M I N D

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—ON 'ASSOCIATION'-CONTROVERSIES.

By Professor A. BAIN.

THE history of the psychological doctrine, named familiarly the Association of Ideas, has now been fully given by various writers, the latest and completest summary being the article by Prof. Croom Robertson in the *Encyclopædia Britannica*, vol. ii.

Like all the higher generalities of mind, these laws need not only to be verified by facts, but to be guarded by proper language, a matter of no small difficulty considering that we have to rely upon terms of common life wholly unsuited to such lofty applications.

By Association has always been understood in a general way, that the recall, resuscitation or reproduction of ideas already formed takes place according to fixed laws, and not at random. The assigning of these laws was the first contribution to a science of the human intelligence; while the ultimate shape given to them, whatever that may be, will mark the maturity of at least one portion of that science.

The name further implies that the mental reproduction is ruled by certain assignable principles of connexion or relationship between our mental elements, such that the

one now present restores another not present, yet related according to one or other of the supposed relationships. Thus a word recalls the thing named, by a law of association founded on the frequent concurrence or proximity of the two in the consciousness.

The classifications of these supposed bonds of relationship among ideas are various, and need not be repeated further than to say that two relationships have survived in nearly every classification : I mean Association by Contiguity, and the law of Similars or Similarity. These have a commanding importance in all the schools of Associationists. Contrast is also admitted as a reproductive force, but, however viewed, is unable to take the same rank as these others. I shall advert to it presently.

After a survey of the leading controversies that have clustered round these laws, I mean to devote a considerable space to the problem now uppermost among psychologists, as connected with the terms Attention and Apperception ; taking for the text Wundt's recent handling in his work on Logic. The settlement of this problem unavoidably re-acts upon all the other controversies.

I. The Terminology of Association.

This subject is included in Hamilton's elaborate Note, in his *Reid*, on the history of ' Association '. His objections to the main word itself are (1) that it implies Co-existence, or a connexion between co-existences already known, and (2) that it supposes a bilateral and equal correlation. Also the words, Chain, Concatenation, Series, Train, Movement, are each more or less unsuitable as the leading term for the various operations to be comprised under it. On the whole, Hamilton thinks that "as among the earliest, so perhaps the *best* terms for the process of reproduction are to be found in Suggest, Suggestion, Suggestive, Co-suggestive, with their conjugates". The metaphor originally perceptible in these words has now disappeared.

Undoubtedly any appropriateness in the term Association is confined to the law of Contiguity, under which the companionship of the related ideas is at its maximum of fulness ; seeing that the occasion of their coming together by a process of resuscitation is their being more or less frequently together previously. In Similarity, the resuscitation is not preceded by any previous companionship : the two members that have come together, as a consequence of their resemblance, may have been at the greatest distance from each other in our former experience. Hence, for Similarity,

the word Attraction would be the most apposite, while unsuited to Contiguity.

II. Whether, or how far, the prevailing enumeration of the laws of Association exhausts the powers of Intellect?

This is to be the final question of the paper; and it is adduced here with a view to a partial clearance of the way.

I say, then, that no enumeration of these laws expresses everything that is properly included under Intellect. For, in the first place, it is conceded on all hands, with mere variety in the statement, that Discrimination is a fundamental property of our intelligence, quite as much as any process that can be referred to laws of Association; it comes with the earliest germs of mental life, and accompanies it unceasingly to the last. It plays a part in the formation of the ideas, images or elements that are pre-supposed in Association. (See Hamilton's *Reid*, p. 243, n.) Unless it be Contrast, none of the commonly assigned associating principles expressly recognises it; while any of the received definitions of Contrast must be greatly widened to embrace the operation in all its breadth.

I hold, then, that, in any complete view of Intellect, Discrimination must be ranked as a primary attribute; while it is the business of Psychology to trace its consequences to the uttermost.

In the next place, the law of Contiguity, if defined as a power of associating into one mental group *two* or more discrete members, is not wide enough. The intellectual property that it expresses is equally operative in the formation and the persistence of the ideas themselves. In all probability, the simplest idea is already a complication; and its parts are bound into a mental unity, or whole, by the force underlying contiguous adhesion. But even if this be not so, repetition, continuance, attention—the circumstances that operate in maturing our strictly contiguous growths—are needed to make the simplest idea self-subsisting, as the idea of a sweet or bitter taste, a smell, a soft touch, a melodious sound, a colour. It is common for writers on Psychology to treat of the formation of the idea before entering upon the associating principles; this is simply an expository convenience. The state of the fact is admitted by Mr. Sully, when he assigns the very same conditions of reproduction to single images and to the linking of these in composite groups by contiguous adhesion. There is, in truth, but one law at the foundation of this reproductive process; but as the term Association is inapt to express the self-subsistence

and reproduction of images, another term is desirable. In other words, the process of converting the Sensation, or primary Impression, into the Idea, supposes the very same psychical force as that expressed by the law of Contiguity.

III. Is Contrast to be regarded as a distinct and independent law of Association ?

Contrast is a comparatively rare and exceptional bond of reproduction. We cannot make six transitions of thought without involving the other two laws—Contiguity and Similarity, but we may be hours and days without acting upon Contrast. Hamilton and others, including Lotze, regard the relation of contrariety or contrast as equivalent to correlative parts of the same whole. A much bolder use of this explanation is made in dealing with the question next to be considered, and I do not discuss it here. I merely remark that while co-relatives, as light and dark, up and down, virtue and vice, readily suggest each other, I feel no difficulty in referring the process to the other laws of the mind. Lazarus suggests conjointly Dives, Abraham's bosom, and the place of insufferable heat; and though one of the three links is of the nature of a contrast, yet in that too probably Contiguity is the operative resuscitating bond.

IV. Whether Contiguity and Similarity may be reduced to one statement ?

This is a far more serious consideration. Various attempts have been made to merge the two in a single principle. Hamilton, in the *Reid*, refutes some of these attempts, and affirms as ultimate the two principles—Repetition, under which he places Similarity, and Redintegration. In the *Metaphysics* (Lect. xxxi.) he holds that the two laws of Simultaneity and Affinity are carried up into unity, in the higher law of Redintegration or Totality.

According to Lotze, Similarity and Contrast are associations of impressions that are either parts of a simultaneous whole or parts of a successive whole. So that with him, as with Hamilton (in the *Metaphysics*), the concurrence of parts of the same whole is the ruling principle of reproduction, explaining alike Contiguity, Similarity and Contrast.

I must, therefore, make some remarks upon the method of regarding the entire compass of Association as the revival of a whole or totality on the presentation of some part of that whole. Such cases no doubt exist. After we have been familiarised with any complicated object, made up of definite parts, as an animal body, or a machine, when we

see one of the parts or members we are reminded of the entire body or machine. It is thus that Owen reconstructed extinct animals from a few bones. Nay, further, any loose collection or aggregate, if it is persistent and familiar, will be brought to view on our seeing one of the individual objects: as pictures in a gallery, or books in a library, or members of a household. All such would be ordinary examples of the law of Contiguity. But that law is not dependent for its operation on the objects being either united in an organised body, or made up into a grand whole. I imagine that the essence of the law is to couple each thing with the one standing next, and therefore succeeding to it in the view, and to have no regard to the multiplicity needed to make up a collection. The process is not in a state of suspension till we can bring up a sufficient number of things to make a recognised bundle or whole. To say that when I have learned to connect the English word 'king' with the Latin 'rex,' I am proceeding from a part to a whole is to stretch the meaning of part and whole beyond all usage; to introduce into the conditions of Association an alien circumstance, something never taken into account as a condition of memory. We explain a failure in effective association, by want of frequency, want of attention, or want of plasticity at the time; not by want of some grand total or collection to place the thing in. The most vagabond or isolated fact can be associated if there be any one obtainable handle. Association needs two things, and needs no more; yet every assignable couple is not necessarily a whole. I could learn half a sentence without going further. If I were to complete it, the sense would undoubtedly be a help to the memory, but would not vitiate the association of the incomplete half.

More abstruse is the question whether Similarity can fall under Contiguity in any mode of stating it. Of the various attempts to make this resolution, I will advert to the two most recent, the one by Mr. Ward, and the other by Mr. Bradley. For my own part, I still adhere to the essential separateness of the two principles; for although they concur more or less in actual working, they are the starting-points of widely different mental movements: the one class going out in the direction of routine or use and wont, the other leading to new assemblages of ideas in such forms as classes, generalities, imaginative comparisons, strokes of practical invention, and so on. Prof. Croom Robertson and Mr. Sully concur in the recognition of their distinctness.

The position of Mr. Ward, as well as of Mr. Bradley,

involves the absolute denial of such a state of mind as the consciousness of agreement. Now in cases of extreme remoteness of the objects brought together, there is a burst of excitement, which I have often called the flash of similarity, and which Mr. Ward treats as a pure fiction. The great classical instances of discoveries of generalisation, such as the Newtonian fetch involved in rising to universal gravity, cannot, I consider, be received by any mind in the same terms, and with the same emotion as an ordinary routine train of contiguous association; for example, the phases of the moon as they have always impressed mankind. In like manner, the great strokes of identity in the poetical comparisons of all ages give us an agreeable surprise, part of which is due to bringing together for the first time things never supposed to be like but, when once brought together, found capable of illustrating one another.

The flash of a great discovery of identification is one extreme of the workings of Similarity. The other extreme is equally important in its bearings on the present question; I mean the consciousness of identity without the power of resuscitation, a fact as energetically denied by Mr. Bradley as the other by Mr. Ward. My contention is, that times without number we are in this position, namely,—that of something seen, or heard, or mentioned, we remark, 'I have seen or heard that before, but I cannot tell where or when'. This is a fact; and is surely different from the state implied when I say 'That's new to me,' 'I never saw or heard that before'. Recognition or sense of identity, without the power of recall, is the extreme instance of Similarity bereft of the aid of Contiguity. The previous impression, whose likeness to the present gives us the sense of recognition or repetition, is too feebly associated within itself to start into life again. That, to my mind, is the obvious rendering of the fact. A little more familiarity, in the first instance, would have strengthened the contiguous association between the parts of the resembling object and between it and collateral circumstances of time and place, and the result would have been, not a bare sense of identity with something unknown, but an actual resuscitation of the whole fact in its fullness and in its connexions with other things.

The feeling of recognition or identity has a still wider sweep in assuring us that a train that we recall is accurately recalled. Often we have some misgiving lest we may not have recovered the precise series of particulars that we formerly knew; such misgiving is generally right, and leads us

to try again till we have corrected the mistake, and feel satisfied that we are at length correct.

Let me next advert to Mr. Bradley's view of the consciousness of identity without recovery of the identified image. He says: "If anything is brought up which suggests agreement, then this must involve what is called contiguity. For apart from such contiguity there would be nothing to recognise." But I humbly think this is to mis-state the order of occurrence. We do not first bring a thing up, not knowing whether it is like or not like, and then examine it to see if there be any likeness. Of course, this would involve Contiguity, and an occult principle besides, namely, a power of bringing up on suspicion, without anything to go upon at all; a mere tentative restoration, to be verified after it is brought into full view. There is no such power as this, so far as my knowledge goes. If something present to the view recalls a past thing like it, it is because of the felt resemblance. However we may express it, this is the order of proceeding. We have laid up in our previous experience some fact, appearance, notion, image; we, at the present moment, have in view some fact that was never in contiguity with the former but possesses a certain amount of resemblance to that: the immediate consequence is that the previous fact is recalled; the stroke of recall being, as it seems to me, simple and ultimate, and not resolvable into any roundabout process or succession of mental movements.

Mr. Ward's explanation of similarity in diversity is the easiest to state. His opinion is that when *abx* recalls *aby*, there is no more similarity than when *abc* recalls *def*. Now whether there be more or less similarity is scarcely the point; there is similarity in both to the extent of the common element *ab*. But there is certainly a difference in the two situations, a parting of the ways, with the most widely different results. And even in the immediate act there is an assignable difference. The combination *abc* recalls the former residua of *abc* that were in contiguity with *def*: there is no halt or hesitation in the matter. But when it is a question of *abx* bringing up *aby*, aggregates that were never in contiguity before, there is a new condition present. For, just as the *ab* in the one group tends to strike into the previous trace of *ab* in the other, the *x* in the first works by similarity on its own account, and tends to strike into a previous residuum containing *x*; and it is an open question which one of three courses will be taken, the recall, namely, of *aby*, or of a group *nox*, or of nothing at all. The mind has a new mode of consciousness under this situation; we

never confound it with the recall of *abcdef* at the instance of *abc*. It is a matter of psychological interest to ascertain the circumstances favouring the operation of similarity under diversity in cases involving important results; seeing that there is a cause of obstruction in the fact of diversity—an obstruction often so serious as to render the recall a matter of doubt and uncertainty. In all this I am fully borne out by Mr. Sully. (See *Outlines of Psychology*, p. 268.)

V. Whether Association can stand as one member in an enumeration of Faculties, such as those of Locke, Reid, Stewart, Hamilton?

It is not difficult to show that the Association of Contiguity is the greatest part of what is usually called Memory; while Similarity is a further aid. Moreover, that Similarity, assisted by Contiguity, explains the ordinary reasoning processes, as designated under Deduction and Induction, seems to me to admit of very little doubt, but I defer the consideration of it to the handling of the final topic of this paper. The placing of Association in the list of Intellectual Powers by Stewart has been abundantly shown to be tautological.

VI. How should Association stand in reference to the great problems of Philosophy: the theories of Space, Time, Causality, Substance and the like?

On referring to the recent work of Professor Ferri upon Association (see *MIND* viii. 294, x. 124) I find that with him Association-theories are tested mainly by their bearing on his conclusions regarding these problems. His induction of the laws from the facts of our intelligence, apart from such questions, is, I think, extremely perfunctory.

We are, at this moment, in the midst of a conflict of views as to the priority of Metaphysics and Psychology. If, indeed, the two are so closely identified as some suppose, there is no conflict; there is, in fact, but one study. If, on the other hand, there are two subjects, each ought to be carried on apart for a certain length, before they can either confirm or weaken each other. I believe that, in strictness, a disinterested Psychology should come first in order, and that, after going on a little way in amassing facts, it should revise its fundamental assumptions, and improve its language and definitions: and, when so revised, should resume consideration of the wide field of mental facts of the neutral or disinterested kind—those that deal with practical applications rather than with the metaphysical groundwork. After a few further strides, we might come back again to the founda-

tions, and so on, alternating between the two lines of research, yet insisting on their being conducted independently. This is necessary in order that we may not fall into a circle. It is said, for example, that if we embark on the promiscuous field of mental facts, with a bad Metaphysics, that is, with wrong notions as to External Reality, Cause, Substance, and so on, all our results will be vitiated and worthless; nevertheless, I do not see any mode of attaining a correct Metaphysics until Psychology has at least made some way upon a provisional Metaphysics, which it returns after a time to rectify and improve. (On the relations of Psychology to Metaphysics, see in *MIND*, Vol. viii., the Editor's opening article and Mr. James Ward's first article entitled "Psychological Principles".)

Psychology imperatively demands a well-defined vocabulary. The ultimate notions of the science must be free from ambiguity; but to express ultimate facts with precision, and to decide what things are ultimate, constitute a laborious part of any science, most of all of mind. The process of see-saw is eminently called for here. We go on a certain way upon given definitions; we find them open to exception; we go back and correct them, and proceed again, until some new flaws are discovered. But to stay debating ultimate questions, before making any forward movement at all, is a device that may be handed over to the Committee for arranging the debates in Pandemonium.

As regards Association in particular, nothing can be more vital than a correct mode of stating and understanding the mental elements or units that enter into the associating operations. The Impression, Sensation, Presentation, Perception, Idea, Image, Trace, Residuum, Representation, Memory, Recollection, must all be properly reduced to distinct expression, and rendered free of ambiguity, before we know what we mean by Associative Reproduction, or Suggestion.

The starting-point of the clearing operation evidently is to distinguish the Sensation from the Idea—the state of mind under full actuality from the trace, residuum, survival and reproduction of that when the actuality has ceased: What is my precise mode of mind in surveying a fine prospect, and what is that other mode when I am remembering it? Nor is this by any means a very simple determination. For what we choose to call sensation, presentation or actuality, is already a mixed mode, a product of associating forces. What I now see, I may have seen before, and that previous seeing combines its results with the present view. Even

if the scene is quite new, its elementary parts are not new ; and old impressions of hills and woods and streams have an influence on my present impression ; so that even the sensation is not a pure or unmixed element to begin with. Then comes the definition of the Idea, or whatever name we choose to give to the persistence and reproduction of the scene as an effect of memory. How far does this mental reproduction correspond to the original, and what are its essential differences, drawbacks or points of inferiority ? When we speak of recalling a prospect to the mind, we must speak with due allowance for the difference. For some purposes the image is as good as the original ; hence we get into a way of speaking of the two in the same terms, or as if there were no difference at all. For other purposes, the difference needs to be accentuated, instead of being slurred over. No theory of Association can be sound that mistakes the character of the mental reproduction, to which Sensation and Association jointly contribute.

Mr. Bradley's criticism of Association fastens on this part of the case. Freely allowing that there are facts corresponding to the two chief laws, he objects to the ways of stating these as absurd and self-contradictory. For example, as regards Contiguity, he says, "What was contiguous is now non-existent, and what is re-instated has *never* been contiguous". This comes of his putting an interpretation upon the meaning of re-instatement that nobody ever held, but which no doubt should be barred out by rigorous precision of language. So severe, indeed, is Mr. Bradley's view of re-instatement, that he will not allow a second view of the actual thing to be called re-instatement. If I look up to-night at a starry constellation, I might be weak enough to say that I was repeating an old impression to the letter. Mr. Bradley says No. I cannot repeat a yesterday's prospect ; yesterday has passed, and cannot be lived over again. To-day's experiences are to-day's, and these only.

I am not aware that any psychologist has guarded the statement of Association to this degree of nicety. I quite admit that there are circumstances that make it occasionally proper and desirable. Let me, therefore, learn from Mr. Bradley how to surmount the difficulty and fence the contradiction. He states the law of Contiguity thus :—"When elements have co-existed, they tend to be connected". And again—"Mental units which have co-existed cohere". Now this may be all very safe, but it has the defect of vagueness. To make it really useful there would be needed, first, some specification of the very general words 'element' and 'unit' ;

and, next, a more particular unfolding of the consequences of being 'connected' or 'cohering'. It is as if a chemist should say of combustion, that a red hot coal tends to become connected with the oxygen of the atmosphere.

Mr. Bradley's view of what rises up to the mind under Association is the embodiment of his Philosophy of the Real. It is, that *particulars* can never be associated, and that what is reproduced is *universal*. Now with his view of particularity (which is not shared in by anybody else that I know), this must be the case. A particular experience is the experience of one moment of time, and cannot be repeated in fact; for the 6th day of the month can never be the 5th. I quite agree with him that, in his sense, a single instance as such cannot be retained by the human intelligence. I further agree with him that seldom at any stage can a fact be retained without something that we may call mutilation, but the precise mutilation is a matter for inquiry. It may be a mutilation that gives generality or, if you prefer it, universality, but it may not operate in that way.

In common parlance, we should say that our knowledge of a concrete thing is improved by repetition, and attains its very best when we have viewed it times without number, so as to detach the picture from special dates and circumstances. This is the particularity of all our familiar surroundings; it does not make the objects general in any received sense of the word; they are still looked upon by us as particulars, and when we conceive them in idea, we do so with all the more vividness from the iteration and the absence of reference to special moments of observation.

Thus we seem to sacrifice an important distinction through Mr. Bradley's use of the words 'particular' and 'universal'. My memory or idea of a particular event contains the reference to the date or moment of occurrence, and to all the surroundings of the actual experience. The idea must still be shorn and mutilated; it cannot bring me back to the reality, and it must incur all the loss of imperfect mental cohesion. But it, nevertheless, presents itself as the image or residuum of a real event marked off by date and circumstances from every other event, and thus rendered individual. To call such a resuscitation 'universal' is a new employment of the word, and would lead to very inconvenient results. I take two examples to show how the term is commonly understood in science. One is 'universal gravitation,' where the meaning is the highest attainable generalisation of a natural power, the last of a succession of gradually ascending generalities. When we have generalised one step after

another, we call the final generality 'universal'. The second example is the controversy of Nominalism and Realism : called in the schools the theory of Universals. Here the universal is opposed at once to the concrete and particular, and gradation is not implied. But neither of those senses, at bottom the same, coincides with Mr. Bradley's 'universal'. The contrast of the Sensation and the Idea, the original concrete experience and the product formed by recalling that experience through association, is one of the most important contrasts in Psychology. For one reason already given, the particular and the universal does not express it ; while the attempt to employ these terms for the purpose would destroy their fitness for their more usual meanings, and especially for the meaning of singular and general. If I call my actual observation of the Dungeon Ghyll 'particular,' and my recollection of it 'universal,' I have no terms to express a waterfall in general, still less for terrestrial gravitation, least of all for universal gravitation.

Our difficulty then lies in this. An idea may be the idea of an absolute individual in all its clothing of individuality ; even when existing out of its time, and present only as a recollection, it retains its reference to the moment of its occurrence, and, so far as that goes, it is no less particular than the actual sensation was. Of the various attempts to express the real contrast, perhaps the most suitable are the metaphors 'original' and 'copy,' 'sound' and 'echo'. There is a propriety also in the word 'faded,' as opposed to fresh and first-hand. Something may be said for Mr. Bradley's 'mutilated' reproduction, implying, as it does, a failure in the pristine accuracy of the lineaments. The defect of the term lies in suggesting distortion and loss of identity ; a preferable metaphor would be 'impoverished,' as showing, not distortion, but simply the inferiority in fulness of the picture to the original.

All this, however, implies that our examples are taken from the presentations of the higher series, as embracing the complexity of the outer world. No imagination can reproduce a visible scene in all the fulness of its lineaments, and in all the brightness of its illumination. But in the wide range of our acquisitions are to be found instances where we reproduce an original exactly, as in mechanical processes. I can learn the words of a language precisely as they are presented by my teacher ; I can copy him to the life : there is no loss whatever. Again, we often begin upon ideas, and couple these from the first. In point of fact, we must accommodate the description of the Idea to the cases.

Indeed without a detailed psychology of Association, I do not see how we can arrive at just definitions of the fundamental terms Impression, Sensation, Actuality, Reality, Presentation, Perception, Idea, Representation, Thought.

VII. What circumstances are proper to be included with Association as essential accompaniments of its work?

We cannot fully state the laws of Association without certain conditions of their operation, or certain co-operating influences of a non-intellectual kind. Both the Feelings and the Will play a part in the associating processes at every stage.

Thus, as to Contiguity. The rate of coherence of two impressions is known to depend partly on the intensity of the consciousness on the occasions when the two are in company, and partly on the endurance and repetition of the concurrence. Hamilton's law of Preference is simply the fact of conscious intensity due to special interest.

There are, as it were, two distinct moments to be studied in giving an account of the associating process. The first is the original placing of the elements together, and the supplying of the conditions requisite to their adhesion. The second is the consequent resuscitation, which, too, has its conditions, over and above the foregoing. An association between two elements may be to all intents and purposes sufficient for obtaining the revival of the second on the presentation of the first, yet the revival may not occur. The state of mind at the time may be either favourable or unfavourable to the recall of a past impression or idea; and the determining influence at work may be due to the feelings or to the will. Hence the theory of Association is not complete without specifying the accompanying conditions, both for the moment of primary adhesion and for the moment of associative recall.

The circumstances that give conscious intensity are not difficult to assign. The word 'Attention' in its commoner meaning,—as a voluntary prompting to concentration of mind, expresses a great deal, but not everything. There is concentration from mere excitement, painful and pleasurable, as distinguished from the attention under the will, although the two shade into one another.

All I am contending for just now is that, with the associating forces, we should include the emotional and volitional influences that are inseparable from their working and that must be taken account of according to their degree in each case. These forces do not of themselves make the Associa-

tion, any more than heat and light enable a plant to propagate its kind; they are but the essential accompaniments: without being the fact, they are conditions of its full realisation.

The concluding head will involve a more specific consideration of the present topic.

VIII. The final question of this paper relates to the insufficiency or shortcoming of the principles of Association, as now qualified, to explain the rise and succession of our thoughts, in other words, the various operations of the Intellect.

This leads me to examine the new position occupied by Prof. Wundt, who regards these principles as insufficient to account for the higher intellectual processes. Even if Prof. Wundt's name were not enough to secure a respectful consideration of his views, we have an additional motive, in the declaration of M. Lachelier, his expounder in the *Revue Philosophique*, that in France, at the present time, neither English empiricism nor pure Kantianism can give satisfaction, and that a reconciliation of the two is earnestly called for.

I leave it to the Kantians, old or new, to say how far Prof. Wundt's assumptions coincide with Kant's. I must endeavour to state what they are, and to criticise them, regarded as supplementary to the laws of association.

Wundt recognises in the mind two entirely distinct sets of laws—lower and higher. The lower are laws of the senses and the brain, and embrace sensations and intellectual groupings under ordinary association. They make up the department covered by the psychophysical researches of the German experimental psychologists.

The laws of Association, as prevailing in this lower region, are given by Wundt without any essential variation from the more usual renderings. His scheme is—

- (1) Simultaneous Association.
 - (a) Associative Synthesis.
 - (b) Assimilation.
 - (c) Complication.
- (2) Successive Association.

While thus taking as his main distinction the Simultaneous and the Successive, Wundt admits as valid the reduction of the laws of Association (as by Herbart) to the two—Similarity and Contiguity; Contrast being a case of

association by Similarity under the influence of fluctuations of feeling.

As the course of associative reproduction is hindered by active attention and logical thinking, we must give ourselves up passively to the play of representations, if we wish to get persistent and coherent association. The flow of representations in dreaming and madness offers the best field of observation for the study of associations as such. In the ascending flood of ideas of the insane, we can sometimes follow step by step the process whereby logical thinking gradually undergoes dissolution by the increasing dominance of association. Hence the attempt to derive logical thinking from association is open to suspicion.

In Wundt's conception these laws are afflicted with the incurable disqualification of *passivity*, which restricts their unassisted workings to the lower forms of sensation and memory. Instead of pushing them to the explanation of the higher faculties of reasoning and imagination, as the English associationists profess to do, he considers it necessary to take an entirely new departure, to lay down a principle of Intellectual Activity, with laws of its own and a foundation of its own; locating it in a purely spiritual region of the mind, which has nothing in common with the physical constitution of the senses and the brain. This principle of activity he names Apperception, and thus expounds. In vision we are aware of the wide distinction between the central point of the retina and the surrounding portions stretching away to the circumference. It is in the centre that our visible discrimination reaches the utmost pitch of minuteness; hence to observe a given object thoroughly we turn upon it this visual centre. Such, says Wundt, is the difference between apperception and passive or listless consciousness. Apperception is thus nothing more than attention at the highest pitch of concentration; it is a thing of all degrees from bare consciousness up to the full strain of stimulated activity. Now as such activity is most usually an effort or effect of will, Apperception is another name for will applied to the operations of thought.

In mere association, apperception is not absent, but it is of a more primitive kind than in what is called distinctively the "apperceptive" combination of representations. The activity of apperception, in the lower association, is directly determined by the "psychical stimulus" of a representation, the frequency of its repetition, &c.; while, in the higher kind of apperceptive activity, there is an act of choice. Hence apperception is in the full sense volitional, and not

merely a kind of germ of volition. In apperceptive combination, however, association is still at work. The apperceptive activity makes use of the material furnished to it by association; but the laws of Association indicate only the possible combinations that are at the disposal of consciousness; what combination is actually carried out is decided by the act of apperception.

As direct sense-excitation furnishes consciousness with all its materials, so association preserves sense-impressions to be acted on by apperception. We may thus distinguish "passive apperception" (determined by stimuli, &c.) from "active apperception" (determined by an act of choice). It is this last alone that properly deserves the name. The laws of Association are most easily observed when apperception is passive; the laws of the apperceptive activity itself, when it is active. The distinction applies to successive as well as to simultaneous groupings of representations. *Memory* provides consciousness with materials by holding representations in an associative bond; *recollection* is the act of apperception that decides which of the associative representations shall actually come into the view-point of consciousness.

In following out the detailed illustration of the foregoing positions, Wundt presents us with a two-fold classification of thought-combinations—the *simultaneous* and the *successive*. Under the first falls the formation of concepts, which will suffice as an example of his proceeding. A concept, he says, is a single representation that stands in the place of a number of other representations of its kind; in other words, that is "apperceived" as standing for a whole class of representations. The formation of concepts is specially related to "assimilative" associations. Concepts do not result (as associationists have tried to show) from the dropping of all but the common elements in a number of representations, but from the voluntary selection of some specially striking element, which may not be common, or may not be characteristic. Thus the concept may be defined "according to its psychological origin," as "the completed fusion, through active apperception, of a ruling individual representation with a series of representations that belong together". Afterwards there occur the following additional changes—(1) obscuration of the representations bound up with the dominant element; (2) obscuration of the dominant element itself, and substitution of the spoken, together with the written, word.

It is under "*successive* thought-combinations" that pro-

positions or judgments are included ; the apperceptive movement being adapted to the difference of the case.

For the higher functions of intellect, then, the trains of association must come under the pressure of the will, as attention. The will can quicken up the associations into living power. By fastening the attention upon an object of thought, the assimilative force is quickened and resemblances more abundantly evoked ; the poet obtains his metaphors by severe concentration of mind upon the matter that he wishes to illustrate. So, imperfectly-formed bonds of contiguity may be rendered suggestive by means of intense application of thought to the present member of the couple ; as when we have forgotten someone's name, and keep cogitating on the image of the person till we recall it.

Besides thus intensifying the forces of association, beyond their natural power in the passive mood, the apperceptive concentration can modify and work up the trains of thought ; it can combine them for some purposes, and divide or analyse them for others. The processes of logic or reasoning, of imagination or art, of moral guidance, of working for ends, involve the double power of association proper and the control due to apperception. All these processes are copiously exemplified by Wundt in accordance with his main thesis.

And now, as apperception is another name for will working in the sphere of the intellectual trains, and as will supposes motives, the sources of apperception lie in the region of motives. But with Wundt, the motives of all our higher thinking transcend the sphere of the senses and the brain, the material organism and its functions. No doubt a certain class of motives is allied with this lower part of our being ; there are, of course, pleasures and pains of sense and appetite, and these pleasures and pains must be often operative as stimulants of attention, and must even intensify and control the trains of association. Nevertheless, all such motives are limited to the inferior and merely animal objects of thought and pursuit. They exemplify a sort of mechanical or physical correspondence between the intensity of the feeling and the intensity of the action, just as the pace or work of a steam-engine is related to the consumption of coal.

Apperception, on the other hand, does not follow the animal inclinations : it works under a class of altogether distinct and superior motives, regulated by laws peculiar to itself. These motives are the produce of heredity. They fall under three different classes—the logical, the æsthetic, the moral. They have their foundations in our imma-

terial soul, they possess nothing in common with the senses and laws of passive association, although the associating forces are their essential tool or instrument. The logical stimuli direct the forces to the production of reasoned truths, the æsthetic to art, and the ethical to right conduct. It is in this region alone that free-will possesses any meaning. There is a determinism in the lower region which is as mechanical as you please: the determinism of the higher or apperceptive region is a psychical determinism; in it there is no constant relation between energy of motive and energy of action. The laws of apperception are thus very peculiar, and the mode of discovering them is peculiar. Ordinary introspection is unequal to the research. Without excluding this means of knowledge, we must devote ourselves to a study of man's history and institutions, which are the fruit of his highest elaborations, and the measure and test of his superior motives. Anthropology at large, comprising social progress, literature, language, mythology, religion, will furnish the laws of our highest motives, being the resultant of their operation during the ages that have passed.

Of the questions raised by the foregoing speculation, there are two that I must pass without discussion. The one is the immateriality of the mind in certain of its functions, a position maintained in all its nakedness, and without any attempt to get it out of the difficulties that were felt no less by Aristotle than by ourselves. How an immaterial mind can be allied with a material organism, which is the essential instrument of certain very important mental functions; how the partition of functions is made; how it is that there can be so much difference of opinion as to what is grounded in the material organs, and what subsists in the immaterial sphere, —all this is left without any palliation and need not be counterargued until something is done to surmount such obvious and weighty objections.

The other point is Free-will, which is presented in a somewhat novel shape. It has its exclusive *habitat* in the upper sphere, where the principle of proportionality of cause and effect is suspended, the smallest causes producing, if need be, the largest effects. Here too there are difficulties to be explained away. It would be requisite to adduce some unequivocal examples of this inversion of mechanical uniformity, as well as to show that in the great institutions of mankind, as society, language, religion, such inequality of cause and effect is unequivocally present. We are well acquainted, even in the mechanical sphere, with the occur-

rence of effects out of proportion to the reputed causes, as in exploding gunpowder, but we know that these are only apparent causes, and that when we get hold of the real causes, proportionality is rigorously maintained.

Passing those two questions, I propose to remark upon the bearing of Wundt's speculation upon the laws of Association properly so called. Notwithstanding the stress put upon the action of the will, he still allows that will is not everything: he does not shunt the associating links, and lay the whole stress of the exposition on the apperceptive volition. What he says as to the essential concurrence of emotion and will with the workings of association we fully admit. No associating link can be forged, in the first instance, except in the fire of consciousness; and the rapidity of the operation depends on the intensity of the glow. In like manner, the links thus forged are dormant and inactive, until some stimulus of consciousness is present, whether feeling or will. A man of scholarly attainments, with his hundred thousand linkings of contiguous bonds, will sit in his chair for hours, and bring up nothing: he need not be asleep the while; mere languor is enough to account for his intellectual quiescence.

It is with the original forming of the associating links, that education is most concerned; and the theory of education must enumerate all the circumstances that aid the process. These are partly physical, partly intellectual, partly emotional and volitional. To confine the statement to the factor of will alone, as attention, would be insufficient.

The subsequent rise or resuscitation of ideas consequent on association, is a fresh field of study. All the above-named influences are still at work, although in a somewhat different way. The practical applications are here wider. Besides the bearing on education, we have the wider consideration of the conduct and economy of the thinking powers. Over and above the original adhesion, there are circumstances that assist in the reproduction, and make it a success or a failure. Chief among these is the power of the will, but not to the exclusion of other influences. Even the addition of emotional excitement, which of itself accounts for a great deal, that is, apart from moving the will, is not all. The purely intellectual conditions, under which I include the number and nature of the associating connexions at work in a given case, bear a large part in the process of resuscitation.

More particularly, as to the influence of the will in apper-

ception, everything that Wundt advances is supported by our experience. The will may make up, in some small degree, for the feebleness of a contiguous linking, partly by a more strenuous attention, but far more by the search for collateral links in aid. It may likewise favour the recall of a resembling image. But neither of those two cases represents its habitual and all-powerful efficacy; in both, the limits of its reproductive force are still narrow. The operation that represents Wundt's Apperception in its full sweep is that crowning example of voluntary power—the command of the thoughts, by detaining some and dismissing others, as they arise, and are found suitable, or the contrary. Too much cannot be said as to the importance of voluntary attention in this lofty sphere. All thinking for an end,—whether it be practical or speculative, scientific or æsthetic,—consists in availing ourselves of the materials afforded by association, and choosing or rejecting according to the perceived fitness or unfitness for that end.

When, therefore, Wundt says that association alone does not explain the higher intellectual functions, he only says what we all admit, namely, that Association needs the control of will and feelings, in order to bring forth our more important thinking products. In the absence of some degree of conscious intensity, association can no more unite ideas, or restore the past by virtue of such unions, than a complete set of water-pipes can distribute water without a full reservoir to draw from. The scheme of Wundt does not lead to the slighting of Association as a great intellectual factor. His Apperception would be nothing without it.

The point where my disagreement with the whole speculation now adduced begins, is the drawing of a hard and fast line between the lower and the higher workings of Association. To me the word Apperception, as employed by Wundt, is unnecessary and unmeaning. All that it is intended to convey is much better expressed by our old phraseology. If it is another name for the voluntary control of the thoughts it is superfluous and therefore mischievous. It leads us to suppose that there must be some distinct meaning to correspond, and we find there is no such meaning. There is an important line between the random course of the thoughts,—in reverie, in dreaming, in insanity, and even in the sane when they give way to casual associating that has no end—and the regulated thinking of a well-trained mind; but this line can be drawn much better by our old familiar phraseology than by the new coinage, as proposed by Professor Wundt.

A far more serious ground of difference of opinion is the

treatment of Association, as almost exclusively an affair of motives. This point of view is not special to Wundt. It is set forth with great clearness in the following passage in Professor Adamson's review of Mr. Sully's *Psychology*, in *MIND* ix. 438.

"Each separate fact of conscious experience stands out momentarily from the vast complex of the individual mind, and, as one says, receives so much attention, but it is always accompanied by this complex, and the question, what determines the train of thought, what causes us, as we say, to think of something else, is really the question what causes attention to include this or that at the moment. The motives are infinitely numerous, and vary indefinitely in character in successive stages of individual development; for the most part, indeed, they are distinctly what would be described as logical; but the essential fact is the movement of attention as expressed in the view taken of the part more immediately under consideration."

That the motives to attention are an important part of the course of thought, I freely admit. But to call these motives infinitely numerous seems to me an exaggeration that passes the limits of a figure. If the human mind possessed any constituent fairly describable as infinitely numerous, it would, as a study, be entirely beyond our limited capacity. But our motives, for all purposes whatever, are anything but infinite in number; while those that operate in directing the current of thought are only a fraction of the whole. Nay more. Whatever be the total of such motives, their mode of operating reduces itself to a few understood particulars, which have been already adverted to in the course of this discussion.

If there be any part of the mind open to the description of being "infinitely numerous" in details, it is Association in its characteristic feature of linking mental elements together. We can count, in a rough way, the names of a language; and using the estimate as a datum, we can prove beyond dispute that the distinguishable links of associated particulars in the mind of an educated man must greatly exceed one hundred thousand. I doubt if the most liberal calculation of motives would furnish one-hundredth of this number.

Let us consider the actual case of the acquisition of a language, with its thousands of couplings of words and phrases, and consider how much motives have to do with it. In the first place, what number of motives are at work first and last? I imagine they could be easily counted up, whatever way we may look at them. The wish to open up a new avenue to

information and interest is of itself comprehensive enough : we could not multiply motives without putting down, as distinct items, every occasion when we desired to learn something or to talk with somebody. But Psychology would never condescend to such particulars as this : it would serve no end. During the whole dreary process of mastering a foreign tongue, we are aware of only one or two recurring motives ; while we are painfully conversant with the steps of the associating process, by which we add one group after another, to our adhesions of name with name. Our interest lies in quickening this process by every known means—motives included. The motives make one and only one condition : they are the same throughout. The common devices for promoting the requisite adhesions are not stated in terms of the motives, but in terms of the laws of association. A certain force of attention is required, and this comes under motive ; but there is a further regulation of the manner of presenting the names and objects to be united. The professors of artificial memory work not by motives, but by a skilful manipulation of the matters to be recollected. The topical memory of the ancients did not depend on motives.

What I apprehend is meant by the infinity of our motives, is the sum-total of all the *applications* that we make of our resources as made up by association. These applications are of course very numerous, but they admit of classification under a limited number of heads—as simple memory, perception, reasoning (in all its various phases), imagination and, Wundt would add, conduct. I do not doubt that association might be described under these various kinds of intellectual working ; but I think a great deal would be lost, and nothing gained, by regarding simply the outcome of the associating processes, and saying nothing of the immense fabric that has to be reared before there can be any outcome. We should trace out, in detail, both supply and demand in our intellectual work. I have not yet discovered any better method of expounding the laws of Association than by combining two arrangements : first, the systematic view of mental elements, as they become associated together ; and second, the applications of these products to our various utilities.