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# PSYCHOLOGY

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## CHAPTER XXVII.

### SENSATION.

AFTER inner perception, outer perception! The next three chapters will treat of the processes by which we cognize at all times the present world of space and the material things which it contains. And first, of the process called Sensation.

#### SENSATION AND PERCEPTION DISTINGUISHED.

*The words Sensation and Perception* do not carry very definitely discriminated meanings in popular speech, and in Psychology also their meanings run into each other. Both of them name processes in which we cognize an objective world; both (under normal conditions) need the stimulation of incoming nerves ere they can occur; Perception always involves Sensation as a portion of itself; and Sensation in turn never takes place in adult life without Perception also being there. They are therefore names for different cognitive *functions*, not for different sorts of mental *fact*. The nearer the object cognized comes to being a simple quality like 'hot,' 'cold,' 'red,' 'noise,' 'pain,' apprehended irrelatively to other things, the more the state of mind approaches pure sensation. The fuller of relations the object is, on the contrary; the more it is something classed, located, measured, compared, assigned to a function, etc., etc.; the more unreservedly do we call the state of mind a perception, and the relatively smaller is the part in it which sensation plays.

*Sensation, then, so long as we take the analytic point of*

*view, differs from Perception only in the extreme simplicity of its object or content.\** Its function is that of mere acquaintance with a fact. Perception's function, on the other hand, is knowledge *about* † a fact; and this knowledge admits of numberless degrees of complication. But in both sensation and perception we perceive the fact as an *immediately present outward reality*, and this makes them differ from 'thought' and 'conception,' whose objects do not appear present in this immediate physical way. *From the physio-*

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\* Some persons will say that we never have a really simple object or content. My definition of sensation does not require the simplicity to be absolutely, but only relatively, extreme. It is worth while in passing, however, to warn the reader against a couple of inferences that are often made. One is that because we gradually learn to analyze so many qualities we ought to conclude that there are no really indecomposable feelings in the mind. The other is that because the processes that produce our sensations are multiple, the sensations regarded as subjective facts must also be compound. To take an example, to a child the taste of lemonade comes at first as a simple quality. He later learns both that many stimuli and many nerves are involved in the exhibition of this taste to his mind, and he also learns to perceive separately the sourness, the coolness, the sweet, the lemon aroma, etc., and the several degrees of strength of each and all of these things,—the experience falling into a large number of aspects, each of which is abstracted, classed, named, etc., and all of which appear to be the elementary sensations into which the original 'lemonade flavor' is decomposed. It is argued from this that the latter never was the simple thing which it seemed. I have already criticised this sort of reasoning in Chapter VI (see pp. 170 ff.). The mind of the child enjoying the simple lemonade flavor and that of the same child grown up and analyzing it are in two entirely different conditions. Subjectively considered, the two states of mind are two altogether distinct sorts of fact. The later mental state says 'this is the *same flavor (or fluid)* which that earlier state perceived as simple,' but that does not make the two states themselves identical. It is nothing but a case of learning more and more *about* the same topics of discourse or things.—Many of these topics, however, must be confessed to resist all analysis, the various colors for example. He who sees blue and yellow 'in' a certain green means merely that when green is confronted with these other colors he sees relations of *similarity*. He who sees abstract 'color' in it means merely that he sees a similarity between it and all the other objects known as colors. (Similarity itself cannot ultimately be accounted for by an identical abstract element buried in all the similars, as has been already shown, p. 492 ff.) He who sees abstract paleness, intensity, purity, in the green means other similarities still. These are all outward determinations of that special green, knows *about* it, *zufällige An-sichten*, as Herbart would say, not *elements* of its composition. Compare the article by Meinong in the *Vierteljahrsschrift für wiss. Phil.*, xii. 324.

† See above, p. 221.

*logical point of view both sensations and perceptions differ from 'thoughts' (in the narrower sense of the word) in the fact that nerve-currents coming in from the periphery are involved in their production. In perception these nerve-currents arouse voluminous associative or reproductive processes in the cortex; but when sensation occurs alone, or with a minimum of perception, the accompanying reproductive processes are at a minimum too.*

I shall in this chapter discuss some general questions more especially relative to Sensation. In a later chapter perception will take its turn. I shall entirely pass by the classification and natural history of our special 'sensations,' such matters finding their proper place, and being sufficiently well treated, in all the physiological books.\*

#### THE COGNITIVE FUNCTION OF SENSATION.

*A pure sensation is an abstraction;* and when we adults talk of our 'sensations' we mean one of two things: either certain objects, namely simple qualities or attributes like *hard, hot, pain*; or else those of our thoughts in which acquaintance with these objects is least combined with knowledge about the relations of them to other things. As we can only think or talk about the relations of objects with which we have acquaintance already, we are forced to postulate a function in our thought whereby we first become aware of the *bare immediate natures* by which our several objects are distinguished. This function is sensation. And just as logicians always point out the distinction between substantive terms of discourse and relations found to obtain between them, so psychologists, as a rule, are ready to admit this function, of the vision of the terms or matters meant, as something distinct from the knowledge about them and of their relations *inter se*. Thought with the former function is sensational, with the latter, intellectual. Our earliest thoughts are almost exclusively sensational. They merely give us a set of *thats*, or *its*, of subjects

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\* Those who wish a fuller treatment than Martin's *Human Body* affords may be recommended to Bernstein's 'Five Senses of Man,' in the International Scientific Series, or to Ladd's or Wundt's *Physiological Psychology*. The completest compendium is L. Hermann's *Handbuch der Physiologie*, vol. III.



of discourse, with their relations not brought out. The first time we see *light*, in Condillac's phrase we *are* it rather rather than see it. But all our later optical knowledge is about what this experience gives. And though we were struck blind from that first moment, our scholarship in the subject would lack no essential feature so long as our memory remained. In training-institutions for the blind they teach the pupils as much *about* light as in ordinary schools. Reflection, refraction, the spectrum, the ether-theory, etc., are all studied. But the best taught born-blind pupil of such an establishment yet lacks a knowledge which the least instructed seeing baby has. They can never show him what light is in its 'first intention'; and the loss of that sensible knowledge no book-learning can replace. All this is so obvious that we usually find sensation 'postulated' as an element of experience, even by those philosophers who are least inclined to make much of its importance, or to pay respect to the knowledge which it brings.\*

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\* "The sensations which we *postulate* as the signs or occasions of our perceptions" (A. Seth: *Scottish Philosophy*, p. 89). "Their existence is *supposed* only because, without them, it would be impossible to account for the complex phenomena which are directly present in consciousness" (J. Dewey: *Psychology*, p. 34). Even as great an enemy of Sensation as T. H. Green has to allow it a sort of hypothetical existence under protest. "Perception presupposes feeling" (*Contemp. Review*, vol. xxxi. p. 747). Cf. also such passages as those in his *Prolegomena to Ethics*, §§ 48, 49.—Physiologically, the sensory and the reproductive or associative processes may wax and wane independently of each other. Where the part directly due to stimulation of the sense-organ preponderates, the thought has a sensational character, and differs from other thoughts in the sensational direction. Those thoughts which lie farthest in that direction we call *sensations*, for practical convenience, just as we call *conceptions* those which lie nearer the opposite extreme. But we no more have conceptions pure than we have pure sensations. Our most rarefied intellectual states involve some bodily sensibility, just as our dullest feelings have some intellectual scope. Common-sense and common psychology express this by saying that the mental state is composed of distinct fractional *parts*, one of which is sensation, the other conception. We, however, who believe every mental state to be an integral thing (p. 276) cannot talk thus, but must speak of the degree of sensational or intellectual character, or function, of the mental state. Professor Hering puts, as usual his finger better upon the truth than any one else. Writing of visual perception, he says: "It is inadmissible in the present state of our knowledge to assert that first and last the same retinal picture arouses exactly the same *pure sensation*,

But the trouble is that most, if not all, of those who admit it, admit it as a fractional *part* of the thought, in the old-fashioned atomistic sense which we have so often criticised.

Take the pain called toothache for example. Again and again we feel it and greet it as the same real item in the universe. We must therefore, it is supposed, have a distinct pocket for it in our mind into which it and nothing else will fit. This pocket, when filled, is the sensation of toothache; and must be either filled or half-filled whenever and under whatever form toothache is present to our thought, and whether much or little of the rest of the mind be filled at the same time. Thereupon of course comes up the paradox and mystery: If the knowledge of toothache be pent up in this separate mental pocket, how can it be known *cum alio* or brought into one view with anything else? This pocket knows nothing else; no other part of the mind knows toothache. The knowing of toothache *cum alio* must be a miracle. And the miracle must have an Agent. And the Agent must be a Subject or Ego 'out of time,'—and all the rest of it, as we saw in Chapter X. And then begins the well-worn round of recrimination between the sensationalists and the spiritualists, from which we are saved by our determination from the outset to accept the psychological point of view, and to admit knowledge whether of simple toothaches or of philosophic systems as an ultimate fact. There are realities and there are 'states of mind,' and the latter know the former; and it is just as wonderful for a state of mind to be a 'sensation' and know a simple pain as for it to be a thought and know a system

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but that this sensation, in consequence of practice and experience, is differently *interpreted* the last time, and elaborated into a different perception from the first. For the only real *data* are, on the one hand, the physical picture on the retina,—and that is both times the same; and, on the other hand, the resultant state of consciousness (*ausgelöste Empfindungscomplex*)—and that is both times distinct. *Of any third thing, namely, a pure sensation thrust between the retinal and the mental pictures, we know nothing. We can then, if we wish to avoid all hypothesis, only say that the nervous apparatus reacts upon the same stimulus differently the last time from the first, and that in consequence the consciousness is different too.*" (Hermann's Hdbch., III. I. 567-8.)

of related things.\* But there is no reason to suppose that when different states of mind know different things about the same toothache, they do so by virtue of their all *containing* faintly or vividly the original pain. Quite the reverse. The by-gone sensation of my gout was painful, as Reid somewhere says; the *thought* of the same gout as by-gone is pleasant, and in no respect resembles the earlier mental state.

Sensations, then, first make us acquainted with innumerable things, and then are replaced by thoughts which know the same things in altogether other ways. And Locke's main doctrine remains eternally true, however hazy some of his language may have been, that

"though there be a great number of considerations wherein things may be compared one with another, and so a multitude of relations; yet they all *terminate in*, and are concerned about, those simple ideas† either of sensation or reflection, which I think to be the whole materials of all our knowledge. . . . The simple ideas we receive from sensation and reflection are the *boundaries* of our thoughts; beyond which, the mind whatever efforts it would make, is not able to advance one jot; nor can it make any discoveries when it would pry into the nature and hidden causes of those ideas."‡

The nature and hidden causes of ideas will never be unravelled till the *nexus* between the brain and consciousness is cleared up. All we can say now is that sensations are *first* things in the way of consciousness. Before conceptions can come, sensations must have come; but before sensations come, no psychic fact need have existed, a nerve-current is enough. If the nerve-current be not given, nothing else will take its place. To quote the good Locke again:

"It is not in the power of the most exalted wit or enlarged understanding, by any quickness or variety of thoughts, to invent or frame

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\* Yet even writers like Prof. Bain will deny, in the most gratuitous way, that sensations know anything. "It is evident that the lowest or most restricted form of sensation does not contain an element of knowledge. The mere state of mind called the sensation of scarlet is not knowledge, although a necessary preparation for it." 'Is not knowledge *about* scarlet' is all that Professor Bain can rightfully say.

† By simple ideas of sensation Locke merely means sensations.

‡ Essay c. H. U., bk. II. ch. xxiii. § 29; ch. xxv. § 9.

one new simple idea [i.e. sensation] in the mind. . . . I would have any one try to fancy any taste which had never affected his palate, or frame the idea of a scent he had never smelt ; and when he can do this, I will also conclude that a blind man hath ideas of colors, and a deaf man true distinct notions of sounds." \*

The brain is so made that all currents in it run one way. Consciousness of some sort goes with all the currents, but it is only when new currents are entering that it has the sensational *tang*. And it is only then that consciousness directly *encounters* (to use a word of Mr. Bradley's) a reality outside itself.

The difference between such encounter and all conceptual knowledge is very great. A blind man may know all *about* the sky's blueness, and I may know all *about* your toothache, conceptually ; tracing their causes from primeval chaos, and their consequences to the crack of doom. But so long as he has not felt the blueness, nor I the toothache, our knowledge, wide as it is, of these realities, will be hollow and inadequate. Somebody must *feel* blueness, somebody must *have* toothache, to make human knowledge of these matters real. Conceptual systems which neither began nor left off in sensations would be like bridges without piers. Systems about fact must plunge themselves into sensation as bridges plunge their piers into the rock. Sensations are the stable rock, the *terminus a quo* and the *terminus ad quem* of thought. To find such termini is our aim with all our theories—to conceive first when and where a certain sensation may be had, and then to have it. Finding it stops discussion. Failure to find it kills the false conceit of knowledge. Only when you deduce a possible sensation for me from your theory, and give it to me when and where the theory requires, do I begin to be sure that your thought has anything to do with truth.

*Pure sensations can only be realized in the earliest days of life.* They are all but impossible to adults with memories and stores of associations acquired. Prior to all impressions on sense-organs the brain is plunged in deep sleep and consciousness is practically non-existent. Even the first weeks

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\* *Op. cit.* bk. II. ch. II. § 2.

after birth are passed in almost unbroken sleep by human infants. It takes a strong message from the sense-organs to break this slumber. In a new-born brain this gives rise to an absolutely pure sensation. But the experience leaves its 'unimaginable touch' on the matter of the convolutions, and the next impression which a sense-organ transmits produces a cerebral reaction in which the awakened vestige of the last impression plays its part. Another sort of feeling and a higher grade of cognition are the consequence; and the complication goes on increasing till the end of life, no two successive impressions falling on an identical brain, and no two successive thoughts being exactly the same. (See above, p. 230 ff.)

*The first sensation which an infant gets is for him the Universe.* And the Universe which he later comes to know is nothing but an amplification and an implication of that first simple germ which, by accretion on the one hand and intussusception on the other, has grown so big and complex and articulate that its first estate is unrememberable. In his dumb awakening to the consciousness of *something there*, a mere *this* as yet (or something for which even the term *this* would perhaps be too discriminative, and the intellectual acknowledgment of which would be better expressed by the bare interjection 'lo!'), the infant encounters an object in which (though it be given in a pure sensation) all the 'categories of the understanding' are contained. *It has objectivity, unity, substantiality, causality, in the full sense in which any later object or system of objects has these things.* Here the young knower meets and greets his world; and the miracle of knowledge bursts forth, as Voltaire says, as much in the infant's lowest sensation as in the highest achievement of a Newton's brain. The physiological condition of this first sensible experience is probably nerve-currents coming in from many peripheral organs at once. Later, the one confused Fact which these currents cause to appear is perceived to be many facts, and to contain many qualities.\* For as the currents vary, and the brain-paths

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\* "So far is it from being true that we necessarily have as many feelings in consciousness at one time as there are inlets to the sense then played upon, that it is a fundamental law of pure sensation that each momentary

are moulded by them, other thoughts with other 'objects' come, and the 'same thing' which was apprehended as a present *this* soon figures as a past *that*, about which many unsuspected things have come to light. The principles of this development have been laid down already in Chapters XII and XIII, and nothing more need here be added to that account.

#### "THE RELATIVITY OF KNOWLEDGE."

To the reader who is tired of so much *Erkenntnistheorie* I can only say that I am so myself, but that it is indispensable, in the actual state of opinions about Sensation, to try to clear up just what the word means. Locke's pupils seek to do the impossible with sensations, and against them we must once again insist that sensations 'clustered together' cannot build up our more intellectual states of mind. Plato's earlier pupils used to admit Sensation's existence, grudgingly, but they trampled it in the dust as something corporeal, non-cognitive, and vile.\* His latest followers

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state of the organism yields but one feeling, however numerous may be its parts and its exposures. . . . To this original Unity of consciousness it makes no difference that the tributaries to the single feeling are beyond the organism instead of within it, in an outside object with several sensible properties, instead of in the living body with its several sensitive functions. . . . The unity therefore is not made by 'association' of several components; but the plurality is formed by *disassociation* of unsuspected varieties within the unity; the substantive thing being no product of synthesis, but the residuum of differentiation." (J. Martineau: *A Study of Religion* (1888), p. 192-4.) Compare also F. H. Bradley, *Logic*, book i. chap. II.

\* Such passages as the following abound in anti-sensationalist literature: "Sense is a kind of dull, confused, and stupid perception obtruded upon the soul from without, whereby it perceives the alterations and motions within its own body, and takes cognizance of individual bodies existing round about it, but does not clearly comprehend what they are nor penetrate into the nature of them, it being intended by nature, as Plotinus speaks, not so properly for *knowledge* as for the *use of the body*. For the soul suffering under that which it perceives by way of *passion* cannot master or *Conquer* it, that is to say, know or understand it. For so Anaxagoras in Aristotle very fitly expresses the nature of knowledge and intellection under the notion of *Conquering*. Wherefore it is necessary, since the mind understands all things, that it should be free from mixture and passion, for this end, as Anaxagoras speaks, that it may be able to *master and conquer* its objects, that is to say, to *know and understand* them. In like manner Plotinus, in his book of Sense and Memory, makes to *suffer* and to *be conquered* all one, as also to *know* and to *conquer*; for which reason he concludes that

seem to seek to crowd it out of existence altogether. The only reals for the neo-Hegelian writers appear to be *relations*, relations without terms, or whose terms are only speciously such and really consist in knots, or gnarls of relations finer still *in infinitum*.

"Exclude from what we have considered real all qualities constituted by relation, we find that none are left." "Abstract the many relations from the one thing and there is nothing. . . . Without the relations it would not exist at all."\* "The single feeling is nothing

that which suffers doth not know. . . . Sense that suffers from external objects lies as it were prostrate under them, and is overcome by them. . . . Sense therefore is a certain kind of drowsy and somnolent perception of that passive part of the soul which is as it were asleep in the body, and acts concretely with it. . . . It is an energy arising from the body and a certain kind of drowsy or sleeping life of the soul blended together with it. The perceptions of which compound, or of the soul as it were half asleep and half awake, are confused, indistinct, turbid, and encumbered cogitations very different from the energies of the noetical part, . . . which are free, clear, serene, satisfactory, and awakened cogitations. That is to say, knowledges." Etc., etc., etc. (R. Cudworth: Treatise concerning Eternal and Immutable Morality, bk III. chap. II.) Similarly Malebranche: "THÉODORE.—Oh, oh, Ariste! God knows pain, pleasure, warmth, and the rest. But he does not feel these things. He knows pain, since he knows what that modification of the soul is in which pain consists. He knows it because he alone causes it in us (as I shall presently prove), and he knows what he does. In a word, he knows it because his knowledge has no bounds. But he does not feel it, for if so he would be unhappy. To know pain, then, is not to feel it. ARISTE.—That is true. But to feel it is to know it, is it not? THÉODORE.—No indeed, since God does not feel it in the least, and yet he knows it perfectly. But in order not to quibble about terms, if you will have it that to feel pain is to know it, agree at least that it is not to know it clearly, that it is not to know it by light and by evidence—in a word, that it is not to know its nature; in other words and to speak exactly, it is not to know it at all. To feel pain, for example, is to feel ourselves unhappy without well knowing either what we are or what is this modality of our being which makes us unhappy. . . . Impose silence on your senses, your imagination, and your passions, and you will hear the pure voice of inner truth, the clear and evident replies of our common master. Never confound the evidence which results from the comparison of ideas with the liveliness of the sensations which touch and thrill you. The livelier our sensations and feelings (*sentiments*) are, the more darkness do they shed. The more terrible or agreeable are our phantoms, and the more body and reality they appear to have, the more dangerous are they and fit to lead us astray." (Entretiens sur la Métaphysique, 3me Entretien, *ad fin.*) Malebranche's Theodore prudently does not try to explain how God's 'infinite felicity' is compatible with his not feeling joy.

\* Green: Prolegomena, §§ 20, 28.

real." "On the recognition of relations as constituting the *nature* of ideas, rests the possibility of any tenable theory of their reality."

Such quotations as these from the late T. H. Green\* would be matters of curiosity rather than of importance, were it not that sensationalist writers themselves believe in a so-called 'Relativity of Knowledge,' which, if they only understood it, they would see to be identical with Professor Green's doctrine. They tell us that the relation of sensations to each other is something belonging to their essence, and that no one of them has an absolute content:

"That, e.g., black can only be felt in contrast to white, or at least in distinction from a paler or a deeper black; similarly a tone or a sound only in alternation with others or with silence; and in like manner a smell, a taste, a touch, only, so to speak, *in statu nascendi*, whilst, when the stimulus continues, all sensation disappears. This all seems at first sight to be splendidly consistent both with itself and with the facts. But looked at more closely, it is seen that neither is the case."†

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\* Introd. to Hume, §§ 146, 188. It is hard to tell just what this apostolic human being but strenuously feeble writer means by relation. Sometimes it seems to stand for system of related fact. The ubiquity of the 'psychologist's fallacy' (see p. 196) in his pages, his incessant leaning on the confusion between the thing known, the thought that knows it, and the farther things known about that thing and about that thought by later and additional thoughts, make it impossible to clear up his meaning. Compare, however, with the utterances in the text such others as these: "The waking of Self-consciousness from the sleep of sense is an absolute new beginning, and nothing can come within the 'crystal sphere' of intelligence except as it is determined by intelligence. What sense is to sense is nothing for thought. What sense is to thought, it is as determined *by* thought. There can, therefore, be no 'reality' in sensation to which the world of thought can be referred." (Edward Caird's *Philosophy of Kant*, 1st ed. pp. 393-4.) "When," says Green again, "feeling a pain or pleasure of heat, I perceive it to be connected with the action of approaching the fire, am I not perceiving a relation of *which one constituent, at any rate, is a simple sensation?* The true answer is, No." "Perception, in its simplest form . . . —perception as the first sight or touch of an object in which nothing but what is seen or touched is recognized—*neither is nor contains sensation*" (Contemp. Rev., xxxi. pp. 746, 750.) "Mere sensation is in truth a phrase that represents no reality." "Mere feeling, then, as a matter unformed by thought, has no place in the world of facts, in the cosmos of possible experience." (Prolegomena to Ethics, §§ 46, 50.)—I have expressed myself a little more fully on this subject in *Mind*, x. 27 ff.

† Stumpf: *Tonpsychologie*, i. pp. 7, 8. Hobbes's phrase, *sentire semper idem et non sentire ad idem recidunt*, is generally treated as the original statement of the relativity doctrine. J. S. Mill (*Examn. of Hamilton*, p. 6)



The two leading facts from which the doctrine of universal relativity derives its wide-spread credit are these:

1) The *psychological fact* that so much of our actual knowledge is of the relations of things—even our simplest sensations in adult life are habitually referred to classes as we take them in; and

2) The *physiological fact* that our senses and brain must have periods of change and repose, else we cease to feel and think.

Neither of these facts proves anything about the presence or non-presence to our mind of absolute qualities with which we become sensibly acquainted. Surely not the psychological fact; for our inveterate love of relating and comparing things does not alter the intrinsic qualities or nature of the things compared, or undo their absolute givenness. And surely not the physiological fact; for the length of time during which we can feel or attend to a quality is altogether irrelevant to the intrinsic constitution of the quality felt. The time, moreover, is long enough in many instances, as sufferers from neuralgia know.\* And the doctrine of relativity, not proved by these facts, is flatly disproved by other facts even more patent. So far are we from not knowing (in the words of Professor Bain) “any one thing by itself, but only the difference between it and another thing,” that if this were true the whole edifice of our knowledge would collapse. If all we felt were the *difference* between the *C* and *D*, or *c* and *d*, on the musical scale, that being the same in the two pairs of notes, the pairs themselves would be the same, and language could get along without substantives. But Professor Bain does not mean seriously what he says, and we need spend no more time on this vague and popular form of the doctrine.† The facts which seem to hover before the minds

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and Bain (Senses and Intellect, p. 321; Emotions and Will, pp. 550, 570-2; Logic, i. p. 2; Body and Mind, p. 81) are subscribers to this doctrine. Cf. also J. Mill's Analysis, J. S. Mill's edition, II. 11, 12.

\* We can steadily hear a note for half an hour. The differences between the senses are marked. Smell and taste seem soon to get fatigued.

† In the popular mind it is mixed up with that entirely different doctrine of the ‘Relativity of Knowledge’ preached by Hamilton and Spencer. This doctrine says that our knowledge is relative *to us*, and is not of the