

A SUGGESTED CLASSIFICATION OF CASES OF ASSOCIATION.

THE discussion of that underlying fact of consciousness, popularly known as the "Association of Ideas," has usually centred in a classification of the kinds of association. The ordinary division into "Association by Contiguity" and "Association by Similarity" involves such misconceptions and makes such false assumptions that there is a growing tendency to reject it in favor of one more accurate and more discriminating.

The most fundamental error of the ordinary classification is a sort of "prophecy after the event." The connection between one object of my consciousness and a succeeding one cannot be explained by their contiguity since, as objects of *my consciousness*, they cannot be said to be contiguous until they have succeeded one another, that is, until the association is already a fact. In the same sense, objects of consciousness cannot be associated by their similarity, since similarity can be predicated of them only when the association is already accomplished.¹

In fact, this classification involves either a consistent restriction of psychology to the standpoint of common realism and a restriction of association, as Dr. James says, to things not to thoughts; or it involves the baseless assumption of the Associationists and of the Herbartians, that states of consciousness are psychic entities, that they have an independent existence and may be revived.

The Associationist doctrine has been so thoroughly discussed that one need not defend oneself for rejecting, at the outset, a theory which directly contradicts the testimony of consciousness and makes assumptions which it never recognizes. The opposite theory which treats association as a connection of material

¹ Cf. for admirable and extended criticism of these "laws," F. H. Bradley, *Principles of Logic*, Bk. II., Pt. II., c. I. Cf. also Ward, *Enc. Brit.*, XX., p. 60; and W. James, *Psychology*, I., p. 591 *seq.*

objects not of psychic phenomena, has the merit of avoiding, or of ignoring, the most dangerous pitfalls of the argument; and one is sorely tempted to restrain the discussion within the limits marked out by the assertion that things, not thoughts, are associated. But it is difficult to think very clearly or very long with the assumption that things are independent, extra-mental objects, completely separate from consciousness; and yet only some such implication gives this theory its air of common-sense reality. Besides, if one insist on limiting association to things, one falls into the error involved in the last part of the expression, "association of ideas." There may be associated emotions or associated feelings-of-effort, as well as associated cognitions; and an emotion is too subtle to be bound down to a "thing." Dr. Scripture's experiments in association¹ prove that the perception of an object may be followed by the vaguest sort of emotion, unlinked to any definite cognition.

A second error, imbedded in the ordinary classification, is its tendency to include under association undoubted facts of consciousness, which nevertheless are not aspects of association. This mistake may be traced to the altered theory, held by later psychologists, concerning association by similarity, which they treat as synonymous with the assumed identity of a present with a past object of consciousness.² If this were association by similarity, it would properly be called, as by Mill by Spencer and by Bain, the basal sort from which all other kinds are derived. But the fact is that the relation involved is one of the identity, not of the similarity, of the earlier and the later objects of consciousness; and identity, whatever the sense in which it is true of phenomena of consciousness, is not association.

Truth to tell, we cannot well define association nor classify its varying cases unless we clearly recognize what we do not mean by the term. Association presupposes succession and recurrence, but association *is* neither one. Association may

¹ Vorstellung u. Gefühl, E. A. Scripture, Wundt's Philosophische Studien, 1890.

² Cf. J. S. Mill's Notes on James Mill's Analysis of the Human Mind, I., § 11; cf. also Spencer, Psych., I., p. 270; Bain, Sense and Intellect, p. 458.

exist with a persistence of certain relations of consciousness, but association is not persistence. Association, finally, is not a sort of psychic force or agent; it is simply the *fact of a connection* which always exists between succeeding, recurrent objects of consciousness¹ (when the second is not an object of perception).

This fact of recurrence, the obvious presupposition of association, is that which has been falsely treated as association by similarity. It is the fact involved in the assertion, "This object — this feeling — this effort — is *the same* as that earlier one." Association never exists unless the associated objects of consciousness are, in whole or in part, "the same" as preceding ones,² which may, in this sense, be said to recur. It is therefore necessary to examine more closely this supposed recurrence, this assumed identity of a later with an earlier object of consciousness. In what sense is it true; to what extent is a present experience identical with a past experience?

The answer to this question requires the delayed analysis of the object of consciousness. An object *as known* includes, at first sight, the sensations which are peculiar to it. But the identity, which we are seeking to explain, can be no identity of the particular sensations of the present with those of the past. For these sensations have no permanence, they are of the moment, they have no vitality which should bring them to life again. My present cognition of an object is a materially different fact from my yesterday's cognition.

¹ I use this term, throughout, to avoid the Associationist implication of the expression "state of consciousness." A further advantage of the term seems to me to be this, that it readily lends itself to the realistic interpretation "thing," and to the theory of the "association of things," which is true as far as it goes (just because it makes no claim to be sufficient), and which may be a useful way by which to approach the study of association.

Ultimately, the object of consciousness must be analyzed into particular elements or sensations and universal relations of consciousness.

² Recognition by the individual consciousness that the "associated objects" are identical with some which precede is of course unnecessary. This is well shown by Dr. Scripture's careful experiments (*cf.* *Über d. associativen Verlauf d. Vorstellungen*, Leipzig, 1890), among which occurred repeated instances of correct association, though the associator had completely forgotten his former perception of the associated objects.

Yet the fact of some sort of recurrence, of an assumed identity, remains. How shall we explain the assumption, the fact that we call the new phenomenon of consciousness "the same" as one which has preceded it? The only answer is this: the identity or recurrence belong to the form, as distinguished from the matter, of consciousness, to the permanent relations, as distinguished from the changing stuff, to the universal as distinguished from the particular. In other words, one can never have the same sensations in the present as in the past, but one may be conscious "in the same way," at different times.

A final presupposition of the fact of association is that of the identity of the subject. The same "I" must exist if there is to be consciousness "in the same way" or "of the same object." A discussion of the nature of this I would, of course, be an unwarranted intrusion of metaphysics into psychology, but the existence of a consciousness, in some sense continuous, is presupposed by the fact of those permanent relations of consciousness which, in turn, are necessary to explain the assumed identity, the recurrence, of objects of consciousness.

This entire introductory discussion may be summarized briefly, after the following fashion:—

ASSOCIATION.

§ A. FUNDAMENTAL CHARACTERISTICS OF CONSCIOUSNESS.

A. Characteristics of states of consciousness (in so far as they are single, psychic events):—

Succession } (*without* recurrence or persistence).
Change }

B. Characteristics of objects of consciousness:—

(NOTE.—The object of consciousness must ultimately be analyzed into (1) Sensations (2) Permanent relations of consciousness. Both persistence and recurrence are true only of the latter.)

Either I. Succession.

a. The succeeding objects of consciousness are

1. Objects of perception (always more or less "recurrent").
2. Objects of memory, imagination, *etc.* (obviously "recurrent").

- b.* The connection which always exists between the succeeding, recurrent objects of consciousness (when the second is not an object of perception) is association.

Or II. Persistence.

Or III. Persistence and Succession.

We have virtually recognized, by the definition which has just been given of association, that the fact is an ultimate one, but the manner of this connection demands a closer explanation. The law — that is, the generalized fact — of association is simply this:—

The succeeding objects or partial objects of consciousness,¹ as x' and y' , are assumed to be respectively identical, with preceding objects or partial objects of consciousness, x and y ; and these earlier objects, x and y , have stood to each other in a relation of coexistence or of succession.

The “laws of association” have reduced themselves to this expression of a fundamental fact, but they still must be held to embody some real distinction in the varying cases of association. The characteristic difference which is, in fact, crystallized in these obstinate expressions “contiguity” and “similarity” is perhaps best indicated by Wundt’s terms, Intrinsic and Extrinsic Association. This will be admitted, if one return, for the moment, to the every-day, unphilosophical point of view. Certain objects associated are connected in what we call their essential or inner nature; they are externally or accidentally related. Between the white snow and the white rose there is a more intimate relation than between the rose and the bee which lights on it; between Chopin’s music and Del Sarto’s painting there is a truer, if a subtler, connection than that between the picture and the canvas on which it is painted, or than that between the music and the instrument. It is this latter, external, accidental sort of connection which is called association by contiguity, and the subtler, more intimate sort

¹ This formulation retains, for convenience, the term “object of consciousness,” which, however, may be replaced throughout by an exacter expression. The “law” may, for example, begin as follows: “The whole or part of the succeeding cognitions, emotions or volitions, x and y , are assumed to be respectively identical (in their permanent relations) . . .”

is association by similarity between objects or thoughts or feelings which are called similar.

The external sort of association ("by contiguity") is evidently described (not explained) by our law of association; the connection between a psychic phenomenon, x' , and that which follows it, y' , is such as implied in the facts that they are respectively identical with a preceding x and y , which were successive or coexistent. Suppose now that I look at my opal ring and then think of a certain April sunset and of the evening landscape, though I did not own the ring last April and have had no continuous or simultaneous consciousness of ring and sky. What, in effect, is the link between these thoughts of the stone and of that evening in the country? It is evidently the faint flush of the opal which suggests the rosy color of the April sky and then the color of the deeper-toned clouds, the shadows on the hillside, the chirp of the birds and all the delights of spring scenery. But this differs in one point only from the cases of external or "contiguity" association. Clouds, birds, trees, and hills were simultaneously or successively perceived, on that April evening; the one connection which is not an external one is that between the rosy ring and the rose-colored cloud; and this is a case not of the connection between two succeeding objects of consciousness, but of the persistence of one. When I look at my ring, I have a complex object of consciousness (wxy), including oval form, many colors, remembered impenetrability and smoothness. Many parts of this complex object of consciousness disappear, but I remain conscious of this one quality, pinkness; the accentuated thought of it is followed by the thought of the other qualities of a cloud, in accordance with the ordinary law of association; and the thought of the cloud is succeeded in the same way, by the images of sky, of trees, and of hills. Or, in symbolic terms, the object of consciousness wxy is followed by yza . This persistence of the identical factor¹ (the y common to wxy and to yza) is that which distinguishes (so-called) association by similarity from association by con-

¹ The identical factor, a quality or combination of qualities, is of course a permanent relation (or permanent relations), a "universal."

tiguity, and this distinctive feature is, strictly speaking, no form of association at all, and certainly no similarity.

Mr. Bradley¹ has enforced this view in his careful and interesting chapter on association. Dr. James admirably states it and elaborates the physiological correlate of "association by similarity," that is, the continuance of the first brain-excitation after the radiation of energy into the surrounding brain-tracts.

Dr. James's classification suffers from the retention of the old nomenclature with which his own scarcely tallies.² He identifies "association by contiguity" with the fundamental fact of association. He shows also that the significant feature of "association by similarity" is this persistence of an accentuated part of the object of consciousness. But he emphasizes, especially from his physiological standpoint, the quantitative distinction³ in cases of association,⁴ which he expresses by the terms total, partial, and focalized Recall. "Association by similarity," with its characteristic persistence of an identical element, is treated as synonymous with focalized recall.⁵ The fact is, that association with persistence ("by similarity") admits the distinction of degree and may be total or partial as well as focalized. A combination of qualities, — even that combination of qualities which we call thing, — or that mixture of cognition, emotion, and volition which forms the total object of consciousness, may persist. For instance, a lump of sugar by its whiteness quality may remind me of a white elephant (a case of focalized association); or by a combination of its whiteness, sweetness, and nourishment qualities, it may suggest angel-cake; or, finally, the whole lump may remind me of that lump with which I sweetened my yesterday's coffee. These last are instances of partial association through the persistence first of a group of qualities, next of a thing. If the sight of the whole breakfast-room be followed by the visual image of yesterday's breakfast-table, with the same setting and in the same surround-

¹ F. H. Bradley, *op cit.*

² Cf. Dr. James's own note on this discrepancy. *Psych.*, I., p. 578.

³ Cf. Scripture, *Über d. associativen Verlauf der Vorstellungen* (Leipzig, 1890), p. 43 *seq.*

⁴ *Psych.*, I., p. 581.

⁵ *Ibid.*, I., p. 578.

ings, the association is practically total. Yet all these examples fall under the head of persistent association ("by similarity") which, evidently therefore, cannot be narrowed down to include only cases of focalized redintegration.

We may present the results of our discussion in the following summary :

§ B. ASSOCIATION PROPER.¹

A. Preliminary facts.

- I. *a.* Recurrence of objects of consciousness.
- b.* Physical correlate : —
 Stimulation of brain-tracts already stimulated.
- II. *a.* Identity of the subject.
- b.* No physical correlate.

B. Classes.

- I. *a.* Desistent or } Association = Association proper.
 External }
(No part of the earlier object of consciousness persists.)
1. Total Association.
2. Partial Association.
- b.* Persistent or } Association = Desistent Association
 Internal } *with* Persistence.
(Some part of the earlier object of consciousness persists.)

1. Total Association.

- (a) Of Assimilation (x' and y' belong to the same object.
 NOTE. — This may be a case of purely physiological association.
- (b) Of Successive Association (x' and y' are different things).

2. Partial Association.

The persistence is

- (a) Of an object.
- (b) Of a group of qualities.
- (c) Of a single quality = Focalized Association.

NOTE. — These are cases of (so-called) Association by Similarity.

The observed similarity may be

- (1) Of Resemblance.
- (2) Of Contrast.

II. *a.* Involuntary Association.

b. Voluntary Association.

C. Cerebral Correlates.

I. (In general.)

- a.* Stimulation of a brain-tract (as p), already stimulated with others (q and r) or immediately after them.

¹ This summary is arranged to follow that of pp. 392, 393.

b. Radiation of stimulus from *p* (stimulated for the second time), into *q* and *r*.

II. In Desistent Association.

a and *b* (as in I. above).

c. Cessation of neural activity in the brain-tract *p*, before the activity spreads to *q* and *r*.

III. Persistent Association.

a and *b* (as in I.).

c. All or part of *p* must remain stimulated, during stimulation of *q* and *r*.

NOTE: 1. In cases of Assimilation, *p*, *q*, and *r* must have been originally simultaneously stimulated.

2. In cases of successive Association, *p*, *q*, and *r* may have been successively stimulated.

D. Secondary Laws of Association.¹

(Principles of connection between particular objects of consciousness.)

I. "Suggestiveness"² of portions of the object of consciousness is through *a.* Interest.

b. The number of them.

II. "Suggestibility"² of objects of consciousness is through

a. Interest.

b. Recency.

c. Frequency { 1. Of recurrence.
2. Of recurrence in the same connection.

The names which I have given to the different sorts of association demand explanation. The distinguishing fact is the presence or absence of persistence with the association. So the name Persistent Association seems fairly applicable to what is known as Association by Similarity, though strictly speaking, since the persistence is not a form of association, it should not be co-ordinated with association proper. An appropriate opposite to the term is hard to find, and I have ventured to suggest Desistent Association. The names Total, Partial, and Focalized, for the subdivisions of the general classes, are given by Dr. James. In cerebral terms, "the difference between the three kinds of association reduces itself to a simple difference in the amount of that portion of the nerve-tract supporting the going thought which is operative in calling up the thought,

¹ The consideration of these "secondary laws" has been omitted from the text.

² These terms are employed for convenience and must not be understood in any "dynamic" sense. They refer to probability, not to necessity, of sequence.

which comes.”¹ I have used the expression “cerebral correlate” to avoid such an implication of cerebral causality as is not justifiable in a description which is in terms of consciousness. One has no right to deny the possibility of a physiological cause of the phenomena of individual consciousness, but neither can one properly assert it.

These classes cannot be distinguished by hard and fast lines of separation. Whether any case occurs of absolutely total association, in which every factor of an object of consciousness has its correlate in a succeeding one, is in fact very doubtful. But if the sight of a house is followed by the thought of its architect this approximates to a case of total, desistent association; if my attention concentrates itself upon the porch of the house, so that my next thought is of the person with whom I talked as I stood there, an hour ago, the association, this time, is still desistent (of “contiguity”), but partial.

The classification of persistent association is a similar one. Its distinctive feature, as we have so often said, is the persistence of an identical quality, or group of qualities, which is thus a common factor of both terms. So, in total persistent association, the whole of the first object of consciousness remains as part of the second, as in the frequent instances when the sight of an empty room is followed by the thought of the same room filled. Cases of total, persistent association are often instances of exact memory, involving (practically) perfect identity except of time. Wordsworth’s *Gipsies* offers a good example :

Yet are they here the same unbroken knot
Of human beings in the selfsame spot!
Men, women, children, yea, the frame
Of the whole spectacle the same.

Such cases might seem to be instances of mere persistence, involving no association, were it not that the recognition of past time is always connected with the memory of some thing, some feeling or some effort, which does not “recur” in the present. One would never differentiate the present from the past percep-

¹ Psych., I., p. 581.

tion of an object, but for the memory of some environing circumstance, or of some shade of feeling, which does not recur in the present experience. The verses which follow those already quoted from the *Gipsies* illustrate this :—

Only their fire seems bolder, yielding light
 Now deep and red, the coloring of the night.

* * * * *

Twelve hours, twelve bounteous hours are gone, while I
 Have been a traveller under open sky,

* * * * *

Yet as I left, I find them here.

The cerebral correlates of these intellectual processes are readily hypothesized. The general brain-state corresponding with the fact of association is stimulation of a brain-tract already stimulated and radiation of the activity, through paths already worn, to other brain-tracts which have been stimulated in connection with the first. Münsterberg¹ insists that the stimulation of the tracts must originally have been at least partially simultaneous, and in the perception of an object through several senses, the stimulation of visual, auditory, and tactual centres probably is simultaneous; but it is at least conceivable that, in the case of desistent or external association (of “contiguity”), the tract first stimulated may return to its normal condition before the neural activity of the others begin. If this be not true, then there is no fixed cerebral distinction between the two sorts of association, for in the case of persistent association (of “similarity”) the whole or part of the tract first stimulated must continue in vibration with the later one.

Unless Münsterberg be correct, there is therefore a further cerebral difference corresponding with the difference between the ordinary successive association and simultaneous association (or assimilation). We may assume that, in the latter case, the tracts re-stimulated were originally stimulated together; that, in the former, they were successively stimulated.

¹ Zeitschrift der Physiologie u. Psychologie d. Sinnesorganen (1891), Band II., p. 99.

Finally, we are not to forget that all this, however probable and "saisissable par l'esprit," is, after all, hypothesis, and that, for so necessary a presupposition as that of the identity of the subject, there is no neural parallel.

Of course the associative processes of our ordinary conscious life do not follow dutifully the beaten tracks which we have marked out. A given train of thought is seldom a perfect example of any one kind of desistent or of persistent association, but rather an illustration of both sorts, in varied combination. For instance, the sight of the desk at which I write may be followed by the thought of the brother to whom it belongs; after pondering upon my brother I may remember his thesis on German literature and his characterization of Lessing. This, of course, is still desistent association, but if I next find myself thinking about Dionysios of Halikarnassos, this is evidently a case of persistent association, for the connection between the thoughts is genius-in-criticism, which is possessed by Lessing and by Dionysios, and is therefore a persisting element of both thoughts. If I next think of truth, it is because of a certain apt comparison, made by Dionysios, between truth and grace of style, — and now I have returned once more to desistent association. I may finally interrupt myself in an involuntary shudder at the memory of the artificial, French funeral-wreaths, and may remember that my succeeding objects of consciousness have been: Pilate's question, "What is truth"; the nature of truth (a case of persistent association in which the observed similarity is a resemblance); the ethical problem of the possible justification of a lie (an instance of persistent association in which the similarity is, superficially, a contrast); the story of the *Sœur Sulpice*, Victor Hugo, his tomb in the Pantheon, the funeral wreaths which I saw piled up on its porch (cases of desistent association, except the first and the last). Of course the greater part of our trains of thought are illustrations of this sort of mixed association, and what we call the links of thought are by turn subtle and explicit.

One interesting suggestion from these various illustrations is the comparison, often attempted, of the intellectual values of

the two sorts of association. Bain¹ was first to announce the pre-eminent intellectual importance of "association by similarity," and to rank it as the characteristic of genius and of mental ability. "Whatever the difference may be," Dr. James says,² "it is what separates the man of genius from the prosaic creature of habit and routine thinking."

The closer description of association by similarity as persistent association has already shown the impossibility of making this generalization too positive. The word-associations³ which are also persistent are examples of such cases of association which require no more intellectual acuteness than the simplest instances of desistent (contiguity) associations. To think "tariff-reform" when some one says "tariff" is proof of no subtler endowment of mind, than if I think "reform" simply, though the first is through a persistent, and the second through a desistent, association.

The real distinction — so far as it is involved in the process of association — between the brilliant and the ordinary intellect is indicated in the difference, between total (or nearly total) and focalized (or nearly focalized) association, that is, between the association of objects and the association of qualities. This is the sort of association which is at the root of all figurative language and is illustrated in poetry of every form. No one save a poet, at sight of a daisy, will be reminded, in quick succession, of

A nun demure, of lowly part;
Or sprightly maiden, of love's court.

* * * * *

A queen in crown of rubies drest;
A starveling in a scanty vest;

* * * * *

A little Cyclops, with one eye
Staring to threaten and defy,

¹ Sense and Intellect, p. 493.

² Psych., I., p. 583.

³ On the importance of word-associations *cf.* Wundt, *Physiol. Psych.*, II., p. 377 *seq.*; and Trantscholdt, *Philos. Studien*, I., p. 216 *seq.*

* * * * *

A silver shield with boss of gold,
That spreads itself, some faery bold
In fight to cover!

Dr. James recognizes this fact and illustrates it. "The higher poets," he says, "all use abrupt epithets, and, as Emerson says, sweetly torment us with invitations to their inaccessible homes."¹ Genius—from the association standpoint—is thus association through the concentration of thought upon the subtlest and remotest elements of its objects and then the successive recognition of these elements in ever widening circles of life.

One important distinction has not yet been made: that between Spontaneous and Voluntary Association. Aristotle was first in this discussion as in so many others. His theory of association has chief reference² to recollection (*ἀνάμνησις*) or willed redintegration, and applies certainly, but only incidentally, to the involuntary sort. The whole process, which St. Augustine³ and Hobbes⁴ and Mr. Hodgson⁵ and especially Dr. James⁶ have described at length and illustrated, is really indicated in Aristotle's one word *θήρευσις* (the chase). It is the effort to recall something forgotten or to discover something which we do not know. In either case, we of course know something about that which we call "entirely forgotten" or "unknown," else we should not be aware of our own ignorance. We know what other phenomena of consciousness are related to this which we seek and we know something of the relation. The method of recollection is the same in both cases: simply the accentuation of the related phenomena,—and, for the rest, a blind reliance on this ultimate, unexplained fact of association, which, whether it be psychical or physical or both, we certainly do not further understand.

MARY WHITON CALKINS.

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¹ Psych., I., p. 582.

² Περὶ Ἀναμνήσεως.

³ Cf. Confessiones, X., 19.

⁴ Cf. Leviathan, Part I., c. 3.

⁵ Cf. Theory of Practice, I., p. 394.

⁶ Cf. Psych., I., pp. 583-590; also I., p. 251 and II., pp. 562 seq.