general and special sensibility considered up to this point.

Analysis of Muscular Sensations.

If then there is such a thing as muscular sense, of what nature is it? upon what does it depend? We are said to distinguish two modes of muscular sense, (1) muscular activity resulting in motion, (2) muscular activity resulting in dead strain. These are fundamentally different modes, and yet the distinction, although of the first importance, is only relative. No activity is so free as to be wholly unimpeded, and none is so impeded as not to be partly free. The two modes pass into one another. Notice that Professor Bain distinguishes (1) as 'Feelings of Movement[1].' Here he is premature. When we are conscious of movement, we cannot be said to be purely sensitive, we are nothing short of *perceptive.* Muscular sense may be of account in our getting percepts, but it does not, as such, yield consciousness of *movement.* The very meaning of movement for us is a certain *change in space.* One is aware of

[1] Op. cit., pp. 22, 23.

something going from one place to another. It is begging the question to account for space from so-called feelings of movement. We should speak only of perception of movement. Movement, resistance, and such terms of perception have no meaning for us at this stage. We are here concerned with a simple factor of experience, never had, it is true, in isolation from other conscious impressions, but which, as sense of effort, of energy, of 'virtue gone out of,' of activity put forth, does not really admit of any legitimate division. There is relative safety in the distinction, introduced by Professor Sully, between Free and Impeded Energy, but even that is going too far. We ought not here to be anxious to distinguish. In sending out impulse to muscles there is conscious experience—this is all[1].

Muscular Sense as a Coefficient.

Now here is a singular fact, not in the books, that muscular sense, whatever it may involve, has only for eighty or ninety years been distinguished and spoken about! Some therefore say it does not exist. Whence this blank, old and new? The muscular sense was ignored because we never are muscularly sensible *simply and purely*. Some other sense masks it. And analysis, which had not discerned the chemical elements of water, did not discriminate in consciousness. We can move no muscle that is not the cause of tactile sensation, or of its cessation. All mobile organs are organs also of *passive* sensation: we cannot put forth activity

[1] Professor Bain is again misleading when he distinguishes between feelings connected with Muscular Activity and Discriminating Power of Muscle. The latter is only muscular sense *viewed as of account for perception*. Here again the distinction between sense and perception is not clearly drawn.

without being liable to be passively affected. And this is why Locke and others did not discern muscular sense.

Sensation proper may be called *passive sense*, and muscular sense may be called *sense of activity*, though *not* active sense. By thus recognising muscular sense, we obtain in it a co-EFFICIENT *for transforming passive into active sense.*

All the senses previously taken account of present *more or less* two phases, according as they occur in purity or with this coefficient: e. g. we have Active Touch and Passive Touch. If I am touched, I have a passive sensation. If I touch some one, I have a passive sensation, but I am also conscious of activity put forth. Active touch then is the being affected by contact on occasion of activity put forth.

'Active sense' is not muscular sense. It has *no use* in psychology save as meaning passive sense transformed by muscular sense as a coefficient.

Let the student think for himself how this is shown in the other senses; how more or less, and why more, why less, before reading the next lecture. Beginning with organic sensibility, do we in each sense distinguish by distinct terms between being affected simply and actively seeking sensation?

For LECTURE XIII read:—

Höffding, V, *A*, § 7; Bain, pp. 45–47.

NOTE.—Prof. Höffding deals with Perception in considerable detail, but follows a different line from mine, throwing the subject to the end of his discussion of Cognition. His view is, however, in the main consistent with mine.

LECTURE XIII.

ACTIVE SENSE AND QUALITATIVE DIFFERENCE IN SENSATION.

Active Sense.

Let it not be forgotten that any antithesis between the muscular sense and the other senses is not one of active as opposed to passive sense. Consciousness in the former is just as much affection as in the latter. The activity is in the muscles. There is no adequate excuse for calling muscular sense active sense. But in muscular sense we cannot distinguish between an active and a passive phase. Its unique function is, as coefficient, to transform the passivity of other sensations into what may be called active sense.

How far are the various senses transformed by the presence of this coefficient?

The organs of organic sensibility are not provided with muscles that we can call into play, hence our power to procure such sensations is of the most limited kind, as e. g. in inhaling (as distinct from smelling). Our activity is chiefly, not to get, but to get rid of, such sensations. Organic sensibility then remains as the type of passive sensation.

In Taste both phases appear, according to the extent to which we move the gustatory organs. We can scarcely get tastes without actively tasting; but the inevitable accompaniment of touch is an added complexity.

In Temperature no *special* form of sense of muscular activity is involved.

Smell is also predominantly passive, but we can scent or sniff; i. e. we may smell on occasion of special muscular activity.

In Hearing we may either submit passively to hear certain sounds, or we may listen or hearken, putting our head, our hand, our body, in some particular attitude. Here again the coefficient is at a very low power.

In Sight, on the other hand, the sense is predominantly active. We are passively affected by light and colour, but deliberately to see, to look at, to inspect, to contemplate, involves sensations of a multitude of minute muscular adjustments.

But it is in Touch that the two phases are most strongly marked, viz. touching and being touched. The tactile organs are at the same time muscular organs.

Now those sense-organs that give us active sense predominantly are mobiles, *liable to move while being affected.* Cf. the number of muscles in the mechanism of the eye, through which we can exert conscious activity. Cf. next the very different *degrees* of mobility in the organs of touch. Were all as the hand, touch would come before sight. But contrast with the hand the immobility of the back! Take the opposite extreme, the organs of organic sensibility. Here there is no mobility on occasion of our being affected. Take the mean: in hearing and smell the activity is put forth, not by the organ, but by auxiliary appendages and other members. To the extent that any sense is under muscular control, to that extent do we find active sense. Only where the sense-organ is mobile, do we find active sense approaching purity.

Muscular Sense as of account in Perception.

Why do I lay so much stress on all this? *Because perception, and especially objective perception, as opposed to sensation, is a kind of conscious experience into which there inevitably enters consciousness of activity put forth*, i. e. muscular sense. Muscular sensation therefore must be markedly of account for objective perception. And whatever it can do for us in the way of objective perception, it will do in sight and touch, since it is best developed in connexion with these two senses. I look at a book and call it an *object*: why? None of the modes of *passive* sensation gives the real heart of what is meant by *objective* quality. Whatever is a sensible object for us is so primarily in terms of two qualities: Extension and Resistance. Nothing is a sensible object to us that is not spread out in space or resisting. Some things are spread out without resisting; hence we have reason for saying that extension is the fundamental aspect of an object. *Bodies* only are both extended and resisting. Now extension is something that we cannot take in except by way of active sense-experience. Still more obviously is this true of resistance. Hence the muscular sense that goes with that muscular activity is psychologically the fundamental factor in any sense-perception. And as secondary factors there enter into sense-perception those modes of passive sense that are most intimately connected with muscular sense as coefficient.

Qualitative Difference in Sensations.

Consider now the senses in respect of the liability of their respective organs to be affected in *different ways*. (I think it a gain to treat of this expressly unlike the books.) Take

smell: any odour engrosses the whole organ of scent. The perfume of two flowers becomes fused, though complex. *One* impression results. So with tastes, though to a less extent. We may break up a complex taste, but it requires effort. The impressions are more or less unified. Nor do we, in organic sensibility, differentiate sensations from the *same* organ. We do not suffer with one lung, and enjoy with the other. We have no variety of distinct impressions. Now come to hearing. We have a multitude of distinguishable impressions. Many we may fuse, but we *can* have a sense of manifold impressions. We can say, we hear differently in connexion with different parts of the organ of hearing, and only one kind of sound with each single part. Here is the ground of the relatively great intellectual importance of Hearing, as we shall see.

In Touch and Sight we get the most striking exemplifications of manifold distinction; that is, in Touch proper; not in skin-sensibility generally, as sensations of Temperature fuse. We are able to have a number of simultaneous Touches distinctly. And we find a remarkable *local* difference in the sensitiveness of the organ of touch. You have read of Weber's experiments, made in 1843, under Professor Bain's section entitled 'Plurality of Points.' What is the import of this Plurality of Points, or, preferably, of these 'Distinguishable Touches,' or again, of this 'Local Difference in Sensitiveness'? Simply that (*a*) we touch very differently with different parts of the tactile organ, and can be conscious of more than one touch, as a plurality, at the same time; (*b*) that according to the part affected and its absolute range of sentience, we have qualitatively distinct, or qualitatively undistinguishable impressions, e.g. we can at the finger-tip distinguish two points of contact with the tip $\frac{1}{12}$ inch apart, but

not $\frac{1}{15}$ inch apart. *Qualitative Difference* is my point; *not* Quantitative Difference, for we can distinguish pressures which are equal; and *not Distance*, of which, directly, Distinguishable Touches tell us nothing. The two points of the compass on the skin may afterwards come to be *interpreted* as being a certain distance apart, but that is not a question of sense only, with which we are still for a moment concerned.

Finally, distinguishable touches are only exaggerations of the qualitative differences we apprehend in Sight. With different parts of the retina we can distinguish qualitatively more or less. Light-impressions reach their maximum of distinctness at the 'yellow spot'; at the sides of the retina they are less distinct; at the 'blind spot' they are nil. Different parts of the retina are more effective than others for different colours. The fact of *qualitative* difference in Sight is more easily demonstrable than in Touch, because the *spatial* idea intrudes so much less. Even in Touch, as we saw, the real difference is qualitative, not spatial at all.

For Lecture XIV read Höffding, V, *B*, § 1.

LECTURE XIV.

SENSATION AND SENSE-PERCEPTION.

Transition from Sensation to Perception through Active Sense.

Now for the collective result of our inquiries. With respect to combination with Muscular Sense, Touch and Sight stand apart from the other senses. With respect to varying sensitivity, they also stand apart, though less so than does Hearing. Herefrom we may draw an important conclusion. Here we have the BASIS for the Psychology of Perception. We now step from Sense to Sense-perception.

Sensation as an abstraction from, Perception as a fact of, Actual Consciousness.

What do we mean by Perception[1] as distinct from Sensation? Sense, we saw, is a kind of conscious experience had under certain assigned conditions. It is a necessary term, but I have never said that what we have been calling Sense represents an *actual fact* of our conscious experience—that it constitutes *all* our consciousness at any given moment. Any sense-experience that we can make the subject of our consideration, that we actually find ourselves having, is something more than Sensation—is never pure Sense. Ap-

[1] Perception should no longer be used ambiguously. Once almost or quite synonymous with Thinking, it has in the last generation come to stand for Sense-perception, apprehension on occasion of sense.

proximately so only, it is true, in Systemic Sensations, our sense-experience is always, if in different degrees, somehow *related* or *referred*. Even those Systemic Sensations are held to be connected with some part of my body, to be within the organism. Sensation bare and simple we never get. Much more is this referring seen in Special Sensations. A sound is never thought of as purely subjective, but always as 'proceeding from' somewhere. This coloured band round the wall is referred, not to ourselves at all, but, as a *quality*, to a certain *thing*. Most of all in Touch do we relate roughness, weight, solidity, &c., to an *object*, as its *attributes* or *properties*. This definite projection of colour, sound, and touch is far removed from the indefiniteness with which we spatially refer our organic sensations, some indeed of which we cannot localise at all. There is, again, a great difference in the definiteness with which we project Tastes and Smells from the case of the other special senses. I venture to assert that when I say 'lump of sugar,' you think of a white, glistening object *before* you think of sweetness. 'A rose' implies for us a smell. But we all think of the rose as visible and tangible and then as fragrant. Sensations, then, are spatially referred, but not in the same way nor on the same level.

This is unquestionably our natural way of regarding sense-experiences. They appear, not as mere sensations in us, but as sensible qualities of things. It is only by an effort of psychological analysis that we regard them as subjective. The distinction is not in actual appearance, but in thought. Sensation is really an abstraction, formed for purposes of psychological study. Naturally we interpret most sensations not as affections of the subject, but as qualities of things, and it is sometimes very hard to think of them otherwise than as qualities of things.

Perception as Apprehension of 'Thing' or 'Object.'

What we have now to investigate, viz. the psychological problem of Perception, may be expressed thus: How do sensations, in themselves bare facts of subjective experience, come to appear in our consciousness as sensible, or rather as perceptible, qualities of things? What is involved in saying 'perceptible things'?

Perception as the Relating of Sensations.

The transformation of things as sensible, i.e. of subjective experience or affections of the subject, into things as perceptible, of the abstractions of bare sense into actual experience, is effected, as we saw, by putting sensation somehow or other into certain Relations. Every mental experience we have is related to something else which *it* is *not*. This means that work of Intellection has been done upon it. And that work signifies not merely affection, but *activity*. Without subjective affection we could not perceive at all, but perception as opposed to sense has the implication of activity. Perception is really a term of objective import: it signifies the apprehension, or grasp, of an object; it suggests the putting forth somehow of muscular activity or innervation (though the muscular activity may not be overt). Hence it can no longer be expressed in terms of bare Feeling. And inasmuch as the activity is not immediately directed to an end, it must be regarded pre-eminently under the phase of Intellection. Perception will accordingly be found to exemplify, under assignable conditions, the working of the compound function of Intellection, viz. Discrimination and Assimilation. Now every sensation that we have is ordered *somehow* in space. The spatial reference may be at a minimum, in actual experience, but it is ever present. This is Perception's most

characteristic feature. In so far as we spatially refer sensation, we are, psychologically, perceiving. To the extent indeed that we differentiate one sensation from another, conscious that 'It is this, not that,' we are perceiving. Perception is *discrimination and assimilation on occasion of sense*. But it is for the consciousness that 'It is here, not there,' that the term Perception is specially reserved. Perception proper is grouping our sensations in some spatial order.

The Philosophical, as distinct from the Psychological, aspect of Perception.

Note here in passing how this bare psychological meaning is distinct from the philosophical sense of Perception. The philosophical term Cognition is not bare Intellection. You cognise a certain *object*. Hence the philosophical problem: What corresponds in *reality* to my subjective experience? *Is* there a real pillar *there* corresponding to my perception of it? Our question now is: That pillar is known to me by sense-experiences; how have the latter come to be grouped for me into a percept—to *appear* to me as a pillar? And generally: How do sensations appear objectively, appear in some kind of spatial order, appear as spatially referred? Philosophically we ask: What is the reality of that pillar that appears to me to be there? Psychologically we ask: How does that pillar appear to me to be there[1]?

The Psychological Problem of Perception.

Now, then, we are intellective, and if intellective, then perceptive, when by us sensations are referred, and especially, spatially referred. How do we come thus to refer sensations, some to the body, some to 'things' apart from the body?

[1] Professor Bain is apt to mix up these questions, which leads to much confusion.

How do sensations become elements in the construction of objects?

The relatively Active Senses as the Substructure of Objective Perception.

Remember that the amount of elaboration undergone by sensations in Perception varies greatly from one to another. Even of the sensations that do come to appear as definite sensible qualities of objects, some do so in a primary, others only in a secondary, manner. *The definiteness of the reference varies indefinitely.* Any psychological theory of Perception ought to account for this.

Now analyse a perception, e.g. a slight cut by a knife. The pain is sensation. The brightness of the blade is sensation. Why do you not put the brightness into the skin and the pain into the knife? Again, the band of colour on the wall is a sensation of mine which *seems* a sensible quality of a thing—and there is no fear that it will not seem so. Yet is it so? A colour-blind person may not be able to distinguish between green and red; all reds for him are green. If he and I both look at a geranium leaf we agree. If we look at the flower, I see red, he sees green. Manifestly the flower cannot be both; hence it follows that neither colour is inherent in the flower (the identity of which is not disputed), but is an *interpretation* each of us gives to it. That pillar opposite, which is cream-coloured to-day, would, if green to-morrow, be no less a pillar. Even if a wooden one were substituted, it would be no less 'a pillar,' although it would yield a different sound from that belonging to this iron one if tapped, and a different smell. But if it had no longer the quality of Resistance—if I could walk through it, if

I could not touch it—we should *then* begin to doubt if a pillar were there at all.

It is by Active Touch, then, that we chiefly recognise the existence of an object, and, with that, Active Sight, which is so inextricably interwoven with Active Touch that scarcely a single experience of the one does not also involve the other. Objects are for us first of all Tangible and Visible; secondarily, odorous, rapid, audible, &c.

Can we reduce these two to one? *In the end* Visibility comes to be commensurate with Perceptibility. To *perceive* is to *see*. The eye is ultimately our most effective organ of Perception. But with Berkeley we must maintain, that *Perception is, at bottom,* Touch. No one has lived really without sense of Touch; it is the first and the last of the senses. People are born without Sight, but not without Touch. It is difficult to conceive an objective world obtainable by Sight without Touch, though it may be, and is, obtained without Sight. The work of Sight, however high and splendid, is superstructure. It is Active Touch that gives the substructure for Perception.

Therefore, you 'see,' we must begin with Touch, with a theory of Tactile Perception.

For Lecture XV read :—

Bain, pp. 47–50; Höffding, V, *C*, §§ 5–10; G. C. Robertson, *Mind*, xiii, 'The Psychological Theory of Extension,' or in *Philosoph. Remains*, pp. 279–287; Ward, pp. 51–57.

LECTURE XV.

THE PSYCHOLOGICAL THEORY OF OBJECTIVE PERCEPTION.

Recapitulation.

In Touch and Sight we have the power of getting the one or the other kind of sense-experience as we like. We can turn one mode of sensation directly into another by activity of ours of which we are conscious. We can control these senses by muscular activity. Hence their importance for Perception. And relatively to the whole organ of tactile sensibility, i.e. the skin, the hand is as the yellow spot is to the whole organ of sight, i.e. the retina. The motion of the eye has the effect of making indirect vision direct, and direct vision indirect: this is all. So the hand brings into direct tactile apprehension what was before indirect, if touched only by relatively insensitive parts of the skin. But since Touch and Sight play different parts in Perception, though so closely allied, we will treat them separately and in an order already accounted for.

The Mutual Relation of Touch and Sight in Perception.

Take the pillar opposite me: we do not perceive it without Sight, but does Sight give any direct apprehension of the *hardness* in it? No. Then why do I not run up against it, but carefully avoid it? Certainly from nothing Sight can tell me of it, but because we perceive the pillar

through the eye *as suggestive of* Touch. This is a case where what seems to be seen is to all intents and purposes touched. Now take the case of running up against the pillar by accident in the dark. In this case we perceive it directly by Touch, but indirectly we perceive it by Sight, for in touching the pillar a visual image of some kind arises, such as will always happen in the dark, whatever the object may be. When we see things in the light we imagine how they will 'feel,' i.e. to *touch*; and when we touch anything in the dark we imagine how it will *look*. This theory is specially brought forward by Berkeley, who wanted to prove in particular, that whenever we are seeing we are really in mind touching. We can, however, put the converse as well. We cannot separate Touch and Sight in Perception, but we can investigate them separately.

Theory of Tactile Perception.

Remember now that Touch presents an active and a passive phase, and that it is Active Touch that is of account for Perception. When we perceive objectively, it is by some form of Touch *plus* the coefficient of muscularity of which we are conscious.

Qualities of Objects revealed by Active Touch.

In the resultant, then, what belongs to the coefficient and what to the other factor? Touch proper just gives us straight away the tactile qualities of things; all differences of contact or pressure (intenser contact) are due to passive Touch. The coefficient of muscularity will cost us more trouble, because we can get Touch without it, but we cannot have it without Touch. However, there is one way in which the difference can be made clear, and it brings us to this statement, viz.:

That Extension and Resistance are the fundamental conditions of object got by consciousness of activity.

There are certain qualities of objects in the external world, such as Hard, Smooth, Heavy, Light, which are only known through skin sensibility. Nevertheless, Touch proper does not add much to our knowledge of objects *as objects*. Any object we can perceive by Touch is an object essentially in virtue of having two fundamental qualities, EXTENSION and RESISTANCE. It must have both of these; and no other quality we can speak of confers objectivity as do these. Now see how important is the part of that coefficient of muscularity. If we proceed to ask what we mean by the Extension or Resistance of an object, we can only say, psychologically, that it is apprehended by us through some activity of ours put forth, of which we are conscious, in the case of Extension as one kind of activity, in that of Resistance as another kind, but in both cases as *muscular* activity. As far as psychology is concerned, this statement, when proved, will go to the bottom of the matter, namely, how we come to *perceive* Space. What Space *is*, is a question for metaphysics.

Modes of Muscular Activity in those Qualities.

The question then for us now is, What are the two modes of muscular activity put forth respectively in the case of Extension and Resistance? Muscular activity assumes two distinct modes in consciousness according as the activity is *free*, or impeded—relatively free, or relatively impeded. Now in putting forth the former I apprehend Extension; in putting forth the latter I apprehend Resistance. Plainly then the muscular sense is a fundamental factor in these modes of apprehension, but always only a co-operating factor or co-efficient. There is always Touch as well. You cannot

possibly have activity more or less impeded without varying intensity of Touch. And what you have come to interpret as 'so far apart,' you learnt in the first instance to know as qualitatively distinguishable touches. I make not light then of the muscular factor, but I deny that it gives Extension or Resistance alone, as might be inferred from Professor Bain's exposition [1].

[1] We have seen that muscular activity assumes two distinct modes in consciousness, according as the activity is free or impeded (called by Professor Bain consciousness of movement and dead strain). And we have maintained that Professor Bain has no right to call the former (consciousness of movement) a *simple* mode of conscious experience, since it is only by the assumption of consciousness of free activity that he can explain the perception of space, and by taking movement as such he begs the question, since consciousness of *movement* assumes space to *move* in. Feeling of movement as movement can be a primary kind of consciousness only on the Nativistic assumption. With these reservations Professor Bain's account of the matter (pp. 25-27) is very good. We must, however, make another reservation with regard to pp. 47-50. He there finds the difference between resistance and extension inexplicable in its fullness, without taking into account the different kinds of Touch involved. His account of these different kinds in the two modes of activity is very good, and it is true that, although the foundation of extension and resistance is given by Muscular Activity, yet the full explanation is only given when we take into account the *different kinds* of Touch involved. Yet on p. 27 Professor Bain attempts to give a full explanation of space without this, and of course does not succeed. Touch pure and simple will not give us 'object,' nor will Muscular Sense pure and simple: the two must interwork the one with the other. One factor, as we have seen, is more fundamental, but both must be there. Some kind of Passive Sense, if not that of Touch, would be absolutely necessary beside Muscular Sense to apprehend 'object'; if we were differently constituted, it might not be Touch but some other sense.

When Professor Bain is treating of this subject he always puts Dead Strain *before* what we call Free Activity; again, at p. 47, he treats *first* of Resistance, then of Extension of objects. Elsewhere, however, he makes Extension fundamental to perception of space, cf. p. 1,

Consider the modes of Resistance admirably set forth by him[1]:—(i) Weight, Pressure, (ii) Hardness and Softness, (iii) Roughness and Smoothness. Why in this order? In (i) the muscular factor is predominant; in (iii) the tactile factor is predominant; in (ii) both are evenly balanced. But what does Hardness, say of this table, mean for me? That the more I put forth energy the more my sensation of touch is intensified. Or Roughness? That I do not get, on occasion of lateral movement, the uniform sensation of touch yielded in Smoothness. Or Weight? That I get varying intensification of muscular sense with a minimum of qualitative variety in touch. 'Pressure,' in the first instance, is intense contact, bare passive touch intensified, but it is by way of Active Touch that it is of account in Perception. I, pressing against the table, put forth activity—impeded activity. I must lift, I must press, to estimate Pressure thoroughly.

The experiential explanation of Objective Perception by way of Extension.

Now according to the theory of Extension, started originally in Germany and developed by Mr. Herbert Spencer and Professor Bain, touches, presenting these various modes of Resistance occurring and recurring in certain definite ways in connexion with activity of ours put forth, end by appearing,

where he says that whatever has the attribute of Extension belongs to the external world. All things, it is true, which resist are extended, while many extended things do not give any appreciable resistance and some none at all (e. g. the vacuum in the receiver of an air-pump). Yet Prof. Bain always explains Resistance first; and it is a peculiarity of him that, whereas he does not give his reasons, or show that he has much pondered over a point, he has nevertheless a wonderful knack of going right, as for instance in this case, the rightness of which I explain in my theory.

[1] Op. cit., p. 47.

not as touches, but as elements in an extended order, which is apart from us and has its parts apart from one another. This doctrine contains a great deal of truth, and it claims to contain a psychological explanation of the Perception of objects as extended and resisting, i.e. an explanation in terms of sense.

Nativistic view of Extension.

Some schools deny that this is possible. Nativistic thinkers—Hamilton, e.g., and others, but most prominently Kant—maintained that Extension is a form of pure intuition, an aspect of things which mind, in perceiving, brings with it, native faculty not otherwise to be accounted for. Opposed to these are Experientialists, or Empiricists, who contend that a psychological explanation is possible through the data of muscular sense and touch as essential coefficients. Of these Professors Bain and Sully are representatives.

Criticism of the Experientialists' Position.

Now for a confession. I do not think a sufficient explanation can be given, if it *start* by explaining Extension. Professor Bain, e.g., explains Extension by supposing, first, that certain serial sensations of Touch come to appear as co-existing in time, and then that such co-existences come to be interpreted as the quality of Extension or spatial apartness. I.e. touches and series of touches repeatable and reversible come to appear as Extension. Succession in time is turned into simultaneity. But simultaneity is not extension. This only accounts for touches becoming ordered as simultaneous though occurring as successive; and the Nativists say, and say rightly, that such explanation is a failure. 'This table is extended' means 'its two ends co-exist in space.' And to say that merely by a series of active touches had in reversible

order we attain to this ordering in space, is too far a cry. Professor Bain establishes co-existence in time, but he does not establish co-existence in space. Dr. Ward too is dissatisfied and sees the difficulty, while himself giving a psychological explanation which has the demerits of those of Professors Bain and Sully and the merits of neither. Both he and Professor James are of those who take a middle course, holding that Extension cannot be explained in terms of Touch and Muscular Sense, while yet they do not assume Extension as an inexplicable intuition. Dr. Ward assumes that sensations of Touch, in addition to their usually acknowledged properties, have a quality of 'extensity' (partly like Professor Bain's 'massiveness'); nevertheless his use of extensity amounts virtually to an assumption of the Nativistic doctrine. Professor James is in the same position as Dr. Ward. He simply assumes Extension from the first, being merely more careful than the older Nativists in his account of the modes of Extension. But he suggests to me Don Quixote tilting at windmills.

By proceeding in a different order I hold that we *can* get a psychological explanation of Extension.

For Lecture XVI read as for Lecture XV.

LECTURE XVI.

THE PSYCHOLOGICAL THEORY OF OBJECTIVE PERCEPTION (*continued*).

Psychological Explanation of the perception of Extension through the perception of OBJECT.

You cannot work out any such theory of extension as I have referred you to, except upon a prior basis. You never can explain how objects come to appear to you as extended until you have first explained *how you come to perceive objects at all.* This is what both Mr. Spencer and Professor Bain, in different degrees, attempt to do. The latter had already given the foundation of his explanation of object when discussing 'dead strain' under Muscular Sense. There he committed himself to the position that we apprehend object as object mainly when our muscular activity is impeded or resisted. But this was premature. Object as resisting cannot possibly be explained in terms of muscular sense only, because this varying 'strain' cannot possibly be had without varying intensity of *touch.* It is at this stage, i.e. that of Perception, and not at that of Sensation and of one particular mode of Sensation, that the question of object as resisting should have been entered into. Professor Bain had taken up all those modes of Resistance as particular qualities of an object already got, but without giving an explanation of what object is in itself. He very properly distinguishes those modes of Perception, Hard and Soft,

Rough and Smooth, &c., but sees them all in regard to an object which he supposes he has got, which he got in muscular sense, yet to which he has no right, because we have no strain in muscular sense without active touch. What, however, is *implied* in the whole of Professor Bain's explanation, though not expressly stated, is that you have to account psychologically for *object as resisting* BEFORE you proceed to account for *object as extended.*

Why do I lay so much stress on rightly understanding Professor Bain here? Because it is too usual for psychological writers to proceed on another line, to proceed on the line of explaining object first as extended, and only afterwards to take account of it as resisting. This is notably the case in Dr. Ward's article on 'Psychology.' There he devotes himself almost exclusively to Extension in his theory of Perception and only secondarily to Resistance. Professor Bain, on the other hand, though his principle is not explicit and his exposition is scattered, may be said to be representative of those who declare that you should first account for object as resisting before you go on to account for object as extended. I have a very strong opinion that this order is a matter of first-rate psychological importance.

Logical priority of Extension, Historical priority of Resistance.

I still must warn you of an apparent difficulty in the case. There is a certain ground for beginning with Extension of object before Resistance, because there is an object that extends but does not resist, namely, Space. Now if Extension is the quality of all objects, and if Resistance is only the attribute of that extended object called Body, then there is apparently good ground for beginning with Extension. Extension is undoubtedly the universal attribute, the funda-

mental property, of all object—unless you say that Space is not object. From the psychological point of view Space is as much object as Body, and hence, I repeat, there seems to be good ground for beginning with extension of Object, and then for going on to resistance of Body in addition to extension, as to a secondary fact.

Yet, while Extension appears the more fundamental fact in Perception, I believe that in the proper theory of Tactile Perception all depends on taking the reverse order. Logically, from the point of view of logical analysis, Extension, as an attribute of wider importance than Resistance for the explanation of the external world, should come first. But however that be in our developed consciousness, Resistance is *historically* prior. Historically, genetically, we apprehend Body as resisting before we apprehend Space as extended. We come to Space by the evacuation of Body rather than to Body by the filling in of Space.

Object = Obstacle, i. e. subjectively = Resistance, and Resistance ultimately = Activity impeded with progressive intensification of Touch.

Why is it that this is of account for us? Psychology gives an account of the development of mind. It professes to trace how we come from certain simpler elements of experience to developed complex experience. To plunge into the question of Extension before saying anything of Body as resisting is really, in the guise of Psychology, to make a philosophical account, and not to follow the simpler psychological line that should be taken. Through the phase of resisting we arrive at any knowledge of object. Once have object as resisting, *then* the touches you get may appear, not merely subjective, but as definite facts in an external world. Not as extended have we first a perception of objects,

but as a consciousness of being pulled up or impeded. The first suggestion of a 'Not-I' is in as far as the 'I' finds itself impeded. First of all, vague consciousness of activity, then of this being impeded:—such is the first start towards apprehension of an object. Now the Touch-factor is here too. Touch is intensified progressively with consciousness of impeded activity; and these two ARE Resistance. Here the child gets a something it cannot get over, which is outside itself, and from which it gets a first faint suggestion of Not-self. Psychologically, the real meaning of Object is to us in the first instance OBSTACLE. Object is interpretable in terms of obstacle. It is in the mode of obstacle that the child first has any kind of objective apprehension—begins to have an apprehension of other things.

So far here is nothing that cannot be psychologically accounted for. Then, having posited for the child Obstacle as not-self, this fact, that it begins to *move* its hand over things, over objects *that it has already got*, in a series of touches in both orders—this begins to give it the ordering of objects as extended. It is upon a foundation of Object as Obstacle that alone we can arrive at a theory of Object as 'spread out.'

Else I cannot get on! This I consider is the right point of view. First explain objects as Resisting, then as Extended.

Note that the German word *Gegenstand* shows the same meaning of 'object.' This import of object was clearly made out by some French writers of the eighteenth century called Ideologists, one of whom was Destutt de Tracy. a Scotchman by descent, who most of all influenced the Scottish philosopher Dr. Thomas Brown. Brown first in this country saw the import of muscular sense as of account for Perception. Professor Bain is thus, through Thomas Brown, connected with Destutt de Tracy.

Do not think that I have thus far completely accounted for our knowledge of an Object. There is vastly more in it than can be included in mere Tactile Perception—nay, than in Psychology itself. It is a metaphysical question. We think of an object as something having *being for itself*, as 'being there.' To account for Object as we know it is one of the deepest metaphysical problems. Yet it lies so near our present sphere that I shall deal with it in my course of General Philosophy. For the present we get Objective Perception, i. e. how objects come to appear so to us, in muscular activity put forth and resisted. If Object is for us first Resistance, we analyse Resistance and find ACTIVITY SO STOPPED THAT WE GET INTENSIFICATION OF TOUCH.

For LECTURE XVII read:—

G. C. Robertson, *Mind*, i, 145; or *Philosophical Remains*, p. 133.

For difficulties raised in connexion with visual perception consult James, *Principles of Psychology*, and Ladd, *Physiological Psychology*.

LECTURE XVII.

THE PSYCHOLOGICAL THEORY OF OBJECTIVE PERCEPTION (*continued*).

Recapitulation.

To resume:—We have begun with Objective Perception on the basis of active touch, or as involving touch on occasion of muscular activity. We can deal with the question of External Perception only at the stage of touch, because we have no developed muscular activity except in connexion with organs of touch. Of course we have it also in connexion with visual organs, but we keep these back just now, because we can have Tactile Perception without Visual Perception, as in persons born blind. Even with regard to these there is contention, that those who cannot see, do not arrive at a proper comprehension of the external world. More of this later on. The second point on which I laid stress was that we have to account in terms of Active Touch for a perception of objects as extended. The perception of Extension is the real crux of the whole question. It is the real and serious difficulty in psychology, to account for the appearance of objects as extended; so much so, that by some it is put in the first place. But it is not a difficulty which it is well directly to face. It should be faced secondarily. We can account for the extension of objects *if*

we first psychologically explain the perception of object as such, without reference to its extension—the perception of object as 'obstacle.' This done, we are then able to explain, with Professor Bain, how touches, occurring to us in a serial order, an order which admits of indefinite repetition and which is also reversible, end by appearing as surfaces spread out. I say, these processes are effective enough in the genesis of Extension, if we have already something in the way of object which we interpret as obstacle to activity of ours; not a definite perception of *body*, for that would be assuming Extension, but some vague idea of activity somehow resisted. But unless we have begun with this conception of object then all these processes, serial, repeatable, reversible, go on, as we say, in the air, and yield nothing effective for our purpose. The Experientialist theory of Extension can be maintained only if urged along with the fundamental experience of not-self got in Resistance. The order in which we acquire knowledge of Body and Space is, (1) we have a perception of Body as resisting, (2) we arrive at Space by taking away Body as resisting.

The first 'Obstacle.'

This ordering or placing of touches according to qualitative difference does not take place in the child's dawning perception of object with *any* set of touches. I have not the slightest doubt that the first object that we become aware of as resisting, and at the same time spread out, is our own body. Of course the child from the very beginning sees as well as touches, but I am putting aside vision for the present, and suppose that we have a child, at first unable to discern a difference between subject and object, beginning to acquire objective experience by way of touch. And I say

—and our psychological explanation should take account of this, which is too much overlooked in the books, even by Professor Bain—that the first object it would come to apprehend vaguely is not any other body, but its own. That one object it has always with it; other objects come and go, but it has always the power of touching its own body and thus of finding the activity of its own hand impeded. Perception of an object-world begins really and strictly with the lips in first receiving nourishment, whether our child sees or not. But there is this special feature in its tactile experience of its own body, that whereas in touching *another* body it has an intensification of touch on the hand through which it is exerting pressure, in pressing the hand against its own face it gets, in connexion with the activity put forth and resisted, an intensification of *two* touches: it both touches and is touched. This gives peculiar and better data for the ordering of touch-sensations. If, as we have reason to suppose, there is a qualitative difference of touch in every part of the body, then the child cannot but have its attention drawn to this, that through the fingers it has a variety of touches according to the part touched, both by way of the latter and also of the part that touches. Thus it is helped to finding its body as extended in this double way of learning to discriminate different parts, a way in which it is not helped when touching anything else. Every particular part of the body comes for it thus to have a definite spatial relation to every other part through the medium of that organ which is the effective tactile instrument, the hand. Every part of the body comes to be related to the hand, since the hand must be moved in a certain way, exerted to a certain extent, to get each peculiar touch[1]. And thus

[1] Whereas the whole of the skin is the 'seat' of Touch-sensation,

every part of the body becomes spatially referred to every other part. The qualitative differences of touch at different parts come to be suggested in consciousness by how much activity must be put forth to touch that part; and again, the activity that a child should put forth is suggested by the kind of touch it has.

How we get Tactile Distance as distinct from Tactile Doubleness.

Hence we can understand, and apart from this we cannot explain, what follows:—(1) If I am touched at two parts of my body by two compass points, my consciousness is actually, not of mere doubleness, but of two touches *as so far apart.* How does this happen? Some say, through an original endowment, it not being explicable as a development of perception. I believe that it *is* the result of development, and that it comes to pass exactly on the ground I have mentioned, viz. that touches differing simply in quality come to be connected with different activities of the hand. Surely this is a more scientific theory than that other assumption.

(2) There is one case of a somewhat abnormal character which seems to be at variance with the above conclusion. How is it that, if the second finger be crossed over the first, we have a sensation, if an object be placed between them, not of points apart but of *doubleness*, of *two objects*? Aristotle noticed this peculiarity and tried to explain it, but without success. If a marble be felt carefully with those two fingers crossed, and with the eyes shut, the second finger at the top, the first underneath, it will be discovered that though this is so, we ascribe what the first finger feels to the top position in space, and what the second finger feels, which is really atop, to the lower place in space. But if every touch has

the hand is the 'organ' of Touch-perception. 'Seat' should be used in connexion with Sensation, 'organ' with Perception.

come to have a definite *spatial character*, the phenomenon is explained. Touches in themselves only qualitatively different, have come to be associated with different points in space from the amount and kind of activity put forth consciously. Thus we see that consciousness of space arises neither from consciousness of activity, nor from touch, but from *both as coefficients*.

How we come to acquire PASSIVE *Apprehension of Space.*

We have maintained that to apprehend objects in space, we have been active. Extension has no other meaning psychologically but activity. *Need* there be activity? Let me place my palm on the table in the dark. Again, let me rest the back of my hand on the table, and let an object be laid on it. I should know both table and object as extended, without moving over either repeatedly, reversing the movement, although I should not know fully what their properties were. But how should I know them as extended? Because I know my own skin, my own hand, to be extended. There is no accounting otherwise for this *passive apprehension* of space. Our bodies are a standard or measure by which we measure other objects. What the carpenter does with his foot-rule we do with our hand, or with our body known to us through our hand. I know the size of my watch when put on my forehead, because I know of the extension of my brow. Because our own skin is the first occasion of free activity, exploring and resisted, every part of the body has come to have its own 'local sign,' its own suggestion of locality developed upon a basis of qualitative difference of touch in conjunction with activity put forth. And thus it comes that we know bodies as extended, *because we know our own body as extended.*

Apprehension of Solidity.

The maximum of Touch-perception is reached in the perception of object as *solid*, i. e. when we know it as resisting in all three dimensions of space—whether three only, or more than three, psychology does not undertake to prove. The first part of a child's body which perceives solidity is its lips. They are the part first used, and used most often; they are a very sensitive part and can at all times be pressed together and separated. Through this mobility and tactility, neither of which qualities is of any use without the other, it is on the line of the lips that the first development of object takes place. But it is more especially the opposability of our more effective organs of touch, the thumb to the other fingers, and one hand to the other, which seek to meet and cannot, that gives us perception of solidity. Pressure of one palm on this book gives me resistance; placing of it on the book (by which I get many touches) gives me Extension; but when I try to bring my two hands together around it and cannot succeed, then I learn that it has Solidity—I gain a notion of an object as having Figure. For a larger object the opposable arms convey the same lesson. Solidity is, when analysed, *intensified touch on occasion of the impeded activity of opposable organs.* We do not need to learn it by the process of actually moving the touching surface in each dimension.

For Lecture XVIII read :—

Bain, pp. 188–197.

Read also Höffding on 'Apprehension of Time,' V, *C*, §§ 1–4.

LECTURE XVIII.

THE PSYCHOLOGICAL THEORY OF VISUAL PERCEPTION.

Visual Perception.

We now go on to consider Sight alone in the same way as we have considered Touch, and we shall find Sight indirectly, i.e. through Touch, to be so important, that it almost comes to be synonymous with the term Perception, for Sight is the sense of senses. It has all the attributes of muscular control that we find in Touch, and it is as highly specialised as Hearing is. Nevertheless its organ is less open to investigation than the hand and lips, though more so than that of Hearing.

We must carefully distinguish between Sight as Sensation and Sight as an organ of Perception. We are now going to consider it as the latter, but let me only impress this point about it as the former:—To account for the *sensation* of Sight it is enough, on the physiological side, to take into consideration the sensitive surface in the eye and its nerve-communication with the brain, i.e. how it is that the retina is liable to be stimulated and to propagate its disturbance. We need not go further into the details of the structure and functioning of the eye. But these details become important and require attention when we go on to deal with the eye as an organ of Perception. For us now the question is, How

is the retina made capable of receiving optical images? In what way is the eye an optical instrument? Let us divide our inquiry into three points:—

1. The eye as an organ of Perception.

2. What the eye is fitted to give us in the way of Perception.

3. (*a*) What the eye in Perception does of itself, and (*b*) what it does in conjunction with the other organs of Perception.

1. *The Eye as an Organ of Perception.*

The eye is both a sensitive and a mobile organ. It is no longer sufficient to say that the eye is an organ in which the nerve is affected by light through the retina, but we must now note that the retina is differently affected by light at different parts and *in a definite fashion*. There must be produced in the eye on the retina a definite optical image according to the laws of optics before the brain can be affected so as to perceive an object. And the eye is organised accordingly. Within the cornea is the iris acting as a stop to cut off all useless rays. Within this is the crystalline lens of highly refracting power, by which those rays not stopped by the iris are brought to a definite focus on the retina, forming a definite image on it.

Of this image we are not in the least conscious; we do not see *it*; nor should we see it were it re-formed in the brain. What we see is a *mental construction* which comes to pass under those physical conditions. The retinal image is only a condition of our seeing. We see *by way of* it, not *it*. More of this later on. We have not yet done with conditions.

The optical image being an indispensable condition to Visual Perception, and the retina being differently affected at

different parts, our aim is to get as definite an image as possible. At a certain part of the retina called the yellow spot (*lutea macula*), which is the most sensitive surface, we get the maximum of definiteness. And we get this maximum of definiteness in our image by bringing certain muscular activities into play, some internal, viz. those of the ciliary muscle, and some external, viz. those of the six pairs of muscles attached to the eyeballs.

Parallel Conditions in the Organs of Tactile and Visual Perception.

Thus the yellow spot bears the same relation to the other parts of the retina as the hand to the other parts of the skin. The whole retina is the seat of the Sense of Sight just as the whole skin is the seat of the Sense of Touch. But as the hand is the effective organ[1] of Tactile Perception, so the yellow spot is the effective organ of Visual Perception. And the sensitiveness of both is rendered effective through the *mobility* of both. The fact that we can bring the hand to any other part of this sensitiveness establishes an equation between the sensitiveness of the skin and the maximum sensitiveness of the hand, bringing them, so to speak, to the same denominator. So with the eye. The action of the external muscles is to bring impressions on to the yellow spot which would otherwise fall on the peripheral parts of the retina, by directing the yellow spot to the visual 'field.' By saying, 'I am looking,' I mean that the yellow spot has taken a certain direction. We do not get anything like this varying sensitiveness increasing to a maximum in Hearing or

[1] I say 'effective organ,' since, if maximum of sensitiveness be alone considered, and not knowledge of the external world, the tip of the tongue rather than the hand is to be compared with the yellow spot.

the other senses. In hearing there is a great range of qualitative difference, but no muscular arrangement in the ear to cause such an equation to be established between one part of the ear and another.

In the mobility of the crystalline lens the eye has a peculiar and special organ for purposes of Perception over and above anything we find in the organisation of Touch.

Visual Perception, then, involves Active Sight, and Active Sight, as we have seen, is an involution of light-sensation with a coefficient of Muscular Sense. Let us look more closely at this muscular activity.

Muscular Action interior to the Eye. Adjustment of the Single Eye.

It is only parallel rays which are naturally focussed on the retina by the crystalline lens, but this lens, being elastic, has the power (through the contraction of the ciliary muscle, which thus renders it more convex on its outer surface) of bringing to a focus rays which are not parallel but divergent, i.e. which come from an object within a certain distance, viz. 21 feet, on to the retina. This alteration is called Adjustment or Adaptation of the *single* eye for near vision. This adjustment is effected by muscular activity of which we are clearly conscious.

Muscular Action exterior to the Eye. Convergence.

But we have two eyes, as we have two hands. Each is moved by six muscles attached to its external surface, and by means of these the two eyes co-operate in certain definite ways which are subservient to the process of Perception. Thus the axes of the eyes are parallel (the axis being a line passing through the centre of the pupil to the yellow spot), and parallel movement of the eyes is preserved by the external

muscles in seeing distant objects, these throwing like images into each eye. This parallel movement is called the Consensuous Movement of the eyes, and is only departed from by the convergence of the axes for near and middle vision. Nearer objects throw different images into each eye, and to correct this, the muscles effect a convergence of each axis, so that the two yellow spots are brought to bear on the same part of the visual field. The axes cannot be made to diverge[1]. And this process of convergence is termed Binocular Accommodation. Binocular difference is the most important factor in perception of Volume. It is the basis of stereoscopic vision. To see objects as single, it has to be overcome.

Perception and the 'Blind Spot.'

Note that at one part of the retina we are not sensitive at all, viz. at the 'blind spot,' or entrance of the optic nerve in the retina. Here there are fibres, but no periphery. Why then does it not tell on vision as a black spot? Because (1) the yellow spot is not in the same place in each eye; (2) *finding* (by Touch) that objects are continuous, we come to *interpret* them so; and the constant flickering of the eye helps us. But enough of conditions.

2. *Nature of Visual Perception.*

We shall now consider for what kinds of perception these are the conditions. The eye, as a bare sense-organ, gives us perception of Light and Colour, gifts peculiarly its own.

[1] There are a few people who can, while keeping one eye fixed, cause the axis of the other to diverge; but this is rare. In the case of persons born with a squint, whether convergent or divergent, it must be remembered that *for them* this convergence or divergence is parallelism.

But do these effects come before us in such a way that they can be worked up into anything we can call Perception? We are, of course, now supposing the case of a man unable to get Perception otherwise. The answer is, that he could get a *kind* of objective Perception. Let us go back for a moment to Active Touch. We saw that it gave us knowledge of Resistance, i. e. 'Dead Strain' accompanied by intensification of Passive Touch. Now in the case of Sight, although we have the sense of strain through the ciliary and external muscles, yet we do not get with it progressive intensification of passive touch, i. e. pressure, nor a corresponding intensification of light at all comparable to that of pressure experienced in Touch. The eye by itself then could not give us Resistance. All it can do is to *lead us* to appreciate it through other senses. If a lump of butter and a piece of wood are divided, we say we can *see* that the former is easily cut, and not the latter. But the eye in both cases only SUGGESTS what we have in the first instance learnt to know through Touch.

Whereas, however, the eye gives us no knowledge of Resistance, it has the means of giving us apprehension of Extension, i.e. a succession of repeatable and reversible sensations. In seeing we certainly get a series of sense-impressions which we can repeat, reverse, or have in any order we please; we certainly have a means of appreciating dimensions in space—but only two dimensions directly, viz. Linear and Superficial Extension. Through the eye we can only *indirectly* arrive at the apprehension of the third dimension, Solidity. The eye can sweep over a field, but it is not organised like the hand; it cannot run out and in, go round corners and grasp things; it can only move in its own plane. The perception of the third dimension is much more

complex than that of the other two, and it is the solution of the question as to how we come to a knowledge of solidity which gave rise to the Berkeleian Theory of Vision. In short, the eye is not fitted to give us the means of perceiving Resistance. That can only be got through Active Touch. But it is eminently fitted to give us series of successive impressions converted to simultaneous impressions, as well as of impressions originally simultaneous. Hence it is fitted to *develop an extended order*, when once it has *borrowed an objective basis*. The child who sees can have an apprehension of an extended world such as the child who merely touches never can. Nevertheless the Extension arrived at by way of Touch and by Sight on a basis of Touch is so different from that which might be obtained by way of Sight only, that an equation is not to be established between them.

So much then the eye can and cannot do.

For LECTURE XIX read as for Lecture XVIII.

Clark Murray (*A Handbook of Psychology*, London, 1885) has a very good chapter on Visual Perception.

LECTURE XIX.

THE PSYCHOLOGICAL THEORY OF VISUAL PERCEPTION (*continued*).

3. *Actual Import of Sight for Perception; (a) taken in isolation.*

If the eye then can build but not found, we can only estimate what it actually does for us in Visual Perception in connexion with its basis. This has been admitted by most—though questioned by some especially of late years—ever since Berkeley laid down, in 1709, that what we call vision is *the work of the eye as interpretable in terms of Touch.* He errs only by merely implying, and not explicitly sifting out, Active Sense. 'In terms of *Active* Touch,' or 'of Touch *with the coefficient of Muscular Sense to transform it*,' is what we now should substitute. Sight is *an implicit touching.* There is nothing that seems to us more obvious, clear, and distinct than that the eye by itself is pre-eminently the organ of Perception. I sit here aware of the whole room and its contents without doing anything except keeping my eyes open. There are some things of which I apparently have nothing but visual perception, e.g. the sky, clouds, heavenly bodies. And there is not the slightest doubt that the eye *in the end* does sum up all perceptive ability into itself, so that seeing or vision really, in the end, amounts to perceiving. Nay, and to more than this. When I wish to say, 'I understand this,' I say, 'I see this is so.' The function of sight in

Perception is enormous. And yet, except the bare fact of sensations of colour, or rather of light, there is nothing that the eye does exclusively.

(b) Taken in conjunction with other Organs of Perception.

If it can do nothing exclusively, what is there that helps it? We have seen that this is Active Touch. Suppose I put on the table a large and a small worsted ball and ask which is the heavier, the reply is at once, the larger. But we do not *see* this, we *infer* it. Weight is inferred in this case from size, but weight is a result of Active Touch. It may be a wrong inference. A little lump of lead may be hidden in the smaller ball, in which case we have to bring our inference to the test of Active Touch. The indirectness of Vision leads to inaccuracies.

We see too that the two orders of Extension, those of Touch and of Sight, do not always coincide. The one is constant, the other ever varying. A story never told twice in the same way cannot be true. The remark that a man may be uniform in his statements and yet wrong, but that he cannot vary and always be right, applies to Touch and Sight. In the case of Touch the Extension of an object gives us certain fixed data. We get something having constancy and uniformity. We either have it or have it not, and when we have it, we have it in a constant way. But in Visual Extension we get every possible kind of report of the 'same object.' For example, I 'feel' my watch with an approximately constant result, wherever I am and whether I can see it or not. But in seeing my watch as extended, I get the most varying visions of it. The first story, that of Touch, may be true; the second story, or rather set of stories, cannot all be true. An apprehension of Extension so variable and so

peculiar needs to be brought into connexion with the other order of Extension. The inconstant must be reduced to the constant. And Seer and Toucher being one, we cannot but do so, interpreting Sight by Touch. For there is no common denominator to which we may reduce both. Touch gives us our only psychological Absolute; to it Sight is merely relative; by it we learn the relatively real qualities of things. Sight gives us suggestions for our interpretation; Touch gives us that which, in the way of Sense, is *final*, and beyond which we cannot go. Real magnitude as distinct from apparent magnitude is Tangible magnitude. Real Extension is Tangible Extension. The real magnitude of the earth is measured not by Sight, but by the number of steps of *touching feet*. The sun only looks like a plate to us because we interpret its size according to the scale of things we can actually touch. The apparent size of the sun to us is its size relative to the whole vault of heaven. The size of that vault for us depends upon the amount of the earth's surface visible to us at the time. And the size of this visible portion of the earth's surface is got in relation to things we can touch and walk round. Hence we see that even the ridiculous conclusion we come to in the case of the sun is got through the interpretation of Touch. However remote the reference may be to Touch, eye-experience is always finally to be expressed in terms of Active Touch.

Sight as extending Objective Perception on a Base-line of Touch.

Sight then is our really *effective* means of Objective Perception, since it enables us not only to perceive by way of inference so much of what we are directly informed through other senses, but also to perceive far more than other senses could reveal to us. I am not here referring to things as

having colour or lustre; in revealing a certain quality in objects Sight is only on a level with the other senses. My point is, that by means of colour and light, Sight makes us aware of objects we should otherwise be unable to perceive at all, e.g. the stars, the tops of inaccessible mountains, &c. And yet all this work it does on a base-line of Touch. There is nothing in Sight as such that can account for our perception of the distance of objects. Berkeley's theory, according to some psychologists, turns on the perception of the third dimension as Distance, it being generally assumed that there is no difficulty in getting a perception of space in two dimensions by the eye, because the retina itself is an extended object. But the theory of vision applies to linear and superficial dimension as well as to the third, the only difference being that in the third dimension the data are more complex, *both* eyes co-operating to give those visual 'marks' or 'signs,' i.e. facts of conscious experience obtained through the eyes when muscularly active, which we interpret in terms of active touch. The Berkeleian theory is but a scientific statement of the common proverbial expression, 'Seeing is believing, but touch is the real thing.' Look at the pillar before us. Certainly when we look at it we believe it to be there, but we do not come fully to know of it as a real existence until we touch it. It might be 'Pepper's ghost.'

The Complexity of Visual Perception.

Seeing, in fact, is a very complex act. In Sight we see things of a size which Sight by itself does nothing to account for. Why do we see this table of the size it is? We see it of the size we have grown to regard it of by Touch. It must be remembered that for such an object to throw an image on the

retina, this image must be immensely reduced, and though the retinal image does not in the least enter into our consciousness, but is only a physical concomitant, yet it is hardly conceivable that, in getting smaller and smaller as the object recedes, it should have for its mental concomitant the consciousness of a relatively constant extension. The real problem of Visual Perception is, How does the eye work in relation to Touch?

Two Special Problems of Visual Perception.

Much thought has been wasted on such specific problems of vision as—(*a*) Why do we see objects upright when the image on the retina is upside down? (*b*) Why with two eyes do we see objects as single?

(*a*) *Objects seen as upright with Inverted Retinal Image.*

We *don't* see the image. What we see is an object outside of us, and that object as such is neither a retinal nor a cerebral image, but a mental construction had on occasion of certain optical and nervous processes, and which in calling 'upright' we describe in language not got through ocular experience but through Active Touch. By 'the top' of a thing we mean that part we must *lift the hand to reach*. In fact, we come to see that this apparent paradox is the truth: *If the image were not upside down we should not see the object the right way up*. For in looking up to the top of the pillar our object is to bring the image of the top on to the *lutea macula*, and as the eye is globular, the raising of the cornea in front depresses the *lutea macula* at the back. So that, in fact, if the rays did not cross as they do (thus inverting the image), the raising of the iris would bring the *lutea macula* opposite the rays from the bottom of the

pillar, and we should get two contradictory impressions from Touch and Sight. To look at the top of the pillar we should have to perform a 'downward' muscular movement of the eyeball, while to touch the top we should have to perform an 'upward' movement of the hand. For the two series of data to correspond, the image *must* be upside down.

(*b*) *Objects seen as Single with Binocular Vision.*

This question too can only be solved in relation to Touch. Why do I not perceive *two* books, when holding one between my two hands? Because of the continuity of Touches when I turn the book over and over. But as a matter of fact we do see all objects double except the one which we are actually 'fixating,' and of that we unify the two images in virtue of the oneness established through Touch. For what is this 'doubleness'? Something which Touch shows us as having solidarity. The question should rather be, Why *should* we see a thing as double which is single so long as the sensations that we get are regular and orderly? Professor Bain says (p. 192) that we see an object mainly with one eye and fill up our vision with the other. But most do not do so. We *do* see most things double. Let the two forefingers be held up one behind the other. If one be fixated the other is seen double. This duality is a fact of binocular difference experienced by us in the case of all objects that do not throw the image exclusively on to the *lutea macula*. Under the guidance of Touch we can to a certain extent unify this difference. We cannot, it is true, touch the sun which we see as single, but we have come to learn the oneness of an object where Touch is possible; all other objects are seen as single indirectly.

Binocular difference, however, is the basis of our getting

the idea of Solidity or Volume[1] through Sight, as is shown in the stereoscope. It is only when objects, because of their extreme distance, send parallel rays to the eye so as to cast the same image on both retinæ, that we lose sight of them as solid and can represent them on a flat canvas without shading. We never have a full sense of Volume except in the case of objects which throw a different image on each retina. The difference does not explain Volume, but it gives us additional visual marks to those obtained by one eye only, which we can interpret by reference to Touch.

For LECTURE XX read Höffding, V, *B*, §§ 2-6; *B*, §§ 2, 3.

[1] 'Volume' is in Visual Perception a better term than 'Solidity.' The latter is connected with Active Touch resisted, and cannot be referred to Sight in which we do not experience resistance.

LECTURE XX.

MENTAL CONSTRUCTION. REPRESENTATIVE IMAGINATION.

Recapitulation.

We have seen that Visual Perception is essentially a complex experience, or mental construction involving data of Active Sight, and reference of those data to Active Touch. Vision is emphatically no mere passive sense; it can never be explained without reference to the active factor. But with all allowance made for what Active Sight can do, it must ultimately be referred to Active Touch. The eye seems to do all the work, but actually it gives merely marks which may be interpreted as percepts of Active Touch. Every sight-percept is ultimately touch-perception. Real, as distinct from visual, objects have always reference to Active Touch. Touch gives the *base* of the perception, and Sight the *occasion*, aggrandising moreover and extending Objective Perception, and that in conformity with certain laws of Intellection, whereof more presently. Hitherto we have noticed only the Sense-elements in vision, which constitute really a very difficult question.

Other Sense-perception.

Our perception of objects is of objects as tangible and visible, and of objects as *tangible when visible*. The other senses come, in different degrees of value for Perception, to fill in that which we perceive through Touch and Sight;

e.g. we project the conscious experience of a ringing sound into a swinging bell, and that of an odour into a rose, and that of a taste into a lump of sugar. Sonorous, odorous, sapid objects are in the first instance tangible objects. We do not put organic sensations outside of us, because they are not subject to the action of Touch and Sight. We have a certain apprehension of Direction through Hearing, but it is most rudimentary, and it would be hardly possible for a blindfolded person, keeping quite still, to say with any precision where such a sound as the click of two pence takes place, however possible it might be in the case of a very definite sound. In Smell, too, the 'sense' of Direction is very low, although, owing to the fact that the organ is situated at one side of the body only, it is perhaps better than in Hearing. In Taste, as such, we have no objective perception at all: it is the tangible presence of the object in the mouth that informs us. We must touch before we taste.

But that these facts hold for the lower animals I do not assert. Smell in particular has an objective value for quadrupeds that it has not for us. To dogs smells are rather intellective than emotional. Why? They cannot afford to turn up their noses at smells as we can. Our sense-world is based upon the Hand; theirs is a universe of Smells. Animals are thrown back on smell or other sense, to the extent to which they have not Active Touch to fall back upon. Monkeys come nearer to us.

Let students think over all these points and they will get very far in a Theory of the Sensible World.

Perception in its 'Formal' Aspect, as Intellectual Construction.

So far then for Sensation and Percept. A percept is an intellectual construction on occasion of sense together with

present consciousness of activity exerted. Complex as it is, the work of intellectual construction is done so early in life, that it has come to *appear* very simple. We are not as a rule conscious of the process of abstraction which we perform on our complex of present sensations, when as a resultant thereof we get an auditory, a visual, or other perception. A percept in fact is only gradually built up, and it is not likely that a child of two hours old sees 'a pillar' as we are apt to imagine that it does. What it eventually comes to see, what popular opinion sees, in the pillar is something quite out of relation to, and distinct from, the seeing individual. In physical science it is something that supports the roof. But for Psychology it is only a Percept, i.e. not a THING *perceived*, but a *thing* PERCEIVED:—a combination of so much Active Touch and Active Sight, &c., held together by certain laws of Intellection. This is all it is from a subjective point of view. Whether a pillar is really there or not, independently of my sense-perception, is a metaphysical question. For us at present the pillar, or any percept, is a subjective construction, on the base of which further constructions take place, wherein their chief mental value for us lies. Them we must proceed to consider, if we wish to make clear what are those laws of Intellection involved in the formation of percepts.

Up to this time in dealing with percept, I have only been explaining its 'material' elements as opposed to its 'formal' aspects. Taking 'matter' and 'form' as two aspects of Object, we have been concerned with the former only. By formal aspect I mean dealing with the percept as an intellectual product, or intellectual construction out of sensations, which form the 'matter' of the percept. Now if the business of science is to explain, psychology must indicate the laws according to which those constructions come to pass.

Representative Imagination.

The next intellectual fact or product or construction that we have to deal with, to throw light on the percept, is something that we call 'image,' and which we must now use in its strict psychological sense, not as meaning a certain change which takes place in the retina, which is a physical or physiological fact, nor a statue, but a percept reproduced in consciousness, or had over again in re-presentative form, i.e. without accompanying presentative form. And as Perception is the process of the product, Percept, so Imagination, i.e. Re-presentative Imagination, is the process of the product, Image. Re-presentation in consciousness is the same as what is popularly called Memory. Memory is re-presentative imagination of a definite kind, involving an assurance that the experience did really previously happen to *me*. How memory can have come to assume this character is a difficult problem, and we shall not here attempt to solve it. Memory under the aspect of Reminiscence or Recollection implies a distinct voluntary effort brought to bear on the associated re-presentations of our experience.

Image is a better term than 'idea,' as being psychologically less ambiguous. 'Idea' and 'ideal' play so great a part in philosophy from Plato till now, that although most English psychologists have by idea meant 'representative image,' it may bear the wider sense of mental fact, of anything we can take account of in consciousness. Thus we find even 'ideas of sense' in Berkeley. And Locke used it for representation *plus* sensation, or mental state generally. This being so, it is well not to employ it in the specific sense of 'image,' lest ambiguity result. Professor Bain never uses 'image' as I do. In his Introduction he apparently uses 'idea' for 'image.' He would not use 'idea' for 'percept,' yet he would not

scruple to use 'idea' for 'concept.' It is also to be regretted that in his rare use of the word Imagination, he always follows the popular, not the psychological, sense. From 'idea' English psychologists, notably J. S. Mill, have formed 'Ideation,' as Imagination corresponds to 'image.'

The terms Re-percept and Re-perception have lately been coined, constituting unexceptionable substitutes for Image and Representative Imagination. Intellectual consciousness is much more made up of re-percepts than of percepts. As our past experience is greater than our present, so Representative Imagination is greater than Perception.

Perception and Re-presentation.

'Presentative' is what is directly, immediately before consciousness. This pillar involves for me Presentation. I leave the room. Can the pillar still come into my consciousness? Yes, in re-presentative form. But is the pillar aught besides Presentative to me at this moment? Yes, my visual presentation of it involves re-presentation of certain tactile experiences. Perception therefore has been called Presentative-representative (Spencer).

Can we have purely presentative experience? None that we can take account of. We may seem to be approaching the presentative elements pure and simple in consciousness, but they ever elude our grasp. The colour of an object, e.g., appears differently to a child from what it does to me; what I see depends upon the interpretation put upon it by my past experience; indeed, I experience it by assimilating it to past experience. The notion is for us a *limit* in a mathematical sense, not an actual fact of Perception. Even in organic sensations we refer them to our inside or to the skin.

It is easier to get at the image than at the percept, since it

is only the percept had over again. Take e.g. 'the dome of the college,' or 'one's own father,' and at once we have an image. We have now to take account of the conditions of imagination and of the kinds of experience into which it enters.

Constructive Imagination.

Note, first, a wider and a narrower sense in the word Imagination. In the former it means simply forming an image, i.e. reviving a percept. In the latter it means the process of forming a *new* image, a mental construction out of elements had perhaps in experience but not yet so combined. This is called Constructive or Productive Imagination, and cannot be regarded by us at present, since it is more complex than Re-presentative Imagination, and involves distinct elements of Emotion as determining its constructions. In popular parlance Imagination usually stands for Constructive Imagination, but in Psychology it means Re-presentative Imagination, if not particularised farther. Constructive Imagination, however, is always Re-presentative. A poet never constructs the elements of his creations *de novo*; his utmost originality, speaking absolutely, consists in presenting new combinations of elements to our representative consciousness. But we are now concerned with bringing what was in our consciousness back again to our consciousness.

Let the student note well his dreams to-night, especially if they contain any experiences he has not had as percepts. We shall come to talk of them.

For Lecture XXI read :—

Bain, pp. 89-93; Höffding, V. *B*, § 7, *a*; Sully, *Illusions*, chaps. i, ii. vi, vii, x; Taine, *De l'Intelligence*, on the 'Image'—the most instructive of all.

Consult Galton, *Mind*, v (1880), pp. 301 et seq.; cf. also his *Inquiries into Human Faculty*, London, 1883.

LECTURE XXI.

REPRESENTATIVE IMAGES, NORMAL AND ABNORMAL.

Development of the Percept by way of the Image.

THIS 'pillar,' then, which we have as a percept may also come before us otherwise than as a percept. We may by leaving the room or shutting our eyes have a conscious image of it. Again, suppose our thought be 'Pillars support roofs,' then it is not a percept of that pillar which rises for us in consciousness, but we are conscious of some *general* pillar which is most like that pillar we oftenest see. Again, suppose some one to say, 'Pillars were much used in Greek architecture'; then we do not get a definite percept or a definite image in consciousness, yet what there is, *is* a definite fact in consciousness. Both this latter case, however, and that of the image of the pillar got with our eyes shut, have a relation to Perception. But, further, our notions are by no means limited to things we can perceive. Suppose some one to say, 'Nations are aggregates of human beings held together by a central power'; here we cannot perceive a nation, and yet we can have a very definite notion in consciousness of a nation. We see then that percepts by no means exhaust the data of consciousness nor the products of intellect, but are data for higher constructions, while they

themselves are constructions from simpler data. And they become fitted for higher constructions by passing through the form of the Image.

Sense-perception always tends to overpower Imagination.

I referred to dreams because I wish the student to get the *typical* image. We have then vivid representations of objects seen and heard, &c., although there has been no proper sense-experience in the case. Seldom do waking *images* have the intensity and vividness of the dream-image. Their common feature is absence of sense-excitation, yet many dreams—those just before waking and just after falling asleep—have a base of sense ; nay, even the dreams of deep slumber have a base sometimes of organic sensation. Why should there be this superior vividness in the dream-image? Because there is at the time no rivalry between the dream-image and conflicting percepts. While I am picturing the college-dome, I have all my class before me. If I close my eyes, and picture it, still I have conflicting percepts, from my chair, from sounds I hear, as well as from the consciousness that I must proceed with my lecture; whereas in sleep the life of sense and its activities is practically cut off. Hence if we happen to be imagining during our slumber, the images that arise, not being damped down by sense-percepts, start forth into perfect clearness and distinctness, thus showing us—and this is the psychological interest of the dream-image—what the waking image *tends to be.* Hobbes's metaphor is striking—'When the sun goes down the stars shine out,'—meaning percept and image respectively. The weakness of the image is not so much inherent as due to the superior strength of the percept. This, though not necessarily the whole question, is yet an important factor.

Normal and Abnormal Images.

The dream-image, we may well say, is a fact of normal experience, yet relative to our waking consciousness so far abnormal, that a comparison of the two throws light on the character of the truly normal or waking image. More abnormal processes are those of Hallucination and Illusion. To understand these let us first consider other kinds of conscious states midway, as it were, between percept and image, viz. the After-image and 'Subjective Sensation.'

States midway between Percept and Image. After-image.

The After-image (*Nachbild*) is a decaying or fading percept, a remnant left in consciousness by a percept, a percept not yet wholly out of consciousness, though out of distinct consciousness, such as the reverberation of a bell in our ears when the bell has ceased to ring, or what we still 'see' with closed eyes after looking at the sun. After-images of vision appear in two forms, positive and negative. The former has the general character of the percept to which it is due. But after-images of *coloured* percepts appear to us with a certain contrasted colour called 'complementary,' and these are negative after-images. The image proper, or 'memory-image,' is no mere fading positive after-image, but a resuscitated construction arising after the total disappearance of the percept. The memory-image involves a discontinuity in time.

Subjective Sensations.

Subjective sensation is a very misleading phrase of physiologists (since all sensations are subjective), used to mean actual sense-experience without external stimulus, at least of a normal kind. All the senses are liable to occasional stimuli in the organ itself sufficiently disturbing to reach the brain,

e. g. singing in the ears during a catarrh. These phenomena can scarcely be called sensation at all, but ought rather to be classed as perception, since we give all of them spatial reference. Strictly speaking, again, they are not in all cases even intra-organically initiated, e. g. 'phospheme,' which is the name for the ring of light produced by pressing the eyeball.

Abnormal Images. Hallucination.

In the case of Hallucination there is no sense-stimulus; it is the name for an image of such abnormal vividness as to rival the percept in distinctness and be mistaken by the subject of it for a percept; in other words, the hallucination appears with all the subjective characters of the percept. I may, for instance, being in a very depressed state of health on account of the loss of a dear relative, imagine him sitting before me in an empty chair. The hallucination may vie with, or outvie, the percept in vividness. Our ghost may be transparent or opaque. And we may be conscious of the hallucination as such or have it unconsciously, which is an incipient form of insanity. The chess-player playing many games simultaneously with his eyes blindfolded is calling up images of the boards and pieces which for his purposes are as good as percepts. But there is no percept, because there is no peripheral stimulation; and this is what we gain from a study of Hallucination. We can always tell whether we have a hallucination or a percept by closing or moving away the peripheries apparently stimulated, for a percept is under our motor control, whilst a hallucination is not.

Illusion.

An illusion, on the other hand, sometimes confused with hallucination, but clearly distinguished by Taine and Professor

Sully[1], is abnormal imaging *with* a sense-stimulus. I might, for instance, in a dim light mistake a cloak thrown over a chair for that deceased relative, as was the case with Sir Walter Scott and the fancied apparition of Byron at Abbotsford. Here a real sense-stimulus arouses an image other than what it normally does arouse. The psychological interest of Illusion is the light it throws, not on the image, but on the percept. We see by it *how much of Imagination enters into the percept*, the illusion being inappropriate, instead of appropriate, imaging on occasion of sense-stimulation. Perception is *verifiable* Imagination on occasion of sense-stimulation, Illusion is unverifiable. Scott could verify the apparent percept by speech and touch.

*De*lusion, the state characterising the lunatic, is persistently maintained Illusion or Hallucination.

Image in its Relation to Percept.

The Image, then, is related to the percept and yet is distinguished from it. The percept is clearer and distincter than the normal image, clearer as a whole, distincter in parts. Also the image involves no stimulation of the peripheral sense-organ, as in the case of the percept, and therefore no muscular activity directed towards the sense-organs, or in connexion with them. Nevertheless the image does call into play exactly the same parts of the brain as are involved in Perception. Later inquiry leaves no doubt of the general truth hereon laid down by Professor Bain[2]. The percept arises in consciousness through a direct peripheral stimulus; the image has no such stimulus. But in the one mental function, the brain is called into play in the same way as in the other. To talk of storing up images in either

[1] *Illusions*, ch. ii, &c.

[2] Op. cit., p. 89, § 11.

brain or mind, like bottles in a cupboard, is false both for Perception and for Imagination.

Varying power of Imagination.

Minds differ vastly in imaginative power as in perceptive power. As, in abnormal imaging, there are all grades of hallucination, from the shadowiest ghost to quite life-like apparitions—so that such an one may, if apparently seated, obscure the perception of the chair, the rays of light from which in that case stimulate the brain less than the physiological concomitants of the image—so the power of more normal imaging seems to be very variable. Mr. Galton has experimented on this point and makes out a very great range of difference in the extent to which persons possess what he calls the 'faculty of visualising,' or as we should say, the power of representative imagination[1]. The term 'visualisation' still further extends the language of Sight to cover mental procedure and I do not commend it. Mr. Galton maintains that some persons cannot 'visualise' at all, himself among the number. For my part I am persuaded that all do to some extent, some in respect more of one sense than of another, and that their consciousness of inability is because they think that to visualise they should image much more than they do.

For Lecture XXII read :—

Bain, pp. 85–89; Höffding, V, *B*, §§ 7*b*–8; Sully, *Outlines of Psychology*, pp. 174–178.

[1] Extreme cases, on the other hand, of vivid visualisation, especially in chess-playing, are proved in Taine, op. et loc. cit. I myself have a power of visualising above the average.

LECTURE XXII.

THE LAWS OF REPRESENTATIVE CONSCIOUSNESS.

Orderly procedure in the flow of Representative Consciousness.

I PROCEED now to the laws determining the *flow* of representative consciousness or imagination, or how it is that images appear for us,—how it is that I, my consciousness being markedly presentative, have that consciousness broken into by a set of experiences which are all representative. From the days of Aristotle it has been observed that there is a certain orderliness in our representative experience; this orderly procedure has been more or less observed and analysed, and the laws that govern it have been discussed as showing the nature of mental synthesis generally. The whole topic is usually termed Mental Association, Association of Ideas or Laws of Association, the term 'association' having been first definitely used only since the middle of the eighteenth century. I do not take up these names here, but shall work up to them.

The connectedness in the flow of representation now under consideration is not confined to a bare succession of images, as in reverie, but includes any and every protracted process of thought; not only all imagination, but all that goes on in the mind intellectually over and above direct sense-presentation. It is only by dealing with the nature of this flow that we can get at the laws of thought.

So far we have mastered the various kinds of images, normal and abnormal, as different from, but as related to, the percept. We saw that percepts, when we have had them, in a manner abide with us, leaving a residuum or residual traces; that many percepts undergo a gradual process of dying away, but that, even when they have vanished, they are still liable to reassert themselves in the form of images; that these, called memory-images or representative images, were related to dream-images and hallucinations. We have simply defined what the image is, and marked it off from what it is not, and from all that is more or less directly related to it, but we have not considered what determines, what are the conditions of, the appearance of the image. We ought to find a set of definite laws according to which images appear in consciousness; we have to discover a psychological expression for the orderly flow of representative consciousness.

Percept and Image on the side of their Conditions.

Observe that if we can discover such laws of the revival of percepts in the form of image, these laws are and must be purely psychological laws. If into my consciousness there comes an image, the very fact that it is an image means that it is not excited from without by means of sense-stimulus, that it must arise in my consciousness according to laws which are obviously psychological. Let me here apply a definite distinction between an image and a percept. Does a percept come into consciousness by mere psychological law? I just now had a percept of a noise in the passage. That came into my consciousness not merely and in the first instance by any psychological conditions. To a certain extent it was physically determined. But it may not have come into the consciousness of all present. That means, I attended to

it and some present did not. To the extent to which I turned my attention on it, it was for me psychologically determined. A percept then, to a certain extent, is both physically and psychologically determined. I am perceiving a certain number of objects at this moment, but there are many more which I *could* perceive. I am principally conscious of objects which are students. Why do I perceive them in a way in which I do not perceive the benches? Because of my mental constitution as a teacher. I can teach objects as students, but not objects as benches. For purposes of illustration I may turn my attention to benches or my friend the pillar. That which causes me to see the pillar at certain times and not at other times, is not determined by physical conditions, but by a psychological condition coming into play. In perceiving there are, besides physical conditions over which we have no control, psychological conditions. My next perceptive experience is determined in general not *by* me but *for* me—at least within limits. The physical and the psychical meet in Perception. It depends upon me whether I shall attend to a sense-impression, but it does not depend upon me whether or no I shall have this impression to attend to. In Perception, then, there is always something independent of the laws of mind. But the flow of images is purely psychological. That is why we dealt first with the image. In connexion with it we can find out certain laws which have reference to perception. But for the present the percept will be held in the background. In perceiving there is implicit ideation [1] or implicit imagining. When we have found that this imagining does not go on in a haphazard way, but by certain laws, we shall work back to the percept.

[1] Cf. Höffding, op. cit., pp. 127–128.

Probably constant tendency of the Percept to reproduce itself as Image.

Here let me remark that apparently many images arise in consciousness by no law : e. g. we may be reminded, suddenly and without wishing it, of a long forgotten scene that happened years ago. We may be able to find out in such cases positive conditions determining the emergence of the images, which at first sight were not apparent. The scene may have a certain kind of relation to what is going on in consciousness. And it does not follow that no conditions are present because we cannot assign them. But I am bound to admit that, as far as I can watch my own consciousness, it does seem as if images came up, not because there was any positive reason, but because there was nothing in the way. It is at all events conceivable, that previous percepts should reassert themselves as images through mere negative determination or initiation, i.e. simply because the way was open for them. All past percepts which have become massed together according to certain relations may get into such a state of equilibrium or mutual arrest, that the way is clear for one particular presentation to reinstate itself as image. The percept has an intrinsic energy of its own. If it dies away into an after-image and then into unconsciousness, it is because it is pushed aside, and what had to be pushed aside before, may very well reappear. We may, as I said before, liken this procedure in consciousness to a stage, where actors come forward, assert and reassert themselves and retire.

Persistence and Obliviscence of Percepts.

Whether a percept dies wholly out of consciousness so that it cannot reappear, is a point for speculation. I think, in spite of all the evidence that persons when drowning recall

their whole past lives in those few moments, that percepts may be so pushed aside and so die away, that they will never again come up of themselves.

But since we may not generally assume that things never can come into our heads again, we need not be surprised if they do come again. It may be likely that a percept may be so pushed aside as never to reassert itself, but we have no right to say it has clearly gone beyond recovery. What happened on the third day of my fifth year I do not know, and in all probability it has gone completely beyond control; but if something that happened on that day should come up in consciousness, I should have no right to be surprised. Percepts have this tendency to persist, to reinstate themselves, and we cannot say it is overcome simply because a percept has not been reasserted in image[1]. Even if it has gone beyond recall, it has had its effect in consciousness, nothing in mind any more than in matter being without effect. Not the smallest percept but leaves some trace modifying consciousness. This is of high import as well as interesting in psychology.

Positive Conditions of Re-instatement.

What are the positive conditions for the reinstatement of percepts as images? I have already touched upon them and now proceed to consider them more systematically. Though the representative order follows the perceptual order and the latter is determined by extra-psychological causes, nevertheless the *prominence* of this or that perceptual experience in consciousness requires a subjective explanation. I have alluded

[1] In view of this tendency, constituting as it does a *positive* determining condition, it is perhaps saying too little to speak of mere negative initiation. What I mean above, however, by 'negative' is simply the absence of extrinsic positive conditions.

to the different degrees in which we may be affected by, e.g., footsteps along the corridor without. From this difference of effect in different individuals at different times we see that this relative prominence depends on the movement of the individual attention[1], that the order of presentation depends largely on mental activity. The mind of each at any given time is selective in a particular direction, and what particular associations will be formed depends not least on this subjective factor. Attention is pre-eminently a complex mental function, involving Intellection, Conation, and Feeling, for which reason I defer at present any further consideration of it. This condition is truly adduced, speaking generally, but it gives rise to another difficulty. If in the main we only associate experiences that we attend to, *why* do we attend to them? Moreover, the original statement does not always hold. Although it is clear to analysis that there is a function of activity which we must express in terms of Attention, yet certain facts seem to show that Contiguous Association can be formed without any active Attention at all[2]. Activity may go on in the mind without being consciously recognised. There is sub-conscious, there may be *un*conscious, mental activity. Again, there is a wide range of difference in the plasticity, 'natural adhesiveness' (Professor Bain), or associative capacity in the individual mind. Some need to have an

[1] Professor Bain—'concentration of mind'; Professor Sully—'action of attention.'

[2] Cf. e. g. the story of the delirious girl speaking Hebrew, &c., cited by Taine, Book II, ch. ii, quoting from Abercrombie's *Inquiry into the Intellectual Powers.* Some philosophers (Hartley, Mr. Spencer) hold that in such cases we do not have the sensations corresponding to the physical stimuli at all, and that the organic changes are transmitted to the brain but pass away without having had time to excite the corresponding mental concomitants.

experience repeated over and over again. Others can form long trains of associates after a single experience, as e. g. those who have been known capable of repeating whole pages after a single hearing. Other things being equal, there is no doubt that repetition of experience tends to result in contiguous associations being formed. This, however, is true only up to a certain point; beyond that point continued repetition only causes us to neglect the experience.

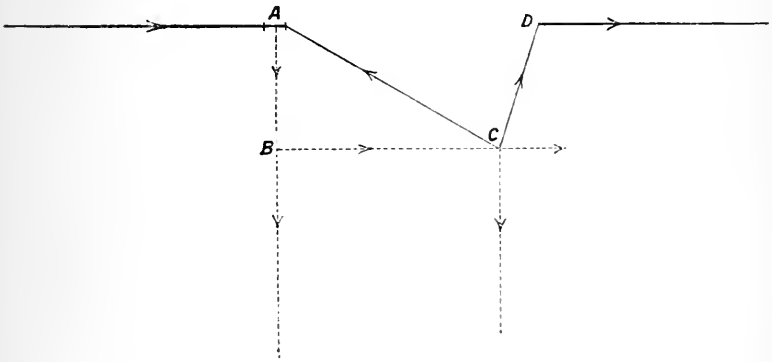
Let us now illustrate the process of the reinstatement of percepts as images by a diagram (p. 151)[1].

Representative consciousness flows on for us in connexion with presentative consciousness. (For the moment let presentative consciousness = percept, though it be not an equivalent term, there being representative consciousness in all perception.) I symbolise presentative consciousness by an arrowhead, to mean it is flowing on, in a series of percepts like a troop of soldiers passing by. When I have reached that part (A) of my perceptive experience, there happens to be something about that particular 'soldier' which keeps me from thinking of any others, and makes me imagine him there where I saw him.

The broken line (AB) thus means, that our presentative consciousness is liable to be broken through at any point by representative consciousness. At B either of two things may happen: I may persist in representing as before (AB produced), or my representative experience may be diverted and flow on in images (BC). At C one of three things may happen: my flow of images may persist (BC produced), or be arrested by a particular image C, or the perceptive series may reassert itself and my attention take it up again either at A or else

[1] This seems to me simpler than, yet not inconsistent with, that employed by Prof. Höffding, op. cit, p. 128.

at *D*, with a blank between the old and the new perceptive experience. This diagram has the merit of bringing together my related presentative and representative consciousness and of indicating certain different lines of the latter. E.g., I may read four lines of a book, and then, while still apparently reading, my mind may drift into a different conscious state, imagining some recent or long past experience, and lost in reverie or day-dreaming, where the series of images is not determined by any actual percepts. And after all I may return to the point where I ceased to be perceptive.



The Two Laws of Suggestion.

But representation goes on always more or less with the current of presentative consciousness; thus what we find in the former has application to the latter. Accordingly, in the diagram, the vertical line is intended to mark a relation of similarity between its extremes, or its elements. That is to say, when at *A*, if *A suggest* a particular image, it does so through the similarity of the image to *A*. And this effect of similarity may go on (down the vertical line) indefinitely. If,

however, *B* in turn suggest other images not similar to itself (along the forward line), the suggestion is said to be by contiguity. E.g., I go along a road and notice a tree, from which a boy stealing apples falls down. If, some time after, I repeat the walk and see the tree, I have an image of falling boy. This is not effected by contiguity alone, as some think. The suggestion, by the tree as it is, of the tree as it was, is by similarity. The rest is by contiguity. If the incident is recalled at once, the similarity is implicit: if I note the growth or other circumstances of the tree first, the similarity becomes explicit.

Now the flow of our representative consciousness is determined by the two laws of suggestion just mentioned; and the two are mentally involved at all events to this extent, that contiguity never arises without similarity, and that similarity is always liable to be filled out or bodied out by contiguity.

Historical Note on Association.

Aristotle, as far as we know, first noted that when we remember anything we remember other things along with it, and that in memory there are certain relations among representations, viz. Contiguity, Similarity, and Contrast. In the seventeenth century there arose certain inquirers who investigated this subject. Hobbes, e.g., wrote on trains of imagination, and Locke considered the association of ideas. Hume, in the middle of the eighteenth century, drew attention definitely to the association of ideas and discussed its principles. Since his time the name and its general significance have remained unchanged. Hartley was more truly the originator of the present Association Psychology than was Hume. He definitely formulated a principle of Association, which is for him the fundamental law of mental synthesis.

His one principle corresponds to what Hume and others call the Law of Contiguous Association. Other writers have since then added to the discussion, as I point out.

For LECTURE XXIII read :—

Sully, *Outlines of Psychology*, p. 206; Bain, Appendix, 91, 92; pp. 160-161; Ward, p. 60; Spencer, Part II, ch. viii, esp. § 120.

NOTE.—On the representation of Time consult Ward, pp. 63-66, and Sully, *The Human Mind*, i, 318 et seq. Croom Robertson apparently did not attempt to discuss 'this obscure topic,' as he calls it. This may have been either 'for lack of time,' or because of the elementary nature of the course. Respecting Professor Sully's treatment, he wrote (just prior to his death): 'He seems to be working in the right direction in assuming a unique and irreducible experience of time-transience, which is transformed by a complex constructive process into a distinct representation of present, past, and future, such as exists for the developed consciousness. It is a serious omission that no reference is made to Ward's view of intensity as the primitive element in our time-perception, and of movements of attention as constituting temporal signs. This theory of temporal signs may fairly be regarded as the most interesting contribution to the subject since Herbart, and it ought not to have been ignored here' (*Mind*, i, N.S. 413).—ED.

LECTURE XXIII.

SUGGESTION AND ASSOCIATION.

Formulation of the Principles of Suggestion.

I HAVE now shown how to me representative consciousness proceeds on the 'base-line' of perception. Our consciousness is never exclusively perceptive, in the waking state, for any length of time; it is always liable to be broken in upon by suggested images. 'Suggestion' is the best word to describe the process indicated either by the vertical or horizontal dotted lines. The perceptive order is broken because a certain percept produced or 'suggested' a certain image. And the two laws of Suggestion determining the flow of representative consciousness in relation to perceptual experience are termed Similarity and Contiguity, and may be thus formulated:—Principle of Similarity:—*Like suggests like in consciousness*, and, Principle of Contiguity:—*The representative order of experience follows the presentative order*, or, *things that have been conjoint in presentative consciousness tend to suggest each other.*

Are there more than two? Suggestion by Contrast.

Are these two the only principles of suggestion? Aristotle, in explaining memory and reminiscence, named three principles—Similarity, Contiguity, and Contrast. He said, that contrasting experiences were mutually suggestive, e.g.

rich, poor; high, low; and this as a separate principle has by many since been reasserted. Professor Bain however has shown that Contrast has not the essential character of a distinct suggestive principle, but is a special instance of 'Compound Association,' or combined action of the other two principles. Contrasts are not any kind of difference, but differences under special circumstances; or, in the language of Logic, 'Contraries' are not any two 'differents,' but rather *opposites of the same class*, or within the same 'notion.' Contrasts are likenesses with a difference, or differences in the midst of likeness, and it is the likeness which causes them to be associated.

Contrast as Impressive Difference, or Relativity in Consciousness.

This, however, is not the whole truth. Contrasts are of things which differ most on a basis of agreement, but it must not be thought that things suggest each other *because* they are different, even though Difference is a condition of *impressive consciousness*. We know that when we consciously assimilate there must be some amount of diversity. Similarity without diversity, Similarity with diversity of time only[1], is Identity. For us to have two experiences at all they must be somehow different from each other. And when we pass from one state of consciousness to another, the latter is more impressive according as it is subjectively felt to be more different. This is the Principle of Relativity in consciousness, called sometimes, but less fitly, the Relativity of Knowledge: Relativity of Consciousness is better. We are, then, best intellectually conscious under this principle of Relativity, and though this fact is not a principle of Association or Suggestion, yet it *helps* Association. We do not properly know

[1] Such as is frequently implied in our use of the word 'same.'

anything of 'rich,' 'up,' 'right,' &c., unless we have had, before or after them, their contrasts 'poor,' 'down,' 'left,' which are thenceforward suggested through contiguity. Our most impressive experiences are those *contiguous* experiences which involve a maximum of difference on a basis of similarity.

The Two Principles as Exhaustive.

Similarity and Contiguity therefore suffice. If we take our representative consciousness in any of its forms, so far as they can be reduced to law at all, they can always be shown to proceed according to those two sets of conditions, and no others need be assigned. By them we can explain memory, in as far as memory can be psychologically explained. And any philosophical discussion of the import and value of memory must be on this psychological basis. More of this in the course on General Philosophy.

Suggestion and Association.

Which is the better term for the procedure determined by these two principles,—Suggestion or Association? Sometimes both are used indiscriminately, sometimes one and not the other, or less than the other[1]. Are those laws of Suggestion in any proper sense laws of Association?

Is either Principle more Fundamental?

Let us first consider whether either is more fundamental than the other. James Mill, following Hartley, was for

[1] Professor Bain never uses the term 'suggestion' unless, as it were, by accident. Professor Höffding uses 'suggestion,' yet when dealing with the principles of Similarity and Contiguity as explanatory of that consciousness called Ideation, he formulates them as laws of Association. I used also to speak of laws of Association and not of Suggestion (cf. my article on 'Association,' *Ency. Brit.*).

resolving Similarity into Contiguity. Mr. Spencer seeks to resolve Contiguity into Similarity. Professor Bain regards both as fundamental, and has been followed by J. S. Mill, and more recently by Professors Sully, Clark Murray, Wundt[1], and others. I agree in thinking that no mutual reduction is possible, that they are independent principles; but I hold that they only rank as parallel principles, *if considered as laws of Suggestion and not of Association.*

Let us first take Contiguity. It is not only a principle of Suggestion, but also fully to be called a principle of Association. Association is joining or bringing together. Do we bring together in consciousness under the principle of Contiguity facts that, apart from contiguity, would not be otherwise brought together? I think we do; e.g. I lift my hat from the chair. We have the association between the thing 'hat' and the word 'hat,' and this is as pure a case of Association as may be. The particular sound and that class of object would not have been brought together in the hearer's consciousness, had he been French and ignorant of English.

Trains and Aggregates in Suggestion by Contiguity.

Notice here that, whereas the simplest cases of Association proper are cases of successions or trains of presentations (using this term in its widest sense), as e.g. the alphabet and all series of movements, Contiguity determining the succession in the order of presentation, it often happens that a number of experiences, originally had in a serial order, do not continue to be reinstated in that order, but appear as fused,

[1] Professor Wundt, while regarding Contiguity and Similarity as both fundamental principles, prefers to speak of them as external or extrinsic, and internal or intrinsic, association respectively.

blended, or coalesced into a simultaneous aggregate or cluster of experiences, or are at least reinstated in a varying order. If, e.g., I think of an orange, I have all at once the following cluster of images :—resistance, form, colour, taste, smell, &c. All these qualities connoted by the name 'orange' I have experienced in every possible permutation; hence the multitude of conflicting orders has undergone transformation into a fused aggregate, or can be reinstated in varying successions. This was first noticed by Hartley.

Inseparable Association.

Name and object, indeed, may have so come together in consciousness that they have become inseparable. The kind of Association termed Inseparable refers to these facts of consciousness, namely, to contiguous associates which have become so fused as to be practically inseparable,—not theoretically so, else we could not distinguish the two associates. Such association occurs where Contiguity has connected two or more associates which never have been had apart, though it must be assumed that they are *separable* and originally *separate*. Inseparable Association is association formed under conditions of invariable experience. A great deal of knowledge seems to have a real explanation from this fact, which we shall consider again under Philosophy. Such association is not had by way of Contiguity only, but also by way of Similarity. It is therefore not a *kind* of Association, but only Association under certain conditions.

Contiguity, the only Principle of Association, is the Principle of the Complexity in the flow of Consciousness.

To revert :—intellectual consciousness has this aspect, that it is progressively more and more complex, and this progressive complexity or complication needs explanation as

well as the fact of consciousness expressed by the term 'flow.' Now if in the process of representative consciousness Contiguity is to be called a principle of Suggestion, it may equally be called a principle of Association as explaining, not the 'flow,' but this progressive complexity, of consciousness. My consciousness of the pillar is a something I had somehow to put together. Why should this pillar lead on to 'roof,' and so to 'wall,' 'window,' 'window-cord,' &c.? Because of Contiguity. Now with respect to Similarity:—is it in the same sense, or in any sense, a principle of Association? I am bound to say, it is not. When like suggests like in consciousness, as in the case of a man and his portrait, we do not find a complex conjunction like that established by Contiguity. There is, in fact, only one law of *Association*, viz. that of Contiguity, and you may use Association as equivalent to Suggestion by Contiguity. I do not speak of an Association of Similarity, and depart therefore on this point from Professor Bain[1].

But I am not thereby making light of Similarity as of account for Intellection, nor have I done anything to lessen its real importance in Intellection. It may not be a principle of Association, but, as we shall see, it is an expression of that function of Assimilation which enters most intimately into Intellection.

For Lecture XXIV read Bain, pp. 82–85, 151–159.

[1] Cf. on this point the view of Dr. Ward, op. cit.

LECTURE XXIV.

RESOLUTION OF ASSOCIATION INTO THE LAWS OF INTELLECTION.

Recapitulation.

By saying that Similarity and Contiguity are principles of Suggestion I mean that they are principles determining the flow of representative consciousness, or reproduction in consciousness[1]. It is not necessary, in accounting for this flow, to bring in the word 'Association,' but *if* we do so and consider what it is in consciousness, we find it is distinctly applicable to a certain result detected under the principle of Contiguity, or a bringing together that which was not conjoint in consciousness in a certain more or less permanent fashion, a fashion which *may* be so permanent that the association is practically inseparable or indissoluble.

The Significance of Similarity in Intellection.

We need Association or the principle of Contiguity to account for the progressive complexity of consciousness, but not Similarity. Unquestionably Similarity is one of the chief determinants in the flow of our representative consciousness. But I am with those who say, there is one law of Association, viz. Contiguity. While I thus seem to be subordinating Similarity as a principle of Association, I am now to pass

[1] Hamilton (*Lectures on Metaphysics*, XXXIII) distinguishes between a reproductive and a representative faculty—a superfluous distinction.

on to show, that if there is anything important for Intellection, it is Similarity.

We have already inquired and found that intellectual consciousness as such reveals a compound function of Discrimination and Assimilation. When intellectually conscious we are discerning and at the same time assimilating. What is this assimilating? Assimilation is that aspect or coefficient of Intellection which may be set out thus :—Like goes to the account of like in intellectual consciousness. Here is Similarity no longer as *merely* a principle of Suggestion, i. e. as like tending to recall like in consciousness. We may then both speak of Similarity as furnishing a law of Suggestion, and set it out as a fundamental factor in Intellection.

The Law of Difference.

Since Similarity is not the only law of intellectual consciousness, and since we can express Assimilation in terms of a law of Similarity, we ought to be able to express the other coefficient of Intellection, Discrimination, in terms of law also, as a law, namely, of Difference, thus :—Consciousness is possible only under circumstances of Difference; or, For consciousness Difference of Impression is necessary.

This that I have suggested to you as the Law of Difference has been called the Law of Relativity by Professor Bain[1], and for him it is the necessary complement to the Law of Similarity. Professor Höffding's[2] Law of Relativity is of wider scope, including both Discrimination and Similarity, nevertheless he ends by making his explanation of the Law of Relativity an explanation of the Law of Difference. We shall have to recur to this subject of Relativity in the Logic and General Philosophy of our course. I wish now only to

[1] Op. cit., pp. 83, 160.

[2] Op. cit., pp. 114-117.

add, that if you enter upon the attempt to distinguish between these two laws of intellect as to whether one is more fundamental than the other, you would find that the Law of Difference is more fundamental than that of Similarity. The law of Difference represents the negative condition of 'being conscious.' Without Discrimination you cannot be intellectually conscious. Except with a difference consciousness cannot proceed. Similarity expresses, not so much the *fact* of your being conscious, as the *way* of your being conscious. That is the positive condition. To the extent that my consciousness is discriminative in the case of the pillar, the pillar is *not* chair, *not* window, *not* roof; but its being just *pillar* obviously shows I am assimilating.

Retentiveness.

Have we, when speaking of these two laws, left any other? Are we to allow as a third law Retentiveness? Is it a third coefficient in Intellection? Is it not rather a fact of Mind as a whole than of any one phase? It is certainly involved in a way in Intellection, and becomes most distinctly manifest in relation to Intellection, yet we cannot say it enters into the very being of consciousness as do Discrimination and Assimilation. If it could be shown that representation is involved in discrimination, then indeed we should have to include the third function of retention in every intellectual process. But the consciousness of bare difference in passing from one sensation to another seems to involve nothing but Discrimination and Assimilation. Professor Bain tells us that Intellect involves these two and also Retentiveness. The first he expresses in the form of a Law of Relativity, the second in that of the Law of Similarity, but what he calls Retentiveness is expressible as a Law of Contiguity, i. e. that if things happen together, you

retain them in that connexion, so that you get a progressively complex consciousness. Thus under the term Retentiveness he draws attention to an aspect of consciousness which I regard as Association in terms of Contiguity. But this fact of progressive complexity of consciousness is, so to speak, an after-fact, and does not enter into the very being of consciousness. You could be intellectually conscious without retaining. Intellection is explained by Discrimination and Assimilation. Its progressive complexity is explained by Association, the function corresponding to the principle of Contiguity.

Special Forms of Association.

What has been called Constructive Association[1] is not a new principle, but Association under certain conditions of Feeling. Feeling determines the end for which the constructive association takes place. Hence this subject is more properly treated of under Conation and after Emotion.

Again, it is important that 'Obstructive Association'[2] should not be misunderstood. It is not another kind of association, but only an effect of the working of the laws of Suggestion. Representation flows on in a certain course in virtue of these laws; it may be stopped by another train of images, but if so, this stoppage is also caused by the principle of Association and by nothing else. Under certain circumstances the laws of Suggestion may be obstructive of a particular line of associations either by way of Contiguity or Similarity. Take the case of my seeing a person I have met before. Seeing him should call up his name in my consciousness, but as a matter of fact another name is called up which obstructs my recollection of the name I want. Either

[1] Bain, op. cit., pp. 161 et seq.

[2] Bain, op. cit., p. 159.

the person I see is somewhat like the holder of the name I do recall (Law of Similarity), or I saw him some time in the past in company with the holder of the name I recall (Law of Contiguity).

We can now see how it is in terms of Obstructive Association that we can for the most part explain Forgetfulness. Take the case of a child who on reaching a shop forgets the object of his errand. Here it is not that the flow of association comes to a dead stop, though this may sometimes be the case. But it is that the laws of Suggestion have carried the flow along a divergent path ; hence the forgetfulness of the path on which a memory of the errand would have been maintained.

Obstructive Association, then, is a term used with reference to a particular line of association which we have in view, and if we forget this line, it is the laws of Suggestion that turn us off.

Finally, there is one kind of mental experience that is governed by association entirely, and that is the trains of bare representation termed Reverie. In Expectation, on the other hand, we have representative experience that may be haphazard or may be voluntary. In it the time-relation of memory is inverted; it is representation with a forward reference.

For LECTURE XXV read:—

Höffding, V, *B*, § 9; Sully, *Outlines of Psychology*, pp. 242–247, 254–257 ; Appendix F.

NOTE.—In correction of Höffding, p. 114, footnote, the term 'relativity' was used by Professor Bain before Professors Wundt and Ward used it.

LECTURE XXV.

THOUGHT. PERCEPT, IMAGE, CONCEPT.

Intellectual Processes and Products.

After we have discovered the laws of representation and the laws of intellection generally, it remains for us to find out the remaining intellectual products arising under them in consciousness. We found first of all the Percept and explained it only in its connexion with Sense. We then took account of the Image and saw that it was related to the Percept. And now we must take account of one more intellectual product, and that is the Concept. When we have explained each of these three as it arises, we have completed the work of the psychology of Intellection. We have then before us three intellectual products:—

Percept.
Representative Image.
Concept.

and three corresponding processes:—

Perception.
Imagination (Representative).
Conception.

Conception.

Note that Conception in Psychology has a wider and a narrower sense. In its wider sense it may be taken as equivalent to Thought or Thinking proper. Less widely

understood, it means a certain *mode* of Thought. In the wider sense Thought or Conception, from the time of Aristotle downwards, has been universally considered as presenting three forms:—(1) Conception (in the narrower sense, i. e. general intellection in its most concentrated form), (2) Judgment, (3) Reasoning. When I am dealing with Thought in its linguistic and logical aspect, and not till then, I shall give a proper account of the psychological difference between these three. To-day I overlook the difference and attend to what they have in common; I do not exclude Judgment and Reasoning from Conception, but consider the antithesis between Perception and Conception in its wider meaning of Thought,—Thought, that is to say, not in the popular sense of intellectual consciousness in general, but in its stricter psychological sense of Intellection on occasion of general notions[1].

Products of Intellection as interrelated.

We are then to consider Percept, Image, and Concept in their relation to one another as results of intellectual law. Taking our pillar, as constituting a percept actually present, we may remember that there is a corresponding pillar in the next lecture-room; this gives us a representative image. What then do we mean by the thought or concept of a pillar? Pillar *in general.* This is neither the pillar we see, nor that which we were imaging, yet it in a way includes all the pillars of which we can be conscious. Why should the 'concept' pillar mean pillars 'in general'? The answer is suggested in the prefix *con*, which = together. *Per* in percept

[1] Many philosophers and even many psychologists, e. g. Professor Bain, disregard this useful restriction of the terms Thought and Thinking to the 'peculiar narrow sense' (cf. Bain, op. cit., p. 146) employed by, e. g., Hamilton, Professor Sully, &c.

represents the fullness or completeness (*per* = thoroughly) of my apprehension of the particular pillar. In conceiving in my thought every possible kind of pillar, I get an advantage in 'taking them together' (*con-capio*), but I do not get as much in them all as I get in the perception of one single pillar.

Now we may see, that image and percept have under one aspect something in common, just as image and concept have something in common under another aspect. The image is the percept reproduced apart from sense-stimulation, otherwise both are alike. The percept has always the character of singularity. If I image a class in the next room, has my image also the character of singularity? Yes. Percept and image have always as intellectual products this character of singularity, or as it is sometimes called, though less fitly, particularity. Wherein then does the image resemble the concept? Both are void of sense-stimulation, both are representative. What is the difference between them? The concept is more widely representative: it has not the character of singularity. In a concept, we may be representing not only all the pillars we have perceived but all that we can imagine.

If images are already representative, how can we designate the further process? Mr. Spencer uses the word 're-representative.' The concept is re-representative and may be so to any 'power.' As soon as we have passed from image to concept we have an indefinite vista of intellectual development, although we are dealing with no new intellectual function. In conceiving or re-representing we bring together a number or multiplicity of images *on the ground of similarity*. The fact of likeness is the great determinant, by which in the concept we bring a plurality to unity.

Generic Images.

Some have put in between the image and the concept the Generic Image, a distinction useful in so far as it shows that some concepts come nearer to the image than others. Whenever, in a concept, similarity predominates over difference in a multitude of particulars brought together, then the concept retains most of the characteristics of the image. In thinking of 'sheep,' unless we are dwelling on the word sheep, we get not one image, nor yet necessarily a succession of images, but a sort of *general idea of a sheep.* This result is not itself exactly an image, it is not the image of any one sheep we ever actually perceived, but it still has something of the definiteness of an image in it, a certain schematic distinctness. This is a generic image or *schema*, and it is for us the thought or concept of sheep.

But if we think of 'father'—not our own, but any father —we have no generic image of 'father' in the mind: the differences are too great. In 'nation,' again, we cannot get even an indefinite image; yet somehow the mind, though it cannot call up a generic image, gets hold of the meaning of the term. Such a concept, again, as 'relation' is still further removed from the generic image. Who can definitely image what we mean by 'relation'? As a fact we may believe that when we think of 'nation,' 'relation,' and the like, though the thought may be general, some particular image comes before the mind; nevertheless that image is not the general thought with which the mind was concerned. It is one thing to image a number of fathers, and another to conceive a father. In such cases we see that the facts of likeness, which enable us to form the concept, are much less than, are subordinate to, the differences that are overcome, and do not predominate as in the Generic Image. Never-

theless the concept, so far as it is a definite fact of consciousness, comes to us as a *deposit of resemblances.*

Thought as General.

The characteristic attitude of thought or thinking, then, when the term is properly used, is its generality. Although I can think of a single thing, thinking, in its import, is essentially general. If I think of a pillar, I have it before me, not as a particular thing, but in its likeness to other pillars. The concept brings together a multitude or variety of images re-representatively on the ground of likeness, constituting a notion so general as to be termed a 'general notion.'

Thought as Abstract.

Thought is generalisation by way of abstraction. Abstraction is the means by which we arrive at generality. But 'abstract' and 'general' are not the same. We cannot get generalisation without abstraction, but we can get abstraction without generalisation. We may, say, have an abstract consideration which is not general. Abstraction may be taken as equivalent to (*a*) taking away, (*b*) looking away from; the latter is the more psychological meaning. In psychology I abstract, i.e. I look away from, points of difference. I do not abstract the likeness: I attend to points held in common, to the exclusion of points of variety or difference. The abstraction necessary for generalisation means a looking away from points of difference to attend to points of similarity.

Percept and Concept as Antithetical.

Now compare once more the three products—percept, image, concept. For convenience we may drop the second, since, except with regard to sense-stimulation—it is the same

as the percept. Between percept and concept we get a real antithesis. If the percept is an intellectual product, it must involve discrimination and assimilation. So also must the concept if it too is an intellectual product. Where then is the difference? Discrimination and assimilation are involved in both cases, but not equally so. In the case of perception, discrimination is to the front; in conception, although discrimination is present, assimilation predominates. The concept arises through the process of assimilation, and the percept chiefly through the function of discrimination. Thus it is in accordance with the ultimate laws of intellection, that we can give the relation between perception and conception.

For LECTURE XXVI read :—

Spencer, Pt. VIII, ch. ii; Höffding, p. 130; Bain, pp. 176–181.

LECTURE XXVI.

PERCEPT AND CONCEPT; THEIR INTERDEPENDENCE AND EVOLUTION.

EVERYTHING that we can call thought, or understanding, is included within this notion of conception (in the wider sense). Psychologically we define thought as intellection by way of concepts. Understanding, in its psychological import, stands on the same level as thought.

Perception and Conception mutually interdependent.

Conceiving presupposes perceiving. Perceiving involves conceiving. Let us see that we fully grasp this.

Perceiving is marking off, distinguishing, discerning. 'To discern' is used in as general, and again, in as specific, a sense as 'to perceive,' just as 'to see' is often extended to mean to understand or conceive. It is only within the last century that perceiving has come to mean 'sense-perceiving.' Locke and the psychologists of the eighteenth century used the word 'perceive' when they could have used 'conceive' or 'think.' That 'to discern' is equivalent 'to perceive' shows that discrimination is the prominent aspect of perception. The salient feature of my intellection of the pillar is, that I am distinguishing 'the pillar' from everything else, whereas the salient feature of my concept is, that I am bringing together, on the ground of likeness, a great variety

of experience. In perceiving I am marking off on the ground of difference; in conceiving I am bringing together on the ground of likeness.

Not that I cease to discriminate in conceiving. In the very fact of abstraction, in bringing together on a ground of likeness, I am discriminative. In generalising, I am assimilating with a background of discriminative activity. When I have formed my concept 'man' on the ground of likeness I am thinking of 'man' as different from any other thought. Concepts are governed, not only by the law of Similarity, but also by the law of Relativity. The import of this is seen in Logic.

Again, if in perceiving we are essentially discriminating, we are also assimilative,—unquestionably so, in the case of the developed perception of adult consciousness. When my consciousness is developed to the extent that I can say, 'I perceive that pillar with my eyes,' I am marking it off not only, through present sense-consciousness, from the wall, the benches, &c., but also from everything in my past experience, *except* the experiences of objects I have learnt to know as pillars. I interpret my present with the aid of my past experience. The better I have conceived, the more exactly am I able to perceive. How is it that one perceives better than another, eyesight being equally good? The one brings more concepts to bear on the presentative experience of the moment. E.g. we look out on the horizon and see an object, whereupon a sailor says, 'That is a schooner.' Why could he distinguish it as such, when to us it is only 'an object'? Because we as landsmen could not interpret the sight through our want of past experience in that direction, whereas the sailor, with perhaps inferior eyesight, is able for the opposite reason to do so at once. Take again the popular, and the technical or

scientific conception of pillar. The man of science brings a different set of concepts from those brought to bear by any one else. The question of Illusion might without impropriety be treated of at this stage. In common normal life we differ in perceiving, because we bring different concepts to bear on our presentative experience. When our perception is of the kind called illusion or misconcept, we are bringing concepts of an abnormal kind to bear on our presentative experience.

Mr. Spencer's Scheme.

All developed perceiving, then, depends upon or involves conceiving; just as, in another way, conceiving pre-supposes perceiving[1]. Hence the fourfold order, and hence the term for Perception employed by Mr. Spencer in marking out the divisions of Cognition or Intellection:—

[Presentative Cognitions.]
Presentative-Representative Cognitions = Perception.
Representative Cognitions = Representative Imagination.
Re-representative Cognitions = Conception (in its wider sense).

Mr. Spencer has no hesitation in saying that Presentative Cognition corresponds to Sensation. But any sense-experience is more or less perceptual, is 'presentative-representative.' Sensation, in the strict sense of the word, as I have already pointed out, does not represent any fact of actual experience, but in itself is an abstraction. By 'presentative cognition,' then, we must understand something corresponding not to the whole of consciousness on any occasion of intellection, but—and this is indicated in the table by brackets—to an ideal starting-point or limiting conception for purposes of scientific explanation. Thus qualified it may well be put down in such a scheme as Mr. Spencer's.

[1] Notice Professor Höffding's illustration of this, op. cit., p. 130, &c.

The Historical Prius of Perception and Conception.

If all our actual presentative experience is at the same time representative, while there must always be something presentative to start with, how do we first come to represent? Sense by itself is not perception; it becomes so only by representation; where then are we going to get our representation for our *first* perception? Some philosophers say we come into the world with a mind containing 'innate ideas.' This hardly suffices for a psychological explanation, and our only way out of the difficulty is this. There are two stages in the development of our intellectual experience. When we are able in the fullest sense to perceive, we are already able to conceive. But first we had to develop from a lower stage, which was not that of perception till we acquired the power of perceiving. And that prior stage is one that cannot be expressed in terms of perception and conception. It was a passage in intellectual consciousness from the vague to the definite. Our first consciousness is just a vague, confused, chaotic mass, which we have to clear. To borrow a figure from chemistry, our first experience is in a state of solution, and from this solution something has to be precipitated. The percepts that involve concepts are 'precipitates' from an earlier stage of consciousness, and imply that there has been a passage from vague to definite. But we are bound to assume, that precisely the same laws that apply to percept and concept apply in the case of passing from vague to definite.

The Vague and the Discrete.

For 'definite' substitute 'discrete,' and let 'discrete' stand, in relation to 'vague,' as a *possible* percept, a percept, i.e., not yet involving concepts, by the interpreting efficacy of which the discrete becomes a percept. Discrete again is 'con-

crete,' by which I mean made up of distinguishable elements. We may now get this scheme :—

Vague
|
discrete (concrete) = percept
|
abstract = concept.

Let us assume I have no previous concept of pillar. At first I could only be vaguely affected by it, then I come to be conscious of it as (*a*) a discrete, as something marked off, which may come to be a percept; (*b*) a concrete, as opposed to this or that simpler kind of experience, in that it is a concrescence of sensible elements of the discrete, sound, size, form, &c., all growing together. As (*a*) my intellection of pillar involves the laws of discrimination and assimilation: in as far as (*a*) is (*b*) it involves also the law of association.

Development of the Concept out of the Discrete by way of Abstraction.

How do we form the concept? Obviously on the basis of the percept. To form a concrete we bring together all the sensible elements or aspects of the discrete. But in the concept we are dealing more with the abstract. The concept is formed by attending, in the variety of experience, to the like. The moment we begin to perceive, we find a multiplicity of percepts. Not to neglect or be overwhelmed by this multiplicity, as happens with stupid folk, but to master it, is the problem of conception. The way of mastery is attention to the like, neglect of the unlike. In this way the multiplicity is brought together.

Theories as to the nature of the Concept.

Can this be done, can the concept be formed, can the multiplicity be held together in consciousness without the

assisting particularity or singularity of an image or a percept? Some have thought this possible, and the mental product e.g. of a multiplicity of triangles, to be a triangle that was neither equilateral, nor isosceles, nor scalene, &c. This is the position of Conceptualism,—the thinking of a general thing without thinking of things in particular. Others say, it is impossible for the mind to bring together its multiplicities without some representative or symbolic percept or image, notably that of the name, written, spoken, or otherwise expressed. This is the position of Nominalism.

For Lecture XXVII read:—

Höffding, V, *B*, §§ 10, 11; Taine, op. cit., I, ch. i, ii.

LECTURE XXVII.

THOUGHT, LOGIC, AND LANGUAGE.

The two modes of Thinking, (a) *in Logical Order.*

We saw that Conception in one sense is equivalent to Thinking or General Intellection, and in another sense is a *mode* of Thinking, the other modes being Judgment and Reasoning. Judging as distinct from Conceiving is the bringing together in our thought two concepts, whereas in Reasoning three concepts are grouped together. Take, e.g., the concept (not image or percept) 'man.' 'Man is rational,' or 'a rational animal,' is a judgment. 'Man is rational because speaking' is a process of reasoning. Thus the three present a scale of increasing complexity, when considered on the side of mental products expressed in definite form, viz. in language. Now in Logic there is very good ground for taking the three in this order and under this aspect, inasmuch as the logician is concerned, not, as is the psychologist, with the explanation of thought-procedure, but with its regulation with a view to making it true and consistent, and we can only apply canons of truth and consistency to thought when it is definitely expressed in articulate speech. Accordingly all logicians have divided their subject-matter into these three departments,—the Logic of Conception, the Logic of Judgment, the Logic of Reasoning. Conception used to be called Simple Apprehension, a concept in a judgment being 'compoundly appre-

hended.' Whately still called it so, but Hamilton, following the Germans, substituted the far better term 'Conception.' Apprehension, in developed Psychology, is more applicable to Perception than to Conception, which could only be expressed by *Com*prehension.

(b) *In Psychological Order.*

But in Psychology we do not consider whether a thought is true or untrue; we just consider how it has arisen in consciousness. Because the logician does well to consider conception before judgment (i.e. names before propositions), and judgment before reasoning (propositions before arguments or syllogism), this does not imply that we form concepts in the mind before we form judgments, and judgments before we form reasonings. I have got a concept or notion of 'man.' That notion must be a certain kind of notion, must have a certain content, different in my consciousness from the content of the concept 'horse.' What is then the content of this notion 'man'? Wherein lies the difference? What is in my thought when I think of man? Let us say 'a rational animal.' But I cannot express or explicate or unfold this content without putting it in the form of judgment:—'man is a rational animal.' But I am not only forming a judgment in arriving at my concept, I am really forming two judgments:—'Some animals are rational—some are not.' We mark off 'rational animals' as 'men.' Our concept is really a deposit from two judgments. But in judging some animals rational, we must have had some ground for saying so, and have done so by the implication of reasoning; we have inferred rationality in man. When therefore we probe it down psychologically, we find that each concept comes, under any given aspect, from two judgments, which have involved

reasoning. Reasoning is judgment explicated; judgment is reasoning boiled down; a concept is condensed judgment. This proves that, for purposes of science, it may be necessary to separate in expression things which in point of fact are mutually involved. For purposes of psychological science we need to distinguish Conception, Judgment, and Reasoning, and for purposes of logical regulation we must not only distinguish but also arrange them expressly. At the same time we do not deny that in the flow of consciousness they proceed in a mutually involved fashion.

Thought and Expression.

I have in connexion with thought spoken much of *expression*. Thinking and speaking are related to each other in a very intimate way. All mental activity tends to find expression, but articulate speech, as the vehicle for exposition or statement, is peculiarly the expression of the psychological function of intellection, most of all, of *general* intellection. How shall we express the concept, judgment, reasoning or inference? By the name, proposition, and syllogism or argument. In connexion with the function of thinking, then, it is of deep interest to consider the important function of *speaking*.

How far is Intellectual Procedure Independent of Language?

As far as we have seen, there is nothing in *perceiving* that could not go on without speech. Dumb people are so, as a rule, because they are born deaf, and deaf persons, left to themselves, never speak; although, as is well known, they can be taught to do so by associating movements of the tongue, larynx, &c., with the visible movements of the lips of the teacher. There is no reason to suppose that the dumb are unable to perform the intellectual construction upon sensation

that we call Perception. Perception can go on without speech, even though normally it may not do so.

This is equally true for imagining, and for generically imagining. Even the lower animals may possibly be able to get as far as this.

Thought and Systematic Speech.

But beyond this it is questionable how far we are independent of speech. Concepts that are more abstract than generic images can in all probability not be formed by the dumb, and are not formed by the speaking human being without the help of language as a system of marks and signs. Animals can perceive, also imagine, but they have not the progressive mental development of thought always finding expression in some definite linguistic system. This is true of our thought in its highest development and also in its beginning. Children do not think before they speak, but often speak before they think. Thought proceeds by way of expression. But for some way of exit, but for some means of expressing our mental experience, we should never come to have the orderly succession of thoughts that we do have. The human mind, overburdened by the multitude of its experiences, trying to make clear the likeness among them and failing to do it in the form of an image, is so constituted that it then puts forth an action of some kind. In every case where we are conceiving (i.e. bringing together a number of things on the ground of likeness), but cannot generically imagine, we help ourselves by some kind of expressive image.

Speech required to Co-ordinate Experience.

Expression includes gestures, drawings, &c., as well as the spoken word. But the larynx, and the respiratory system

generally, is an organ, or group of organs, through which expression takes place more readily and with less diffusion of energy than through any other. Children discover its use during the first few moments of their life. But crying is not speech. Speech first comes into play when conceiving begins. It is when the mind has to overmaster its experience in order not to be overmastered by it, that speech comes to our aid and enables us to overmaster our experience. For want of speech much experience may be neglected altogether, e.g. by the dumb and the lower animals. It is only by the elaboration of that system of connexions between expressive movements of throat, tongue, jaw, and lips, and the resulting sounds, that thought is both registered and signified in a relatively adequate manner.

The more Fundamental Function of Speech.

Of these two functions the latter is really the more fundamental. We come to conceive and to master our experience by way of language only when we have to communicate. Speech arises as a means of expressing thought, not for the individual, but between man and man. Hobbes, in his definition of a name[1], puts the registration of thought to oneself by language prior to the signifying of thought by language to others. Both Mill[2] and Taine[3] follow Hobbes, considering the marking function as prior to the signifying function. This is wrong psychologically. Definite expression dates from the intercourse of man with

[1] 'A name is a word taken at pleasure to serve for a mark which may raise in our mind a thought like to some thought we had before, and which being pronounced to others may be to them a sign of what thought the speaker had before in his mind.' *Computation or Logic*, ch. ii.

[2] *Logic*, Bk. I, ch. ii, § 1.

[3] Op. cit., vol. i, ch. i, ii.

man. It is thrown out as a signification, taken up and thrown back by another to the first, and then, but not before, it really becomes a mark. Thus the deaf mute has difficulty in finding his gestures taken up and adequately returned; they are too individual, and hence are not established. A solitary savage need not intellectually master his experience till he requires to make it known to others. Once he is in social relations, it becomes necessary for him to bring his experience into a shape which others can recognise. Thought is a social function. Language is a social product. Man would imagine, feel, if his habit of life were unsocial, but he would not take the trouble to think. Thought is social in its origin: secondarily, at a later stage, it becomes individual.

Speech arises for us in connexion with thought, not with feeling. Inarticulate expression of feeling is not speech. We need speech to *describe* feeling, but not to *express* it. In the beginning it was, as I have said, in the act of thinking that man was necessarily led to speak, and a nation's language tells you what that nation can think. The word-symbol, in regard to thought, is just what is wanted to supply definiteness in the absence of the image. Thought is so much dependent upon speech, that it can come to be studied by way of speech, and can be regulated (in Logic) through its expression. Thought must be expressed before it can be regulated in name, proposition, and syllogism.

Speech Educates and Extends Thought.

Once made, and found ready-made, speech becomes a means for developing the faculty of thought. Children do not go through the natural psychological development; they do not get the chance. They find the vehicle of their thought ready-made. Yet we can see in them and

their early attempts at speech the actual creative instinct, showing still the fact of spontaneity, out of which language originally grew.

Although language arises from the need of thought, yet once there, we use it to express not only concepts, judgments, and reasonings, but also percepts and images. We perceive all the better because of our naming. For perceiving, though it may attain a rudimentary stage without language, requires in its developed form the aid of language. *Thorough perception is really intentest thought*, thought concentrated, brought to a point, a condensed essence of thinking more complex than the bare percept. Every fully developed percept is potentially a general thought, and speech becomes necessary for effective perceiving, which to all intents and purposes is thinking.

Intellection is dependent upon Speech in proportion as it is General.

Within a certain range, then, there is a possibility of thought apart from speech, yet unquestionably it must be allowed that thought as general, as re-representative, is dependent upon speech. Or, if exception be found to this statement, we can at least commit ourselves definitely to this, that according as thought becomes more general, it becomes more dependent on its conjunction with speech. It is impossible to work out the psychology of thought without consideration of the psychology of speech. In a certain sense all thought involves some kind of language. Thinking and speaking are the same things on different sides, speech being the effective expression of thought. For the saying 'Without speech no thought' we may substitute 'Without speech no effective thought.' Verbal marks or signs in the case of simple concepts are useful; in the higher forms of

thought they are indispensable, and are more absolutely so the higher we go. There is no question but that speech was absolutely necessary for the communication of thought which is a purely subjective function; but, on closer investigation, it is seen that the power of progressive re-representation also depends on the using of some fixed and definite expression, with which to build up the more complex structures.

For LECTURE XXVIII read :—

Bain, pp. 18, *note*; 215–225; Höffding, VI, *A*, §§ 1, 2, *D*.

Also cf. Sully, *Outlines of Psychology*, p. 315; or *The Human Mind*, xiii. 2 *a*.

LECTURE XXVIII.

FEELING AS SUBJECTIVE AFFECTION.

Subjective experience in the truest sense is Feeling.

It remains for us to consider the other two phases of mind, Feeling and Conation. Conation cannot be understood or defined without express reference to Feeling. There is no psychology of Conation except in relation to a psychology of Feeling. Some even contend that Will is but a special mode of Feeling. (Cf. Spencer, *Principles of Psychology*:—'The Composition of Mind.') We may go so far as to admit, that so far as anything is willed, it is willed by reference to Feeling. Hence of the two we do best to consider Feeling first.

Feeling is the name in modern psychology for any conscious experience that is adequately expressed as a state of the subject, or a subjective state. It may be objected, that there is no conscious experience that may not be described in these terms, but the answer is, *To that extent* that conscious experience is Feeling. Does the term 'subjective state' adequately describe a fact of Intellection, or a fact of Conation? My perception of that pillar, my wish to open that door—can either of these experiences be said to be fully expressed as a subjective state of mind, or the most characteristic part of them be said to be brought out? Not so. We can understand why Mr. Spencer and Lewes have used Feeling as equivalent to

conscious experience, even if we do not approve of it. We use it in a more specific way, holding that whenever we get a fact of consciousness which is adequately, most characteristically, expressed as state of subject or subjective state, then we are dealing with something that may properly be called Feeling [1].

Evolution of the Term.

We have seen already (Lect. IV), that if the word Feeling is by some extended far beyond our definition, on the other hand it has also been limited to less than that, viz. in the popular sense, to mean active touch. This usage will not easily drop out, and indeed it is the only meaning found in some psychological books. Locke, e.g.—who based his philosophic thought so much on psychology, as to be called the Father of Psychology—in his *Essay concerning Human Understanding* (1690), uses Feeling in the sense of touch, and in that sense only. Feeling in its modern psychological sense came into use in the course of the eighteenth century, not only in English, but also in other languages, e.g. *Gefühl* in Germany, *sensibilité* in France, since the middle of the eighteenth century. It marks a whole range of experience previously referred to in a much less definite manner and in very different language. Before that time mind had been viewed only as an aggregate of faculties or powers, distinguished as *intellectual* and *active*. Feeling was not passed over, but was subordinated to Intellection or Conation. The psychologist of chief importance who helped

[1] It is Feeling which comes nearest to justifying the phrase 'state of consciousness,' to which some prefer 'presentation.' There may be a doubt as to the adequacy of the former term in the case of Willing and Intellection, but not as to its fittingness in the case of Feeling. If in Intellection and Conation we are to some extent active, in Feeling we are passive.

to fix the word in its modern psychological sense, was Hume (circa 1740). A few years earlier, however, Butler in his sermons had approximated to modern scientific usage. By the beginning of this century it had passed into literature, e.g. Wordsworth opposes Feeling as a state of mind to Knowledge, or the intellectual attitude.

Feeling as such involves no Apprehension of Object.

Pleasure, pain, interest, worth, value, are all words that we may employ to express experiences of Feeling as distinct from Intellection. 'I am affected—somehow' is one fact of mind; 'I am intellectually active' is another. If anything is to be excepted to in the current threefold division of mind, about Feeling, i.e. *subjective affection*, at any rate there is no question. If, however, we are considering any kind of mental experience that does not admit of being easily and directly re-expressed as a bare affection of subject, then we may be sure that we are dealing with something other than simple Feeling. E.g. in the typical case of the pricked finger, you may have pure pain, or you may have pain plus perception. In every case of Intellection, we are intellective about something which is object in relation to subject, but pure pain is different. I say that Intellection always involves apprehension of object, i.e. of object by subject. Remember that we cannot cut out the subject from any mental experience. Into perception there enters subjective impression, for it is based upon sensation. And the fact that subjective affection is involved enables us to regard perception also as a state of subject. Can we be subjectively affected in thinking of 'statesman'? Yes; in as far as we are thinking now differently from how we were thinking before, in as far as our thinking is a change of subject consciousness, just so far may concepts (viewed

as changes of subject) be regarded as subjective affections of a kind. Mr. Spencer, in widening the meaning of Feeling, opposes to feelings relations among feelings. But a relation among feelings is only a feeling of a peculiar kind. This strengthens the idea, that, to the extent that we regard mind as resolvable (for purposes of Psychology) into mental states, to that extent there is no mental state that we cannot call a Feeling, i.e. essentially a subjective state or affection.

Feeling the most Pervasive Phase.

We may arrive at a corresponding result by another way. Nothing is more noticeable and familiar to us in the way of conscious experience than what we call pleasure and pain. From the very dawn of consciousness we find both of them manifested: they are the best terms to describe what our consciousness then is. If from the very beginning the child were not to some extent intellective and conative as well as sensitive (understanding 'sensitive' as the adjective corresponding to Feeling), he would never become either intellective or conative. But we maintain that one primary characteristic of human consciousness may at one time predominate; and consciousness at first is predominantly sensitive, i.e. pleasurable and painful.

Sense and Feeling.

Sense, as we understood it, was a stage of mind at which all three phases are manifest. The fact that we fall back on the word 'sensitive,' as corresponding to intellective and conative, the fact that the French distinguish between *sensibilité* and *sensation*, points to a kind of connexion between feeling and sense.

Whether there is any feeling besides pleasure and pain, all

pleasures and pains must be described psychologically as feeling. This statement is not at variance with our other statement, that feeling is a state of subject. Nothing can be more properly described as subjective states than pleasure and pain. A pleasure is always 'of Me,' and so is pain. There is a distinct reference to subjectivity.

Emotional Values.

Do pleasures and pains, then, make up the whole of feeling? In answering that question I want to bring forward one aspect of pleasure and pain only. They are experiences to which we can attach the notion of Value. There is no feeling proper that we cannot regard as having a certain worth, or value, for the subject, either positive or negative. By positive and negative value I mean of course pleasure and pain. Are there then any feelings that have neither a positive nor a negative value? Professor Bain maintains, there are some that are neutral, being neither pleasure nor pain, whereas Professor Sully does not hesitate to say, that all pleasures have a positive value, all pains a negative value, the two being divided by a zero point.

Is there a Zero Point?

I wish to combine both positions. Professor Bain instances a large number of experiences that may be adequately described as subjective states, and yet have no marked character either pleasurable or painful, both sensations—e.g. tastes, which are neither, such as alkaline tastes—and emotions, e.g. surprises, which are neither. Now although we are bound to admit that a great deal of properly subjective experience is neither pleasurable nor painful, yet when we regard such experiences from the standard of positive and negative values, we find that in this respect they are not at zero. If we ask, what is their several

effect on the subject in such a state? is the conscious life of the subject raised or depressed thereby?—then if we can find the smallest degree of elevation or depression, we have a sufficient reason for grouping them about the zero point or line. And the fact that it is a mere point or line comes out if we attend to the fact, that many states are complex, partly pleasurable, partly painful, and that certain states sometimes appear to us as pleasure and at other times as pain.

This bears against Professor Bain's view. But further, of the range of sensitive experiences which he interpolates between pleasure and pain, we can merely say that they are *different* from one another, e.g. salt and alkaline. That is to say, in order to describe his neutral feelings, Professor Bain has to fall back on intellection. He says, the neutral states of feeling form for us the transition between intellection and feeling: intellection and feeling meet in neutral feelings which may be described as different one from another. This is interesting, but does not strengthen his case, viz., that these intermediate stages are neutral *feelings*.

I say, then, that feeling on the one hand is subjective, and on the other has a value, positive or negative, for the system, even if that value may not appear in consciousness as pleasurable or painful. Nobody says, that *all* pleasures and pains are equally the one or the other. Is there anything more than a difference of degree? I do not think there is anything more.

For Lecture XXIX read :—

Höffding, VI, *A*, §§ 3, 4 ; Spencer, Pt. VI, ch. xviii ; Pt. IX, ch. iv.

LECTURE XXIX.

FEELING AND INTELLECTION. EXPRESSION. SENSE-FEELING.

Antithesis between Feeling and Intellection shown.

We saw that, according to Professor Bain, feeling and intellection come together in the neutral feelings. How are they brought together? How are they distinguished?

(*a*) *Psychologically.*

Take a needle and bring it gently into contact with the skin. Of what are we conscious? We are intellective; we say it is something sharp; we perceive it for what it is. But suppose the needle is run in. Our consciousness assumes the aspect of feeling; we are pained. Is our state now to be described as essentially subjective? Yes, *I* am pained, and I do not care whether by a needle or anything else. Here we have the distinction between intellection and feeling brought to a point. In the first case I am distinctly perceptive, not considering Myself in the case at all. In the second case *I* am painfully affected, and care about nothing else.

(*b*) *Physiologically.*

Or take the side of the physical conditions. When we are perceiving the needle as a sharp point, the definiteness and directness of the nerve-process is predominant. The stimulus

is sent in by a certain line and comes out as a direct overt muscular activity (in slightly pressing on the needle's point). First and last, this process is carried on with definiteness and limitation. But in the case of the needle run in, is there this intent attitude? On the contrary, the salient feature is that consciousness is so painful as not to be definite. This stimulus goes in in a more magnified way. There is disintegration of the nerve, hence a much more intense nervous disturbance. The overt impulse is now exhibited in drawing the hand back, or even both hands, or in starting away, or even, if the subject be hyper-sensitive, in swooning. Seeing then that action, in the case of feeling is of a widespread, expanding character, in the case of intellection is definite, we may say that the salient feature of feeling is Diffusion or Irradiation. We use the word 'diffusion' to mark the nature of the bodily process involved in this feeling. The definiteness and limitation characterising perception on the physiological side are just those that are missing in feeling. Consciousness is not wholly engrossed with the perceptual impression; or if perception prove wholly engrossing, it is in part due to feeling. And the adjusted activity put forth is a very small part of the exertion that might be made. But when, on occasion of feeling, a wave of excitation reaches the brain, it is diffused over various parts of it, so that the outgoing impulse is on a great variety of lines and not on a single line. If we see two men shooting other two men down, we get into a very intense state of activity; we may run to intervene, or shout for help, using our muscles in a much more extended way than in simple perception. Again, in a state of feeling not only is there overt impulse over the external muscles, but certain of the internal or visceral organs are brought into play, viz. the heart, which though decidedly

muscular yet does not display its action overtly, and hence may be called visceral; also the digestive system generally, e.g. the mouth becomes dry and digestion and secretion are affected; in the case of grief or fear the viscera and the whole glandular system are brought into play.

How does this happen? It must be through the brain. Every part of the body is physiologically represented in the brain, i.e. represented by certain nerve-lines. Let these parts of the brain be aroused and the organs too will be aroused, the connexion between brain and internal organs being effected by a second nervous system called the Sympathetic nervous system. This is to a certain extent independent of the other or Cerebral nervous system, so that e.g. the heart functions apart from our volition, yet the two systems are connected at certain points, and thus the one can be affected by way of the other. Thus popular language, assigning to the heart the same relation to Feeling that the brain has to Intellection, is wrong. The heart is worked by a distinct self-contained nervous centre, yet is connected with the brain and the cerebro-spinal system through the pneumogastric nerve which is the means of regulating its action.

Feeling, then, is a state of subject, whatever else it is, and one that involves affection of the whole organism, whereas intellection, though it too is subjective, is not adequately expressed as a state of subject, and affects, as such, not the whole organism, but only certain nerve-lines.

Expression of Feeling.

The phrases used in the books:—'play of feeling,' 'expression of emotion,' or, by Mr. Spencer[1], 'language of the

[1] *Principles of Psychology*, Part IX, ch. iv.

emotions,' all mark the special connexion of feeling with processes of active self-manifestation. 'Language' is perhaps too metaphorical. 'Expression,' meaning something squeezed out, forced out, best 'expresses' what we wish to convey, although there is no objection to 'play.' In its more general sense 'expression' is something that is essentially peculiar to feeling, because it is the organic change, going along with feeling, which is manifested; yet the narrower meaning of the word 'express' may also be understood in regard to feeling. Even Mr. Spencer's word 'language' may be justified from a certain point of view. Is intellection a subjective process that is devoid of expression? No, some intellection does not proceed without expression. Thought, as opposed to bare imagining, is a kind of intellection that depends on a system of expression, and the most convenient kind is language. But language is the putting forth of certain muscular activity. Is that muscular activity also involved in feeling? Yes, e. g. in a cry. The cry as expressive of feeling is different from the expression of thought, but both involve the same organs, both are 'expression,' both can be called 'language.' But the action that goes on in the throat in feeling is only a fraction of the work of expression, whereas in intellection it is practically the whole. In intellection expression is definite, restricted; one word rather than another; 'pillar' not 'chair.' In feeling the cry is a part of the general diffusion, of the great nervous disturbance which first finds vent in a cry.

Feeling and Art.

The expression of emotion is of fundamental importance for fine art. In painting the artist portrays feeling. He figures the human body in a certain attitude, but if we

had not certain modes of expression for certain emotions, he could not picture them. His portrayal, however, is only muscular or external. He can only represent grief by drooping and tears, the beating heart by the hand pressed over it. But the poet is less restricted. He can make reference to internal processes of expression and say, 'Beating heart, be still.'

Classes of Feeling.

There is, in fact, nothing we are so familiar with as Expression of Feeling, so much so that we only know people are feeling in so far as they express it, and hence we come to identify the expression with the feeling. Different kinds of feeling have different expressions; nay, more, we find a generic difference between the expression of the feeling of pleasure and that of the feeling of pain, the one having an expansive, the other a depressing tendency. Now if, in the case of anything we can call Feeling, we have reason to suppose that whenever a subject is feeling there is called into play a whole range of organic seats either muscular or visceral, and that of these seats each may be said to have some kind of sensibility of its own, we can then understand how Feeling is something of a very complex character; and the question arises as to how far our feeling is made up of, or rather is coloured and modified by, the separate sensibilities aroused in the case. And there is no doubt that our feeling has relation to the sensibility of these different seats. Again, if we find different feelings in consciousness accompanied by different manifestations, i.e. different seats involved, or different actions in the same seat, we come to understand how through the manifestation of different feelings we distinguish feelings in terms of their constituent factors. Accordingly,

in any psychological account of Feeling, and more especially of Emotion, the organic seat and bodily manifestation involved form a very important part to be considered. This is the merit of Professor Bain's method.

Now feelings fall into two main classes, which may be described as Sense-feelings and Emotions.

Sense-feelings.

There is not one of the senses that does not, or is not liable to, give us experiences that are most naturally and adequately expressed as subjective state with either a positive or a negative value, causing elevation or depression, pleasure or pain. And hence we are justified in distinguishing a class of Sense-feelings. Within the region of sense, some sensations may be described as feeling, as pleasurable or painful, more markedly than others which are of more account for intellection.

Sense as Feeling.

It will be remembered that we ordered the senses from the point of view of their speciality and their value for perception. If we now seek to order them as having the character of feeling, we are confronted with the difficulty of having to choose as our standard either pleasure or pain. Organic sensibility can be described in terms of feeling better than in terms of intellection, but it is of much more value to us as pain. One simple definite scheme seems impossible; the order of feelings for pain would not be the same as the order of feelings for pleasure. But in any sense we can distinguish between the quality and quantity of feeling; and one kind of quantity that all feelings have is *intensity*. And just as we can describe all feeling quantitatively in terms of intensity, so we can distinguish

qualitatively what Germans call the 'feeling-tone' and its sensation.

For LECTURE XXX read:—

Höffding, VI, *B*; Darwin, *Expression of the Emotions*, ch. i–iii, xiv; Spencer, Part IX, ch. iv.

Also cf. Sully, *Outlines of Psychology*, pp. 353, 354; or *The Human Mind*, xiv. § 26.

Clark Murray's *Handbook of Psychology* on the Emotions is very good.

LECTURE XXX.

EMOTION.

Emotions as distinguished from Sense-feelings.

EMOTIONS are feelings. When we talk about '*the* feelings,' we first mean the emotions, but what are the emotions in relation to the sense-feelings? Sense-feelings are feelings arising on occasion of peripheral stimulation of afferent nerve-fibres. Emotions are not so, or need not be so. Even when emotions proceed by way of sense-stimulus, the latter is the least important part of the whole, whereas in sense-feeling it is the most important. E. g. fear is a very simple emotion, differing from sense-feeling. In the feeling accompanying the prick of a needle there is definite nerve-stimulus. There may be external stimulus when we are afraid, but it is, as such, of subordinate importance. What puts me in a state of fear is not the mere sight of tiger or pistol, but what the sight of either suggests to me in the way of representation of what may happen to me. These are cases of fear suggested or stimulated from without, but the stimulation is subordinate. I may at this moment be afraid of something that I have to do to-morrow. Here the emotion is wholly suggested by representation. To a certain extent therefore Mr. Spencer's distinction between sense-feelings and emotions holds good. He says, that sense-feelings are peripherally initiated by nerve-fibres, whereas emotions are centrally initiated. Now as representa-

tion is a something that goes on in consciousness and the physiological concomitant is a cerebral process, the fact that cerebral process (on the physiological side) is the characteristic feature of emotion, and the fact that external stimulus is the characteristic feature of sense-feeling, support Mr. Spencer in his distinction between emotions and sense-feelings, although there *may* be an element of stimulus in emotion. Emotions, then, even the very simplest, by comparison with sense-feelings, have a character of representativeness.

This is so much the case, that in marking off emotion from sense-feeling, we find in the latter a nearer approach to purely presentative experience than is yielded by the intellectual aspect of sensations. We found that sensation was an abstraction, representing no actual fact of experience—since every sensation that we have always involves representation, and, as such, is to be described as percept—but we do find at the threshold of life, such marked experience of pain and pleasure on occasion of peripheral stimulation, that we seem to get nearer to genuine presentative experience than in any other phase of life.

Emotion in connexion with Sense-feeling.

Emotion may always be described as 'centrally-initiated' feeling, even when peripheral initiation is involved. This ought not to surprise us. There is intellection which unquestionably involves even developed representation or thought, and yet which is, in a way, 'peripherally initiated' perception. Perception can never be accounted for by sense only, or anything presentative only: it must involve some representation, or even re-representation. We cannot do without sense-experience in perception, but it may be a very minor element, and may be almost entirely subordinated,

in comparison with the amount of representation involved. So also emotions can be regarded as centrally initiated, even when they involve peripheral initiation. I am not trying to make out a special relation between emotion and perception, or that emotion is on the same level with perception as of account for intellection. We get emotions at different grades corresponding to all the grades of intellection.

Emotion and 'being moved.'

Emotion in itself means 'movement out of.' It may have come to be used for a large class of feelings, chiefly because of the peculiarity of feelings in having a very definite expression in the way of muscular movement. This may have been the reason, was probably the chief reason, why the word emotion was coined to mark feeling. In justification of this, there is hardly any other adjective besides 'emotional' to correspond to feeling. In its adjectival form, therefore, emotion has a wider psychological meaning than as a substantive. When Professor Bain, for example, considers sensations as sense-feelings, he is considering them in their 'emotional aspect.'

We can speak, of course, of being 'moved' subjectively: I mean, without overt muscular movement. This is, of course, metaphorical. By saying 'I am moved at the news,' a person means that he is undergoing a certain kind of experience that involves his whole being. Note this in connexion with feeling as state of subject-as-a-whole. Feeling is first 'state of subject,' next it is 'being moved.' Perhaps the dual fact that we are both moved and apt to be motor originated the expression 'emotion.' In intellection we are not moved; in volition we are not moved so much as moving. But the word 'emotion' suggests just that fact of accompanying

expression which is so characteristic of emotion, viz. that 'moving out,' or becoming manifest by outward expression. It is really emotions rather than sense-feelings which have most distinctive expressions. These it is important to study in the researches of Darwin and Mr. Spencer. The supposition of the latter is that Emotion and its expression arose together, but how we are not in a position to say. How particular emotions have particular expressions, how far emotion and its expression may be regarded as one fact or as two different facts, how far we can say that the expression of feeling is, in the full and proper sense, instinctive, we can only understand by studying Instinct.

Again, is it possible to feel and not to express it? And is it possible to express and not really to feel? There is no doubt that the object of a part of education is to compass the repression of expression to a certain extent. Also it is evident that actors, both professional and hypocritical, to a great extent express without really feeling. But both these statements must be made within certain limits, for the two are not accidental facts and separable; the expression to all intents and purposes enters into the very make of feeling. We all more or less suppress our feelings; we do not always cry when we are sad, and so on: but it is the overt manifestation which we do restrain, and we often find those people the most grieved who suppress it the most, and that too with effects which may influence the bodily organs even to death. Suppression of expression then is only partial, and does not prove expression separate from emotion. Again, in the case of an actor acting fear, he may have only a partial expression—no parched tongue, no increased pulse, &c. If he have none of these he does not fully embody the emotion as did Mrs. Siddons, who seems actually through her whole organism to have felt what

she acted, as e.g. Lady Macbeth in her remorse. There is no haphazard association; into the very make of feelings enters the expression of them.

Evolution of the term Emotion.

Emotion has really come into use very late. It began to get used in the last century by Hume; he uses 'emotions' as alternative to 'passions' or 'affections,' but has no section on 'feeling.' 'Affection' has dropped out of psychology, except in the wider, generic sense of 'being affected,' in which it is not limited to a class of feelings; and except in the specific sense of the kind of emotion otherwise called 'love.' 'Passion' was formerly used for emotion or feeling in general, as emphasising the fact that then the subject is *passively* affected, *patient*, or moved. In later psychology it has come to express more specifically an emotion of a certain fixity of type. Popular usage restricts passion to anger, as it restricts affection to love. More specifically still, passion in modern psychology means 'hate' as the *passive* counterpart to anger. Hate is a permanent emotional disposition. The frequent recurrence of anger in regard to an object results in hating. Love, again, is a passion, rather than an emotion; it does not express a passing state, but a fixed disposition. Love as passion arises from tenderness or tender emotion. In modern psychological usage passion is a special development of emotion.

Emotion and Sentiment.

The word that first came into use as descriptive of all feelings that are not sense-feelings, was 'sentiment.' The fact that sentiment and sensations come from the same root shows the fundamental relation of sense-feelings and emotions. Sentiment should not be dropped as superseded

by emotion. But sentiment, as now used in psychology, is apt to be restricted to some of the most highly developed of the emotions, e. g. the moral sentiment; it has drifted from the simpler grades of emotion and become attached to those grades which are farthest removed from sense[1].

Nature of Emotional Representation.

Whenever we are dealing with emotion proper, as opposed to sense-feeling, we have something essentially complex to take account of. Emotion, we said, involves 'ideation' or representation. What is the characteristic of emotional representation? Our representing has then a certain character of confusion or vagueness. If I get in fear at sight of a tiger and not at sight of a dog, it is because, whereas I can represent in a certain definite fashion what the dog can do, in the case of the tiger I imagine something that may happen, but has not yet happened to me, which is thus confused and vague. But in an emotion I not only represent vaguely and confusedly, but I am also representing past feelings—confused representations, e.g., of all the dangers of all the similar circumstances in which I have been before.

Racial Emotional Experience.

From childhood upwards we have all now and again been in states of fear, which have modified our states of fear afterwards. Fear, however, not to mention other emotions, is found in children *before* they have had actual experience of danger. Here is something that we come better now to understand from the point of view known as that of evolution, where we no longer regard the individual as starting from himself, but, on the physical side, starting with an inherited

[1] Cf. its use in Professor Sully's psychological works.

organisation and on the mental side with certain predispositions—predispositions which we simply assume as such, as once innate ideas were assumed, and which we seek to determine in actual experience, not of self, but of ancestry. If a child is afraid, e.g. of a tiger, and expresses its fear in the way it is expressed by adults, and for that matter by the lower animals, the confused vague consciousness of the child is a reproduction, or representation, not of experience that it has had, but of experience that its ancestry, human or otherwise, has had before it. It is upon this fact of a certain uniformity in the manifestations not only of presentative feelings, but also of presentative-representative feelings, from the first, that Mr. Spencer rested his opposition to the view confining the development of emotion within the life of the individual. Unless we suppose that men are made so—which cuts the matter short—there is no other view to be adduced than that of development of manifestation extending over the experience of the race. The moment we entertain this view of the peculiarity of certain emotions—and not only sense-feelings—manifesting themselves at the beginning of life, we get a certain ground of explanation.

We can indeed, I think, make out far more positively in regard to feeling that it is inherited than we can in regard to intellection. Of course, if we can make it out in regard to feeling, Mr. Spencer might urge, and very properly too, that the whole point is conceded, in regard namely to cognitions as well. And I believe there are intellectual predispositions and dispositions in different individuals. But the case is still stronger for feelings.

The explanation of the origin of the uniform expressions of these inherited emotional experiences is, as will be seen in the passages set from Darwin and Mr. Spencer, that those

expressions were not arbitrary, but productive of a beneficial effect in preserving the life of the individual, that they became fixed by natural selection and were thus propagated. And it has been shown that a great many of our emotional expressions are instincts in the true sense of the word, i.e. untaught aptitudes beneficial, at least originally, to life.

For LECTURE XXXI read :—

Bain, pp. 226-283, 75-81 ; Appendix. 89-91 ; Höffding, VI, *C*, *E*, *F* ; Spencer, Part IX, ch. ii ; II, ch. ix.

Also cf. Bain, *The Emotions*, &c., pp. 35–189; *The Senses*, &c., pp. 282–306.

The Classification of Emotions attempted by Mercier (*Mind*, ix, x) is very good, and only fails because it attempts the impossible.

NOTE.—Recent discussion on the relation of emotion to the bodily disturbances felt at the time (the so-called corporeal or somatic resonance, organic reverberation, &c.) is summarised in Professor Sully's *The Human Mind*, vol. ii, p. 58.—ED.

LECTURE XXXI.

CLASSIFICATIONS OF THE EMOTIONS. EXPLANATIONS OF PLEASURE AND PAIN.

It is easy to give a classification of sense-feelings, but much less so in the case of emotions. We can connect the former with the given stimulated periphery, eye, ear, &c. It is one thing to give an account of the senses, another to give an account of the sense-feelings from the emotional point of view. But there is no difficulty in proceeding in the case of sense-feelings. To the extent that emotion involves intellectual representation we find that we are no longer able to proceed with the same definiteness. To classify the emotions would be to give a complete classification of the kinds of intellectual representation had by us. But in psychology we deal only with the laws, not the kinds, of representation. And if classification be difficult where representation is definite, how much more difficult where representation is vague, as in the case of emotion.

Criticism of Mr. Spencer's Classification.

Can we then do nothing to classify emotions? In intellection we not only discover laws of representation, but we also distinguish intellection at different stages of development in the amount of representation involved. It was possible therefore in dealing with intellection to get this kind of classification of our intellectual experience. Now Mr. Spencer

says, that we can extend this scheme to emotion or to feeling generally, viz.—Presentative, Presentative-Representative, Representative and Re-representative Feelings.

Æsthetic feeling, moral feeling, the sense of property, viz. of what money, a landed estate, can do for us—these kinds of feeling are re-representative.

For representative feeling take mere sympathy for the grief of another. This will depend on our power of representing what is going on in the mind of that person.

Fear of a tiger, anger, the sense or feeling of power, are well expressed in their general character as presentative-representative.

Presentative feeling is sense-feeling. We maintained that in sense-feeling as manifested at the beginning of life we had something in consciousness corresponding to 'Presentative.' A child is affected by a prick apart from any representation involved.

There are a good many objections to the scheme. It is good in that it takes in the whole scope of emotion. But if we were asked under what head any particular feeling had to be put it would be very difficult. E. g. fear of a tiger is presentative-representative, but fear of dying in a workhouse is different; hence fear has no fixed place. Any emotion might come under the last three heads.

Criticism of Professor Bain's Classification.

Professor Bain tries to classify the emotions on the basis of progressive complexity, but his exposition amounts to little more than a falling back, as in despair, on mere enumeration of the main types. The resulting defect is that we do not know why it leaves off where it does; we can conceive it extended almost without limit. In his *Emotions*

and the Will, he departs from this view in a certain advantageous way. In his Manual he may be said to have conceived all emotion as altogether developed within the life of the individual. But in the *Emotions and the Will*, he makes a considerable allowance for simple emotions manifest from the beginning of life, e. g. love, fear, anger, viewed as perfectly simple emotions, coming from the experience of the race. He is thus able to order the other emotions from the point of view of the progressive life of the individual. But are these three all? Is not the feeling of power also fundamental? Every child, however young, that is able to put forth activity takes pleasure in so doing, and tends to put it forth because of the pleasure.

Professor Bain also brings forward one point of very great importance in the account in the Manual, and that is the separate grouping of 'Emotions of Relativity.' These with him have a certain standing, apart from the order of the other emotions viewed as progressively complex. Professor Höffding also (in Section VI, *E*, of his *Psychology*) brings under the head of Relativity several of the most developed of what Mr. Spencer calls Re-representative Feelings, e. g. Æsthetic feelings of the sublime, feeling of the ludicrous, &c.

The Emotions have been classified also according as the representative element involved in them has reference to past, present, or future. This scheme has no adequate psychological foundation, and gives but an artificial division.

Professor Höffding's Scheme.

The division given by Professor Höffding (Section VI, *C*) I commend to the notice of students. This is an attempt to view Emotions with regard to self and other selves, viz. 'Egoistic feeling concentrated round self, and Sympathetic

feeling concentrated on others, the word Sympathetic being taken in its wide sense. The distinction between Self and non-Self is one that very soon comes into consciousness, and is at the base of our whole view of things. Hence, as far as Emotions can be made out to be connected with Self, or with Emotions of other Selves, like Self, we get a distinction of real psychological import. But 'egoistic' and 'sympathetic' have also an ethical value as being superior or inferior in respect of what is Good or Right. Ethics is largely concerned with Egoism and Altruism. This relation we must abandon in dealing with Emotion. Both are equally respectable in Psychology, both are used for purposes of distinction[1].

The Futility and Needlessness of Classifying Emotions.

There is really no need for Psychology to attempt an exhaustive classification of the emotions, any more than to attempt to set forth a detailed list of representations. Professor Bain's ten classes do not by any means exhaust the emotions; further, by dividing them according to increasing complexity, he cuts himself off from the possibility of developing each of the emotions. Fear, for instance, is classified as the simplest of emotions, whereas it may take

[1] Mr. Spencer, from another point of view, also distinguishes feelings as Egoistic, Ego-altruistic, and Altruistic (Part IX, ch. vi–viii)—a distinction which, while it has necessarily a valid psychological basis, as has been pointed out above, is made chiefly from the point of view of biological evolution, viz. that every organism has two fundamental functions, self-preservation and reproduction. Egoistic feelings are those concerned with the conservation of individuals; the altruistic feelings are to be referred to the propagation of the species. Then by cross-representation there arise finally the ego-altruistic feelings, 'which, while implying self-gratification, also imply gratification in others.'

the most complex forms. Compare the fear of a father lest his children should come to want. In this respect Mr. Spencer's classification is better. And yet we have never really had a proper classification of actual cognitions under four classes. For any detailed classification of them we should have to go out to the Object-world and to the objective sciences. If, for instance, we want to know about space, we go to mathematics. If psychologists nevertheless persist in giving a detailed account of the emotions, without attempting to do so in the case of cognitions, they are not without justification, since the emotions can find no explanation in other sciences as cognitions do; they are purely subjective, and if the pyschologist did not give an account of them, no one else could. Cognitions take us from Subject to Object; not so the emotions. For this reason no classification that has ever been made is wholly satisfactory to any one but the author; and, since into emotions enter representations, and these are almost infinite, the fact can excite no wonder.

The Resolution of Pleasure and Pain.

Pleasure and pain, although reference to them is necessary in describing feeling, are not of use for classifying feeling. The psychological understanding of what pleasure and pain are cannot be had except in reference to the effect of pleasure and pain on human activity. It is thus, therefore, that we pass over to Conation.

But first consider the great discussion, from Aristotle downwards, on what we mean by pleasure and pain. Aristotle suggests that pleasure accompanies all those activities that go on in the organism in a normal fashion, and pain all those activities that do not. With this let us

compare Mr. Spencer's dictum:—Pains are the correlatives of actions injurious to the organism. Pleasures are the correlatives of actions conducive to its welfare. 'Actions' here are effects wrought on the body from without. But on this question Professor Bain is the most suggestive:—'States of pleasure are connected with an increase, and states of pain with an abatement, of some or all of the vital functions,' constituting the law of Self-conservation. The truth which Professor Bain, really in agreement with Mr. Spencer and Aristotle, is anxious to bring out, is, that pleasures are beneficial to, or conservative of, the system, and pains the reverse—that when we are pleasurably affected it is well with us, and when we are painfully affected, it is ill with the system. Pain is destructive of the system, mentally and bodily.

A little later (p. 78) Professor Bain is compelled to allow, that there is a cross law that must be noted. It is possible to have pleasures that are not conservative of the system, and pains that are not destructive to the system; and these pleasures and pains are connected with the use of stimulants. The exception is honestly allowed and yet somewhat thrown into the shadow. What we find in Mr. Spencer, and not in Professor Bain, is that the former accounts for the law of Self-conservation under evolution. Unless pleasures were beneficial and pains injurious, life could not be continued and developed. Mr. Spencer is so concerned in bringing forward this part of the case, that he overlooks what Professor Bain allows, viz.:—that some pleasures are not good and some pains not destructive.

Conational import of Pleasure and Pain.

There is another peculiar attribute of pleasure and pain, viz.:—that the former is self-supporting, the latter self-

abating. This is only implied by Professor Bain, but is used by him later. When I say self-supporting, I mean that pleasure tends to keep up whatever activity causes it, and pain, to get rid of whatever activity causes it. This applies to both such pleasures and pains as obey the law of Self-conservation and those connected with stimulants. Even a pleasure of stimulant, which in the end is injurious to the system, is still one that calls out, for the time being, the activity of the system, and many a pain, that may be beneficial to the system, for the time being depresses activity. The fact that pleasure is self-supporting or self-promotive, and pain the opposite, is of fundamental importance not only for the psychology of Feeling, but also for that of Conation.

For LECTURE XXXII read Bain, pp. 289 304; Höffding, VI, *C*, § 9; Spencer, Part IX, ch. ix; Sully, *Outlines*, &c., pp. 360–374, or *The Human Mind*, xvi, and App. K.

LECTURE XXXII.

ÆSTHETIC FEELING

Æsthetic Feeling is psychologically the Highest Feeling.

We may now revert to those highest, most complex, 're-representative' feelings, called sometimes sentiments. They are in a pre-eminent way accompanied by intellection. We are said to *recognise* beauty, truth, and right; recognitions which have been called 'emotive intuitions.' Of these three groups there is, according to Professor Bain, none so complex and variable as that of what are called the Æsthetic Emotions. They are *Feeling-Feelings*, the 'sense' of the Beautiful being excited in us by the representation of other feelings. English writers especially have often set forth systems of moral conduct or ethics in connexion with their exposition of the moral sentiments as such. Now ethics is one thing, and the psychology of Feeling, including that of moral sense, is another. And if indeed there is one department of mind more than another which ethics should be brought into relation with, it is not Feeling but Conation. It is true that our ethical actions are conducted or accompanied by certain feelings. Undoubtedly also the so-called moral sentiments lie at the basis of that kind of action which is called moral. But this is no more a reason for treating ethics as a part of the psychology of Feeling than it is for treating it as part of the psychology of Intellection, since to act rightly we must also

know. And when we consider that the psychological doctrine of will reposes both upon the psychology of Feeling and the psychology of Intellection, and that ethics has to do mainly with character, i. e. the outcome of both Feeling and Intellection in certain classes of action—of voluntary, willed action—we see that, in connecting ethics with the psychology of Will, we by implication connect it with the kind of Feeling and Thought that go with that kind of action. The regulative doctrine connected with the psychology of Feeling is not so much ethics as *æsthetics*.

Again, the class of feelings specially called æsthetic may involve amongst others representations of moral feelings; moral sentiments may be the subject of æsthetic treatment and thus made subservient to the production of æsthetic emotion; hence we are justified in ranking æsthetic feeling, emotion, or sentiment as highest in the psychology of Feeling. In it all Feeling culminates.

Æsthetic Feeling and Sensuous Pleasure.

With regard to the term 'æsthetic feeling,' we might equally well have used the term 'feeling for (fine) art,' 'feeling (or sense) of the Beautiful.' The reason however why æsthetic feeling is a more useful term, at least than the latter, is that certain of the fine arts are concerned with the production of the feelings of the sublime and of the ludicrous, both of which are also productive of pleasure. Now the word pleasure suggests that æsthetic feelings may in a sense be called feelings of the Pleasurable, and the doctrine of Æsthetics be concerned with regulating the production of pleasure. On the other hand this is too wide, for there are pleasures not æsthetic, e. g. eating a beefsteak. 'Æsthetic,' however, does suggest *sense*, and we have to show, to justify the use of the

term, that the æsthetic feelings, however much more they are than pleasures of sense, have relations to pleasures of sense. This can be done in more ways than one, and in the fact of doing it I think we get the best argument for the psychological development of the higher feelings from simpler ones. For if we now find that the very highest feelings have relation to sense (I do not say, to *any* kind of sense), we get all that high range of feeling brought back to sense in a very striking way.

Some simple pleasures of sense are æsthetic. Some simple effects of sound and of colour are in themselves called beautiful. Now we have many more sorts of pleasure than simple sensations, yet it is a remarkable fact that, whenever we are affected by a feeling of the Beautiful, or whenever we are concerned with the production through artistic construction of a feeling of the Beautiful, it is begotten in us through sense-presentations. The pleasure, e.g., that we have in contemplating a painting is much more than we derive from what we literally perceive in it. But that pleasure cannot be excited in us except by way of the senses, and through definite figures set out before our sense-organs. It will not suffice to write *red*, &c., over the blank canvas, and *woman* at the foot. To produce feelings thus, by presentations fully bodied out, is the method of painting and sculpture. Poetry, on the other hand—literary fine art in general—does really effect through symbols on paper what I have represented as absurd in the case of painting. Nevertheless, here too what is aimed at is the suggestion of definite concrete images. I admit that the method is that of representative suggestion; not only are the images not literally bodied out, but even if they are too minutely depicted, they generally fail in their effect. But it is the senses that are appealed to notwith-

standing, and it seems to be this that has got for these higher feelings the special designation of 'æsthetic'—a word which originally denoted any feeling. The scope of my lecture does not permit me to draw from this an argument for the development of feelings from simpler feelings. I will only add thus much, that as æsthetic feeling, although it has this relation to sense, is re-representative feeling and always involves representative elements, there is no feeling that may not, if represented in a certain way, become æsthetic. Even painful presentations may, when represented in particular ways, become pleasurable. To effect this strict conditions are necessary, nor is it indifferent by which art the presentation is made. Such inquiries belong to the regulative doctrine of Æsthetics. We have to distinguish between the psychological problem:—what is the nature, the characteristics, elements, origin, and development of the æsthetic feelings? and the philosophical consideration:—what is the object, what is the test or criterion, of what is beautiful? Let us, before leaving the subject, revert to and set out somewhat the psychological inquiry.

Characteristics of the Æsthetic Sentiment.

Beautiful things, then, are perceptible things. Truth, on the other hand, which is the outcome of intellect, is concerned, not with particular things, but with the general aspect of things. The æsthetic sentiment chiefly accompanies the pleasures of Sight and Hearing. We need such sensible occasions for the feeling of the Beautiful as it is possible for a multitude to share; and these are met chiefly among sights and sounds. We also characterise it as refined and elevated: unattended by such drawbacks as a preceding craving, as in the case of appetite, or a succeeding pain, as surfeit.

If there are any pains they rather serve to heighten the æsthetic pleasure. It admits, with due variation in source and sensuous channel, of an indefinite amount of prolongation without causing fatigue, so that it contributes much to the sum total of life's enjoyments. It is disinterested, unaccompanied by desire for ulterior ends; it must spring out of the mere act of contemplation; it does not involve any special relation like possession. It is a 'shareable' pleasure, being greatly enhanced by the interchange of sympathy. It is essentially complex, as being developed to a high power of representation. Æsthetic pleasure is further distinguished by the nature of the activities which accompany it. They are not life-preserving—this being the modern form of the old distinction between the useful and the beautiful. The value of the object of æsthetic feeling depends entirely on its relation to the feeling at the time of contemplation. It is true that in æsthetic considerations we do include what we call the beauty of fitness. In architecture especially many beautiful forms owe much of their beauty to the suggestion of utility; there the beautiful overlaps the useful. Still this fact does not affect the general distinction.

Æsthetic pleasures consist mainly in the simple effects of Light, Colour, Muscular Sensibility, Tone, and Pitch, and their derivative effects, according as they are aggregated, transferred and modified by the principles of Relativity, Novelty, Harmony, and Association.

The Play-impulse.

The play-impulse is the third aspect of organic life (in addition to those of self-conservation and reproduction) from the point of view of biological evolution, viz. the putting forth

of spare energy in the form of play. In the adult it becomes an impulse to create æsthetically, the creations, when made, gratifying the feelings called æsthetic.

For LECTURE XXXIII read:—

Bain, pp. 318–324; Höffding, VII, *A*. Cf. also Spencer, Part IV, ch. iv; Sully, *Outlines of Psychology*, pp. 35–38; or *The Human Mind*, xvii, §§ 1–5, App. A.

LECTURE XXXIII.

CONATION AND ITS MODES.

Analysis of a State of Volitional Consciousness: Intellectual Element.

We are about to consider pleasure and pain in as far as they affect our activity, pleasure supporting activity, pain abating it. This brings us to review the range of 'will,' and we shall start from that which is most familiar to us, viz. conation as we in the adult state are aware of it. E. g. 'I will to open the door.' What does this mean? This 'will' has a reference to our inner, or subjective life, and also, in this instance at all events, a relation to our powers of bodily movement. In willing to open that door, my subjective consciousness is modified in a certain way, but does the modification stop short there in the subjective region? I get up, I walk to the door, I turn the handle and the door opens. Let us analyse the act of volition more particularly. When I say, I will to open that door, I am representing to myself the door as opened, through muscular acts of mine, for some end or purpose in my consciousness. I could not will to open the door if I could not represent how to do it, i. e. what a door-handle and lock are. Infants cannot will to open the door, not because of any want of sufficient muscular activity (though their strength no doubt is small), but from want of representation. Into anything that we call developed

volition, or will, intellection enters in the way of definite representation.

Emotional Element.

But, still confining ourselves to the subjective sphere or region, we have not yet got the power of will in showing the representative element in the act of opening the door. I imagining that door being opened—this is intellection, not conation. There is something more in the case, and this is that the representation has relation to some end or purpose that you propose to yourself—an end or purpose which has its expression in terms of feeling. What kind of feeling was there in the case of willing to open the door? *Desire* to go out, to keep an engagement, to dine, to promote clearness in the minds of students. Directly or indirectly, nearly or remotely, you will always find an element of feeling involved in conation, together with intellectual representation. The representation takes place in reference to feeling.

Conational Residuum.

But we have not yet our full act of volition. In will is involved muscular activity. Even connected with my desire to teach there is the overt activity of speech. There is something in willing that is peculiar, and neither feeling as such, nor intellection as such. In willing, feeling and intellection are brought together in a certain way by activity. Conation essentially involves activity, and more markedly than does either of the other phases. The word itself signifies impulse towards or striving towards, action (German *Streben*). Conation is a better word than will, or volition, as giving a suggestion of activity and nothing but activity, which is just what we want.

Is there such an Irreducible Residuum?

Directly, however, we begin to consider instances the serious question arises, whether these do not fall under one of the other two phases of mind. Appetites, such as hunger and thirst, might with good reason be called feelings. Is conation then as distinguishable a phase of mind as we have found the others to be? Professor Bain clearly thinks that it is, as also Professors Höffding and Sully. Mr. Spencer, on the other hand, as we have seen, considers only feelings and relations between feelings, or feelings of relation (intellection), and nothing more. He never gives to will that prominence which it receives in other systems[1]; and the Spencerian student is left in some doubt as to where his master intended that will should find its place. This is obviously unsatisfactory; the matter ought not to have been left so indefinite.

Nevertheless all this tends to show that the title of will to be regarded as a third phase of mind is at least doubtful, and more open to question than that of the other two phases.

[1] Some philosophers indeed express the very fact or essence of mind in terms of will. Schopenhauer and Professor Wundt and Dr. Ward tend most of all to bring forward this, the active phase, as the fundamental fact of mind; the last, as also Professor Sully, in the prominence given to Attention at a quite early stage of his analysis of mind. The word Apperception, introduced into modern psychology from philosophy by Professor Wundt, is now come into vogue to express the fundamental fact of Attention. According to Professor Wundt, will is apperception of a certain kind, a term by which he draws special notice to the essential activity of mind. Yet these writers are equally struck with the fact that intellection also involves activity. Now Attention is voluntary intellection, and to understand it we must understand intellection of itself, and volition by itself. It is then that we can treat of intellection.

Thus Professor Bain and Professor Sully, while classing it as *a* third phase of mind, yet distinctly make it out to be the one phase which they cannot consider except in connexion with a previous treatment of intellection and feeling. If we revert to our previous example of willing to open the door, we remember that both intellection and feeling were involved. Is this a complete account of that experience? Mr. Spencer would answer, Yes. But Professor Bain, Professor Sully, and others imply (rather than assert) that, after making all due allowance for intellection and feeling, there is yet a something else involved, for the adequate expression of which some such term as will must be employed.

A Modified Independence for Will.

We shall hold to the view that, as long as we keep to volition of a developed type, it is *arguable* that will is not a third independent phase of mind, but that, if we view will in connexion with the other modes of conation, then we are bound to assume that conation *is* a third phase of mind, distinguishable just as intellection and feeling are distinguishable. The fact that will presupposes the latter two, does not of itself destroy the independence of it as a third phase. And this independence becomes much more marked when we go beyond the developed forms of will to treat of all the forms of overt activity in the human system, as well as what may be called covert activity.

Modes of Conation.

What these forms of activity are, involuntary and voluntary, we must take into account. All are covered by the term conation, and the very fact that they can be collected and considered together gives ground for asserting, that there

is something in mind distinguishable from intellection or feeling, and needing a name for itself. And be it remembered that will, as falling within conation, is taken account of in whatever is said of the wider sphere of conation. Too many writers neglect the precautions and limits, which should mark out the proper use of will as distinguished from conation [1].

Action may be voluntary or involuntary. By the former we mean of course volition or will.

The modes of the latter are numerous, e. g. there is (*a*) involuntary action that is conscious, (*b*) involuntary action that is either not conscious at all, or (*c*) conscious only to a limited extent. Yet, for the proper understanding of will we have to take account not only of involuntary action that is conscious, but also of involuntary action that is more or less unconscious. And the proof that it is necessary to study both together with will is given by the fact that voluntary action passes so readily into involuntary action. For instance, I will to open the door; I get up and do so: this is voluntary activity. I explain a paper to a student after class, and we go out together talking, he or I opening the door without attending to it: this is involuntary activity. Was it unconscious? Yes, and No. It was not done with full consciousness, because the act was not voluntary; but neither was it done quite unconsciously. It belongs to some step in that gradation of clearness in consciousness called

[1] Professor Bain, e. g., uses will in as wide a sense as that which I reserve for conation, viz. to cover Appetite, Instinct, and Desire, as well as developed Willing or Volition proper. Nevertheless it was he who first gave us a psychological theory of will. Reid and Stewart do not deal with simpler cases of voluntary action. Hamilton gave us the term Conation, but never dealt with the matter analytically.

sub-consciousness. So it would seem that we should study involuntary action first, and refer voluntary action to it in a logically subordinate way. The case of involuntary action developed from voluntary action is but *one case* of involuntary action where there are others. Under involuntary action we class:—

(i) Spontaneous activity (Bain), or automatic primary action.
(ii) Reflex action.

Both these are unconscious as such.

(iii) Instinctive action.
(iv) Secondary automatic action.

Both these involve consciousness.

(i) *Theory of Spontaneous Activity.*

Professor Bain contends for unstimulated action, i. e. activity independent of any stimulus external to the system. He holds that nerve-centres which may be stimulated from without may—owing to the state in which they are in consequence of nutrition—discharge, of themselves, through the efferent nerve-fibres, and so give rise to muscular activity. The mere physical state of the nerve-centres may be the condition of their discharge. Many physiologists and psychologists agree with Professor Bain in this.

But much of his argument in support of spontaneous activity is misplaced, because he tries to make out that, along with such a state of nutrition there can be absolute absence of stimulation. This never can positively be said to be so. Under the necessary conditions of life we can never eliminate the fact of external stimulus, so as to make out absolutely unstimulated activity. However, he was not con-

tending for a shadow under the name of spontaneity. The truth of the matter is somewhat thus. According to the various states of the centres, the same stimulus at different times gives rise to very different results. That is to say, the stimulus is not so much the *cause*, as the *occasion* of the activity. The latter depends more upon the state of the centres themselves than upon the particular stimulus. There must in all probability always be stimulus, but the amount of stimulus does not always determine the amount of the resulting activity. Much may *appear* indeed to be centrally initiated, and further, I repeat, even if we come to the conclusion that all action, if tested, will be found to be ultimately started from without, yet there is an 'independent variable' in the nerve-centres; i. e. the amount of impulse which comes out does not depend wholly upon the amount of in-going stimulus, but in part upon the state of the nervous system at the time and upon the constitution of the individual nervous system given. For human beings and animals too *vary very greatly* in the amount of active response made to any given stimulus. A great deal respecting human activity is inexplicable save in the light of this assumption. The nervous system in any case permits of the storage of energy, and the outcoming amount depends on the storage. Again, the traces left by actions in the nervous system facilitate the carrying out of the same act more and more the oftener it is repeated.

The whole phenomenon is better termed Primary Automatic Action, or action from within, depending mainly upon internal organisation, the necessary reference to stimulus from without being discounted. Much of the earliest action of the human system is of this spontaneous, or automatic kind. And there is not a single mode of primitive activity in the

system that is not a proper starting-point for the development of will. We build up our will on these as we do upon reflex and instinctive actions. The first primitive act of taking in food is the foundation for the putting forth of energy to take food. The crying of a child, instinctive at first, soon begins to pass into a voluntary form, and to take place with reference to a represented pleasurable feeling.

For LECTURE XXXIV read :—

Bain, pp. 325-338, 366-371 ; Höffding, VI. *B*, § 1, *a* and *b*. Also cf. Spencer, Part IV, ch. v.

LECTURE XXXIV.

MODES OF CONATION (*continued*). INSTINCT.

(ii) *Reflex Action.*

REFLEX action is essentially stimulated action, whatever may be urged to the contrary with respect to Primary Automatic action. The name comes from the characteristic bending back upon itself of the action as seen in the simplest case (cf. Lecture VI). The human system is such that ultimately *all* nerve-action may be regarded as of the reflex type, the essential tendency of nerve-cell being to discharge when stimulated.

Reflex action is, like spontaneous action, not only involuntary but also unconscious. Much action that is unconscious takes place through the brain; i.e. not only spinal, but also certain cerebral processes may be regarded as reflex. The fact that certain action in the brain is accompanied by consciousness does not prevent other cerebral action from being described as reflex. Reflex action is the antithesis to reflective action, which term might well be applied to voluntary action as involving representation. Curiously enough the original physical meaning of reflex and reflective is identical. Reflex action *as such* has no subjective face; but voluntary

action, which has a subjective face, is intimately related to reflex action. As psychologists, concerned mostly with voluntary action, we must at the same time study reflex action of the simple type, and this is always unconscious. For we study will, not only subjectively, but also from the side of its physiological conditions.

The term reflex has a purely physiological meaning. From the point of view of physiology all nerve action is reflex action, which *may* have a voluntary side. By far the greater number of vital processes of the system are reflex processes. They are determined for us, and go on normally without consciousness.

In waking life we find a concurrence of reflex action with action that is not reflex. But consider a sleeping child. For the time consciousness is in abeyance. Tickle its hand; it closes its fist upon your finger. If it were awake and not attending to anything else it would feel your touch, and either close its hand *voluntarily*, or refuse to do so, voluntarily. But while asleep, the closing of the hand on your finger is purely a reflex act, and comes to pass probably by way of some part of the nervous system other than the brain. But even if it took place by the aid of the brain we should still call it reflex. All voluntary action involves stimulation of the brain, and action that goes through the system short of the brain is reflex. But that is not all: there is reflex action of the brain also; and such action is most probably involved in much of the very highest of our conscious action. Conscious action and reflex action in our system shade into one another.

Reflex acts, in spite of their proceeding as such unconsciously, are still *adaptive*. (This is a more correct term than 'purposive.') Adaptive activity may be used with an

objective meaning, as equivalent to activity beneficial to the organism, promoting vitality, conservative of the system, &c. Here we may define it as actions such as we should perform if we were conscious of them. Either way an *end* is involved. We cannot help bringing forward teleological considerations. Does not such a notion seem to require an explanation ultimately in terms of consciousness? How did reflex action acquire this power of adaptivity? This question will recur under instinct and volition. Meanwhile we see that conation cannot be treated of apart from reflex action; the same considerations are involved in each. But in reflex action the end that is sought is not sought deliberately by the organism that puts forth the action. For the individual, his reflex acts are unconscious acts; if they are adaptive, it is not he that produced the adaptation.

Primitive combined movements, such as Professor Bain (p. 69) instances, are simply a case of reflex action of rather a special kind. Our organic system from the very first has the power not only of putting forth adaptive reflex acts, but of combining such acts. He brings them out as a basis for the explanation of voluntary activity. Voluntary acts always involve co-ordination or combination, and this is provided for in the system before and below volition proper. A great part of our active mental development consists in breaking up these primitive combinations, as well as in working them up into higher combinations. In fact, the nervous system, being a system, tends from the first to work together. Development for the individual consists as much in decomposing the originally complex as in building up from the simple. A child's first activities are vague, undirected, undifferentiated. It moves altogether, as we say. But it enters into the very essence of volition that activity should be differentiated.

(iii) *Instinctive Action.*

Instinctive action is a special kind of activity that can be accounted for satisfactorily only under the head of conation, yet has a very distinct and important character of its own. As compared with any kind of reflex action it is essentially very complex. Mr. Spencer, recognising this fact, speaks of it as 'doubly compound reflex action,' a description which is purely physiological, and moreover very vague. Instinct may reach a much higher degree of complexity than this. Instinctive action is essentially *adaptive* action, action serviceable to, or conservative of, the system, a character which in reflex action is not universal. But instinct is not only adaptive, it is also action which has a conscious accompaniment, though not of the developed kind that we get in voluntary action. There may be feeling, in the case of instinctive action, but there is no intellection proper. There is subservience to an end; but the great difference between instinct and will proper is, that in will we are conscious of the end as end, while in instinct we may be conscious of acting but not of the end. In other words, a voluntary act is one consciously put forth for an end consciously conceived; whereas, in the instinctive act, there is never a fore-perception of the effect of the act. Instinctive action is adapted to an end which does not come within the consciousness of the individual, but which may be explained by reference to the history or development of the race.

Instincts are manifested in the very beginning of life; children can instinctively do from the first with regard to feeding what they have afterwards to learn to do with regard to other things. In the lower animals instinct bears a much greater proportion to will than it does in human beings.

The majority of human actions are, as opposed to instinct, acquired. To the extent that an animal can acquire the power of performing actions that it could not do at first, the animal must be credited with something of the nature of will. Professor Bain[1] defines instinct as untaught ability manifested at the beginning of life. But many an act that is not learned may yet not manifest itself until later in life, e. g. the tendency to walk,—which is ultimately instinctive though accompanied by a strong voluntary element. The latter might prove unavailing, if the tendency were not there, untaught. An instinct may appear at any period in the growth of the individual, though not when that growth has ceased. The range of instinct in man is much greater than is often supposed, but the development of it in him is very low as compared with the lower animals. Considering the relative length of life, this is no more than one would expect. Moreover, relatively to the lower animals man is distinctly a social animal and far more dependent upon his parents and his fellows than are the young of other kinds. And since the human parents are able to do much more for the child than the lower animals can do for their young, the instincts in man develop much more slowly. However, in the case of instincts that develop later than the beginning of life, there is always a possibility that they may involve some element of experience over and beyond the instinct itself. Late developed instinct will be essentially complex.

[1] Professor Bain has a good definition of instinct, but does not give an express consideration of it as a phase of mental life. He minimises it, and we do not get an adequate account of it from him. He considers the instinctive play of feeling; and it is true that some of the expression of emotion has a properly instinctive character; but this is not nearly the whole of instinct. How much of all our activity is instinctive, is an important question which he passes over.

Finally, then, instinct is a substitute for volition or will that is absent. Instinct and will must always be interpreted together as modes of conation; but there is a sense in which instinct takes the place of intellection, hence by confusion of notions it has often been regarded as wholly intellectual. But the intellection involved in instinct is *latent*, whereas in will it is *expressed*.

(iv) *Secondary Automatic Action.*

Secondary Automatic action is action not manifest originally, nor out of relation to the experience of the individual, but a result of that experience. It is action that *was* voluntary, but has become through habit automatic. E. g. walking, which, instinctive to a certain extent, is voluntarily acquired and then becomes a secondary automatic act; also speaking, writing, playing on an instrument, &c. Habitual action is voluntary action thoroughly acquired. Habits are secondary automatic acts, automatic to the extent to which they are fixed and go on of themselves.

'Mechanical' Action.

All automatic action, whether primarily or secondarily so, we are apt to call 'mechanical,' nevertheless the term cannot be applied equally in all cases, and never properly expresses the character either of instinctive or of secondary automatic acts. For though the latter may not be fully conscious acts, yet they are always *subconscious*, never utterly unconscious.

Primary automatic action is mechanical in so far as it is organically determined, in spite of the fact that the word 'mechanical' *never* covers the whole meaning of any organic process. In a similar sense reflex action can also be called mechanical, differing only in the presence of definite external

stimulation. But instinct, as accompanied by, and to a certain extent dependent upon, consciousness, cannot be called mechanical, except indeed in drawing attention to its aspect of uniformity and constancy, of certainty and necessity. The act is somehow provided for in the organism and is so far mechanical. Similarly the true character of secondary automatic action is not brought out by any term such as mechanical, automatic, &c., because in the beginning it had to be learned, and, though not performed with full consciousness, still is not performed without consciousness.

To the extent that acts have become secondary automatic acts there is reason to believe that they are no longer carried out, as at first, wholly by the higher centres of the brain. But though such action goes on *mainly* through the lower centres, it calls into play the higher centres also, and cannot go on without their aid.

To the extent that acts are performed with unerring certainty, they tend to become unconscious. The most conscious of our acts are those accompanied by doubt or uncertainty. By the passage of an action from the range of the conscious to that of the unconscious, consciousness is left free for the development or acquirement of other actions. If an act is such, that it could never have been performed except with consciousness, the fact that it comes to be performed subconsciously does not derogate from its original character, but simply leaves consciousness free, and ourselves to that extent the gainers.

Instinct and Evolution.

However unable we may be to account for this or that instinct in detail, about instinct as a topic that has to be explained, and not merely accepted, there is no longer any doubt.

The theories of evolution and heredity have worked great changes in views on this subject. Evolution with regard to instinct is a *vera causa*. One idea is that, in the case of instinct, the same or corresponding kinds of changes of activities take place in the history of the race that, in the case of secondary automatic action, we find take place in the history of the individual. Instinct is *lapsed intelligence*: acts that are now instinctive for the race were originally acquired consciously by the individual. Instincts have arisen through racial use or experience. This was Lewes's theory.

Nevertheless a hypothesis is not proved to be true by its accounting for the facts. Special verification must be sought, and in this, as in many cases, there is needed a 'crucial experiment' to show the truth between two hypotheses. We need, I say, *experiential*, and if possible *experimental*, verification. Now those who explain instinct by lapsed intelligence are bound to hold that secondary automatic acts are inherited. But the case of secondary automatic action, as used to account for instinct, is one that lends itself to experiential verification. All the experience we have yet had is against the view that secondary automatic acts as such are inherited. There is as yet no definite proof that acts acquired by experience can be propagated, however hard it may be to believe that this was not the original cause. As Darwin maintained, who, although not a psychologist, was a man of extraordinary insight, instincts were not acts first learned and then inherited. They arose first as accidental variations; these were naturally selected and so inherited. We do not inherit the results of our parents' experience, but we may inherit what they were born with, i.e. congenital (accidental) variations.

Moreover, the 'Lapsed Intelligence' theory contains

something like an absurdity. It compels us to assume more intelligence in long past ancestors, than in the individual who manifests the instinct,—that to the extent that acts have become more and more deeply instinctive, the earlier and simpler animals were more intelligent than the later ones. Thus while it is hard (e. g. in the case of special aptitudes) to exclude the likelihood that Secondary Automatic action suggests one explanation of the origin of instinct, yet the other view is the more probable one.

Appetites.

One other topic to be united with instinct is that of Appetites, a class of conscious states peculiarly connected with action, although, as I have said in the previous lecture, there might be good reason for classing them with feelings. They involve modes of sense, but are distinct from mere sensation in being recurrent or periodical wants of the system, and, as recurrent, in determining a certain marked form of activity. Activity with a view to what kind of feeling? Some say with a view to pleasure; others say no, for we find appetites manifested before there has been gratification of them. It cannot be said that they have no relation to feeling. But they are not, to begin with, determined by pleasure; they are determined by an uneasy feeling which has to be got rid of. A child does not first cry to be fed, but from the pain of hunger. And the activity put forth with which the vanishing of the painful feeling is connected, cannot as such be said to have been learned, but is of a properly instinctive kind.

It should be noted that desire is to emotion as appetite is to primitive wants of the system. Any sense-feeling or emotion may, as motion, i. e. as determining action, in

a case when uneasiness is hard to get rid of, be called desire. Desire is wishing as opposed to willing.

Instinct and Will.

Finally, however we aggrandise instinct, there is nothing more characteristic about the beginning of life than that we are not able at will to put forth *adaptive* activity in relation to feeling. A young infant cannot move its hand to the right point, or follow a light by moving its eyes. Will is something that has development in the life of the individual, in regard to the experience of the individual; and there are modes of willing that some individuals never develop. Earlier psychologists implied that the power of putting forth definite activity in relation to feeling is primitive, and needs no explanation. It was Professor Bain who first gave distinct prominence to the development of will (supra, p. 223), and his view of this problem is in the main perfectly correct, and is the best and most carefully considered psychological theory of volitional power extant.

For Lecture XXXV read Bain, pp. 338–365; Höffding, VII, *B*, 1*c*–5.

LECTURE XXXV.

VOLITION AND CONTROL.

Purposive Action.

UNIFORMITY is the characteristic note of instinct (discounting special cases). Now it is true that some sort of voluntary power is common to all ordinary people, nevertheless there is nothing more remarkable than the differences in the extent to which will is developed in different persons.

Will is purposive action—action that is appropriate for a certain end which the individual can represent to himself along with the means to that end. The more definite the action is the more the end drops out of view; nevertheless all the steps of the voluntary act depend on a foregone representation of ends, these being always to be ultimately expressed in terms of feeling. Hence will is a peculiar complex of feeling and intellection.

'The imitative will.'

Development of will in the individual is hardly ever haphazard, except perhaps at the start. The governing fact in regard to any actual human being is that he is a social creature, not an individual left to himself, as are some of the lower animals. Things are done for the child from the first. Family relation sets it upon acting in particular ways long

before it would dream of doing so of itself. All the actions performed for it and in its sight indicate the lines along which its actions must take place; then, when it has acquired a certain command of its bodily members, the social factor becomes most prominent in the disposition towards imitating everything that it sees. Thus a power of appropriate activity is acquired.

This applies to all kinds of actions, but to none more than to speech. Children learn to speak voluntarily mainly by means of imitation. But at the back of imitation there is a creative faculty with regard to language, a sort of approximately spontaneous activity, in all children. If it were not for this the child could never go so far afterwards as it does in imitating others. This factor must necessarily be assumed as a *basis for imitation*. Children born deaf do not speak at all; the spring of energy within shows itself in the movements of hands, &c. But this energy is so dependent on external stimulus that, if the stimulus is wanting, as here, the energy does not naturally spend itself in that direction. Thus, though hearing does not explain speech, there is no speech without hearing. No other case so neatly shows the combination of the two factors—that of impression received, and that of natural energy.

A wide basis for the Evolution of Volition.

Professor Bain's view of volition errs from the narrowness of its point of departure. He bases everything on the assumption that in the first instance acts are spontaneous or random, leading then to a result beneficial (in terms of feeling) to the individual. This is too narrow and limited. The very fact that a reflex action is of a more definite kind than a spontaneous action counts in its favour, making it more

likely to enter as a factor into early volition. Instinct, as a complex arrangement for adaptive action, is far more widely provided for in the system than Professor Bain seems to think. It is a great mistake to connect voluntary activity with *only one kind* of involuntary activity. Anything that the individual could do for itself, by any such line of development as Professor Bain here suggests, would fall very far short of the ability for voluntary action that children actually do manifest from the very first. A vast deal is due to their social relations to parents and others, and to their imitation of others. In Chapter II Professor Bain discusses the voluntary control over bodily movements, as the first distinct manifestation of will in the human system, and as that which serves as a basis for future developments of will. This is a justifiable view. We all come in time to have some degree of control over feeling and intellection, but in the first place the child has to learn to control its voluntary muscles. In Chapter III he discusses the voluntary control of feeling and intellection. When he speaks of will, he always means will of this kind, but particularly so in his discussion of imitation. Voluntary movement is consummated by the idea of effect to be produced. Every step in Professor Bain's argument has reference to the control of bodily movement. The books, either implicitly or explicitly, follow a similar course.

Action for Feeling.

The ultimate end of volition is psychologically expressed by feeling. Feeling, in a case of willing, always supplies the motive power. The motive, if not directly, is yet remotely set in terms of feeling. I do not say that all acts are performed with a view to the resulting pleasure or pain, for this

is profoundly untrue of those actions performed later on in life which we call noble and virtuous. Much action voluntarily performed has no direct reference to pleasure and pain. But the first manifestations of will are made in connexion with the experience of pleasure and pain. The first voluntary acts of a child are those which are performed with a view to procuring or maintaining or increasing pleasure, or to the getting rid or keeping clear or abating of pain. The problem then of will or volition is to forge a link of some kind between Activity and Feeling. Volition is always action *for*, or in order to, feeling; but there is another kind of activity connected with feeling, viz. emotional expression, usually muscular. This is best described as action *of* feeling, and must be clearly distinguished from action *for* feeling. The latter is voluntary; the former, as such, is mainly involuntary. Much of the former is in the full sense instinctive, as being adaptive action. But to the extent that it is instinctive, it is not voluntary,—for the individual.

The Transition from Random to Voluntary Activity.

The passages from random reflex acts to voluntary acts is well drawn by Professor Bain. Where is the link forged? In the law (Lecture XXXII) that pleasure is self-supporting, pain self-destroying or self-abating, we get the first beginning of a link between the elements of feeling and activity, in a way that no other explanation yet suggested has supplied us with. The random activity leads to results which, if they are painful, cause the activity to be stopped, if pleasurable, to be carried on. Instinct, it is true, is not random but purposive, but I am speaking of the use to which instinct can be put volitionally. And in relation to volition

that may come to pass, the instinct which in itself is adaptive may act at random for the new result which it may bring about. It may, I repeat, be perfectly haphazard with regard to the particular end which it may come afterwards to subserve in the life of the individual. Crying, for instance, as an expression of pain felt, is not haphazard, but, as leading to warmth through contact with the nurse, it is at first a random act.

Now we may act (i) upon the wish to act, or (ii) upon representation of acting. In the former case (i) we act upon a distinct experience of feeling actually present, or upon a distinct representation of feeling. Wish is wholly built upon feeling. In the latter case (ii) we act upon representation of action completed. Although in ultimate analysis an element of feeling or of represented feeling can always be shown to be involved, yet this comes to drop into the background. Our development of volition is aided by our power of submerging the feeling.

Control.

From the basis of bodily action as modified or controlled through feeling, we pass to a consideration of the voluntary control of feeling. The transition is not sharp. In willing to move an arm, is it merely the physical arm that we wish to move? No, in connexion with the arm's action we have certain feelings. The bodily organs in their action have a conscious phase or accompaniment, so that we are not dealing with body as bare matter, but we are concerned with bodily, as related to mental, changes.

On the other hand, it is simple to see that, in speaking of the voluntary control of feeling, though feelings as such are

bare subjective states, yet they have also a definite bodily concomitant, and it is with this that we would deal. In controlling feeling we must do it through the external manifestation, which is not mental but bodily.

The power of controlling the feelings cannot be denied, but it has its limits. How does this control come to pass? Children start with no such control over their sense-feelings and such simple emotions as they then have. How is the control that is attained acquired, and why cannot we wholly control our feelings?

From the subjective point of view, the way to control a feeling is to substitute for it another feeling, or an indifferent intellectual state. This involves control of intellection; we are voluntarily modifying the flow of our representative consciousness. Thus the difficulty is only pushed aside. Is this all that we can do? No; feeling may also be controlled through its emotional expression. This expression, as we saw, is either muscular or visceral, showing itself in the body in one or other of these ways. And our feelings we have in connexion with those bodily processes and not apart from them. Feeling is not one thing and the expression of it another added thing. The feeling is had in the expression of it. What is to us, subjectively, an emotion is, physically regarded, this or that organic process. In the absence of the accompaniment we do not have the feeling. This gives a means of affecting feeling through its expression. We have, it is true, no voluntary control in general over the viscera; but so far as the expression of feeling is muscular, it takes place through those muscles over which we acquire bodily control; and to the extent that these muscles are involved and that we have control over them, we can affect the feeling in affecting the expression.

Limits of Control.

To such control there are two limits:—(1) much expression of feeling is not muscular, and (2) even if it be muscular, it may be so violent that control over it is lost.

Can we have a feeling when the expression is suppressed? Can we have the expression of a feeling without having the feeling? Both these questions we briefly touched upon from the side of expression (Lecture XXX), not that of control, and to both of these we answered, No. If we have the expression to the full, we cannot but have the feeling; and again, if we have no expression at all, the feeling cannot exist.

Now in ordinary talk, by 'expression' we mean external expression, because this alone is obvious to the outsider. But, correctly speaking, expression includes *all* changes, and when the word is thus used in its widest sense, the above statements must be admitted as true. The mere fact of suppressing the *external* expression only, may rather intensify than kill the feeling.

Again, in acting a feeling, as on the stage, it may be asked whether a person acts best when he really has the feeling, or when he merely adopts the external expression and remains calmly critical within (Diderot). The answer would probably be given differently by different actors. Some cannot have the expression correct unless they really have the feeling; others, in having the feeling most intensely, fail to give the expression in the artistic way required.

Our power then of modifying the life of feeling is, while capable of development, more or less limited, and is best exercised indirectly, through the control we possess over our representations.

Let us now consider the voluntary control of intellection. In regard to representations, we have not the power of voluntarily bringing up what is not in consciousness. We may wish as much as we like to do so, and nevertheless not succeed. The notion is self-contradictory. In order to bring it in by willing, we must already be somehow conscious of it. But then we have not to bring it into consciousness. But we can do something to help the coming into consciousness of representations by keeping in consciousness what is there, and so, by way of association, bringing in what was not there. All thinking is determined by association, but the laws do not work wholly independently; we can control them more or less. We can hold on to such representations as we have got, and so help all that they suggest to revive in consciousness.

An inattentive person has a wandering mind; his mental processes are unregulated; he gives way to the bare action of association. Such an effort as I have described is only possible where there is some power of concentration. Sometimes, however, the desired experience comes up when we have begun to think of something else. This is because there has been a removal of the strain put by feeling upon attentive recollection.

But how is it that we are able to keep before consciousness a thought that is already there? What is the mechanism of this process? It is related to our power of keeping an organ muscularly fixed, such as the eye. If the same brain is involved in acts of thought as in acts of perception, then we may suppose that what goes on in the brain when we are attentively thinking, is related to what must go on when we are attentively perceiving. The same parts of the brain are affected qualitatively in the same way. For in fact in thinking we really are, or tend to be, muscularly active in a parti-

cular way. The more our thinking becomes abstract, the more is it absolutely dependent on the use of language, i. e. on a series of muscular acts. When a person has lost the power of representing words, he has lost the power of abstract thought.

In the same way, then, or to the extent that we can control sensation or percept, we can keep the representation (of the percept) before the mind for a prolonged time. Representation or idea is to the sensation, as the voluntary act for the former is to the voluntary act for the latter. The latter results in definite overt action; the former does not, but it is equally real.

Later investigation mainly confirms Professor Bain's view. Just as in perceiving, when voluntarily done, there is sensation received and muscular action put forth, so in voluntary thinking the idea, which is there, has in connexion with it certain motor impulses, which are represented by facts in consciousness; and these, in connexion with the idea, constitute the voluntary control of the idea.

Mental life at *every* stage, however re-representative, conforms to the essential type of impression received and overt impulse sent forth. The term sensori-motor action may serve to describe this general procedure. Ideo-motor (or imagino-motor) action is the same procedure on occasion of representation. Now, though volition can have no explanation except in relation to sensori-motor action, and involves ideo-motor action, it implies a further elaboration. Into volition proper there always enters the notion of *ourselves*, our ego, acting for personal foreseen ends. But remember that this factor of ego is nothing that is not expressible in terms of one kind of representation or another. *Psychology knows of no other.* Analysed on the side of volition, it is

a congeries, never developed alike in any two persons, of purposes, ideals, aspirations, all of which are psychologically so many representations.

For Lecture XXXVI read Bain, Bk. IV, ch. i–iii ; Ward, pp. 41, 83–85 ; Sully, op. cit. (either work) on 'Attention.'

LECTURE XXXVI.

ATTENTION AND THE EGO.

Attention.

We have already passed from conation accompanied by overt muscular, and visceral activity, to deal with conation as involving covert activity. The generic term covering this kind of activity is 'attention.' Attention has application to thought as such; it has also application to our external activity. It is intellection voluntarily put forth. And yet it may be one of two kinds, involuntary or voluntary; for though in the fullest sense attention involves volition, still there is an attitude of mind that is attention, yet is not voluntary. No hard and fast line, however, can be drawn between the two; they must be considered together.

The mere fact that while we are already mentally occupied, something else starts into consciousness, and, for a time long or short, maintains itself in the foreground of consciousness excluding what was there before, involves a certain overt activity of mind; but this is not voluntary activity, for that was pre-engaged in some direction. Which kind of involuntary activity is it, then? Involuntary attention, since it is action depending upon a conscious state, is not describable as purely reflex action, yet the activity (as compared with voluntary action proper) is of the relatively simple reflex type. We can draw no line. To the extent that attention is involuntary, it is

action of the reflex type. When noises, e.g., overpower one. and one becomes fully conscious of them, the action in attending is then of a kind similar to voluntary activity and may pass over into it.

Attention as Activity.

Voluntary attention presupposes something in consciousness which we attend to; this by definite attention is rendered both clearer as a whole and more distinct in its parts. This clearness and distinctness, in the case of perception, takes place in connexion with direct overt muscular action of which we are conscious. But this motor attitude is present in *all* intellection, even in imagination and conception. In higher or more abstract stages of intellection, although the activity involved need not appear as overt muscular action, there is reason to believe that the problem of attentive thought cannot be solved except by the analogy of attention in perception which does involve muscular activity. The covert activity that is involved in attentive thinking has its psychological explanation in the overt activity of muscular action. The brain-process would seem to be the same in both cases; and even in thought the processes tend always to result in an overt outcome of some sort or other.

Attention as Feeling.

Again, we attend to what we are interested in. Now interest is interest for the subject or individual; therefore in all cases of attention feeling must necessarily be involved [1]. And will is activity that takes place with intellection and in relation to feeling. When feeling is present, intellection takes place in a certain definite manner with activity involved. Professor

[1] Cf. Lecture XXVIII, p. 185.

Bain goes to this length, but no farther. But we do not get the full sense of attention, or the full intensity of the mind's action in relation to intellection, until we get beyond the consideration of this or that particular feeling as marking interest in this or that subject.

Consider the dome of the college. What interest is there in this? There was a previous relation between this and my ego, and therefore it becomes possible for me to single it out for special consideration. It is not a mere link between a representation and a feeling that is here involved. There is appropriation of the thing in relation to my personality or ego; the ego or subject, thus appearing as a direct factor in volition of any kind, is itself something that has a development.

Attention as peculiarly self-referred activity.

The ego which thus appears as a direct factor in volition is distinguished in philosophical language as the 'empirical ego' and opposed to the 'pure ego.' The only ego that we can take account of in psychology for the explanation of facts of intellection or will is an ego that has been gradually developed, and that represents really the deposit of the experience of one's life. The actions of a child are well expressed in Professor Bain's psychology as the forging of links between feelings and activities. But later on, though much of our action continues to be of this type, much of it also becomes different. What we come to know attentively is what we know or do in relation to ourselves, the selves that have been gradually developed by a process of accretion. Professor Bain and J. S. Mill speak of a man's character in this connexion; advancing thus far towards recognising the ego as a factor. But this factor, though so prominent

in developed life, is nevertheless not original. A man's character *is* the result of his experience. Professor Bain, whose treatment of volition is good as far as it goes, does not go far enough. He does not fully recognise that 'permanent account' to which all goes, all particular experiences are referred. He nowhere explains conception of self as an entity persisting with a value of its own and with the power of conceiving ends, &c. Our best actions are those of self-respect. Again, the question of Free Will has no meaning unless we recognise that action, in its developed form, takes place in relation to a subject who is acting. To explain actions through links between particular ideas and feelings only suffices psychologically for the early manifestations of character, if indeed it suffice at all. The ego has its gradual evolution, an evolution which is different in different persons,—so also has Will proper, into which there always enters the ego acting for personal ends, and which when fully developed is the crowning attribute of man.

Constructive States.

The concentration of 'genius' and all forms of psychosis termed 'constructive' are activities of the Volitional type, inasmuch as they represent Ends to be obtained under the impulse of strong emotional interest. All scientific thought is voluntary thought; science depends on constructive thought just as art depends on constructive imagination.

Apperception.

In later psychology the word apperception is coming to be used to express intellection voluntarily determined at any grade. When I perceive the pillar to the exclusion of everything else and keep my attention on it, perception of

this kind, which is essentially voluntary, is called apperception. But apperception includes also reflective thinking, constructive imagination. With Professor Wundt it comes to be synonymous with attention.

Belief.

The state of belief has not been well classed by Professor Bain under Will on the ground of its manifesting itself by readiness to act. Belief is not covered by Will, is not fundamentally conational. It is one thing to believe, another to act, another to will to believe. This I shall treat of in the course on General Philosophy.

Note.—The student will find instructive reading on the psychology of 'Genius' in the last chapter of Professor Sully's *The Human Mind*, 'On Concrete Mental Development,' a chapter which (in Croom Robertson's words) 'deals in an interesting way with such topics as the unity of mental development, varieties of mind, scientific view of individuality, dreams, the hypnotic trance, and pathological psychoses.'

On the psychology of 'ideal construction' or constructive imagination let him note another passage from the same appreciative criticism of Professor Sully's treatment of this subject (*Mind*, i, N. S., 413):—'Productive imagination is the subject of the next chapter (*The Human Mind*), i, p. 362 et seq.). The general process of ideal construction, the distinction between its receptive and creative phases, the characteristic peculiarities of intellective, practical, and æsthetic imagination, are successively handled in a luminous and instructive way. The account of the constructive process seems to us defective in one point. It seems to be implied that the appropriate filling in of the scheme or 'draft image' in which all mental production is rightly held to consist, merely depends on suggestion by contiguity and similarity together with voluntary selection and rejection of the material so supplied. It ought, I think, to have been

added, that the scheme itself profoundly modifies the train of suggestion, so as to produce congruent presentations, independently of voluntary selection and rejection. If we compare Mr. Sully's description with what we know concerning the creative activity of a man of genius, such as Mozart, its inadequacy and its consequent inaccuracy become evident.'

These and other questions concerning complex psychoses lie beyond the scope of an elementary course of psychology. The student who goes on to study them in Professor Sully's important treatise will do well to consider the remaining points raised in Croom Robertson's review—the last he lived to write.—Ed.

APPENDIX.

ON THEORIES OF LATENT OR UNCONSCIOUS MENTAL MODIFICATIONS.

Reproduced from the course of Psychology as delivered in 1873–74.

THE question of mental modifications that apparently take place beneath the threshold of consciousness should be considered in connexion with representative consciousness in general. I will further explain the subject as simply as I can. It often and often happens in consciousness that states or links in a representative train do not come into full consciousness as such, although they have their effect in bringing on their consequents. The term in consciousness *after* which they came is found to have been succeeded by a term *before* which they came. This term may have dropped out from memory. Or was it ever a part of conscious experience? Had it any mental being at all? If so, of what kind?

Now this is not exactly like the instance of names and the 'ideas corresponding thereto' given by Berkeley in his *Theory of Vision*. Berkeley said that the moment I utter a well-known word—let us say 'hat'—the hearer's first representation is not that the word is English, or monosyllabic, but is of the kind of object so named. The presentation of the word is of no account, or of account only as bringing on the representation.

Berkeley's whole *Theory of Vision*, wherein he asserted that states of tactile consciousness were represented by certain visual states which (like the word 'hat') dropped out of consciousness, rested on this. Here the word falls upon the ear and is even attended to, but the auditory consciousness is so fugitive and so unimportant by comparison with what it brings on, that it falls into the background. There is, however, no doubt but that it was in consciousness. But what of those representative states that are so slightly in consciousness that in certain cases they can only be supplied afterwards by a difficult process of search and often cannot be supplied at all? How often does it not happen that, when one thing comes 'into our heads' after another, we cannot state the line that brought them in consecutively, the links that connect them? It is not enough to say that the links are of no importance in themselves, and that the association is between what was in consciousness and what has come into it. There is no association between extreme representative terms as such. Hamilton gave as an illustration how in his own experience the representation of Ben Lomond was abruptly succeeded by that of the Prussian system of education. He remembered afterwards that once on the mountain he had met a German professor and that in course of conversation they had discussed that particular subject. But for the time these intermediate links had fallen away. I wish now to draw attention to some views on these missing links.

James Mill made a statement on neglected elements in a train of representations to this effect:—It not unfrequently happens in our associated feelings and states that the antecedent is of no importance farther than as it introduces the consequent[1].' J. S. Mill, following out his father's statement, set out what he called a law of Obliviscence:—'When, through the frequent repetition of a series of sensations, the corresponding train of ideas rushes through the mind with extreme rapidity, some of

[1] *Analysis of the Human Mind*, Ed. by J. S. Mill, ch. iii, § 10.

the links are apt to disappear from consciousness as completely as if they had never formed part of the series[1].'

Now if we allow the fact to be as he states, we still should put it in other language. We should say 'series of *representations*' and 'train of representations.' Thus altered, the law is really a following out of James Mill's statement, or a mere modification of it to the case of a purely representative train. Let A, B, C, D, E be any representative train. Then if, said J. S. Mill, this train has been very often experienced, A may bring on E without B, C, D coming into consciousness. What then has become of B, C, D?

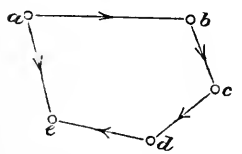
Hamilton's illustration, be it noted, does not conform to this. There was no *repetition* of the encounter and conversation on Ben Lomond. Hence Mill's statement, although it represents a case real enough and frequent enough, is too exclusive. It is not necessary that the series of presentations should have happened very frequently in order that, when one term of it is revived, another shall be revived without the intermediate terms. And so, while I give Mill's statement, I prefer to discuss the question in this more general form:—In a representative train we may find terms succeeding each other in consciousness with the omission of intermediate links which were in the presentative train, whether that happened once or was frequently repeated. What we shall say will apply to the more particular case with which he deals.

Hamilton's theory on the missing links is set up in opposition to that of Dugald Stewart, who held that these representations that drop out really did pass through the mind, but with extreme swiftness, so that, though we were conscious of them as they passed through, they left no trace in memory. I think that Mill included the clause 'with extreme rapidity' just to take account of Stewart's statement of the case, but this is at the cost of perfect consistency, in view of his theory of the intermediate states. In Stewart's view they were fleeting con-

[1] Ibid., note 34.

sciousness and forgotten, but consciousness there was at the time of presentation. Hamilton admitted that they were mental phenomena, but denied they were ever conscious states. He held that mind included not only all conscious states, but also certain unconscious states. Mind and consciousness are not commensurate terms. There are unconscious mental states or 'latent mental modifications,' just as real as any conscious mental states, and just as effective to bring on other and conscious states. In the presentative train they were, or they may have been, conscious states, but in the representative train they need not be so to be effective as antecedents.

Mill's theory presents a third alternative, namely, that the forgotten links are in no sense mental, have no mental subsistence whatever, but that, just as when they had a mental subsistence as presentations, there was a concomitant nervous process, they, when the terms not dropped out are revived, remain and have their effect as mere nervous processes. His statement has a certain merit in bringing out what the others fail to take account of, namely, that there is a physical aspect, and that the question may be discussed under this, as well as under the psychical aspect. At the same time I do not think that so he gets over what the others are considering. For if *b*, *c*, *d*, as we may call the intermediate nervous processes, were actuated each of them in the representation, how comes it that nothing appears in consciousness along with them? Or how should the difference be assigned in the mode of actuation in the two cases: the case where there is a conscious state and that where there is none? Besides, Mill himself comes near to asserting that even the intermediate nervous links may be dropped out and bring on *e*. This may be typically figured as in the accompanying diagram: I do not, however, quite see how frequent repetition would make a new way for the nervous impulse and cause it to strike across.



I do not, then, think that Mill works out his view completely. And I cannot help thinking that, after all, there is little more than a question of words between the views. I mean, that none of these three psychologists, or any one else, could consider the case fully in all its bearings and put it into terms which do not admit an expression in terms of the others. If *A* brings on *E*, and *B*, *C*, *D* do not come again into consciousness, they were originally present in some shape or other none the less. And if we declare that they were there as intermediate links, effective though not fully actuated, it will depend upon our general view of psychology whether we choose Hamilton's, Stewart's, or Mill's expression of the phenomenon. Mill, as we saw, drew attention to the fact that, whatever else is kept up, there must be kept up a physical fact of nervous process. I agree, and cannot doubt that the nervous circle is complete. But Mill himself would have had to allow that the intermediate steps of the nervous process are not fully actuated, else there would be conscious representations along with them. What then could he say about these faintly actuated intermediate nervous processes? What could he say about them on their conscious side? Did anybody, did Stewart, claim that they enter fully into consciousness? Stewart said, No; so quickly do they pass through consciousness that we are not afterwards conscious of having been conscious of them. Hamilton denied that there had been conscious continuity; there had been only a continuity of psychical or mental condition. My point is that Mill's position required him to adopt either Stewart's or Hamilton's account along with his own. It will not do to say we need not consider the intermediate nervous processes in relation to consciousness at all, for according to Mill himself they have only to be more fully actuated, and there would be corresponding conscious states. Well then, regarding Mill's statement as merely supplementing, and not excluding, the other views, which of the latter is the truer? Shall we hold firmly to mind and consciousness as commensurate, or shall we within mind include certain unconscious but mental states?

Up to a certain point there is no question of deciding between the two. Both say we are not conscious of the intermediate states when representing ; both maintain the mental continuity. But Stewart holds to mental continuity with no memory, Hamilton to mental continuity but no consciousness. Here it is of some importance which mode of statement we adopt. I cannot help thinking that Hamilton's view—which is not his originally, but is borrowed from Leibniz—or rather that Hamilton's mode of expression is to be preferred. I do not at the same time wish to be bound to Hamilton's mode of argument. Against Stewart's position his argument is not forcible, namely, that it is absurd to say we can ever have been conscious of anything of which we have no memory. I am prepared to assert the contrary. But there is this to be said in favour of Hamilton's view, namely, that while consciousness quite obviously has degrees each of which may still be described as *conscious* state, it has also degrees which, undeniably existent as they are, can be described in no other way but as *unconscious*. At any moment I am conscious of something in particular. I am looking, e.g., at one member of the class, or considering the relation between two members, or the fact that there are more than two. Something is in the foreground of consciousness, fully attended to. What then is my condition in relation to other objects in the room that come within my vision? Am I conscious of them or not? Have I a semi-consciousness of them? Am I conscious of them but with a different degree of intensity? But further, my emotional mood for the day may have been determined by something I heard or saw this morning. Am I to a certain extent conscious of this when contemplating any one in the class—conscious of what has happened, and emotionally conscious of it? I think that this too may be affirmed. It is at any moment of mental life impossible to look upon consciousness as rounded off and complete, or to regard any state as so in consciousness that every state that is less fully so is completely out of consciousness.

Stewart's position lands him in a corner from which he cannot easily get out. He has to show what is the character of these states which, the moment they have been experienced, do not admit of being remembered. He will be forced to admit that there is consciousness and consciousness, that which we are fully conscious of and that which we are not fully conscious of. And Hamilton's way of getting rid of the difficulty by saying that some mental states are not conscious states does seem a larger and better expression. There is no necessity why we should identify what we call mind with what we call consciousness.

Hamilton's argument on Leibnizian lines proceeds to posit for each of us a *minimum visibile* and a *minimum audibile*, &c. Now each of these is divisible, and each division is invisible, inaudible, but if taken together the sum or *minimum* is apprehensible. Hamilton infers that there is a mental or subjective state corresponding to each element of the minimum, even if such a state cannot be called conscious. The roar of the sea is made up of the sounds of the separate waves, and these of the sounds of separate drops—sounds which, taken alone, might be inaudible, yet which, unless they had some subjective elementary state corresponding to each of them, would not in the aggregate be apprehended by us.

Much opposition and a good deal of ridicule has been brought to bear upon this argument. Mill objected to it for supposing that because a certain phenomenon appears under a certain conjunction of circumstances, it partly appears when only part of those circumstances is present: e. g. that because oxygen and hydrogen make up water, therefore when oxygen is present, water is partly made. Now if there is a sense in which this is admittedly absurd, there is a sense in which it is not so. Hamilton did not say that what is beneath the minimum is something like consciousness. He only said that, whatever it is, it stands in some definite relation to consciousness. Yet he might well have replied that the case of the elements of water is no fair parallel. A true analogy would be such as this:—

an ounce in one scale may not balance a pound in the other, nevertheless it goes some way towards doing so. While, then, I do not bind myself to what Hamilton and Leibniz say in the form in which they put it, I do not share the counter-opinion that their argument is worthless. But I lay no particular stress upon it because it admits of dispute. I put the case on more general grounds thus :—Consciousness has degrees. It is not necessarily either fully present or absent. It may be half, or less than half, present. It is as a field on which a great variety of states of different intensity are struggling for the mastery. Every state has to assert itself, maintain itself, yield eventually to, and be forced aside by, another. The state of mind in which we cannot grasp or recall something that is as it were hovering about us is an instance. Or another :—I was thinking last night and not making much way, when suddenly the ticking of my watch on the wall came to the foreground of my consciousness. In two minutes it was gone again and the other thoughts had reasserted themselves. There are so many facts of consciousness that can only be expressed in terms of degrees of consciousness, that I am constrained to adopt this view in some form. It is impossible to maintain that the state just passed off has gone out of my mental being, that because it is no longer in full consciousness I am not conscious of it at all. And if I remain partially conscious of it who shall tell me at what stage I cease to become conscious of it altogether; or, because it has sunk so far beneath the threshold of consciousness that I cannot recall it, that therefore it does not admit of any subjective expression?

What has commonly been urged against the theory of latent mental modifications is that, not being conscious of them, we can never have any proof of their existence. It is said, on the other hand, that the action of the spinal cord and the lower cerebral centres generally, in fact reflex actions which are unconscious actions, have nevertheless a subjective side. And it is not more remarkable that these states should have a subjective face, although unconscious, than the fact that many brain processes, at first accompanied by consciousness, should come

to be unconsciously performed. We know that at certain stages consciousness stands in a definite relation to nerve. And it may be inferred to stand in relation to it at other stages. That there is no correspondence between them in reflex actions is more than I am prepared to assert, and those who do assert it are going a great deal beyond due limits. The subject does not admit of special scientific distinctness, but every one should work out his own experience as well as he may and round it out to a general view.

I confess my thought tends very much towards this general assumption, that mind, i.e. subjective experience, and consciousness, as those writers understood consciousness, meaning states of which we are fully conscious, are not at all commensurate terms.

INDEX.

Abercrombie, 149 note.
Abstraction, 169, 175.
Active Sense, 88 et seq., 98; in perception, 101 et seq.
Activity, spontaneous, 39, 224; involuntary, 223 et seq.; for feeling, 239, 240; consciousness of, 84–91; voluntary, 237 et seq.
Adaptation, of single eye, 121; in conation, 228 et seq.
Adjustment, of single eye, 121.
Æsthetic feeling, 213 et seq.
Æsthetics, 6, 214, 216.
Æsthophysiology, 34.
Affection, being affected, 21 et seq., 83–85, 185 et seq., 202.
After-image, 140.
Agreement, consciousness of, 24.
Analysis, as scientific method, 17; of mind, 17–20; should begin with sense, 53–55; of muscular sense, 86, 87.
Apperception, 221 note, 250.
Appetites, 65, 66, 219, 223 note, 235.
Apprehension, 178.
Aristotle, his division of mind, 20; theory of heart and nerves, 28; on tactile doubleness, 115; on association, 152; on pleasure and pain, 210.
Art, as emotional, 194, 213 et seq.; as volitional and intellectual, 250.
Aspects of things, 3, 4.
Assimilation, a function of knowing, 24, 161; in perception, 96, 97; in representative imagination, 161; in thought, 170, 172.
Association, 144, 148 et seq.; inseparable, 158; *one* law of, 159; resolution of, 160 et seq.; compound, 155; obstructive, 163.
Attention, as complex, 149; apperception in, 221 note; voluntary and involuntary, 247; as activity, 248; as feeling, 248; as self-referred, 249.
Automatic action, secondary, 224, 232, 234; primary, 224, 225.

Bain, *passim*.
Beautiful, feeling of the, 213 et seq.
Belief, in psychology, 251.
Berkeley, on touch, 99, 101, 124, 125, 128, 253; on idea, 135.
Binocular vision, 130.
Biology, as abstract science, 4.
Body, related to mind, 34 et seq.; *b.* and space, 113; one's own = first 'object,' 113.
Brown, 110.
Butler, 187.

Cabanis, 64.
Chemistry, as abstract science, 4.
Child's mind, 57.

Coefficient of muscular sense, 87 et seq.
Cœnæsthesis, 65.
Cognition, its philosophical import, 24, 97; classified, 173.
Common Sensibility, 61.
Communication, fundamental factor in speech, 181.
Comparative Psychology, 29, 30.
Comprehension, 178.
Comte, on introspection, 13.
Conation, preferable term to Will, 21–23; as related to Feeling, 23, 220; and to intellection, 25, 219; in Spencerian psychology, 26; analysis of, 219 et seq.; modes of, 222 et seq.
Concept, 165 et seq.; *c.* and percept, 169 et seq.; nature of, 177.
Conception, 165 et seq.; *c.* and perception, 174.
Conceptualism, 176.
Concomitance, 30–36, 40–46.
Concrete sciences, 4.
Consciousness, 7; defined, 10; continuity of, 16, 49; flow of sensation indispensable to, 56, 57.
Consensuous movement, in vision, 122.
Construction, mental, 119, 129, 132 et seq.; 250.
Contiguity, law of, 154 et seq.; 160 et seq.
Control, 241 et seq.
Convergence, in vision, 122.
Co-ordination, in nerve function, 41, 229; sensations of, 72.
Custom, 34.

Darwin, on emotion, 201, 204; on instinct, 234.
Delusion, 142.
Desire, 223 note, 236.
Destutt de Tracy, 110.
Development of mind, 48–52.
Diderot, on expression, 243.
Difference, consciousness of, 24; in sensations, 82, 91–93; in representation, 155; law of, 161.
Diffusion, in feeling, 192.
Direction, 133.
Discrete consciousness, 175.
Discrimination, a function of intellection, 24, 81, 161; in perception, 97; in representative imagination, 161; in conception, 170, 172.
Distance, 93, 103; as tactile, 115; as visual, 128.
Doubleness, tactile, 115.
Dream-image, 139.

Education, of body and mind, 51; *e.* of feeling, 201.
Ego, the bearer of mental phenomena, 27; *e.* and general sense, 65; 'empirical,' and 'pure,' 249; evolution of, 250; in attention, 250.
Egoistic feeling, 208.
Emotion, expression of, 194; defined, 198–200; *e.* and movement, 200; history of term, 202; representation of, 203; as racial, 203; classifications of, 206 et seq.; æsthetic, 213 et seq.
Emotional, adjective to feeling, 22.
Empiricists, 105.
Ethical actions, 213.
Ethics, a department of philosophy, 7.
Evolution, 204, 211, 233, 250.
Experience, as growth of mind, 52, 53; racial, 203.
Experientialism, in perception, 105 et seq.
Expression, of thought, 179; *e.* and speech, 180; of feeling, 193, 194. 243.
Extension, primary quality in object, 91, 102; as pure intuition, 105; logically prior to resistance, 108 et seq.
Extensity, in sensation, 78, 79.

Feeling, a phase of mind, 21; as pleasure and pain, 23, 187; as neutral, 22, 82, 189; in popular use and in psychology, 22; as related to conation, 23; and to intellection, 25, 191; in Spencerian psychology, 26, 185; its nervous concomitant, 47, 191 et seq.; as subjective affection, 185; history of the term, 186; expression of, 193, 194; and art, 194, 195; classes of, 195; æsthetic, 213 et seq.
'Feeling-tone,' 197.
Flow of consciousness, 17, 144 et seq., 158, 179.
Folk-psychology, 30.
Forgetfulness, 164; see also Obliviscence.

Galton, F., on visualisation, 137, 143; on generic images, 168.
General Sense, 60 et seq.
Generalisation, 169, 172.
Generic images, 168.
Genius, 250, 251.
Grote, chair of philosophy, 1.
Growth of mind, 48–52.

Habit, 30, 232, 233.
Hallucination, 140, 141.
Hamilton, on faculty, 20, 160 note; introduced tripartite division, 20; use of 'conation,' 23; and 'thought,' 166 note; and 'conception,' 178; on latent mental modifications, 254 et seq.
Hartley, 149, 152, 156, 158.
Harvey, 29.
Hearing, sense of, 67, 71–74; emotional value of, 79; intellectual value of, 80, 81, 92, 133; muscular coefficient in, 90.
Higher = in science more complex, 40.
Hobbes, on image, 139; on association, 152; on speech, 181.
Höffding, *passim*.
Hume, on association, 152; on feeling, 187.

Idea, 135.
Ideation, 136, 156 note, 203.
Illusion, 140–142, 173.
Image, retinal, 119, 129; for idea, 135; *i.* and precept, 138 et seq., 167; normal and abnormal, 140–143.
Imagination, representative, 135; popular sense, 136; constructive, 137, 240.
Imitation, 237, 238.
Infant Psychology, 30.
Infants, consciousness in, 53, 54.
Innate ideas, 174, 204.
Innervation of muscle, 83.
Instinct, 201, 205, 224, 230 et seq.; *i.* and evolution, 233.
Intellection, a phase of mind, 21; purely psychological term, 24; relation to feeling and conation, 25; nervous concomitant, 47; as perception, 96 et seq.; laws of, 133, 134; *i.* and speech, 179 et seq.
Intensity, of sensation, 76–79; of feeling, 196.
Introspection, 13, 15.
Intuitions, emotive, 213.
Irradiation, 192.

James, on extension, 106.
Judgment, 166, 177–179.

Kant, adopted tripartite division, 20.
Knowledge, its philosophical import, 24.

Ladd, 111.
Language, as metaphorical, 12, 13; *l.* and thought, 177 et seq.
Latent mental modifications, 253 et seq.
Laws, of intellection, 133, 134; of representative consciousness, 144 et seq.

Leibniz, on continuity of consciousness, 43, 258–260.
Lewes, on feeling, 22, 27, 185; on instinct, 234.
Local sign, 116.
Localisation, cerebral, 41, 42; of sensations, 65, 95.
Locke, Tetens a disciple of, 21; on idea, 135; on association, 152; on perceiving, 171; on feeling, 186.
Logic, a department of philosophy, 1, 2; thought in *l.*, 177.

Materialist standpoint, 44.
Mathematics, as abstract science, 5.
Maudsley, on introspection, 13.
Mechanical action, 232.
Memory, 135, 156.
Mercier, on will, 26; on the emotions, 205 note.
Metaphor, in psychology, 12.
Method, natural science as, 10.
Mill, James, 156, 254.
Mill, J. S., on ideation, 136; on association, 157; on speech, 181; on character, 239; on oblivescence, 254 et seq.
Mind, philosophy of, 3; science of, 2; nature of, 3; as life, 5; as subjective experience, 7, 8, 12–15; states of, 17; phases of, 21; tripartite division of, 20; composition of, 26; related to body, 29, 34; *m.* and consciousness, 42, 256 et seq.; growth of, 48–52; mental stages, 52.
Motor, 38 note; *m.* impulses, 83.
Movement, feeling of, 86, 103 note; in emotion, 200.
Murray, J. Clark, on sense, 58, 124; on association, 157; on emotion, 197 note.
Muscular sense, 83–91.

Nativist theory, 103 note, 105.
Natural science as method, 10.
Nature, philosophy of, 2; *n.* and mind, 8.
Nerve-function, 37–46.
Nervous system, 28, 34 et seq., 193, 227.
Nominalism, 176.
Non-ego, 65, 110, 113, 208.

Object, 97 et seq.; = obstacle, 109 et seq.
Objective, defined, 8; observation, 14.
Objective perception, 98 et seq.
Objective Psychology, 28 et seq.
Obliviscence, 147–149, 254.
Organ, of perception, 115 note.
Organic sensibility, 62, 80, 81, 89.
Organism, as inherited, 203, 204.

Pain, as feeling, 23, 189, 191; of sense, 79, 80; resolution of, 210; conational import of, 211.
Parallelism, 44.
Passion, 202.
Percept, 134–136; *p.* and image, 137 et seq.; reinstatement of, 145–152; *p.* and concept, 169 et seq.
Perception, metaphor in, 13; opposed to sensation, 91, 94; problem of, 96, 97; as relating, referring sensations, 95 et seq.; philosophical aspect of, 97; tactile, theory of, 101 et seq.; visual, theory of, 118 et seq.; other sense-*p.*, 132, 133; in its formal aspect, 133; *p.* and conception, 174.
Philosophy, its meaning and history, 1; *ph.* and science, 3, 4.
Phrenology, 43 note.
Physics, as abstract science, 4.
Physiological Psychology, 32–39.
Play-impulse, 217.
Pleasure, as feeling, 23, 189; of sense, 79, 80, 213; resolution of, 210; conational import of, 211.
Plurality of Points, 92.

Presentation, defined, 19, 136.
Presentative consciousness, 136, 173, 207.
Presentative-representative, 136, 173, 207.
Psychology, defined, 2; as a science, 3 et seq.
Psycho-physics, 32, 58, 76, 77.
Purposive action, 237.

Reality, 97.
Reasoning, 166, 177–179.
Recollection, 135.
Reflex action, 41, 224, 227–229.
Reflexion, 10, 13.
Regulative doctrine, 6.
Relation, organs of, 64; among feelings, 26. 188.
Relativity, of sensations, 75; *r.* and contrast, 155; of knowledge, 155; law of, 161, 172, 217.
Reminiscence, 135.
Re-percept, 136.
Representation, defined, 18; in emotion, 203.
Representative feelings, 207.
Representative imagination, 135.
Re-representative consciousness, 173, 174, 207, 208.
Resistance, primary quality of object, 91, 98, 102; modes of, 104; historically prior to extension, 108 et seq.
Retention, 24, 162.
Retentiveness, 24, 162.

Schopenhauer, 221 note.
Science, defined, 2, 3, 17; abstract, 3; as objective and subjective, 6; natural, 10; as construction, 250; *s.* and philosophy, 2.
Secondary automatic action, 224, 232, 234.
Self, 13, 208.
Self-consciousness, 10, 13, 65.
Self-conservation, law of, 210, 240.
Sensation, 45, 58–96; quantity and quality of, 59; seats of, 59, 114 note, 195; order of, 60, 67, 80; relativity of, 75.
Sense, stage of, 54 et seq.; general, 60–66; special, 61–63, 67–74; emotional value of, 78, 84.
Sensus vitalis, 61.
Sentiment, 202, 216.
Sight, sense of, 71–74; emotional value of, 79; intellectual value of, 80; coefficient of muscular sense in, 90; in perception, 100 et seq.
Similarity, law of, 152, 154, 156, 159 et seq.; ground of concept, 167 et seq.
Skin-sensibility, 67–69, 80; intellectual value of, 80–82.
Smell, 70, 71; emotional value of, 79; intellectual value of, 81, 133; coefficient of muscular sense in, 90.
Sociology, as abstract science, 4.
Solidity, 117, 123, 131.
Solipsism, defined, 32.
Space, perception of, 102 et seq.; *s.* and body, 109, 113; passive apprehension of, 116.
Specific energy of nerve, 63, 64.
Spencer, *passim*.
Stewart, 257–259.
Subconsciousness, 42–44, 149, 227, 257 et seq.
Subject, mind as, 8, 9; metaphysically considered, 15, 27.
Subjective, defined, 8; '*s.* sensations,' 140.
Suggestion, of touch through sight, 123; laws of, 151, 154; *s.* and association, 154, 156.
Sully, *passim*.
Sympathetic feeling, 208.
Systemic Sensibility, 61.

Taine, on image, 137 note, 141, 143 note; on language, 181.
Taste, 70, 71; intellectual value of, 81, 133; emotional value of, 79.

Temperature, sense of, 69, 70; intellectual value of, 81; no coefficient of muscular sense, 90.
Tetens, 20.
Thought, 165 et seq.; modes of, 178; *th.* and speech, 180–184; in perception, 183.
Time, representation of, 153 note.
Touch, proper, 67–69; intellectual value of, 80; in perception, 99 et seq.; one psychological absolute, 126, 127.

Ultimate facts, for science, 20; for psychology, 15.

Vague consciousness, 174, 175, 203.
Verification, 234.
Volition, 238 et seq.
Volume, 131 note.
Vorstellung, 18.

Ward, on continuity of consciousness, 16; his psychology purely subjective, 32; on extensity, 78, 106, 108; on association, 159 note; on conation, 221 note.
Weber's law, 77; experiments, 92.
Whately, 178.
Will, 23, 26; see also Conation.
Willing, 21.
Wundt, on innervation, 84, 85; on association, 157; on relativity, 164 note; on conation, 221 note.

THE END.

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