II.—IMITATION: A CHAPTER IN THE NATURAL HISTORY OF CONSCIOUSNESS.¹

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IMITATION is a matter of such familiarity to us all that it goes usually unattended to: so much so that professed psychologists have left it largely undiscussed. Whether it be one of the more ultimate facts or not, suppose we assume it to be so; let us then see what we can explain by it, and where we may be able to trace its influence in the developed mind.

§ 1. We may make it a part of our assumption—what I have endeavoured to prove elsewhere²—that an imitation is an ordinary sensori-motor reaction which finds its differentia in the single fact that it imitates: that is, its peculiarity is found in the locus of its muscular discharge. It is what I have called a “circular activity” on the bodily side—brain-state due to stimulus, muscular reaction which reproduces the stimulus, same brain-state again due to same stimulus, and so on. The questions to be asked now are: Where in our psycho-physical theory do we find place for this peculiar “circular” order of reaction; what is its value in consciousness and in mental development, and how does it itself arise and come to occupy the place it does?

If the only peculiarity about imitation is that it imitates, it would follow that we might find imitations wherever there is any degree of interaction between the nervous organism and the external world. The effect of imitation, it is clear, is to make the brain a “repeating organ”; and the muscular system is, as far as this function goes, the expression and evidence of this fact. The place of imitation in life development is theoretically solvable in two ways, therefore: (1) by an exploration of Nature and mind for actual imitations, and (2) by the deduction of this function from the theory of repetition in neurology and psychology—this latter provided we find that Nature does not herself present enough *de-facto* repetitions to supply the demands of neurology and psychology. If this last condition be unfulfilled—that is, if Nature

¹ This paper gives, in a summary way, some of the positions developed further in a volume entitled *Mental Development in the Child and the Race*, announced for early publication by Macmillan & Co.

² *Science* (N.Y.), 1891, p. 113.

do actually repeat herself through her stimulating agencies, light, sound and so forth, sufficiently often and with sufficient regularity to secure nervous and mental development—then imitation is probably a side phenomenon, an incident merely.

Without taking either of these questions in the broadest sense, I wish, while citing incidentally cases of the occurrence of imitation, to show the importance of repetitions and of the imitative way of securing repetitions, in the progress of mind.

§ 2. If it be true, at the outset, that organic development proceeds by reactions, and if there be the two kinds of reaction usually distinguished, *i.e.*, those which involve consciousness as a necessary factor and those which do not, then the first question comes: in which of these categories do imitative reactions fall? Evidently in large measure in the category of consciousness. If we further distinguish this category in as far as it marks the area of conscious life which is “plum up,” so to speak, against the environment—directly amenable to external stimulation—by the word “suggestion,” we have thus marked off the most evident surface features of imitation. Imitation is then, so far, an instance of suggestive reaction.¹

§ 3. Now let us look more closely at the kind of consciousness, and find its analogies. A mocking bird imitates a sparrow, a beaver imitates an architect, a child imitates his nurse, a man imitates his rector. Calling the idea of the result, as we look at the result (not as the imitator may or may not look at it), the “copy,” we find that we are forced

¹ It is not necessary, I think, to discuss in detail the meaning of this much-abused but, in the main, very well-defined word—“suggestion”. I have myself defined suggestion as “from the side of consciousness . . . the tendency of a sensory or an ideal state to be followed by a motor state” (*Science, loc. cit.*), and it is “typified by the abrupt entrance from without into consciousness of an idea or image (or a vaguely conscious stimulation) which tends to bring about the muscular or volitional effects which ordinarily follow upon its presence” (*Handbook of Psychology*, ii. 297). Janet says it is ‘a motor reaction brought about by language or perception,’ *Ant. Psych.*, p. 218; Schmidkunz: ‘die Herbeirufung eines Ereignisses durch die Erweckung seines psychischen Bildes,’ *Psych. der Sugg.*; Wundt: ‘Suggestion ist Association mit gleichzeitiger Verengerung des Bewusstseins auf die durch die Association angeregten Vorstellungen,’ *Hypnotismus u. Suggestion*, Abs. ii.; Ziehen: ‘In der Beibringung der Vorstellung liegt das Wesen der Suggestion,’ *Philos. Monatshefte*, xxix., 1893, p. 489. It is so marked a fact in current theory, especially on the pathological side, that I have found it convenient to use a special phrase for consciousness when in the purely suggestible condition, *i.e.*, “reactive consciousness” (*ibid.*, pp. 60 ff., and chap. xii.). The phrase “conscious-reflex” is not good as applied to these suggestive reactions: for they are cortical in their brain seat, and are not as definite as ordinary reflexes.

to consider the psychological elements involved very different in these four cases. This copy as defined in our minds, we are forced to think, is also clearly defined in the mind of the man, it is rudely defined in the mind of the child, it is not defined at all in the mind of the mocking bird, and in the mind of the beaver it is something else which is defined, and rudely. These cases are ordinarily distinguished by mutually exclusive words, *i.e.*, in order: volition, suggestion, reflex reaction, instinct. Yet this one thing they do have in common, a constructive idea which we see objectively, and which each, in its result, repeats. It will be profitable to inquire into the origin and significance of this "copy" in each of these cases.

§ 4. In the case of simple imitative suggestion we find what seems to be the most evident and schematic type. Here we have a simple visual or auditory copy shedding its influence out into the world in a reaction which repeats the copy. But we find other reactions side by side with it which do nothing of the kind. Psychologists classify these reactions under the heads of instincts, impulses, reflexes, volitions. Now it is not making very great assumption in view of current theories, to hold that imitations repeated become reflexes (reflex speech, the walking reflex, &c., for example), nor to hold that reflexes when repeated, consolidated, and inherited, become instincts; nor yet again to hold that instincts when snubbed, contradicted, and disused, are broken up into impulses. Then impulses consciously indulged, ratified, and repeated, in opposition to snubbing, evidently become volitions. If we did find it possible, at present, to admit these assumptions, and to give names to the two processes involved, calling the "repeating" process the *law of habit*, and the "snubbing" process the *law of accommodation*, we would have a suggestive line of thought based upon what is actually the state of things in the most advanced neurology. Yet we must not forget that both these principles are in operation at once, and we have a possible twofold derivation of each term in the series. For example, looked at from the point of view of accommodation, or phylogenetically, as Ziehen points out, impulsive actions are due to the breaking up of instincts; but on the side of habit, or ontogenesis, they come by volition. The dispute as to the origin of instinct may be settled from this twofold point of view.¹

¹ "We may suppose instinct to have arisen, first, by a modification of nervous reflexes by suggestion . . . and second, by the lapsing of intelligent voluntary reactions, into secondary-automatic and finally

Now let us see how in these several cases we can account for the copy. In the case of simple suggestive imitation, it is there in consciousness for reproduction, and is reproduced. How does this come about?

§ 5. Suppose at first an organism giving random reactions, some of which are useful; now for development the useful reactions must be repeated, and thus made to outweigh the reactions which are damaging or useless. Evidently if there are any among the useful reactions which result in an immediate duplication of their own stimulus, these must persist, and on them must rest the development of the organism. These are the imitative reactions. Thus it is that a thing in nature once endowed with the reacting property might so select its stimulations as to make its relations to its environment means to its own progress: imitative reactions, as now defined, being the only means to such selection.

This, it is plain, assumes consciousness in such an organism: for it is difficult to see how a reaction which reproduces its own stimulus in an exact material way could ever begin, or ever stop when begun; that is, how it would differ from a self-perpetuating whirlwind, or from an elastic ball for ever rebounding between two equal resistances. This last we do find even in consciousness in certain cases,¹ but in as much as they are self-repeating, they do not present any law of development, and so approximate to a state of things in which consciousness might be conceived to be absent. At any rate, I find it more philosophical to make consciousness as original as anything else, and to hold with Lewes that reactive tissue is always conscious.²

into suggestive reactions. On the organic side, these two laws . . . represent 'upward' [phylogenetic] and 'downward' [ontogenetic] growth respectively" (Baldwin, *Handbook*, ii. 810-311; cf. Ziehen, *Introd. to Phys. Psych.*, p. 17). Imitation is a "mode whereby intelligence may change or deflect an instinct . . . it is true that the initial stage of such deflexion occurs in the 'original ideas'" [what are called "copies" in this paper] (Romanes, *Mental Evolution in Animals*, p. 219).

¹ So with the endless repetitions by young children and parrots of the same sounds. Continued muscular tension kept up by circular discharge until nervous exhaustion ensues, is characteristic of the cataleptic condition.

² To be sure it may be said that an organism cannot in any case be compared with such a self-repeating mechanical device (say a swinging pendulum), from the mere fact that it gets *exhausted* and *grows*. This is true, and for this very reason I am unable to accept the purely chemical doctrine of life which Verworn states in the theory spoken of subsequently (§ 8, below). But why may not consciousness be the "something" which secures (or at least evidences) growth or exhaustion?

§ 6. Development begun on this basis could proceed only if two requisites were fulfilled: first, the reaction which sustains the copy must persist, and second, there must be a constant creation of new copies. The first means consolidation of tissues, a law of increasing fixedness in nerve processes, tending to give rise to great functional habits, which at any stage of progress represent the acquired copies of the organism and its degree of adaptation to the environment. But, how is this persistence possible in the absence of the objective stimulus? Evidently it is not possible, unless there be some way whereby the energies of the reaction in question may be started by something equivalent to the working of the original external stimulus. This is accomplished in the organism by an arrangement whereby a variety of copies conspire, so to speak, to "ring up" one another. When an external stimulus starts one of them, that starts up many others in a series, and all the reactions which wait upon these copies tend to realise themselves. Thus the great practised habits of the organism get confirmed by stimulation again and again, while the increasing variety of the conspiring copies—constantly recruited from the new experiences of the world—make up a large and ever larger mass of elements, or centres, which vibrate in delicate counterpoise together.

§ 7. Of course it is evident that the arrangement thus sketched is the physical basis of memory. A memory is a copy for imitation taken over from the world into consciousness. Memory is a device to nullify distance in space and time. It remedies lack of immediate connexion with the accidental occurrences of the world. Every act I set myself to do is either to imitate something which I find now before me, or to reproduce, by making objective to myself, something whose elements I remember—something whose copy I get set within me by a "ring up" from elements which are in immediate connexion with what is now before me.¹

§ 8. The theory so far advanced, with extreme brevity, is in accord with that first announced (obscurely I think) by Tarde.²

¹ The psychology of lying becomes clear when we remember that a lie is the emphasis of a "copy" just as truth-telling is. In children about two years old, truth or falsehood hangs largely upon the question what copy elements come up first. Before he has learned to apply the tests to his images by which true memories are distinguished, the child simply reacts upon the images that are there, no matter where they come from.

² *Les Lois de l'Imitation*, chap. iii. ; published earlier in an article "Qu'est ce qu'une Société," *Revue Philosophique*, xviii., 1884, p. 489.

Tarde's theory is improved, in quotation, and endorsed by Sighele.¹ It may be analysed into two moments, *i.e.*, (a), the securing of repetitions by imitation, and (b), the theory of memory considered as a means of perpetuating and increasing the effects of repetition, in mental development, by the formation of habits. This latter moment I find only vaguely and inadequately stated by Tarde. It is readily seen that this assumes the fact of imitation, makes of it an original endowment or instinct, and is, in so far, open to the objections which may be urged (*cf.* Bain, *Senses and Intellect*, 3rd ed., pp. 413 ff., taken up below, § 28) against such a view. The theory which I am now proposing supplies this lack: it gives a derivation of imitation based upon an analysis of the imitative reaction itself. This analysis—the outcome of which I have expressed by calling imitation a “circular reaction,” *i.e.*, one which repeats its own stimulus—gives us a means of defining imitation and fixing the limits of the concept (below, § 26).² The third and fundamental moment, therefore, which the development stated above endeavours to supply, is the rise of imitation from simple contractility under two concurrent agencies: (1) the occurrence, among the “spontaneous variations” of discharge, of movements which secure at once the repetition of the first stimulus, and (2), the continuance of such of these self-repeating reactions as are useful (pleasurable). Those which are damaging (painful) or useless, by that very fact, lower the vitality of the organism and so hinder their own recurrence. This derivation of imitation secured, we are able to develop independently the two principles urged by Tarde and Sighele, as follows in this paper.

This derivation of imitative reaction is in line, I think, with the most important and thorough contributions lately made to the theory of organic movement—as far as one who is not a professional biologist is entitled to an opinion. Two recent investigators have summed up evidence which supplies in great part the basis long desiderated for a theory of muscular action and development. Eimer³ has stated the facts which make it probable that all the “morphological properties of muscle are the result of functional activity”. On this view contraction waves leave markings which account for both muscle-fibres and striation. The

¹ *La foule criminelle*, pp. 42 ff.

² *Cf.* Tönnies, *Philosophische Monatshefte*, 1898, p. 298, on the necessity for definition in this field.

³ *Zeitschrift für wissen. Zoologie*, liii. suppl. Bd. p. 67.

series of stages in the development of voluntary muscle which biological science is now cognisant of, is very striking. That there are no anatomical divisions corresponding to the striation of muscle is shown by recent observations. It remains, then, only to find a physiological conception of contraction which, while applicable primarily to unicellular creatures, provides for the development of the organism and the differentiation of its parts. Natural history requires, in the words of Engelmann, that "every attempt to explain the mechanism of protoplasmic movement must extend to all the other phenomena of contractility".¹ This requirement the theory of contractility of Max Verworn seems to me to go far toward supplying, accordant as it is with the detailed results of Kühne, Schultz, Englemann and others. The outcome of Verworn's work is a chemical theory of contractility which rests upon two known cases of chemical action.² Kühne has proved that the oxygen of the air supplies a want to the outer layer of particles of a protoplasmic mass. The elements set free by this union find themselves impelled toward the centre by their affinity for the nuclear elements: this new synthesis releases elements which again move outward toward the oxygen at the surface.³ Thus there are two contrary movements: away from the nucleus, or expansion, and toward the nucleus, or contraction. Considering the oxygen-action as stimulus, we have thus a reaction which repeats its own stimulus and thus perpetuates itself. This is just the type of imitative reaction as my theory, outlined above, requires it. Verworn pushes the claim of this type of vital action right up through all the forms of muscular action—just as Eimer finds only the one type of function necessary to account for all the morphological variations. I am certainly, therefore, within the bounds of biological evidence in claiming that the imitative type of reaction is first in psychological order and significance: and especially so if it be found, as this paper endeavours to hold, that the progress of consciousness can be accounted for in stages corresponding in its great features with the stages of differentiation required by the physiological and anatomical theories.

¹ Quoted by Soury, *Revue Philosophique*, July, 1893, p. 45.

² *Die Bewegung der lebendigen Substanz* (Jena, 1892). Verworn's work is summarised by Soury (see last note). See Burdon Sanderson's remarks on 'Chemiotaxis' in *Nature*, Sept. 14, 1893, p. 471.

³ The exhaustion of the nucleus by stimulation is shown by the work of Hodge, *Changes due to Functional Activity of Nerve Cells*. Boston, 1893.

The concomitance of higher and lower instances of the one "circular reaction" is seen in the voluntary contraction of a muscle because an act is pictured and desired (imitated) on the one hand, and on the other, in the continued rhythmical performance of the same act automatically.¹

§ 9. For example, resuming our analysis of consciousness: you speak a word; I at once write it. To-morrow, by reason of a brain lesion, I am unable to write the word when I hear you speak it, but I can still copy the word when you set it before me. The lesion has simply deprived me of the use of my internal visual copy by cutting the writing-reaction apparatus off from its connexion with the auditory seat from which this visual copy was accustomed to be "rung up". But the simpler imitation of the external visual copy remains possible. A step further: I see a man and at once write his name. Here the visual image of the man rings up the auditory image of the name-word, this rings up the visual copy-image of the written word, and this I imitate by writing. If any one had asked me why I wrote the man's name, I would have said: "Because I remembered it". But each one of these images is itself a "copy," when needed for its own appropriate reaction. A young child, on seeing the man, would say "Man," *i.e.*, would imitate the auditory copy which the sight of the man rung up. And a certain child of mine would probably hasten to ask for a pencil in order to draw the man, *i.e.*, to imitate the schematic outline man fixed in her memory by earlier efforts to imitate the external thing.

§ 10. The question as to how the different "copies" get to ring one another up, in such a system, is the question of association. They can at first act together only as far as the original external copies are together. In other words, association by contiguity is simply the transfer of external togetherness into internal togetherness. But suppose a present external copy rings up another copy which is only internal: why is this? Evidently because there are some other elements of copy either external or internal which have been together with both: this is association by resemblance or contrast. For example: your spoken word brings up my written word copy. Why? Because sound and written copy existed together when I learned to write. Again, man seen brings up name written. Why? Because "man seen" and "name heard" were present together

¹ See Chauveau on "The Sensori-motor Nerve Circuit of Muscles" in *Brain*, 1891, pp. 145 ff., and Exner on "Sensomotorik" in *Pflüger's Archiv*, xlviii. 592 ff.

when I learned to speak, and afterwards "name heard" and "name written" were present together when I learned to write. So "name heard" is the common element of copy.

§ 11. Reflexion convinces us that we have now reached a principle of wide-reaching application in mental development. We see how it is possible for reactions which were originally simple imitative suggestions to lose all appearance of their true origin. Copy-links at first distinctly present as external things, and afterwards present with almost equal distinctness as internal memories, may become quite lost in the rapid progress of consciousness. New connexions get established in the network of association, and motor discharges get stimulated thus which were possible at first only by imitation and owed their formation to it. A musician plays by reading printed notes, and forgets that in learning the meaning of the notes he imitated the movements and sounds which his instructor made: but the intermediate copies have so fallen away that his performance seems to offer no surface imitation at all. His sound copy system, of course, persists to the end to guide his muscular reactions. But a musician of the visual type goes farther. He may play from memory of the printed notes; that is, he may play from a transplanted visual copy of notes which themselves are but shorthand or substitute expressions of earlier sound and muscular copies, and finally the name only of a familiar selection may be sufficient to start a performance guided only by a subconscious muscular copy series. If this principle should be proved to be of universal application we would then be able to say that every intelligent action is stimulated by copies whose presence the action in question tends to reproduce.¹

§ 12. Returning to the earlier question of the origin of instinct and impulse, I venture to suggest—subject to criticism and in the face of apparent paradox—that both of them are explainable by this principle of modified and compounded imitations. What is a bird's nest-building instinct but a roundabout road to a simple adaptation which was at first carefully copied, but which has been buried and utterly blotted out of consciousness by genera-

¹ It is easy to see that the whole psychological theory of muscular control, whether central or peripheral in its seat, requires the production by the reaction of a sensational series which matches or repeats a copy series: and inhibition in general represents the limitations which ready organic acquisitions impose upon new reactions—they must conform if possible to old organic "copy".

tions of inheritance, until the direct fragmentary reactions of its present world have come to make up the larger whole which is our "idea" and the bird's creation? What is impulse but the trunk, the torso, of a reaction which has lost its copy and so failed to maintain itself in full operation—fully useful once but now restricted and superseded by more complex activities? We have impulses and the animals have instincts because we have left the animals behind and by our rational volitions realise compounds of activity which instincts at their best only ape. In the insane asylums may be seen men in whom the semblance of "idea," preserved in the animals by the equilibrium of instincts, as well as the prevision characteristic of human choice, are both absent: and in these persons impulse, free from both checks, plays itself out in fragmentary and destructive action. Like little children, before the training of volition, such patients learn only by imitation.

§ 13. Accommodation, then, is the principle by the action of which, in the constant exercise of imitation, new adaptations are acquired, and the system of copies to which it is the end of our actions to conform, is indefinitely recruited.

§ 14. Continued accommodation is possible only because the other principle, *habit*, all the time conserves the past and gives *points d'appui* in solidified structure for new accommodations. Inasmuch, further, as the copy by transference from the world to the mind, in memory, becomes capable of internal revival, accommodation takes on a new character—a conscious subjective character—in *volition*. Volition arises as a phenomenon of "persistent imitative suggestion," as I have argued in a more severe way elsewhere.¹ That is, volition arises when a copy remembered vibrates with other copies remembered or presented, and when all the connexions, in thought and action, of all of them are together set in motion incipiently. The residue of motive is connected with what we call attention,² and the final co-ordination of all the motor elements involved is volition, or choice. The physical basis of memory, association, thought, is also that of will—the cerebrum—and pathological cases show clearly that aboulia is funda-

¹ *Proceedings of Congress of Experimental Psychology*, London, 1892, pp. 49 ff. This topic is to be more fully developed in a special chapter of my forthcoming book.

² For an analysis of the relation of Reflex attention to sensation and movement, see my article, "Internal Speech and Song," in *Philosophical Review*, July, 1893, pp. 385 ff.

mentally a defect of synthesis in perception and memory,¹ arising from one or more breaks in the copy system whose rise I have sketched in what precedes.

§ 15. There are several aspects of presentation and representation which seem more reasonable when brought into connexion with our present topic. The principle of assimilation, made much of in recent discussions, clearly illustrates not only the possible dominance in consciousness of a copy-image so strong and habitual as to assimilate new experiences to its form and colour; but also that this assimilation is the very mode and method of the mind's digestion of what it feeds upon. Consciousness constantly tends to neglect the unfit, the *mal apropos*, the incongruous, and to show itself receptive to that which in any way conforms to its present stock. A child after learning to draw a full face—circle with spots for the two eyes, nose, and mouth, and projections on the sides for ears—will persist when copying a face in profile in drawing its circle, with two eyes, and two ears; and fail to see its error, although only one ear is visible and no eyes.² The external pattern is assimilated to the memory copy. The child has a motor reaction for imitating the latter; why should not that answer for the other as well? As everybody admits, in one way or another, such assimilation is at the bottom of recognition, and of illusions, which are but mistaken recognitions.

§ 16. Passing on to the sphere of conception and thought, we find a remarkable opening for the law of imitation. The principle of Identity which represents the mental demand for consistency of experience, and the mental tendency, already remarked, to the assimilation of new material to old schemes, is seen genetically in the simple fact that repetitions are pleasurable to the infant because of the law of habit in its reactions. Just in as far as a new experience repeats an old one, to this degree it accomplishes what motor imitation would have accomplished, and makes future repetitions easier. To say that identity is necessary to thought, therefore, is only to say that it expresses in a generalisation the method of mental development by imitative reaction. Identity is the formal or logical expression of the principle of Habit.

§ 17. The principle of Sufficient Reason is subject to a corresponding genetic expression, on the side of Accommo-

¹ See Janet, "Un cas d'Aboulie, &c.," in *Revue Philosophique*, March and April, 1891.

² Cf. Paasy's interesting observations in *Revue Philosophique*, 1891, ii. 614.

dation. Sufficient reason, in the child's mind, is an attitude, a belief: anything in its experience which tends to modify the course of its habitual reactions in a way which it must accept, endorse, believe—this has its sufficient reason, and he accommodates to it by imitation. I have argued elsewhere that a conflict between the established, the habitual, the taken for granted, the identified, on one hand, and the unidentified and unassimilated, on the other hand, is necessary to belief. Belief arises in the child in the readjustment of himself actively to new elements of reality. In as far as there is truth in this view, in so far does Sufficient Reason become a formal or logical statement of the fact of accommodation. Put more broadly: whenever we believe a new thing or accept its existence, we accommodate our attitude to its presence, we make place for it in our store of acquisitions for future use; this means that we are prepared to reproduce it voluntarily and involuntarily, to make it a part of that copy system which hangs together in our memory as representing a consistent course of conduct and the best adjustment we have been able to effect to our physical and moral environment.

Imitation is then the method by which our living *milieu* in all its aspects gets carried over and reproduced within us. Our consciousness of the relationships of the elements of this reproduced world is our sense of sufficient reason. Our accompanying sense of acceptance and endorsement of these copies by our own action is belief, and the familiarity which repetition engenders betokens the growth of habit and the so-called law of identity.

§ 18. Conception proceeds by identities and sufficient reasons: and we get in this connexion a new genetic view of the active basis of the general notion. The child begins with what seems to be a general. His earliest experiences, carried over into memory, become general copies which stand as assimilative nets for every new event or object. All men are "papa," all colours are "wed," all food "mik". What this really means is that the child's motor attitudes are fewer than his receptive experiences. Each experience of man calls out the same attitude, the same incipient movement, the same coefficient of attention on his part, *i.e.*, as that with which he hails "papa". In other words, each man is a repetition of the papa-copy and carries the child out in action, just as his own imitation of the papa-copy by movement would have carried him out. But of course this does not continue. By accommodations, by experiences which will not assimilate, this tendency to habit is in part

counteracted, his classes grow more numerous as his reactions do, his general notions more "reasonable," and he is on the proper way to a "rectification of the concept".

§ 19. Again, in the affective life we find evidence of the working of the imitative principle. The production of emotion depends upon the reinstatement by association or action of an ideal copy. Sympathy may be called, however, the imitative emotion *par excellence*. My child H. cried out when I pinched a bottle-cork in her fifth month, and wept bitterly, in her twenty-second week, at the sight of a picture of a man with bowed head and feet in stocks. In such cases the presentation is assimilated to memory-copies of personal suffering, and so calls out the motor attitudes habitual to experiences of pleasure- or pain-giving objects. And the motor discharges—the emotional expressions—react to define and deepen the emotion itself. In many cases, however, I think, the associative order is the reverse. The presentation of the expression of emotion in another stimulates motor expression in us, and this in turn reacts to arouse the hedonic state which usually stimulates such a reaction. The two cases of sympathy in my child, given above, illustrate the truth of both these accounts.

§ 20. To speak of pleasure and pain for themselves—I see no way to find an absolute beginning for them anywhere in the course of mental development. If the reactive or contractile process began without consciousness, then no doubt pleasure and pain were the first and simplest form of consciousness when the conditions of its rise were present. But if consciousness was present from the first, and if development depended upon the repetition of useful reactions, then that which throughout the whole animal series and in man constitutes the index in consciousness of profit and loss and so serves as its selective criterion—pleasure and pain—must have had the same place and rôle then as now. Otherwise why should it be at all? Preferring the alternative which does not involve us in the question of the origin of consciousness—a preference for which more adequate reasons can be given in general philosophy—I think pleasure and pain must be held to be original accompaniments of vital reaction.¹

¹ It is sufficient to suggest at this point that as far as psycho-physical theories of pleasure and pain have taken account of movement, as an element in mental development, they are in accord with the fundamental conception of this paper. Meynert (*Pop. wiss. Vorträge*, iii.) bases the distinction between pleasure and pain, in their genesis, upon the inner processes which minister respectively to outward movements

§ 21. Our outcome then seems to be this, as far as the natural history conception is a valid one; mental development on its active side might be accounted for on the basis of imitative repetition solely, provided two original moments be assumed in the first manifestations of life, i.e., contractility and pleasure-pain.¹

§ 22. An interesting point comes to light when we ask the relation of these two factors to each other. If imitation is anything like the fundamental fact which the foregoing account takes it to be—the means of selection among varied external stimulations—it becomes evident in what sense pleasure and pain can be called the “object” of the reaction. Pleasure and pain are seen to be the index of a change brought about by a function. The repetition of this function is desirable, and this is secured by further imitation. The pleasure is enhanced by this repetition which aims at securing the continual presence of the copy; that is to say, the pleasure accruing is something additional to the copy or “object” which the reaction aims at.

The observation of young children directly and plainly confirms the truth of this position. The child invariably reacts at first upon objects. Suggestion, serving as a principle of accommodation, works regardless of the pleasure or pain which it gives rise to. I have illustrated this elsewhere with concrete cases from infant life.² Romanes finds it in the animal world.³ Pathology is full of striking illustrations of it. Further, the transition from this naive suggestibility to the reflective consciousness in which pleasures and pains become considerations or ends, is marked in the life history of the infant. He learns to dally with his bottle, to post-

(*Angriffsbewegungen*) and returning movements (*Abwehrbewegungen*); and Münsterberg's recent suggestive experiments (*Proc. Cong. Exper. Psych.*, London meeting, p. 182; and *Beiträge*, Heft iv. pp. 216 ff.) bear in the direction of a similar distinction. It is clear that, in the main, outward movements, expansions, would be the stimulus-repeating, imitative, pleasurable movements; and returning movements, contractions, would represent lessened vitality and so pain. *Rigor mortis* is contraction; and it is seen in unicellular creatures in the return to the spherical form when death comes.

¹ This leaves untouched the mysteries of reproduction and heredity over which the chemists and the philosophers are at war. Personally I am quite incompetent to discuss either of them. See also what is said about the limitations of the ‘natural history conception,’ below, § 29.

² *Science*, loc. cit.

³ “There is abundant evidence of one individual imitating the habits of another individual whether the action imitated be beneficial or useless” (*Mental Evolution in Animals*, p. 220).

pone his enjoyment, to subordinate a present to a distant pleasure, by a gradual process of reflective self-control. He gradually grows out of his neutrality to be a reflective egoist; but fortunately he learns at the same time, or even earlier, the elements of reflective altruism as well.

In adult life it is undoubtedly true that we usually do things because we like to do them, but it is not always so. Just as the little child sometimes acts from mere suggestion, at the same time moved to tears by the anticipation of pain to result from it; so to the man a copy may be presented so strongly for imitation, it may be so moving by its simple suggestiveness, that he acts upon it even though it have a hedonic colouring of pain. The principle of accommodation requires that it be so, for otherwise there could be no development, except within the very narrow range of accidental discharge. No new adjustment or adaptation could be effected without risk of pain and damage. If the child never reacted in any way, but in pleasurable ways guaranteed by its inheritance or by its experience, how could it grow? So if we sought only what we have already tasted, how could new appetites be acquired?¹

§ 23. There is another sphere of the operation of imitation into which we must briefly enter—the social and moral sphere. The growth of the notion of self is so important a genetic factor in social and moral life, that it may suffice to consider the influence of imitation in the consciousness of self—an influence not generally recognised.

One of the most remarkable tendencies of the very young child in its responses to its environment is its tendency to recognise differences of personality. It responds to what I have elsewhere called "suggestions of personality".² As early as the second month it distinguishes its mother's or nurse's touch in the dark. It learns characteristic methods of holding, taking up, patting, kissing, &c., and adapts itself by a marvellous accuracy of protestation or acquiescence to these personal variations. Its associations of personality come to be of such importance, that for a long time its happiness or misery depends upon the presence of certain kinds of personality-suggestion. Of course this indicates a kind of memory, and a reaction which imitates or seeks to reproduce useful and pleasurable experiences. But yet it is quite a different thing from the child's behaviour towards

¹ In the chapters on "Pleasure and Pain" in my *Handbook* (ii., chaps. v. and xi.) I have pointed out that the "well-being" theory of pleasure and pain must be supplemented to include reference to future development.

² *Science*, loc. cit.

things which are not persons. Things get to be, with some few exceptions which are involved in the direct gratification of appetite, more and more unimportant: things get subordinated to regular treatment or reaction. But persons get constantly more important, as uncertain and dominating agencies of pleasure and pain. The fact of movement by persons and its effects on the infant seem to be the most important factor in this peculiar influence; later the voice gets to stand for a person's presence, and at last the face and its expressions equal the person, in all his attributes.

I think this distinction between persons and things, between agencies and objects, is the child's very first step away from a purely objective consciousness. The sense of uncertainty or lack of confidence grows stronger and stronger in its dealings with persons—an uncertainty contingent upon the moods, emotions, *nuances* of expression and shades of treatment of the persons around it. A person stands for a group of experiences quite unstable in its prophetic as it is in its historical meaning. This we may for brevity of expression, assuming it to be first in order of development, call the "*projective stage*"¹ in the growth of personal consciousness.

Further observation of children shows that the instrument of transition from such a "*projective*" to a subjective sense of personality is the child's active bodily self, and the method of it is the principle of imitation. As a matter of fact, accommodation by actual muscular imitation does not arise in most children until about the seventh month—so utterly organic is the child before this, and so great is the impetus of its inherited instincts and tendencies. But when the organism is ripe, by reason of cerebral development, for the enlargement of its active range by new accommodations, then he begins to imitate. And of course he imitates persons. Persons have become his interesting objects, the source of his weal or woe, his uncertain factors. And further, persons are bodies which move. Among these bodies which move, which have certain projective attributes as described, a very peculiar and interesting one is his own body. It has connected with it certain intimate features which all others lack. Besides the inspection of hand and foot, by touch and sight, he has experiences in his consciousness which are in all cases connected with this body: strains, stresses, resistances, pains, &c.—an inner felt series match-

¹ The use of this word seems to be necessary in order not to encroach upon the recognised meanings of the words *subjective* and *ejective*.

ing the outer presented series. But it is only when a new kind of experience arises which we call effort—a set opposition to strain, stress, resistance, pain: an experience which arises, I think, first as imitative effort—that there comes that great line of cleavage in his experience which indicates, as I have said above, the rise of volition, and which separates off the series now first really *subjective*. Persistent imitation with effort is the first volition, and the first germinating nucleus of self-hood over against object-hood. Situations before accepted simply, are now set forward, aimed at, wrought; and in the fact of aiming, working, the fact of agency, is the sense of subject. The subject sense is an actuating sense. What has formerly been projective now becomes subjective. The associates of other personal bodies, the attributes which made them different from things, are now attached to his own body with the further peculiarity of actuation. This I may call the *subjective* stage in the growth of the self-notion. It rapidly assimilates to itself all the other elements by which the child's own body differs in his experience from other active bodies: the passive inner series of pains, pleasures, strains, &c. The self suffers as well as acts. All get set over against lifeless things, and against living bodies which act but whose actions do not contribute to his own sense of actuation or of suffering.

Again, it is easy to see what now happens. The child's subject-sense goes out to illuminate these other persons. The projective is now lighted up, claimed, clothed on with the raiment of self-hood, by analogy. The projective becomes *ejective*, *i.e.*, other people's bodies, says the child to himself, have experiences *in them* such as mine has. This is the third stage, the *ejective*, or "social" self.¹

The *ego* and the *alter* are thus born together. Both are crude and unreflective, largely organic, an aggregate of sensations prime among which are efforts, pushes, strains, physical pleasures and pains. And the two get purified and clarified together by this twofold reaction between project and subject, and between subject and eject. My sense of myself grows by imitation of you, and my sense of yourself grows in terms of my sense of myself. Both *ego* and *alter* are thus essentially social creations. For a long time the child's sense of self includes too much: the circumference of

¹ I think an adequate apprehension of the distinctions conveyed by the three words "projective," "subjective," and "ejective" would banish the popular "psychologists' fallacy" beyond recall.

the notion is too wide. It includes the infant's mother, and little brother, and nurse, in a literal sense. To be separated from his mother is to lose a part of himself; as much so as to be separated from a hand or foot. And he is dependent for his growth directly upon these suggestions which came in for imitation from his personal *milieu*.

It will be seen by readers of R. Avenarius¹ that the two stages of this development correspond to the two stages in his process of *Introjection*, whereby the "hypothetical" (personal-organic) element of the *natürlichen Weltbegriff* is secured. Avenarius finds, from analytical and anthropological points of view, a process of attribution, reading-in (*Einlegung*), by which a consciousness comes to interpret certain peculiarities attaching to those items in its experience which represent organisms and afterwards persons. The second stage is that whereby these peculiarities get carried back and attached to its own organism (*Selbst-einlegung*); and recognised as "subjective" (sensations, perceptions, thoughts), in both organisms, over against the regular "objective" elements contained in the rest of the world-experience.

This general doctrine of Avenarius finds profound justification, I think, from the genetic sphere, as the two phenomena "personality-suggestion" and "imitation" indicate. The first stage is what I have called the "projective" stage of the self-notion in what precedes. It is the stage in which the infant gets "personality-suggestions". It is simply the infant's way of getting "more copy" of a peculiar kind from its objective (personal) surroundings. The second stage is secured by imitation. The child reproduces the copy thus obtained, consisting of the physical signs and, through them, of the mental accompaniments. By this reproduction it "interprets" its projects as subjective in itself, and then refers them back to the "other person" again. Avenarius, as far as I have been able to discover, has no means of passing from the first to the second stage, from *project* to *subject*. He speaks² of a certain confusion (*Verwechselung*) of the projective experience (*T-Erfahrung*) with the remaining personal elements in consciousness (*M-Erfahrung*): what the true leading-thread into this "confusion" and out of it is, he does not note. This is just what I claim the function of imitation does; it supplies the bridge with two reaches. It enables me to pass

¹ *Kritik der Reinen Erfahrung*, and also *der Menschliche Weltbegriff*. The present writer judges the doctrines principally from the second-named work. The first is so obscurely written that one is tempted to confess a certain willingness to leave it unexplored.

² *Loc. cit.*, § 51, p. 80, and § 95, p. 49.

from my experience of what you are, to an interpretation of what I am; and then from this fuller sense of what I am, back to a fuller knowledge of what you are.¹

§ 24. The two principles, habit and accommodation, now get application on a higher plane: a plane which is the theatre of the rise of moral sentiment. Again disclaiming adequacy of treatment, I think some light falls on the growth of ethical feeling from the psychology of imitation. Moral sentiment arises evidently around acts and attitudes of will. It is accordingly to be expected that the account of the genesis of volition will throw some light upon the conditions of the rise of conscience. If it be true that present character is the deposit of all former reactions of whatever kind, and that what we call will is a general term for our concrete acts of volition; then according as these acts of volition are done in reference to suggestion from persons, or represent partial expressions of personal character, there arises a division within the notion of self. Your suggestion may conflict with my desire: my desire may conflict with present sympathy. Self meets self, so to speak. It is no longer a matter of simple habit *versus* simple suggestion as is the case in infancy, before the self becomes a voluntary agent. It is now that form of habit which is personal agency coming into conflict with that form of suggestion which is also personal to me as representing my social self. Your example is powerful to me intrinsically; not because it is abstractly good or evil, but because it represents a part of myself, inasmuch as I have become what I am in part through my sympathy with you and imitation of you.

¹ In the use of the two facts, "personality-suggestion" and "imitation," my development is quite unindebted to Avenarius, who writes from the point of view of race history and criticism. I do not adopt the word 'introjection' since it covers too much; my word 'project' signifies the child's sense of others' personality before it has a sense of its own. The rest proceeds by imitation. This distinction of method raises a further question which should be carefully discussed in all problems for which a genetic solution is sought, i.e., how far the genetic process itself in the individual's growth has become a matter of race habit or instinct. That is, granted a process of origin correctly depicted, to what extent must we say that each new individual of the race passes through it in all its details? Does mental ontogenesis repeat mental phylogenesis? The origin of impulse and instinct illustrate the effects of habit in abbreviating these processes and starting the individual from points of higher vantage. I am not prepared to say that an isolated child, for example, might not get a high self-notion (as he might learn to speak somehow) if deprived of all social suggestions; but that fact would be subject to explanation as part of the "learning" which evidences the reality of the genetic process. Cf. the note on Prof. Bain's arguments to prove that imitation is not instinctive, below, § 28.

When I come to a new moral situation, therefore, my state is this: I am in a condition of relative equilibrium, or balance of two factors—my personal or habitual self, and my larger social suggestive self. The new experience tends to destroy this equilibrium by reinforcing my “copy” on one side or the other, and so to lead me out for further habit or for new social adaptations.

And now on this basis comes a new mental movement which seems to me to involve a further development of the imitative *motif*—a development which substitutes warmth and life for the horrible coldness and death of that view which identifies voluntary morality with submission to a “word of command”. The child, it is true, very soon comes across that most tremendous thing in its moral environment which we call authority: and acquires that most magnificent thing in our moral equipment which we call obedience. He acquires obedience in one of two ways, or both: by suggestion or by punishment. The way of suggestion is the higher way: because it proceeds by gradual lessons in accommodation, until the habit of regularity in conduct is acquired in opposition to the capriciousness of his own reactions. It is also the better way because it sets before the child in an object lesson an example of that stability and lawfulness which it is the end of all obedience to foster. Yet punishment is good and often necessary. Punishment is nature’s way: she inflicts the punishment first, and afterwards nurses the insight by which the punishment comes to be understood. A child’s capricious movement brings the pain which represents all the organic growth of the race: and so when we punish a child’s capricious conduct, we are letting fall upon him the pain which represents all the social and ethical growth of the race. But by whatever method—suggestion or punishment—the object is the same: to preserve the child until he learns from his own habit the insight which is necessary to his own salvation through intelligent submission.

But whether obedience comes by suggestion or by punishment it has this genetic value: it leads to another refinement in the sense of self, at first ‘projective’ then subjective. The child finds himself stimulated constantly to deny his impulses, his desires, even his irregular sympathies, by conforming to the will of another. This other represents a regular, systematic, unflinching, but reasonable personality—still a person, but a very different person from the child’s own. Here is a copy which is a personal authority or law. It is ‘projective’ because he cannot understand it, cannot anticipate it. And again it is only by imitation that he is to

reproduce it, and so arrive at a knowledge of what he is to understand it to be. So it is a copy. It is its aim and should be mine—if I am awake to it—to have me obey it, act like it, think like it, be like it in all respects. It is not I, but I am to become it. Here is my ideal self, my final pattern, my "ought" set before me. Only in as far as I get into the habit of being and doing like it, get my character moulded into conformity with it, only so far am I good. And like all other imitative functions it teaches its lesson only by stimulating to action. I must succeed in doing, if I would understand. But as I thus progress in doing, I for ever find new patterns set for me; and so my ethical insight must always find its profoundest expression in that yearning which anticipates but does not overtake the ideal.¹

My sense of moral ideal, therefore, is my sense of a possible perfect, regular will in me in which the personal and the social self—my habits and my social calls—are completely in harmony: the sense of obligation in me is the sense of lack of such harmony—of the actual discrepancies in my various thoughts of self, as my actions and tendencies give rise to them. And the thought of this ideal self, made ejective, as out of and beyond me—this is embodied in the moral sanctions of society, and finally in God.²

The value of the ejective sense of moral self is seen in the great sensitiveness we have to the supposed opinions of others about our conduct. It is an ingredient of extraordinary influence. From the account given of the rise of the sense of obligation, we should expect the two very subtle aspects of this sensitiveness which are actually present. First, in general, our dread and fear before another's fancied opinion is in direct proportion to our own sense of self-condemnation. Consciousness is clear on this point. It must be so if it is true that our sense of self-condemnation is of social origin, i.e., arises from our imitative response to the well-sanctioned opinions and commands of others. But second, the intelligent observation of the opinions of others, and the suffering of the penalties of social law, react back constantly to purify and elevate the standards which one sets himself. There is, therefore, a constant progress, from the action and reaction of society upon the individual and the individual upon society.

¹ On the nature of "ideals" and the rise of conceptual emotion generally, see my "Feeling and Will" (vol. ii. of *Handbook of Psychology*), chap. ix.

² On the distinctively social function of imitation, Tarde and Sighele both dwell in the works named, the latter endeavouring to lay the foundations of a science of "collective psychology".

§ 25. In a recent article, Prof. Josiah Royce¹ distinguishes between the two earlier phases of self which I have pointed out, but does not develop the third. Yet he indicates clearly and with emphasis the twofold element of conflict under which the moral sense develops. The ordinary accounts on the natural history side, from Darwin² to the present, simply describe a conflict in consciousness between sympathy and selfishness. This fails to do justice to the "law" element in the genesis of morality. I would go farther than Royce does in emphasising this element: believing as I do that there is no sense of oughtness until the child gets the basis laid of a *habit* which not only calls upon him to deny his private selfishness in favour of sympathy, but also his private sympathies in favour of reasonable regularity learned through submission. The opposition, *e.g.*, between my regular personal ideal and all else—whether it be the regularity of my selfish habit or the irregularity of my generous responses—this is the essential condition of the rise of obligation. And it is in as far as this ought-feeling goes out beyond the copy-elements drawn from actual instances of action, and anticipates better or more ideal action, that the antithesis between the 'ought' and the 'is' gets psychological justification.

The question whether obedience is a case of imitation³ is largely a matter of definition. As far as the copy set in the 'word of command' is reproduced, the reaction is imitative. A child cannot obey a command to do what he does not know how to do. The circumstances of his doing it, however, the forcible presentation of the copy by another person, this seems only to add additional elements to the copy itself. The child has in view, when he obeys, not only the thing he is to do, but the circumstances—the consequences, the punishment, the reward—and these also he seeks to reproduce or to avoid. On the other hand, it may well be asked whether all of our voluntary imitations, and actions generally, are not cases of obedience: for it is only when an idea gets certain force, and sanctions, and social setting, that it is influential in bringing us out for its reproduction. Of course this is only further play on definitions; but it serves to indicate the real elements in the situation. When Tönnies says that obedience comes first and imitation afterwards, he refers to voluntary imitation of a par

¹ *International Journ. of Ethics*, July, 1898, p. 480.

² *Descent of Man*, part i. chap. iii.

³ See discussion by Tarde, *loc. cit.*, and Paulhan, *Revue Philosophique*, Aug., 1890, p. 179: also Tönnies, *Philosophische Monatshefte*, 1898, p. 808.

ticular type. An infant does not obey a command until he has learned how to perform it; and that suffices, with its sanctions, to give him 'copy'.

§ 26. It is possible, on the basis of the preceding development, to lay out a scheme of notions and terms to govern the discussion of the whole matter of imitation. This has been the 'loose joint' in earlier discussions: the utter lack of any well-defined limits set to the phenomena in question. Tarde practically claims all cases of organic or social resemblance as instances of imitation, overlooking the truth, as one of his critics takes pains to point out, that two things which resemble each other may be common effects of the same cause. Others are disposed to consider the voluntary imitation of an action as the only legitimate case of imitation. We have reason to think, however, that volition requires a finely complex system of copy-elements, whose presence can be accounted for only on the basis of earlier organic imitations. Further, it is the lower, less volitional types of mind that imitation specially characterises. If we then say that imitation always involves a presentation or image of the situation or object imitated—a position very near the popular use of the term—then we have great difficulty in accounting for those reactions which reproduce subconscious, vaguely present stimulations: for example, the acquisition of facial expression, the contagion of emotion, the growth of style in dress and institutions—what may be called the influence of the 'psychic atmosphere'.

I think we have found reason from the analysis above, to hold that our provisional definition of imitation is just: an imitative reaction is one which normally repeats its own stimulus. This is what we find the nervous and muscular mechanism suited to, and this is what we find the organism doing in a progressive way in all the types of function which we have passed in review. If this is too broad a definition, then what I have traced must be given some other name, and imitation applied to any more restricted function that can be clearly and finally marked out. But let us give no rein to the fanciful and strained analogies which have exercised the fancy of some of the French writers on imitation.

Adhering then to the definition which makes of imitation an organic type, we may point out its various "kinds," according to the degree in which a reaction of the general type has by complication, abbreviation, substitution, inhibition, departed in the development of consciousness from its typical simplicity. We find in fact three great instances of function, all of which conform to the imitative type.

First: simple contractility which reproduces its stimulus. This may be called *biological* imitation. Under this head fall all cases lower down than the conscious picturing of copies: lower down in the sense of not involving, and never having involved, for their execution, a conscious sensory or intellectual stimulus, with the possibility of its revival as memory. On the nervous side, such imitations may be called *subcortical*; and in view of another class mentioned below, they may be further qualified as *primarily subcortical*.

These "biological" imitations are evidently first in order of development, and represent the gains or accommodations of the organism made independently of the conscious picturing of copies. They represent accidental variations which are useful for repetition. They serve for the accumulation of material for conscious and voluntary actions. In the young of the animals, its scope is very limited, because of the complete instinctive equipment which young animals bring into the world; but in human infants it plays an important part as the means of the gradual reduction to order and utility of the random movements of the new-born. I have noted its presence under the phrase "pre-imitative" or "physiological" suggestion¹ in another place. It is under this head that the so-called "selective" function of the nervous system finds its first illustration.²

Second: we pass to *psychological* or *cortical* imitations. The criterion of imitation—its copy for reproduction—is here preserved through the medium of conscious sensations and images. The copy becomes consciously available in two ways: first, as sensation, which the imitative reaction seeks to continue or reproduce (as the imitation of words heard,

¹ *Science*, xvii., 1891, p. 113. Of course the phrase pre-imitative did not contemplate the broader use of the term imitation which I am now employing, but limited it to conscious imitation.

² This distinction between young children and the young of animals gives us the reason that we do not find clear imitations as common among the animals as we would expect—the monkey and the parrot excepted. In the words of Preyer (*Physiologie des Embryos*, p. 545), "the more kinds of co-ordinated movement an animal brings into the world, the fewer is he able to learn afterwards". The child is *par excellence* the animal that learns; and if imitation is the way to learn, he has "chosen the better part" in being more imitative than the rest. Animal imitativeness is generally understated, however—cf. the remarkable performances of dogs, cats, birds, &c., in the way of imitation (cf. Romanes, *Evol. of Mind in Animals*, chap. xiv.). The most social animals, including man, are the most imitative, as we would expect; since both sociability and imitation are connected with what I have called "personality-suggestion".

movements seen, &c.); and second, as memory. In this latter case there arises desire, in which there is consciousness of the imitative tendency as respects an agreeable memory-copy; and with the persistence of such a copy, and its partial repression by other elements of memory, comes volition. We find, accordingly, two kinds of psychological or cortical imitation, which I have called in the article already quoted¹ respectively "simple" and "persistent" imitation. Simple imitation is the sensory-motor or idea-motor suggestion which reproduces its own stimulus; and persistent imitation is the "try-try-again" experience of early volition.

Third: a great class of facts which we may well designate by the term *plastic* or *secondarily-subcortical* imitation, i.e., all the cases of stimulus-repeating reaction which once represented conscious adaptation, but have become what is ordinarily called "secondary-automatic" and subconscious. These cases we have found readily explainable by the hypothesis of lapsed links in the memory copy system, or, put more shortly, by the principle of habit. So we find under this heading such fundamental facts as instinct and impulse, the social phenomena of contagion, fashion, mob-law, which Tarde and Sighele so well emphasise, the imitation of facial and emotional expression, moral influence, organic sympathy, personal rapport, &c. The term plastic serves to point out the rather helpless condition of the person who imitates, and so interprets in his own action the more intangible influences of his estate in life.²

§ 27. Before concluding, I wish to draw attention to some more obscure instances of imitation, and assign them places in the general scheme of development.

The social instances noticed at length by Tarde, and summarised under so-called "laws," are easily reduced to more general principles. Tarde enunciated a law based on the facts that people copy thoughts and opinions before they copy dress and customs: i.e., "imitation proceeds from the internal to the external". As far as this is true it is only partially imitation. Thoughts and opinions are copied because they are most important; and as the copier thinks

¹ *Science*, xvii., 1891. Cf. also my paper on "Suggestion and Volition" in the *Proceedings of the London Congress*, 1892.

² An extremely subtle and interesting phenomenon under this head is that usually described as the influence of example on personal belief. What we call persuasion is largely the suggestion of the emotion which accompanies strong conviction, with the corresponding influence which the emotion suggested has upon the logical relationships apprehended by the victim.

with another he acts with him, since like thought produces like conduct. But in fact is there such a general truth? American ladies take their styles in dress from the French, but they have little respect for the sentiments of French social circles: they rather imitate in literature and higher things the opinions of the English, whose dress they consider inferior. Further, a child imitates persons, and what he copies most largely are the personal points of evidence, so to speak; the boldest, most external manifestations, not the inner essential mental things. It is only as he grows to make a conscious distinction between thought and action that he gets to giving the former a higher valuation.

Again, Tarde's laws relative to *imitation mode* and *imitation coutume*—the former having in its eye the new, fashionable, popular, the fad; the latter, the old, venerable, customary—are so clearly partial statements of the principles of accommodation and habit, as they get application on a broader social scale, that it is not necessary to dwell further upon them.¹

The phenomena of hypnotism illustrate most strikingly the reality of imitation at a certain stage of mental life. Delboeuf makes it probable² that the characteristic peculiarities of the "stages" of the Paris school are due to this influence: and the wider question may well be opened whether suggestion generally, as understood in hypnotic work, might not be better expressed by some formula which recognises the fundamental sameness of all reactions—normal, pathological, hypnotic, degenerative—which exhibit the form of stimulus-repeating or 'circular' process characteristic of simple imitation. In normal, personal, and social suggestion the copy elements are in part unrecognised, and their reactions are subject to inhibition and blocking-off by the various voluntary and complicated tendencies which have the floor. In sleep, the copy elements are largely spontaneous images thrown up by the play of association or stimulated by outside trivialities, and all so weak that while action follows in the dream persons, it does not follow in the dreamer's own muscles. In hypnotic somnambulism all copy elements are from the outside, thrown in: the inner fountains are blocked: action follows upon idea, whatever it is. Even the idea of no action is acted out by the lethargic, and the idea

¹ Tarde's other principle that "inferiors imitate superiors" is clearly a corollary from the view that the progressive ideal personality arises through social suggestion.

² *Revue Philosophique*, xxii. pp. 146 ff.

of fixed action by the cataleptic.¹ And all the vagaries of Luys himself get 'demonstrated' with reality enough, because Luys sets the 'copy'. Further, in certain cases of madness (*folie à deux*, &c.) the afflicted patient acts out responses to a certain personal copy which has become fixed in the progress of the disease, and perhaps has aided in its production.² In all these cases, the peculiar character of which is the performance, under conditions commonly called those of aboulia,³ of reactions which require the muscular co-ordinations usually employed by voluntary action, we have illustrations of 'plastic' imitation. On the pathological side, we find, in aphasic patients who cannot write or speak spontaneously, but who still can copy handwriting, and speak after another, cases which illustrate the same kind of defect, yet in which the defect is not general, but rather confined to a particular group of reactions by reason of a circumscribed lesion.

§ 28. An examination of Prof. Bain's forceful arguments against the view that imitation is an "instinct" will suffice, finally, to set out clearly the *via media* which the conception of this paper suggests.⁴ Bain's definition of imitation assigns it a place (the fourth stage) among the acquired reactions which contribute to the development of volition. Imitation is always voluntary, *i.e.*, a conscious repetition of a pictured copy due to association.⁵ The first argument advanced to disprove instinctive imitation is this: if imitation were an instinct it would appear earlier in infant life than it does (second half-year).⁶ This fact, however, may

¹ It may be well to quote Janet's summary of his determinations of the characteristic features of general catalepsy, all of which indicate a purely imitation condition of consciousness, *Aut. Psych.*, p. 55: "The different phenomena which we have described are these, *i.e.*, the continuation of an attitude or a movement, the repetition of movements which have been seen and of sounds which have been heard, the harmonious association of the members and of their movements."

² Cf. Falret, *Études cliniques sur les maladies mentales et nerveuses*, p. 547.

³ This would involve a doctrine which holds that in the hypnotic state, there is inhibition of the cortical associative or synthetic function, but not of the simple cortical sense function: cf. Gurney's remarks on Heidenhain's explanation of 'hypnotic mimicry' in *MIND*, 1884, p. 498.

⁴ Bain, *Senses and Intellect*, pp. 418 ff. (8rd ed.).

⁵ *Ibid.*, pp. 411 and 418, also 417.

⁶ Prof. Sully, *The Human Mind*, ii. 218, also makes this point. Sully makes the following statements in three successive paragraphs; I am quite unable to reconcile them except by modifying them all into conformity with a deeper-going theory of the imitative reaction. (I have ventured to insert in the square brackets after each of these quotations the paragraphs in this paper which bear on it—supposing my

be accounted for on grounds which still leave a balance of inherited organic ("biological" and so instinctive) imitations. The child's early months are taken up with its vegetative functions. Further, accidental imitations struck by him cannot give pleasure until the senses are sharpened to discern them, and until the attention is capable of its operations of comparison, co-ordination, &c.; before this there is no element of pleasure to lend its influence for the continuance of an imitation. As soon as these conditions get fulfilled, we find not only that the child begins to show germinal imitations, such as the monotonous repetition of its own vocal performances (ma-ma-ma-), but also that its nervous connexions give it an instinctive tendency to biological subconscious reactions, distinctly of the imitative type, *i.e.*, the walking alternation of the legs. In the main, therefore, there is instinctive tendency to functions of the imitative type and to some few organic imitations: but those clear conscious imitations which represent new accommodations and acquirements (and it is these which Bain, by definition, has in view) are not instinctive. Infants show remarkable differences in the readiness and facility with which they learn to speak. This does not arise from difference in practice, for practice never overcomes the difference; but it is due to differences in the instinctive tendencies of the infants to a reaction which is, *par excellence*, imitative in its type and method of development.¹

On this basis it is possible to admit the truth of the

general definition of imitation to be correct.) He says (*ibid.*, 218): "Since it only begins to appear about the fourth month, when simple *voluntary* action directed towards an end is also first recognisable, it is possible that imitation is acquired" [§ 28]: then (219), "As a rapid reaction of a sensori-motor form, it has the look of a mechanical process . . . in many cases there seems to be no conscious purpose. . . . There is much to favour the view that it is purely *ideo-motor* and so *sub-volitional*" [§§ 11-18 and 26]: then (219 note), "It is pointed out by Gurney that imitation plays a conspicuous part in the hypnotic state" [§ 27]: and again (219-220), "Imitation follows on the persistence of motor-ideas *having a pleasurable interest*. . . . The child does not imitate *all* the actions it sees, but only certain ones which specially impress it. . . . Hence in most, at least, of a child's imitation there is a rudiment of desire. For the rest, the abundant imitative activity of early life illustrates the strength of the *playful* impulse, of the disposition to indulge in motor activity for the sake of its intrinsic pleasurable-ness" (*italics his*) [§§ 22 and 28]. Again (109), he makes imitative sympathy instinctive [§§ 19 and 26].

¹ The same may be said of handwriting. Cf. Romanes, *Ment. Ev. in An.*, p. 194.

remaining points of Bain's text,¹ at the same time that we recognise a great class of quite involuntary sensori-motor and ideo-motor, as well as purely biological reactions which fall under the imitative type, and which represent instinctive inherited tendencies to movement. In more undeveloped consciousness, further, we find that the purely suggestive influence of a 'copy' for imitation may be so strong that reactions follow despite their painful character: a fact which would be impossible on the theory that all voluntary action is acquired under lead of the pleasure-pain association. The law of habit, which exhibits itself in the inherited motor tendencies I have spoken of, is in these cases too strong for the law of accommodation through pleasure-pain, and works itself out in conduct in opposition to warnings of temporary damage to the organism.

§ 29. The place of imitation has now been made out in a tentative way throughout the development of the active life. It seems to be everywhere. But it is, of course, a matter of natural history that this type of action is of such extraordinary and unlooked-for importance. If we grant a phylogenetic development of mind, imitation, as defined above, may be considered the law and the only law of the progressive interaction of the organism and its environment. The further philosophical questions as to the nature of mind, its worth and its dignity, remain under adjudication. We have learned too much in modern philosophy to argue from the natural history of a thing to its ultimate constitution and meaning—and we commend this consideration to the biologists. As far as there is a more general lesson to be learned from the considerations advanced, it is that we should avoid just this danger, *i.e.*, of interpreting one kind of existence for itself, in an isolated way, without due regard to other kinds of existence with which its manifestations are mixed up. The antithesis, for example, between the self and the world is not a valid antithesis psychologically considered. The self is realised by taking in 'copies' from the world, and the world is enabled to set higher copies only through the constant reactions of the individual self upon it. Morally I am as much a part of society as physically I am a part of the world's fauna; and as my body gets its best explanation from the point of view of its place in a zoological scale, so morally I occupy a

¹ Points which I have also contended for as illustrating the painstaking and tentative stages in the development of voluntary movement through imitation.

place in the social order; and an important factor in the understanding of me is the understanding of it.

The great question is—when put in the phraseology of imitation—What is the final World-copy, and how did it get itself set?¹

¹ It will be remarked that this whole paper deals with what may be called 'representative copies' as opposed to 'constructive copies,' that is, it avoids the question of invention *versus* imitation, except in so far as to hold (§§ 15, 18) that the material of mental construction is always representative, part of the memory copy system. The further question of how this material can get shaped into new forms of invention, artistic arrangement, constructive thought, through imitation—this question remains over. It is not generally seen, however, that this question, as referring to consciousness, is one with the broader question of natural history *versus* special creation everywhere. Put broadly: how is it possible for anything to arise in Nature which is absolutely new to Nature in its function, get fitted to utilise Nature and to survive in it? I have indicated elsewhere (*Proc. Cong. Exper. Psych.*, London, 1892, p. 52, iii. *Physiological Basis of Will*: also in *Science*, Nov. 18, 1892, p. 287) a possible application of the natural history conception to one of these difficult problems, that of voluntary movement.