

of the spectrum of nebula. If the book be taken into a nearly dark room, so that at first glance nothing is seen but the dark oblong shapes of the whole spectra of that plate, the figure in question will "serve to give some idea of the peculiar beauty of the phenomenon in question." The lines in the spectrum of Sirius, on the same plate, are made much too distinct, both absolutely and relatively to the other stars.

The practical spectroscopists will find here an exceedingly convenient repository of facts. Kirchhoff's chart of the solar spectrum, with the extension of Angström and Thalen, is very beautifully reproduced in miniature. Huggin's maps of the metal lines are given in a form far more convenient for use at the spectroscope than the two folding sheets in a huge quarto in which alone they have hitherto been published. The numerical tables in full accompany both sets of maps. It is much to be regretted that Dr. Gibb's important tables for the comparison of Kirchhoff's, Huggins's, and the Normal scales have not been given. We should also have been glad to have Thalen's metallic spectra. At the end of the book there is a "List of Memoirs, etc., upon Spectrum Analysis." This is certainly valuable, and appears to be full. We observe, however, the omission of Stoke's paper upon the absorption-bands as a reagent, and also of Secchi's catalogue of the spectra of the stars. As the work contains little about the spectra of particular celestial objects, the last-named paper might well have been translated and inserted in full, with notes.

Professor Roscoe's book may truly be said to be popular and scientific at the same time. And we call it scientific, not only because it is a thorough account of the facts, but also because it contains long extracts from the original memoirs of the serious workers in this branch of science. There is, doubtless, a vast difference between that knowledge of scientific research which comes of actual practice and that which recommends this book to general readers. No one need be scared by a fear that it is mathematical, for everything which borders upon that subject is omitted. There is nothing about the angles of prisms, the theory of exchanges, or the theory of the displacement of lines owing to the motion of the source of light.

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THE ENGLISH DOCTRINE OF IDEAS

Analysis of the Phenomena of the Human Mind.

By James Mill. A new edition, with notes, illustrative and critical, by Alexander Bain, Andrew Finlater, and George Grote; edited with additional notes by John Stuart Mill. 2 vols. 8vo. London: Longmans. 1869.

CSP, identification: Haskell, *Index to The Nation*. See also: Burks, *Bibliography*; Fisch and Haskell, *Additions to Cohen's Bibliography*. The title by Wundt that Peirce mentions in his note is more fully described as: Wilhelm Wundt, *Vorlesungen über die Menschen und Thierseelen*, Leipzig, 1863, 1st ed.

James Mill (1773-1836) entered the University of Edinburgh in 1870. There he was influenced by the Scottish philosophy as presented by Dugald Stewart, who was lecturing in

Edinburgh at that time. In 1802 he moved to London where he became involved in politics and various literary projects. Around 1808 he formed a friendship with Jeremy Bentham, later becoming a very close disciple. Mill is known for his works in philosophy, history, education, and economics, as well as for his participation in the political life of his day.

George Grote (1794-1871) was an English historian and brother of the Cambridge philosopher John Grote. In his early years, Grote was a friend of Ricardo, James Mill, and Bentham. He was one of the founders of London University, and served as trustee for the British Museum. Grote's most famous work is his *History of Greece*, which has enjoyed several editions and translations into French and German.

James Mill's "Analysis of the Human Mind" has long been known as one of the most original and characteristic productions of English thought. It now appears in a second edition, enlarged by many long notes by the author's disciples, who are to-day the most eminent representatives of the English school. These notes are chiefly of interest as forming the clearest exposition of the present state of opinion in that school, and of the changes which it has undergone since 1829.

It is a timely publication, because the peculiarities of the English mind are so sharply cut in James Mill that it will help to awaken that numerous class of general readers who have become impregnated with the ideas of Stuart Mill's logic into self-consciousness in reference to the intellectual habit which they have contracted. A philosophy or method of thinking which is held in control—the mind rising above it, and understanding its limitations—is a valuable instrument; but a method in which one is simply immersed, without seeing how things can be otherwise rationally regarded, is a sheer restriction of the mental powers. In this point of view, it is a fact of interest to the adherent of the English school that it is not a particularly learned body, and that its more modern leaders at least have not generally been remarkable for an interior understanding of opposing systems, nor even for a wide acquaintance with results the most analogous to their own which have been obtained in other countries. It is a familiar logical maxim that nothing can be comprehended without comparing it with other things; and this is so true in regard to philosophies that a great German metaphysician has said that whoever has reached a thorough comprehension of a philosophical system has outgrown it. Accordingly, we think that we discern in English philosophers an unconsciousness of their own peculiarities, and a tendency to describe them in language much too wide; in consequence of which the student has to gather the essential characters of their thought by a comparison with different systems, and cannot derive any real understanding of them from anything which lies wholly within their horizon alone.

This somewhat insular group of thinkers are now often called Positivists. If this means that they are the philosophers of exact experience, it is too much to say of them; if it means that they are followers of M. Comte, it is too little. They seem to us to be what remains of that *sacra schola invictissimorum nominalium*, of which the English Ockham was the "venerable beginner." Many pages of this "Analysis" might, if somewhat changed in language, easily be mistaken for Ockham's.

The chief methodical characteristic of their thought is "analysis." And what is analysis? The application of Ockham's razor—that is to say, the principle of re-

ducing the expression of the nature of things and of the mind to its simplest terms by lopping off everything which looks like a metaphysical superfluity. By mental analysis the English mean the separation of a compound idea or sensation into its constituent ideas or sensations. Thus, they would say that the sensation of white had no distinct existence; it is merely the concurrence of the three sensations of blue, red, and yellow. So, James Mill says that virtue is the habit of associating with the actions from which men derive advantage the pleasures which result from them. It is plain that such analysis reduces the number of distinct constituents of human nature. The same thinkers reason in a manner entirely analogous when they are not dealing with the mind at all; and in general their method may be described as simplifying existing hypotheses and then endeavoring to show that known facts may be accounted for by these simplified hypotheses. In this way, a highly elegant and instructive system has been created; but it is not pre-eminently scientific. It might be scientific if these philosophers occupied themselves with subjecting their modified theories to the test of exact experience in every possible way, and spent their time in a systematic course of observations and measurements, as some German psychologists have done. But that is not their business; they are writers. Their energies are occupied in adjusting their theories to the facts, and not in ascertaining the certainty of their theories. This cannot be said to hold good fully in the case of Mr. Bain; his books are largely occupied with correcting and limiting theories; but so far he appears quite different from the English school generally, to which, however, he certainly belongs. Desultory experience is what they all build on, and on that basis no true science can be reared.

James Mill's psychological theory is this: All that is in the mind is sensations, and copies of sensations; and whatever order there is in these copies is merely a reproduction of the order which there was in their originals. To have a feeling (a sensation, or the copy of one), and to know that we have it, and what its characters are; or to have two feelings, and to know their mutual relations and agreements, are not two things, but one and the same thing. These principles are held to be sufficient to explain all the phenomena of mind.

The beauty of this theory appears when we consider that it is as much as to say simply that *ideas* in *consciousness* are concrete images of *things* in *existence*. For a thing to exist, and for it to have all its characters; or for two things to exist, and for them to have all their relations of existence to each other, are not two facts, but one. A book which thoroughly follows out such a hypothesis is a great contribution to human knowledge, even if the hypothesis does not satisfy the facts. For it clears up our conceptions greatly to understand precisely how far a simple, single supposition like this will go, and where it will fail.

The theory is of the most markedly English character. Though it is a single supposition which cannot logically be broken, yet we may say that its chief points are these three:

1. Every idea is the mere copy of a sensation.
2. Whatever is in the mind is known.
3. The order of ideas is a mere reproduction of the order of sensations.

That every idea is the copy of a sensation has always been recognized as the chief point of English psychology. Hume expresses it in the clearest language, saying that the difference between an idea and a sensation is, that the former is faint and the latter lively. This involves the opinion that all our ideas are singular, or devoid of generality; that is, that just as every existing thing either has or has not each conceivable quality, so every idea is an idea of the presence or absence of every quality. As Berkeley says, my idea of a man "must be either of a white or a black or a tawny, a straight or a crooked, a tall or a low or a middle-sized man." Accordingly, it is obvious that one of the difficulties in the way of these philosophers is to explain our seeming to attach a general meaning to words; for if we have nothing in our minds but sensations and ideas, both of which are singular, we cannot really take a word in a general sense. So, if I compare a red book and a red cushion, there is, according to them, no general sensation *red* which enters into both these images, nor is there any idea of a general respect, color, in which they agree; and their similarity can consist in nothing whatsoever, except that they have the same general name attached to them; and there is no possible reason for their being associated together under one name (which these philosophers can consistently give) than one at which James Mill hints, and which follows from his principles—namely, that the corresponding sensations have been frequently associated together in experience. This was perfectly appreciated in the days when nominalism was actively discussed, but now the nominalists do not seem to look it in the face. We will, therefore, put some passages from the present work in juxtaposition, to show that James Mill did feel, obscurely perhaps, this difficulty. "Every color is an individual color, every size an individual size, every shape an individual shape. But things have no individual color in common, no individual shape in common, no individual size in common; that is to say, they have neither shape, color, nor size in common" (vol. i., p. 249). He here speaks of things; but as things are only sensations or ideas with him, all this holds good of ideas. "It is easy to see, among the principles of association, what particular principle it is which is mainly concerned in classification. . . . That principle is resemblance." "Having the sensation. . . . what happens in recognizing that it is similar to a former sensation? Besides the *sensation*, in this case, there is an *idea*. The idea of the former sensation is called up by, that is, is associated with, the new sensation. As having a sensation, and a sensation, and knowing them, that is, distinguishing them, are the same thing; and having an idea, and an idea, is knowing them; so, having an idea and a sensation, and distinguishing the one from the other, are the same thing. But to know that I have the idea and the sensation, in this case, is not all. I observe that the sensation is like the idea. What is this observation of likeness? Is it anything but that distinguishing of one feeling from another which we have recognized to be the same thing as having two feelings? As change of sensation is sensation; as change from a sensation to an idea differs from change to a sensation in nothing but this, that the second feeling in the latter change is an idea, not a sensation; and as the passing from one feeling to another is distinguishing, the whole difficulty seems to be resolved, for undoubtedly the distinguishing differences and similarities is the

same thing—a similarity being nothing but a slight difference" (vol. ii., p. 15). Evidently, if a similarity is a difference, the line of demarcation between the two is to be drawn where our language happens to draw it. But to ascertain why two similar sensations are associated under one name, we must recur to his general law of association, which is given in these words: "Our ideas spring up or exist in the order in which the sensations existed, of which they are the copies. This is the general law of the 'Association of Ideas'" (vol. i., p. 78). "Resemblance only remains as an alleged principle of association, and it is necessary to enquire whether it is included in the laws which have been above expounded. I believe it will be found that we are accustomed to see like things together. When we see a tree, we generally see more trees than one; when we see an ox, we generally see more oxen than one; a sheep, more sheep than one; a man, more men than one. From this observation, I think we may refer resemblance to the law of frequency, of which it seems to form only a particular case" (vol. i., p. 111). This is what he says upon the subject of similarity. As an attempt at analyzing that idea, it is a complete failure, and with it the whole system falls. Stuart Mill is gravely mistaken in supposing that his father's rejection of resemblance as a guiding principle of association was an unimportant part of his theory. Association by resemblance stood in the way of his doctrine that the order of ideas is nothing but the order of sensations, and to grant the mind a power of giving an inwardly determined order to its ideas would be to grant that there is something in the mind besides sensations and their copies. Moreover, upon nominalistic principles similarity can *consist* in nothing but the association of two ideas with one name, and therefore James Mill must say, with Ockham, that such association is without any reason or cause, or must explain it as he attempts to do. The doctrine that an idea is the copy of a sensation has obviously not been derived from exact observation. It has been adopted because it has been thought that it *must be so*; in fact, because it was a corollary from the notion (which its authors could not free themselves from) that ideas were in consciousness just as things are in existence. It thus forms a striking illustration of Wundt's remark that the chief difference between modern attempts to put psychology upon a basis like that of the physical sciences and earlier speculative systems, is that speculations are now put forth as results of scientific research, while formerly facts of observation were frequently represented as deductions of pure thought.

The same thing may be said of the doctrine that to feel and to be aware of the feeling are the same thing. James Mill plainly cannot conceive of the opposite supposition. With him, therefore, it is a mere result of defective reading. It is not only not supported by exact observation, but it is directly refuted in that way.

The English school are accustomed to claim the doctrine of the association of ideas as their own discovery, but Hamilton has proved that it is not only given by Aristotle, but that, as to its main features, the knowledge of it by the English was derived from him. This, therefore, does not constitute a valid claim to the scientific character; yet it is the only claim they have. At present, the doctrine has received a transformation at the hands of Wundt of the most fundamental description. He has solved the perplexing questions concerning the principles of associa-

tion by showing that every train of thought is essentially inferential in its character, and is, therefore, regulated by the principles of inference.* But this conception is also found in Aristotle.

The "Analysis" is written in an unusually forcible, perspicuous, and agreeable style—a character which belongs to most of the English philosophers more or less, but to none in a higher degree than to James Mill. One wishes that such a master of language had a doctrine to enunciate which would test his powers more than this simple English psychology. The fewer elements a hypothesis involves, the less complication and consequent obscurity will appear in its development.

*This idea is fully explained in his very important and agreeably written "Vorlesungen über die Menschen- und Thierseelen."