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PSYCHOLOGY AND SCIENTIFIC METHODS

BORDEN PARKER BOWNE

BORDEN PARKER BOWNE, LL.D., professor of philosophy and dean of the Graduate School, Boston University, died suddenly on the afternoon of April 1. His death was entirely unexpected, for he was in active service, and he had even lectured as usual in the forenoon. The loss to Boston University, to the great number of men and women who had been his enthusiastic pupils, to the public that reads philosophy, and to the ecclesiastical circles in which he moved will be severely felt.

His Boston chair is the only academic position in philosophy that he ever held. Born at Leonardsville, N. J., January 28, 1847; graduated from New York University (then University of the City of New York), in 1871; for two years a student at the universities of Paris, Halle and Göttingen; then for a brief period assistant professor of modern languages at his *alma mater*, and also for a time a member of the editorial staff of *The Independent*, in 1876 he was called to the office which, after nearly thirty-four years of distinguished service, he has now laid down. The inherent attractiveness of his idealism, together with a brilliant style of exposition, which never lacked the grace of wit, brought throngs of students to his academic lectures. The same qualities have given his printed writings a wide circulation.

The keynote of his entire career as a philosopher was struck in his first published work, "The Philosophy of Herbert Spencer" (New York, 1874). If the style of this production betrays the exuberant audacity of youth, its argument, nevertheless, displays surprising keenness. It came at a time when Spencer's deduction of the definite from the indefinite, of consciousness from "nerve shocks," and of morality from the laws of the redistribution of matter, still seemed plausible. Bowne's interest in exposing the fallacies of this whole method was largely religious. The ancient faith that the world has meaning, and that this meaning can be known, was to be defended. To maintain human freedom against the purely

TABLE II. PROPOSED SCHEME OF VALUES

| Object-Values. | Evaluation. | | | | Reaction-Values or Values of Organization. | |
|---|-------------|------------|---------------|---------------|--|---------------------------------|
| | Condition. | Function. | Process. | Satisfaction. | | |
| Factual values— Values of adaptation. | Interest | | | | Natural values of organization | Personal values of organization |
| Logical values— Truth. | | Judgment | Ratiocination | Pleasure | Science | History |
| Economic values— Utility. | | Desire | Utilization | | Industry | Law |
| Affective values— Agreeableness. | Feeling | Enjoyment | Play | | Friendship | |
| Ideal values— Values of harmony. | Love | | Contemplation | Happiness | Values of realization | |
| Esthetic values— Beauty. | | Taste | | | Art | |
| Ethical values— Goodness. | | Conscience | | | Morality | |
| Religious values— Truth. | | Faith | | | Religion | |
| Transcendental values— Values of perfection. | | | | | | |

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THE PARADOX OF VOLUNTARY ATTENTION

THERE are two ways in which will is commonly supposed to be related to attention: first, in the voluntary reproduction of ideas; second, in fixing attention. Upon examination, it will be observed that this division is exhaustive of the ways in which will may be concerned with psychical processes. In so far as there are voluntary processes of knowing, these owe their beginning and continuance to attention. If it should be admitted that there is direct voluntary control of the feelings and emotions, such restraint would be primarily due to attention. Consequently in determining the relation of will to attention, we are really determining the relation of will to every psychical process.¹

With respect to the first of the two divisions just noticed, it must be said that there is no direct reproduction or recall of ideas.² In order to attend to an idea, it must already be before consciousness:

¹ See Stout, "Analytical Psychology," I., pp. 123, 124.

² V. Hartmann, "Phil. d. Unbewusst," I., p. 247. Fichte, "Werke," II., p. 567. Lipps, "Grundtatsachen," p. 49. Höffding, "Psych.," p. 23. Cf. Wundt, "Grundriss der Psych.," p. 294. "Die Associationen sind demnach Erlebnisse, die ihrerseits Willensvorgänge erwecken können, selbst jedoch nicht unmittelbar durch Willensvorgänge beeinflusst werden."

and in order voluntarily to reproduce it, it must be attended to. That can not be voluntarily attended to or reproduced which is not known, that is, which is not before consciousness. It is thus quite evident that in order voluntarily to reproduce an idea we have to know what it is which is voluntarily to be reproduced. But there is also no indirect voluntary reproduction of ideas. Münsterberg has shown that if a certain idea *a* be associated with another idea *b*, so that when *b* is recalled the recalling of *a* follows, there is no will involved in the process. But he continues: "If on the contrary I can not think of *a*, search for it in my memory, recall the place at which I saw it, remember the connection in which I heard it, and at length *a* emerges in my consciousness, it was plainly will which brought to light that which was sought."³ But plainly the latter process does not differ essentially from the supposed direct reproduction of the idea. The question is not why *a* emerges, but why I search for *a*. I search for *a* not arbitrarily, but because an idea *b* has suggested some idea or group of ideas associated with *a*, yet not identical with it. According to Münsterberg's statement it would follow that my will to recall *a* must be a will to recall something indeterminate. To will to recall it, I must know what it is which is to be recalled. It is the idea with which *a* is associated which causes the emergence of *a*. For example, some one is asked to name the seventeenth letter of the alphabet. Very few could answer the question offhand. The letter desired is not discovered by summoning it *ex nihilo*, from the "storehouse of memory," but probably by counting off the alphabet until Q, the seventeenth letter, is reached. Experience teaches that ideas thus successively associated tend to suggest one another, and when the first of a known series has been represented, ideas associated in temporal contiguity may be represented. There has been a will to recall the seventeenth letter, but not to recall Q, otherwise Q would be present to consciousness. A given clue⁴ has been used, but the last result is involuntary. If there were no clue, the search would be vain: and the idea Q has emerged not because there was a will to have it emerge, but because an idea already before consciousness was associated with Q. If then one can not voluntarily reproduce a single idea and so pay attention to it, so neither can one voluntarily reproduce the ideas which are linked or associated with the idea sought. The associated ideas must be already present before that with which they are associated has been attained. When the latter are found it is not a result of volition, but the effect of association. The associated ideas, as has been shown,

³ Münsterberg, "Die Willenshandlung," p. 64.

⁴ Cf. Stout, "Analyt. Psych.," I., p. 47. Bain, "The Senses and the Intellect," p. 560. Jodl, "Lehrbuch der Psych.," p. 505.

were not voluntarily reproduced, and so the missing idea has not been voluntarily reproduced.⁵

If inference and reasoning be generically distinguished from the process of association and suggestion, then, as Münsterberg says, the reasoning by which a missing idea is reached, sometimes appears to be more voluntary than mere reflection, that is, there is more effort and "inner activity." But here evidently the question is not whether an idea can be voluntarily reproduced, but whether the process of reasoning can be voluntarily begun, that is, whether attention can be fixed upon it. From any point of view whatever, the beginning of the reasoning process is conditioned by an act of attention, and unless it is continued automatically as is often the case, it must be continued by renewed processes or acts of fixed attention.

Strümpell, who admits that an idea can not be directly recalled by the will, says: "On the contrary, will can indirectly determine the beginning of the train of ideas, in that first of all a general idea serves to give a direction to the involuntary reproduction, which excludes every other."⁶ As an example he gives the general idea "Latin word" which reacts upon the unconscious psychological content, and as a result, a particular Latin, not a German or a Greek word rises into consciousness. Yet here it is difficult to perceive that the will accomplished anything. The general idea is present, it is not voluntarily recalled, and the particular word which it suggests is not recalled; otherwise it would be unnecessary to have the general idea before consciousness to effect the suggestion. Strümpell holds also that the stream of thought may be reversed voluntarily, may be interrupted or brought to a conclusion. Strictly speaking, however, the mere idea of changing or stopping the stream can not be voluntarily presented to consciousness, and its changes lie beyond the control of the conscious subject.

The objection so often made to the introspective method in general is particularly forcible with respect to the introspective observation of attention. It is objected that in introspection we necessarily change the natural qualities of subjective processes. The attentive process is altered and distorted by the very attempt to attend to it. When any one is directed to fix his attention, what he generally does is to try to apprehend and understand the object: but this is really a rumination and wandering over the field presented to him. Or he may fix his attention more narrowly, in which case a very artificial and really inattentive state of mind ensues. In many cases, instead

⁵ See Uphues, "Psych. des Erkennens," pp. 141, 150, and Schwarz's inconclusive reply, *Archiv für syst. Phil.*, N. F., III., 3. Lasson, *Zeitschrift für Phil.*, 89, *Beigabeheft*. Lipps, "Tatsach.," p. 50. Strümpell, "Grundriss," p. 252.

⁶ Strümpell, "Grundriss," pp. 68 f.

of attending to the given object, he attends or tries to attend to the act of attention itself. Thus what he was to observe is likely to be misapprehended, and the way in which he tries to observe it leads him astray. Lalande reports the case of one who has the power of reproducing auditive experiences with such intensity that they seem objectively real: "but if at the moment of their greatest intensity the observer *wills to pay* attention, the sound immediately becomes confused and disappears."⁷ It is possible that some observers are able to conquer these difficulties: but unless I am much mistaken, any one who says virtually: "I will try to discover what happens when I fix my attention," fails to fix anything. His mind passes from the object attended to, to his own feelings, and then back to the object or to ideas associated with the object or with his own feelings. Thus the natural characteristics of attention are distorted. Paradoxical as it may seem, the more one is conscious of making an effort to attend, the less attention there actually is: and the more absorbed the attention, the less consciousness there is of the process and the more consciousness there is of the object attended to. Most of the qualities which psychologists describe as belonging to voluntary attention can be observed only in these highly artificial experimental cases. Normal attention has no defined subjective characteristics. Having made this kind of preliminary *caveat*, I shall consider somewhat more specially this subject of voluntary fixed attention.

The term "stream of thought," "stream of consciousness" [*Verlauf der Vorstellungen*]⁸ denotes at once the succession and the continuity of phenomena. They correspond to what Kant called the *matter*, the *manifold* of sensation. Whatever opinion may be held as to the more complex problems of conscious life, there can be no dispute as to the existence of this flowing stream. It is not the passing of separate units like soldiers in procession. The progress of the stream is continuous and the objects which make up the stream are coterminous. They do not pass in single file, but rather are crowded together in companies, sometimes in mobs, yet for the most part according to the general laws of association.⁹ The term fixed attention denotes an interruption of this stream. It implies that the observer may intrude upon the passing throng of ideas and stop it even if its direction can not be changed. In fixed attention, the procession seems to halt in order that one of its detachments may be inspected. In what does this supposed arrest of attention consist?

⁷ Lalande, "Sur un effet particulier de l'attention," *Revue Phil.*, March, 1893, p. 284.

⁸ James, "Principles of Psychology," Vol. I., passim. Von Volkman, "Lehrbuch der Psych.," I., p. 64. Lotze, "Logik," pp. 3, 4.

⁹ Cf. Jodl, "Lehrbuch der Psych.," p. 110.

The diffusion of attention is regarded as the normal state: the fixation of attention as the exceptional. And in the intelligent adult this is the case. But in some cases the reverse is true. The physiological or psychological principle underlying every act of attention is of course inhibition in order to concentration—the shutting out of irrelevant matter in order to examine some central point. Such inhibition would be superfluous were not consciousness made up of reaction on a multitude of stimulations. That which distinguishes the highly developed organism is the complexity of these reactions and the necessity of inhibiting the irrelevant field of consciousness, that the light may be thrown intensely on a certain limited area. If the organism had to react only upon a single stimulus, attention would be the rule, and inattention the exception. For example, perfect attention is presented in catalepsy where consciousness is shut up to a single idea. Just before returning from a cataleptic to a normal state, the mind seems exhausted and unable to fix in attention more than a single object.¹⁰ But when we consider the variety and complexity of stimulus and reaction in our own organism, it is easy to see that a great part of the time our attention is unfixed. At any rate, inattention and fixed attention are at opposite poles, and either may be regarded as positive according to the individual disposition. All that I would here affirm is that the stream of consciousness can be neither voluntarily arrested nor changed. The cause of fixed attention is not volition. The process is due wholly to the nature of the object attended to and the sensations and feelings associated with our consciousness of that object. These propositions are not easily accepted, but careful analysis gives assurance of their validity. Such an analysis shows that attention has a peculiar rhythmic character: and that what appears to be fixed is really intermittent and discontinuous. The object of fixed attention is not held stationary at the central point [Blickpunkt] of consciousness. As Wundt says: “to retain an idea with the attention is, moreover, as experience shows, impossible: the fixing of attention is thus a process, not a permanent state. A constant impression can be retained only during the alternating moments of fixed and relaxed attention.”¹¹ The object appears to be fixed for a moment, but in reality it is no more fixed than the rest of the flowing stream of which it is a part. It may return again and again in alternation with other objects. This alternation would probably be regular and perfectly rhythmic,¹² were it not for the complexity of the influences

¹⁰ Janet, “L’Automatisme psych.,” p. 192.

¹¹ Wundt, “Phys. Psych.,” II., p. 284; “Grundriss,” p. 252. Cf. Jodl, “Lehrb. der Psych.,” p. 112.

¹² For general notice of the rhythmic organic processes, see Paulhan, “Les lois de l’activité mentale,” p. 381.

which are required to make attention effective. In attention, then, the stream of consciousness is not arrested: and the object of "fixed" attention comes and goes, differing only from objects unattended to fixedly in that it reappears. There are physiological as well as psychological reasons for this. Chief among the former is the influence of respiration.¹³ It is a matter of common observation that when we pay attention to an object, we "hold our breath": and that usually the recurrence of expiration and inspiration is an occasion for the readjustment of attention. This is instinctive and unconscious, and is common to many of the lower animals and to man. When the attention is closely fixed, there is the breathlessness of suspense; when it is relaxed there is the sigh of relief—changes which of course are associated with cardiac action. It need not be added that fixed attention is impossible when the respiration is abnormally rapid. Moreover, during the process of attention, there is an involuntary effort to hold the body motionless, which modifies the breathing.

Attempts have been made to establish a law for these phenomena of fluctuating attention. This is difficult to do, because the variety of interruption is so great. Even when allowance has been made for disturbing external causes, account must be taken of the subjective feelings which modify the attentive process.¹⁴

The physiological causes which condition and modify attention are complicated with psychological causes. Attention oscillates between the point to which it is first directed and ideas associated with the latter. These intrude and, as it were, "elbow" the attention away from the original *Blickpunkt*. The case is like that of a man who is trying to hold an upright position in a swaying crowd. The greater his care to maintain himself on a certain spot, the greater the probability that he will lose his equilibrium. It is only by partially yielding to the movement of his neighbors, and by enlarging slightly the extent of his station, that he can keep his footing. In attending to very minute objects, this oscillation and alternation may be observed more distinctly than when the area of attention is wider: for the more extensive the field, the more room will there be for the mind to wander. If I try to fix attention on the point of a pin, the point of the pin will at once suggest ideas associated with it, and my attention is diverted: but if the object of attention be a wide surface, the tendency to inattention is less. If I try to fix attention on the

¹³ See Philippe, "La conscience dans l'anesthésie chirurgicale," *Revue Phil.*, May, 1899, p. 509.

¹⁴ Delabarre, *Revue Phil.*, June, 1893, p. 639. J. E. Lough, "Proc. of the Am. Psych. Soc.," December, 1898. Stricker, "Studien über die Bewegungsvorstellungen," p. 25. Giessler, "Die Atmung im Dienste der vorstellenden Tätigkeit."

multiplication table, there is a comparatively wide field over which my mind can stray without getting away from the limits of the object. But if I try to fix attention on a certain number, then the longer the continuance of the process, the more considerable the alternation and fluctuation. The material to which one attends is, as it were, quickly exhausted. It is, however, the rapid dissipation of attention from the original point to ideas associated with it which seems to make the object more clear. When we attend to an unfamiliar object, it is difficult at first to determine its relation to other objects, to affirm *what* it is even after we are aware *that* it is. Whether this increasing clearness be attributed to apperception, to a reflective judgment or to association, it is not the *fixity* of attention which clarifies it, but rather the prolonged alternation between the object and ideas associated with it.¹⁵ It may be objected that the constant return of attention to the original point is effected voluntarily: but if fixed attention were under voluntary control, then whenever this return took place there would have to be a will to attend to that upon which attention had ceased to be engaged, a will to recall what was not present to consciousness. As has been proved above, this is impossible. It can not even be maintained that at the very beginning of the process there is a voluntary fixation of the process: for that means simply that we will attend to that which is already involuntarily an object of attention.

Külpe¹⁶ defends the proposition that the will can modify the course of ideas. His criticism is directed against the statements of Lipps,¹⁷ who holds that unconscious factors may determine the direction of our thinking. But the grounds of his criticism are unsatisfactory. He asks what difference there would be between conscious orderly thinking and the disorder of dreams, if the stream of thought were not determined by the will; and what would distinguish action with a purpose from the half deliberate, half automatic movement of our limbs? I confess that I can not see what the intrusion of the *will* would have to do with the matter. The explanation of the differences just referred to is quite independent of voluntary attention and voluntary movement. If will be characterized as Külpe affirms, chiefly by conation or effort [Streben], then the latter is quite as prominent in dreams as in waking. Indeed, the most distinctive symptom of nightmare is the fruitless effort of which the dreamer is conscious. Dreaming is disordered and fantastic not because we dream involuntarily: but, on the contrary, that which keeps our

¹⁵ On the origin of this oscillation, see Münsterberg, "Beiträge," II. Pace, *Phil. Stud.*, VIII.

¹⁶ Külpe, "Die Lehre vom Willen in der neueren Psychologie," pp. 33 f.

¹⁷ Lipps, "Grundtatsachen," p. 49 f.

thoughts, in a waking state, from becoming dreams is the effect of influences which we have no part in producing. As for the half automatic, half deliberate acts, they are distinguished from conscious deliberate acts by the presence of a purpose and the feelings which accompany it. But Külpe insists further that the "activity" of psychical processes is not unconscious, but conscious, and must have a consciousness as its vehicle [Träger]. The latter he finds in will. "What do I know of the unconscious?" he asks. "My consciousness is my actuality, in my consciousness I experience activity, and this inferred that the only interruption of the stream of consciousness must be caused by conscious volitions: but how do the latter happen to occur? Irrespective of any view which may be taken of the unconscious, it is irreconcilable with our every-day experience to suppose that each idea can be traced to its source—that its cause experience I call volition."¹⁸ From such a statement, it might be must have been an object of consciousness.

From the consideration of the general subject of voluntary attention, as given above, I conclude that neither in the recall of an idea nor in fixing an idea which has been recalled, is it possible to prove that will as a special psychical process has any part.

It may be objected that the conception of the will here adopted is too narrow, and that psychical activity of every kind involves will or is an expression of will. To reply at length to such an objection would take me beyond the modest limits of this article. But to predicate will of all psychical activity is to presuppose that will has already been observed as a concrete datum of consciousness. Aside from the fact that it is very doubtful whether there is such a datum of consciousness, there seems to be no more reason to say that psychical activity is will than to say that psychical activity is knowing or feeling.

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SOCIETIES

THE FIFTH ANNUAL MEETING OF THE SOUTHERN SOCIETY FOR PHILOSOPHY AND PSYCHOLOGY

THE Southern Society for Philosophy and Psychology held its fifth annual meeting at Charlotte, North Carolina, on Tuesday, December 28, 1909. It met in conjunction with the Southern Educational Association. The meeting comprised two sessions, forenoon and afternoon. About one fourth of the members were in attendance. The range of the topics presented by the papers and the character of the discussions which followed marked this as one of

¹⁸ Külpe, *ibid.*, p. 34.