CHAPTER III.

PSYCHOLOGICAL.

Analysis of Action, or Movement of Feeling.

§ 49. 1. After the analysis and classification of the various kinds of feeling, which is an enquiry into their nature, comes the enquiry into their origin and history, which is an analysis of their movement and action, and of their modes of combining with each other, together with an assignment of their causes; and this method of procedure is in accordance with the precept and practice of Auguste Comte, in making dynamical investigations always follow statical. This throws us back at once upon the physiology of the nervous organism, since the immediate cause both of feeling and changes in feeling is found in the nervous organism alone. Feelings are not the causes of
feelings; there is no causation between them; the series of feelings which constitutes a life can be arranged in a classified order, but the former members of the series do not contain the cause of the later members. Neither do feelings react upon, or contain the causes of, subsequent states of the nervous organism upon which other feelings depend. The sequences and combinations of feelings form, as it were, a kind of mosaic picture, the separate stones of which both support the picture and keep each other in their places; the stones are the states of the nervous organism, the colours on the stones the states of consciousness which are supported by the nerve states. The states of consciousness, the feelings, are effects of the nature, sequence, and combination, of the nerve states, without being themselves causes either of one another or of changes in the nerve states which support them. In enquiring, therefore, into the origin and laws of movement of feelings or states of consciousness, the nature and modes of action of the nervous organism and its various parts are the first object of investigation; and the origin and laws of movement of feeling will be so far only explained as we may succeed in attaching them to their proper causes in the nature and working of the nervous organism. I have not now to argue the point, that the origin of consciousness is to be found only in the nervous organism; that was done in "Time and Space," Chapter iii. But that all subsequent changes in consciousness are due only to changes in the nervous organism, so far as this is not a logical consequence or corollary of the former point, must be here assumed, as at any rate the only hypothesis in accordance with it, and must expect
its further confirmation from its application to the facts of consciousness, which application is the purpose of the present Chapter. (See the argument in § 57.)

2. It should not be thought surprising that causation is denied to states of consciousness. Causation exists, so far as scientific investigation has made out, only between objects of a single class, namely, objects or portions of matter which are visible and tangible. Atoms, molecules, and masses, which are such portions of visibility and tangibility combined, are the only things between which that action and reaction takes place which we call causation. Everything else is an effect of this action and reaction, without being in its turn a cause, or reacting upon it. Everything else is thought to be explained when it can be shown to be a case of the action and reaction of atoms, molecules, or masses. The various forces in nature are held to be cases of such action and reaction; the mechanical, the chemical, the physical, the vital, forces are all held to be modes of change in the relations of atoms, molecules, or masses, to each other. One kind of visible and tangible matter, nerve substance, which is one of the seats of vital forces, or the motions in which are some mode or modes of life, is also the seat of sensation or consciousness, and the motions in it are followed by consciousness. The more finely organised this nerve substance is, and the more minutely complex, interdependent, and individualised, its motions are, so much the more complex and organic is the system of states of consciousness which arises from them. And from our knowledge of this system we can reason back to the states of nerve substance upon which it depends; and it becomes in
3. The relation, then, of nerve substance and its changes to consciousness and its changes is, that it is its causa existendi; while consciousness and its changes are the causa cognoscendi of the former. But consciousness is much more than this; it is the causa cognoscendi not only of nerve substance and its workings but of everything else, of all existing things. Let us suppose the whole world existing before consciousness arises in it; and then from the moment of consciousness arising we shall recognise in it, not a new existence, but the perception of the pre-existing world; the pre-existing world and no other, felt and known, that is, as it were, mirrored and reduplicated in a new character. There is no other content of consciousness but this pre-existing and simultaneously existing world. As consciousness becomes more complex, as we advance up the scale of conscious beings to man, and thence again to the most perfect cases of human intelligence, more and more of this pre-existing and simultaneously existing world is mirrored in consciousness, and that portion of it is mirrored also which intervenes between the first feeble origin of consciousness and the most perfect cases of human intelligence, that is to say, the portion containing the nervous organism itself, its working, and its development. If, then, we draw a distinction between consciousness and the world in which it arises, this distinction can be no other than that between the subjective and objective aspects of the world, or, what is the same thing, of consciousness; in other words, the whole series of causes, causa existendi, is contained in the one, and
the whole series of evidences, cause cognoscendi, in the other. The two aspects, the two series, are actually inseparable and only logically distinguishable; in the separation supposed at the beginning of this paragraph, the world supposed to exist before consciousness arises is, and must be, the same world that we know, distinguished from ourself in reflection, and imagined separate from our knowledge of it by logical abstraction; and it is so for this reason, that our reasoning about the two series or aspects, or about any part of them, is itself a portion of that series of states of consciousness which has been said to be nothing but a mirror or reduplication of the pre-existing and simultaneously existing world. We may figure to ourselves the development of the visible and tangible world with its qualities, beginning at simple movement of atoms and ending at nerve substance, by a line, which then doubles back on itself, and in the movement from this point of doubling back represents consciousness, the perception of the world figured by the first line. The moment of arising of consciousness is represented by the turning point between the two lines. What precisely it is which takes place at this point, where consciousness or feeling arises in nerve substance, is perhaps the most secret of all the secrets of science.

* Visible and tangible world.

Consciousness.  Moment of Reflection.

The point marked Moment of reflection, in the line representing consciousness, represents the moment when we become conscious of the distinction of ob-
ject and subject, or, in other words, the perception of the Moment of arising of consciousness having existed. And this moment of reflection arises in reintegration of direct perceptions. (§ 22.)

4. The moment of arising of consciousness is the most important break in the world of phenomena or nature taken as a whole; the phenomena above and the phenomena below it can never be reduced completely into each other; there is a certain heterogeneity between them. But this is not the only instance of such a heterogeneity. There is, for instance, heterogeneity between the form of Time and that of Space; in space itself, between curves and straight lines; in physical phenomena, between physical and vital forces, at least as usually supposed; and, until Mr. Darwin propounded his law of natural selection, it was supposed also between species of living organisms in physiology. Again in consciousness itself there is heterogeneity between the different special sensations and emotions. But all these are subordinate to the break between conscious and unconscious existence, which divides the whole of nature without residuum. The perception of this break of the two members and the distinction between them is objectively the object, subjectively the act, of Reflection. The perception in mere or direct consciousness, that is, at the moment of arising of consciousness in the diagram, includes no perception of the distinction between itself and its objects; this is given in reflection, or reflective perception; but reflective perception, self-consciousness, the perception of the two correlatives self and not-self, is, as an act, homogeneous with consciousness, and presupposes the direct mode of it. Then and then only is the nature
of the moment of consciousness perceived, namely, that it is a break in the world of phenomena.

5. It will perhaps be worth while briefly to compare this view with Spinoza’s, criticised in § 15. Spinoza conceived the connection between mind and body as perception of the latter by the former, the distinction between them as that between perceiving and things perceived; a true and profound thought, and the same distinction which is now expressed as that between Subject and Object, or between the subjective and objective aspects. But Spinoza did not see that this new distinction was far more general than the old one, being applicable alike to both its members separately, both mind and body being objects of consciousness; that the new distinction, turning on a new feature, perception, had the things distinguished by it different, that is, that it did not coincide with the old distinction between mind and body, a supposed immaterial substance and the body inhabited by it; that consequently the new distinction could not replace, but was additional to, the old one. Accordingly he substituted the one for the other, and was thus led to confuse the object with the cause of consciousness, the whole world of qualities with that part of it which is visible and tangible only, that is, with body, and to make body with its movements and affections, which are the cause, not the cause but the object of consciousness. (§ 15, 4.) He thus scants both distinctions; the one by restricting the ultimate objects of perception to body and affections of body; the other by denying the causation of states of mind by states of body. The objects of mind are not visible and tangible qualities only, but all or any qualities whatever. These are the
objects of perception in consciousness previous to reflection, but there undistinguished from the perceptions of them which are their subjective aspect. That we perceive bodies, as such, at all, that we distinguish them from the qualities inherent in them, and from the perceptions of these qualities, is the fruit of further experience and reasoning. Body and Mind are not, Perception and Quality are, 'ultimate categories of existence, or members of an ultimate and most general distinction. The two distinctions must therefore be referred, first, to different times, and secondly, since body and mind are both part of the objective world as perceived in reflection, to different modes of enquiry, namely, Subject and Object or Perception and Quality to statical and metaphysical, Mind and Body to dynamical and historical, analysis. While, therefore, I hold fast Spinoza's distinction between perceiving and things perceived, I place it historically at the moment of Reflection or Self-consciousness; perception itself, without the perception of this distinction, I place historically at the moment of arising of consciousness; and the distinction between body and mind I place historically later than Reflection, as one of its consequences, and also as the distinction which stands at the head of the empirical, historical, and psychological, branch of the whole enquiry. Yet, notwithstanding that the two distinctions are thus left standing each in its place, there is one thing which Spinoza must be held to have done, namely, to have shaken to its very foundations the old conception of one of the two members of the older distinction, the old conception of Mind as an immaterial substance inhabiting the body.

6. It follows also from what has been said, that,
when we are enquiring statically, or into the nature and analysis of any object, we are interrogating consciousness, analysing one or more of the states of consciousness which form the series of evidences, or cause cognoscendi; as for instance in all cases of actual inspection, such as observations with the microscope; for the objective and subjective aspects are obviously coincident in presentations, and in those the appeal to facts is always an appeal to the senses. And it follows on the other hand, that, when we enquire into the causes, the history, the origin, of anything, we are approaching it from the objective side and are employed in examining it as a member of the series of causes, not of evidences. The series of evidences we are ourselves prolonging in the process of reasoning; the objects which fill our minds in that process are the objective aspects of the states of consciousness which compose it. To examine these on the subjective side would be to make them objects of reflection, to turn our thoughts away from the things we set out to examine, and fix them upon the course of thought we have just gone through about them. There is, then, this difference between the two cases, that we can never get rid of the subjective aspect in reasoning, though we may logically abstract from it, while in trying to fix upon the objective aspect only, for purposes of investigation into causes, we are in danger of substituting for it the subjective aspect (which is an objective aspect only in reflection) and thus reasoning about evidences when we intended to reason about causes. It has been already said that atoms, molecules, and masses, in motion are what is meant by causes; and that the changes in those atoms, molecules, and masses, which
make up the nervous organism, are the causes of changes in consciousness. It is, then, these changes in the nervous organism which we must keep in view, abstracting from their subjective aspect, in which they are portions of space and time filled by feelings of sight and touch; and these changes it is which we must imagine as producing the changes or movements in those states of consciousness which have been analysed and classified in the preceding chapter. It is obvious, then, that the enquiry has two distinct branches, which must be pursued separately and then brought to bear upon each other; that only in their combination, after each has been separately pursued, is the result, the knowledge of the mode in which one causes the other, attainable; we must endeavour to ascertain and analyse each series separately, in order to determine what phenomena, what states, what movements, in the one series are the causing moments, the supporters of corresponding phenomena, in the other. Metaphysical analysis of states of consciousness, and processes of consciousness from state to state, must therefore not be disregarded, but go hand in hand with physiological analysis, the one supplying hints or hypotheses to the other, according as either happens to have made the greater progress. In the first place, then, I will turn to the nervous organism, and endeavour to exhibit as well as I can what I have been able to gather from the writings of physiologists as seemingly conducive to the purpose in view.

§ 50. 1. The nervous organism contains two chief members, nerve cells and nerve tubes. A single cell in connection with a single tube, or a tube connecting two cells, would be the lowest form of the organ-
ism, and the highest is no more than an aggregation of this. Where there are a great number of cells gathered together, the appearance of the mass in which they are found is grey; where there is a mass of tubes, its appearance is white; hence grey substance is used sometimes to signify cellular substance, and white tubular. The tubes serve as conductors of movements to and from cells, that is, both from the cells in central organs to the nervous apparatus at the periphery of nerves of sense and muscular motion, and from the periphery to the cells in the central organs, and also between the cells in the central organs themselves. Every cell is furnished with one branch or more running out from it, which in some cases is continued so as to become a tube going towards the periphery, in others connects the cell with other cells; but in many cases the branch seems to stop short, and cannot be traced into any other cell or tube. Provision seems made here for growth and development of the nervous organism, especially of its masses of cells, by the completion of the communication between them by means of these branches from the cells. The branches running out from cells appear to be inchoate tubes, which may run in time from cell to cell or from cell to periphery.

2. The two kinds of effects produced (to describe them by words of consciousness), the two kinds of services performed, by this organism are perception and muscular motion. But for the present I will put aside all those kinds of perception and action which seem to depend upon the operation of cells upon cells in the central organs, and consider only those which require the activity of cells and tubes going to the periphery; that is to say, presentative
perceptions and muscular motions. In other words, I will consider first only the nerves, in connection with their central cells and peripheral apparatus; and this is the first division of the nervous organism, which is generally described as consisting of nerves and brain.

3. In the first place, there appears to be no difference between the motor and sensor nerves in respect either of their composition or of the way in which the movements are propagated in them. When the movement begins at the periphery of any nerve and is propagated to the central cell or cells, there arises perception. When the movement begins at the central cell or cells and is propagated to the periphery, there, supposing the nerve to be distributed to a muscle, arises muscular motion. The movement in the nerve is the same in kind in both cases; the difference of the effect is due solely to the sensor nerves being exposed, by means of their peripheral apparatus, to receive certain stimuli from without, while the motor nerves are so distributed as to communicate to the muscle the stimulus which they receive from the central cells. But this very distribution of nerves to muscles appears to communicate a movement from muscle to centre, which produces perception, the perception namely of the tension of the muscle, which belongs to what we call the muscular sense. See on this point Prof. Brown-Séquard's Phys. of Nervous System, Lect. i. p. 9-10. Also on the subject of this whole paragraph Mr. G. H. Lewes' Phys. of Common Life, Chap. viii. All nerves therefore are sensor, and all would be motor also if they were distributed to muscles. Those distributed to muscles are those which go up into the spinal column
by the anterior roots. • See on this doctrine, and the new support derived for it from Prof. Du Bois Reymond's "Negative Stromschwankung," Dr. Funke's Lehrbuch der Phys. § 162. vol. i. p. 841-4. 4th edit.

4. The differences between the several groups of perceptions, such as seeing, hearing, touch, systemic sensations, and so on, as well as the minor differences within each group, depend upon the mode of arrangement of the nervous apparatus or expansion at the peripheral extremity of the nerve, which in each case is adapted to receive a certain class of stimuli. Every nerve has in consequence its own specific group of perceptions; and the stimulus to which the peripheral apparatus of each nerve is adapted is called the adequate stimulus of that nerve; such are the ether undulations to the optic nerve, and the air undulations to the auditory nerve. Other stimuli than these applied to any nerve produce perceptions of the same specific kind as the adequate stimulus produces, but perceptions not capable of such minute modifications as those which belong to perceptions produced by the adequate stimulus. The nerve with its peripheral apparatus can act only in certain peculiar ways, and transmit only certain peculiar movements, whatever may be the stimulus applied to it; and the perceptions produced must be regarded as the result of the mode of movement proper to the nerve itself, combined with the action of the stimulus which sets that movement more or less perfectly on foot.

§ 51. 1. The questions which have the greatest interest in physiology when treated in connection with metaphysic are of two classes, those relating to the nature of the movements in nerve and brain
which produce or support states of consciousness, and those relating to the assignment of the several portions of the nervous organism, and the several kinds of nerve movement, to the several groups of the phenomena of consciousness, groups which are distinguished by metaphysical analysis. As to the first of these classes of questions, we are able at present to speak only in the most general terms; the specific kinds of movement which take place in the nervous organism have not been determined as yet by physiologists. The most recent theory, that of Dr. Pflüger, may be read at the end of his "Untersuchungen über die Physiologie des Electrotonus." But without overstepping the modesty of the most general terms, we may distinguish, in accordance with what has been said at the end of the preceding §, two sources of movement in the processes which support perception and muscular motion; the first, of movement belonging to the nervous substance itself, the second, of that received by it from a stimulus. And the first movement, belonging to the nervous substance itself, must again be distinguished into movements of action and reaction of particles along its whole length; movements which exist prior to the reception of any stimulus, and which, on its reception, combine with it into a total movement which supports the perception or the muscular motion. The stimulus may come either from the central parts of the nervous organism, or from the forces acting upon the peripheral extremities of the nerves. In the first case the stimulus would itself be a nerve movement acting upon a motor or a sensor nerve, in consequence of some previous movements in the central organs; and this would include all cases of
what is called action of the Will, either on muscles, or in producing attention to sensations. In the second case the stimulus would be some physical movements of atoms or molecules, such as those of the ether atoms in light, the air particles in sound, which impinging on the peripheral apparatus of the nerve would set on foot movements of its particles. Both these movements, that of action and reaction in the nerve itself, and that combined with it on reception from the stimulus, must in combination reach a certain degree of energy—though possibly, within certain limits, a greater degree of energy in the one may compensate for a less degree in the other—in order to the production of a muscular movement or a perception. Below this degree of energy an effect would be produced upon the organism itself, an effect which if repeated might be of the greatest importance, but no muscular motion or perception would take place at the time. To this cause must be referred the phenomena sometimes called latent consciousness, sensations which can be proved by their effects to exist, but of which there is no consciousness as sensations. They are states of nerve movement below consciousness. Again, the retaining power of memory, storing up impressions which only rarely leap, as it were, from their hiding places, must be referred to the possibility of reawakening such movements, which have once taken place, in the brain. And if we disregarded the process of waste and repair which accompanies every such movement, we might suppose perhaps that these movements would become ultimately so faint as to be beyond the power of reawakening; whereupon the memory of the corresponding perceptions would
be lost, and the fact once stored up in memory stored up now no longer. But, in speaking of nerve movements as the cause of conscious states, it must not be forgotten that every such movement takes place only at the expense of some waste of the living nervous substance, and that this waste is repaired by a new growth in which the habit of movement in the old way is strengthened, so that the oftener a movement has been repeated the more easily is it repeated again. Every movement which has once taken place becomes thus represented by a perhaps very minute change in the structure of the nervous substance, which grows with exercise; and every movement may thus, conceivably at least, be capable of re-awakening on the occurrence of an appropriate stimulus. (See Dr. Maudsley’s Phys. and Path. of the Mind, p. 67.) Yet since this circumstance is common to all cases of nerve movement, and presumably affects all alike, I shall make no further mention of it in speaking of the nerve movements as causes of states of consciousness.

2. Obvious as this conception of two kinds of movements, the one belonging to the nerve itself, the other to the stimulus, may perhaps appear, it is far from depending solely on a priori grounds. If we admit the doctrine of Prof. Du Bois Reymond, which is the foundation of the greater part of the results obtained by modern investigation of nervous action, that the electric current in living nerve is a constant property of it, varying with its power of performing its normal functions, we have in that current the means of testing the presence of the former kind of movements by themselves, and of measuring their degree of vigour. In that case, the movements pro-
per to the nerve substance itself are no longer an hypothesis but a fact, and one concerning which, it may be added, no inconsiderable knowledge has been already acquired. We must then distinguish three states through which the nerve substance passes in the performance of its functions; the first, when it is the seat solely of the movements of action and reaction between its own particles, in which, since it is not engaged in producing either perception or muscular motion, it is said to be in a state of rest but stimulable, ruhend, erregbar; the second, when some stimulus, either from within or from without, combines with this state, so as to intensify its movements, which we may call the state of tension, erhöhte Erregbarkeit; and the third, when an additional or prolonged stimulus is combined with the movements of the state of tension, so as to set on foot those movements upon which follows actual perception or muscular motion, which may be called the state of activity of the nerve, its Erregungszustand. And each of these states can be examined separately, and its phenomena subjected to various electrical tests. Funke's Lehrbuch, 2nd Book, 1st Abschnitt, and more particularly § 139, 142; 146, 150; 155, 157. These enquiries however are not to our present purpose, which requires rather that we should apply the foregoing analysis of nerve movements to the corresponding phenomena in states of consciousness.

3. The chief application perhaps of this analysis is to explain the different degrees of vigour in perception and muscular action of different persons. The result of the state of activity of the nerve is perception or muscular action, and this result must vary in character according to the parts played respectively
by the two contributors to that activity, the movements of the nerve itself and those of the stimulus. A nerve whose own movements of action and reaction are vigorous and elastic will not only, under the same stimulus, produce more vivid perceptions and stronger muscular motions than one less vigorous and elastic, but will react more forcibly upon the movements of the stimulus itself, so as to be less permanently affected by them. A weaker nerve will have less power of reacting upon the movements of the stimulus. The perceptions of the former, and the specific sensations of pain and pleasure which accompany them, will be more vivid, but also will be less important as bearing a less proportion to its total powers. Those of the latter will be less vivid, but it will have that general mode of pain more constant which consists in the feebleness of reaction; while the vigorous reaction of the former will be an additional and general mode of pleasure. In the vigour of reaction between the nerve’s own movements and those of the stimulus lie the different degrees of pleasure or of pain which are general, or common to all states of consciousness alike; while the specific feelings of every kind, including their specific pleasures and pains, depend upon the vigour of these two movements added together. The weaker nerve will then receive less intense specific feelings than the stronger, from the same stimulus, and at the same time will be more exposed to general feelings of pain, less open to general feelings of pleasure, which depend on the degree of reactive vigour. By breaking up the combined movements of the active state of nerve into movements derived from the nerve itself and movements derived from the stimulus, we not
only explain why persons of feeble sensibility appear to suffer from their feelings so much more than those whose sensibilities show signs of being more acute, but we also obtain a physiological foundation for the distinction between general and specific pleasures, a distinction which, with its physiological foundation, the distinction between two separate kinds of nerve movements, will be found of importance in all departments of the present enquiry.

§ 52. 1. The presentative perceptions of sense have been sufficiently described in Chapter ii. Part i.; let us turn now to the organs appropriated to them, not however to describe minutely their structure or functions as organs of sense, but in order to distinguish them from the organs appropriated to the functions which, in metaphysical analysis, follow next in order upon presentative perceptions, by combining them into and with representations more or less complex. The peripheral extremity of every nerve of sense is like a hand stretched out by the central organ to grasp the peculiar impression which it receives from the world without, or from the part of the body to which it goes. It is requisite that its connection with its central organ should be kept up; and its peculiar effect, the impression received and imparted by it, is due to the changes which are wrought by stimuli in its peripheral apparatus acting upon the nerve in its entire length, including the cell or cells which are its central termination.

2. Apart from the nerves belonging to the sympathetic system, which need not I think be brought into our enquiry, all the nerves of sense and motion have the cells which form their central terminations embedded in portions of the nervous organism which
lie below the cerebrum and cerebellum; that is to say, in the spinal cord, the medulla oblongata and parts immediately adjacent, the grey matter which forms the floor of the 4th ventricle, the optic thalami, and corpora striata. Of these nerves, the greater part of the nerves of touch and muscular motion, being distributed over the body, terminate in the spinal cord, while those of them which supply the head and face terminate in or above the medulla oblongata, in the same regions where the other nerves of the sense terminate. One exception to this statement may perhaps be found in the nerve of the first pain, the nerve of smell. If this is a nerve, it would be an important exception, since two of its three roots have been traced into the cerebral hemispheres. Mr. G. J. Lewes argues that it is not a nerve; Phys. of Common Life, Chap. x. But supposing it to be the nerve of smell, it would not invalidate the view here taken, since it has one root which enters into the same nervous mass with the rest, while its additional and peculiar connection with the cerebrum might perhaps furnish an explanation of the peculiar action of odours upon the memory, summoning up an instant long past scenes with a vividness and a rapidity which belong to the perceptions of no other sense.

3. With the above exception, then, it may be said that the spinal cord and the mesocephalic group of organs, the highest members of which are the corpora striata and optic thalami, form a mass which is distinguished from the cerebrum and cerebellum by its containing the central terminations of all nerves of sense and muscular motion. The whole nervous organism falls thus into three divisions; 1st, the nerves from periphery to central termination; 2nd,
the spinal cord and mesencephalic group of organs which contain these central terminations; 3rd, the cerebrum and cerebellum. The second and third groups are farther distinguished from each other by the difference of relative position between the cellular and tubular substance which they contain; for while in the lower parts of the spinal cord the grey cellular substance is in the interior, surrounded by the white, in the medulla oblongata it begins to come to the surface, and in the upper portions of the mesencephalic group lies in masses at the surface, and intermixed with the tubular in about equal proportions; in the cerebrum and cerebellum on the other hand, the grey substance occupies the circumference, surrounding the white substance; the only other instance of an arrangement being offered by the corpora dentata in the olivary columns, the resemblance of which to that of the cerebellum is striking.

If, therefore, different functions are attributed to the cellular and tubular substances, physiological as well as chemical considerations will require a broad distinction to be made between the second and third groups of organs; though it should remain doubtful with which group the corpora dentata are to be classed.

4. The question now is, to what processes in consciousness these three groups are respectively appropriated. It is at this point that the metaphysical analysis of the phenomena of consciousness is applicable, and that a true analysis would be most valuable. Now we know the functions, in consciousness, of the first of the three groups, the nerves with their central terminations; they are the functions of producing and supporting, under appropriate stimuli,
presentative perceptions, or, as they are commonly called, sensations, and, in the case of some nerves, of producing muscular motion. Let us take first the case of perceptions. The question then is, what are the groups of phenomena in consciousness which continue, or combine, the phenomena given in presentative perception, and how many of such groups are there? The phenomena in question must be distinguished into groups by distinctions in perception itself, otherwise the groups will not be homogeneous or continuous with the first group. Now there are two such groups and two only; 1st, the perception of remote objects, which consist of presentative combined with representational perceptions; and 2nd, purely representational perception, whether the reintegration employed in it is spontaneous or voluntary, direct or reflective. I refer for this classification to "Time and Space," Chapters iv. v., and to § 13 of the present work. Purely representational perception is the result of processes of reintegration or trains of association, including the emotions and passions, into which there enters no perception of external objects or of bodily sensation, where all that is present in consciousness is matter of memory or imagination, whether or not this includes volition, as in processes of reasoning, and whether or not it includes reflection or consciousness of our own states of thought and feeling as ours. But between the two extremes, pure presentation and pure representation, a third must be interposed consisting of representations combined with presentations; and this is perhaps the most important of the three, for to it belong all those objects which we call the external world, the objects of sight and touch with which we
are continually surrounded. The fact is most important, that those things which we call "objects" of perception are not perceived each separately and completely as an object in the first instance, but are compounded of several perceptions, each of which comes to us by a separate nerve of sensation. The visible and tangible "objects" which compose the familiar external world of daily life, such as houses, trees, land and sea, clouds, animals, furniture, &c. are compounds of several distinct perceptions of sight and touch; the other qualities which we attribute to them, such as heat and cold, sonorousness, odour, taste, wholesomeness or unwholesomeness, beauty or deformity, are all attributed to them by a process similar to that which in the first instance puts together their solid basis, the qualities of visibility and tangibility, a process which we disguise under the general characterising term, experience. It is experience which not only shows to us the qualities of such objects when formed, but also forms the objects themselves in the first instance, by putting qualities together. The distinction therefore between this group of perceptions and the purely presentative perceptions of each nerve is plain and important; that between this and the purely representative group is no less so, as is shown by the fact, that up to a very recent period in knowledge it was this class of "objects," or compound perceptions, which was thought to be immediately perceived by us, and was opposed, by itself, to the group of pure representations; indeed the fact, that these "objects" of the intermediate group are the common, ultimate, indecomposable "things" of the world of nature to every one not familiar with metaphysical specula-
tions, shows of itself the same thing. Yet nothing is more certain than that, so far as our consciousness is concerned, these common and apparently ultimate "objects" or "things" are the result of a process of combination of several notices of several nerves of sense. If then we are required to point out three groups of phenomena of consciousness, three groups of perceptions, corresponding to and depending on the three groups already given of the nervous organism, and like them occupying the whole field of the phenomena to be distinguished, we must point to these three groups and no others. And since we know that the first of the three sections of the nervous organism, the nerve from periphery to central termination, supports the first of these groups, the purely presentative perceptions, there will be no difficulty in assigning the cerebrum and cerebellum to the group of pure representations, and in locating the group of mixed perceptions in the mesocephalic group of organs and the spinal cord.

5. It becomes necessary, therefore, to do for this second or intermediate group of mixed perceptions, or perceptions of remote objects, what has already been done in Chapter ii. Part i. for the presentations, by describing briefly its peculiarities and distinguishing them from the groups of pure presentations and pure representations. The remote objects of perception, which constitute this group, may be distinguished into two main sections, first, those which consist of the perceptions of two senses only, sight and touch, and secondly, those which, using these objects as their basis, import into them perceptions of other qualities derived from the other senses. The objects of sight and touch are bound together, in the
first instance, by the circumstance that these sensations alone are bound up with, or occupy, space as their form or formal element; they melt into single objects with the added element of depth, the third dimension of space, in the manner which it has been attempted to describe in "Time and Space" § 13; and in this process redintegration or memory is a requisite ingredient, since we must remember or redintegrate a former perception while we are receiving a presentative impression, in order to bind together the whole; for instance, I look at an orange which I hold in my hand, and thus have an impression of a yellow circular surface and of the tangible quality of this surface; but, before I can have the impression of its solidity and of its visibility all round (which belong to what I mean by an orange), I must have gone through some such process as this: I put my finger, suppose, upon part of the visible surface and turn the orange round, so that my finger and the part touched are no longer actually visible, and then redintegrate the visibility of the part now unseen, recognising it for the same part by the continued sensation of touch, so that I have its visibility all round, only partly presented and partly represented. In this way the orange is an object composed of representation as well as presentation, even while I am looking at and touching it.

6. Sight and touch are the only senses which originally have space for their form, and this circumstance not only enables their notices to coalesce as they do in the production of objects in three dimensions, but also enables these their objects, when formed, to serve as the groundwork or basis of qualities, which are the perceptions of the other senses,
connected with these objects by experience. Sounds, for instance, are heard when some object of sight and touch is present, e.g. the ringing of a bell; tastes and odours are perceived in the same way; and not only so, but other bodily or systemic sensations are found to follow with constancy after the swallowing of drugs, and so on. All such perceptions are then referred to the visible and tangible objects which they accompany, as qualities of those objects. Nor is this only a popular mode of conceiving the phenomena; it has been carried up into philosophy and become the groundwork of the well-known theory of the primary and secondary qualities of matter, between which Sir W. Hamilton interposed a third, the secundo-primary qualities. The moment, however, that we begin to theorise about the connection between the qualities of any object, that moment the object ceases to be a remote object and becomes an object of pure representation; we have before us no longer an object seen and touched, but an object thought of, an object of voluntary and not spontaneous redintegration. This is the limit which divides the group of mixed perceptions from that of pure representations. It is a process of reasoning to break up remote objects into their physical constituents, and their combining laws; the remote objects themselves, as such, contain their qualities as perceptions. I represent a sound as in the musical instrument or in the air, I represent the taste as in the fruit, the odour as in the flower. Since however the object itself, the combination of presentations into a remote object, is not given us by presentation alone, but requires redintegration, it follows that a further redintegration may dissolve the combina-
tion; and if such combinations have been dissolved by reasoning redintegration, as they have been in the case of all qualities but those of touch and sight; the odour, for instance, separated from the flower, the heat from the fire, and so on; it is conceivable that the remote objects of perception themselves may obey these habitual representations of reasoning, and that we may not only perceive the remote objects denuded of all qualities but visibility and tangibility in combination, that is, as consisting only of solid matter in different modes of motion, but even dissolve this combination itself, thus breaking up solid matter, and space in three dimensions, into mere disjecta membra of metaphysical analysis. It is often said that science has dethroned the Sungod; will it not proceed to dethrone the Sun? The true way of regarding this group of remote objects, accordingly, is to consider it as fluctuating in respect of the particular objects belonging to it, each object being admitted into it after a reasoning process, and dismissed from it by a reasoning process again, but between these two points consisting of a collocation of qualities habitually associated together by spontaneous not voluntary redintegration.

7. If we consider that, in perceiving a remote object, we not only combine heterogeneous presentations, but combine also representations with presentations, it becomes evident that some nerve substance is employed in the process beyond what is usually requisite for presentations alone. A representation and a presentation of the same sensation take place simultaneously. This seems to require the supposition, that an additional portion of nerve substance is employed in representation, since how other-
wise would the new presentation be distinguished from, and yet felt as a repetition of, the old one? Occupying the same portion of nerve, would not the new presentation obliterate, and not preserve in memory, the representation of its own former occurrence? We should require the hypothesis of an “Ego” or a “Mind” to explain the circumstance, unless we had recourse to the supposition of a new portion of nerve substance being employed. Probably therefore the nerve movement in representation takes place in a distinct portion of the organism from the movement in presentation; and, since the object resulting from the two movements is a single object, the two nerve movements must be going on simultaneously and in combination. We are thus led to the conception that there is a mass of nervous matter in immediate connection with the central terminations of the nerves of sensation, the movements in which combine with those in the nerves, and serve as a bond of union between them. These conditions appear to be fulfilled by the organs which we have called the organs of the second or intermediate group.

8. In the next place, the perception of remote objects must be distinguished from purely representative perception. It has been seen that redintegration is requisite in forming remote objects, since they partly consist of representations. Spontaneous redintegration at least is therefore common to these two groups of perception. But notwithstanding that redintegration is involved in them, the course of the formation of these perceptions, and their constitution when formed, are not governed by the laws of the redintegration of pure representations, but by the course and nature of the presentations out of which
they are formed. This is the circumstance which makes the broad line of demarcation between the perception of remote objects and purely representative perception; the former is governed by presentations, the latter by laws of an entirely different kind, those of spontaneous and voluntary redintegration, as will be seen in the following §§. These presentations, the immediate perceptions of the senses, are forced upon us; and in redintegrating them and holding them as representations we alter nothing in them except their vividness or intensity. Whatever we forget in them may be restored by a repetition of the presentation; we are entirely in the domain of facts of sense external and internal. The representations are liable to be corrected and made more vivid by their own presentations; against these they have no rights; their truth is entirely derivative. But the moment we pass into the domain of pure presentations, there, instead of the dominion of presentation, is developed a new law out of the bosom of the representations themselves, which is independent and supreme. Presentations will last so long as their external causes are in presence, whether they are pleasureable or painful; bright sunlight will dazzle, ginger will be hot in the mouth, sharp racks will pinch and peel. There is no escape either from the pleasureable or painful effects of remote objects of perception; the pleasure and the pain are inseparable portions or elements of the perceptions themselves. But in pure representation the pleasure and the pain become the index of a new law of movement, of a new guidance among the movements which support the representations; the dominion of the external world diminishes, and a counter authority is set up,
arising in the redintegrating movements which are evidenced by these modes of feeling. The nervous organ, then, which supports states of consciousness of this character, of this degree of independence on presentation, must, we may conclude, be separate physically from that which supports states of consciousness in which presentation is dominant of the course and sequence of the states of consciousness. There can be no other equally important division of the nervous organism beyond or above this; since the movement of this third group of organs arises from within itself, and is not imposed from without; though it reacts upon the portions below it, out of the states of consciousness transmitted from which its own states of consciousness are partly constructed. This third group of organs must therefore contain within it all further distinctions of faculties or groups of phenomena, such as reflection, imagination, passion, or emotional volition. Accordingly I ascribe to it the remaining portions of the brain, the cerebellum and the cerebral hemispheres, without for the present attempting to distinguish the functions of these from each other.

9. The foregoing general considerations appear sufficient to warrant the distinction of organs and corresponding groups of conscious states. There is however a phenomenon which adds a further probability to the distinction, the well-known phenomenon of ocular and auditory hallucinations. If we consider dreams and reveries as states consisting of pure representations, we shall find that hallucinations are distinguished from them by their greater vividness, so as to be entirely indistinguishable from presentations except by reasoning on them, notwith-
standing that we are awake and in the full possession of our mental faculties. I consider then that hallucinations find their peculiarities accounted for by being referred to the organs of the two first groups in conjunction. They are in fact presentations, completed into remote objects, without the external object usually requisite to produce presentation; they are to remote objects what dreams are to pure representations; produced and supported by a redintegrative process, but one which takes places in the organs which are governed by, and have the vividness of, presentations. (Compare, on the whole subject of the preceding paragraphs, Dr. Maudsley's valuable work The Physiology and Pathology of the Mind, Part i. Chapters ii. iv. v.)

10. It is to be remembered that there is still a thread of the enquiry to follow to a conclusion, the case of motor nerves and the functions performed by the middle group of organs in relation to them. It is probable that the analogy of the phenomena of remote perception will give the right clue to these functions. There are in fact a multitude of actions, performed by means of muscles, which are not only done habitually and unconsciously, but which consist of a number of separate muscular movements organised or coordinated into groups which we call by a single name, such as walking, running, leaping, breathing, speaking, singing, acquired sleight of hand, and many others; actions which seem plainly done for a purpose, like the so called instinctive actions of animals, and yet are accompanied by no consciousness of the purpose of any of the several steps composing them, though we may be conscious of the acts themselves while we are doing them. The simplest
cases of action of this kind, when we can trace a single stimulus to its result in a single muscular motion, are called reflex acts; but the most minutely coordinated habitual actions seem to be no more than organised groups of such reflex acts become habitual, and in habitual connection with each other. The movements which, starting from the central cells, traverse motor nerves and produce contraction of their muscles may be supposed to act upon the mass of grey matter contiguous to these cells, and thus to come into combination with movements similarly produced by similar cells both of motor and sensor nerves. The contraction of the muscle reacts also upon the nerve in its sensory character, and becomes itself the stimulus of its nervous action. The same provision is made for the combination of nerve movements which result in muscular action as for that of nerve movements which result in perception; the same central group of organs, or those parts of it which are adjacent to the termination of the motor nerves, seem appropriated to the production of either combination; and the combinations of presentations into objects of remote perception appear to have their parallel, in every particular, in the combined and organised groups of reflex actions; namely, in their being habitual, more or less indissoluble, and more or less unconscious and instinctive, corresponding in this latter point especially to the character of spontaneous redintegration observable in remote objects; while both phenomena may have owed their first origin, the first steps in their formation, to volition. If this analogy is correct, we should be led to place the motor division of the middle group in greater mass where the motor nerves are most numerous,
consequently along the whole of the spinal cord and medulla oblongata, while the upper parts of the middle group, the mesocephalic organs, lying near to the terminations of the nerves of special sense, would be most probably assigned chiefly to sensor functions; neither portion however excluding the other in any part of the entire organ. (See on the subject of this paragraph also Dr. Maudsley's work before cited, Part i. Chap. iii.)

§ 53. 1. The third group of organs consisting of the cerebrum and cerebellum remains to be examined, first, with regard to the nerve movements which take place in it, secondly, with regard to its sub-grouping of organs, and both in connection with the phenomena of consciousness which correspond to them, as in the former parts of the enquiry. I will enter upon the first of these questions, abstracting at present from the second. The phenomena of consciousness which have been determined to belong to this third group of organs are, statically considered, pure representations, the frameworks of emotions, and the emotions which they contain or which pervade them; considered dynamically, or as processes of consciousness, they are the redintegration of frameworks and the redintegration of emotions or passions; and in this redintegration there are two stages, first spontaneous, secondly voluntary redintegration. The first thing, then, to be examined is the process of spontaneous redintegration in connection with the nerve movements which produce or support it.

2. The nerve movements to which representational frameworks of emotion are afterwards attached are sent up or contributed by the second group of organs. The third group, into which these are sent,
must be supposed to have movements of its own, which are stimulated by and combined with those movements sent up from the second group. The relation between these two sets of movements must be judged of by analogy with those of the first group of organs, the nerves of presentative perception. Just as the movements of ether and air undulations stimulated the nerves of sight and hearing, and the peculiar character of these sensations depended upon the movements proper to those nerves combined with and stimulated by the movements coming from without, so in the third group the movements proper to it, stimulated by and combined with those which support representations coming from the second group, produce and support the states of consciousness which are proper to the third group, namely, the emotions with their representational frameworks. "The hemispherical cells," says Dr. Maudsley, at p. 137 of the work already quoted, "are confessedly not sensitive to pain; still they have a sensibility of their own to ideas, and the sensibility which thus declares the manner of their affection is what we call emotional."

3. The same analogy holds also with respect to the degrees of vigour displayed by the organs of the third group. The elasticity of these organs, consisting in the energy of the active and reactive movements of the whole movement proper to them, with which is combined the movement coming from below, which is their stimulus, determines whether or not an emotion and its framework shall be felt vividly, and whether its specific pleasure or pain shall be acute. (See § 51, 3.) It also determines the degree of rapidity in the change from one emotion and framework to another, that is, the rapidity of the
redintegrative process. If the elasticity is great, the
feelings, including their specific pleasure and pain,
will be acute; but, the rapidity of redintegration
being great also, the general modes of pleasure will
be great, and the total result on the whole pleasurable.
If the elasticity is small, the feelings with their specific
pleasure and pain will be less acute, but the
rapidity of redintegration being small will cause the
general modes of pleasure to be less, or even to pass
into general modes of pain. In this case the total
result will be less pleasurable or more painful than
in the former case.

4. Let us now turn to the conscious side of the
phenomena of spontaneous redintegration. In the
first place, what is the distinction in terms of con-
sciousness between specific and general modes of
pleasure and of pain? It was found in §§ 8, 9, and
other places of the present work, that there were cer-
tain feelings which were general or common to other
more specific feelings, although they took their cha-
acter from these which they pervaded. The feelings
in question may be thus enumerated: pleasure, pain;
sense of effort greater or less; cheerfulness, gloom;
energy, depression of energy. All these are general
feelings with respect to the specific feelings in which
they arise, or which they pervade; but pleasure and
pain are such wide terms that they may be said to
pervade all the rest in their turn, even the general
feelings now enumerated, and to borrow from each
of them a specific character, just as all alike borrow a
specific character from the feelings still more specific.
It becomes necessary therefore to distinguish in plea-
sure and pain themselves two modes, one general,
the other specific, the specific being borrowed from

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the more specific feeling with which it is bound up. All presentative perceptions are, and all remote objects of perception consist of, such specific feelings. The emotions also and their frameworks bear a similar specific character. Each of these specific feelings is also, one more, one less, pleasureable or painful; and this pleasure and pain are inseparably bound up with the perception to which they belong, and take their character from it; for instance, the pleasure of a sweet, the pain of a sour taste; the pleasure of the emotion of benevolence or of anger; the pain of the emotion of fear or of wounded vanity. The pleasures and pains, being inseparable from the perceptions they belong to, must be conceived as depending upon the same nerve movements as the perceptions. But the general modes of pleasure and pain, which may be distinguished as pleasures of cheerfulness, energy, effort minimised or resistance overcome, and as pains of gloom, depression of energy, effort unsuccessful or resistance not overcome,—these, having no special representational framework, no special but a general feeling, to which they are attached, seem to depend upon the nerve movements themselves, and to vary according to the ease, vigour, or obstructed energy, of these movements.

5. There are then two kinds of pleasures and pains, general and specific, the general being the evidence and the measure of nerve activity, the specific being the evidence of the kind of states of consciousness which the redintegrative activity has the tendency to produce. But let us abstract for the present from the greater or less degrees of nerve energy, which nevertheless have a most important influence on redintegration, and endeavour to discover whether
there are any general facts, or laws, relating to the order in which the states of consciousness follow each other in all cases of redintegration. It must be remembered that in ordinary waking life states of purely spontaneous redintegration are of very brief duration; they are always preceded and followed by presentative perception and by voluntary redintegration, of which latter they form the basis, so that they are interwoven, as it were, with interruptions of presentation and volition. Dreams and reveries are the only phenomena in which spontaneous redintegration even apparently occurs in long uninterrupted sequences, and even in these we can seldom be sure that presentations do not interfere, in the shape of modifications sent up through the sympathetic system of nerves, or even through those of the cerebrospinal system.

6. This being the case, an attempt to indicate general laws of purely spontaneous redintegration can be regarded only, in the present state of physiological knowledge, as hypothetical. If we look to the phenomena of dreams, in which the strangeness and variety of the images, and of the connections between them, are so immense, it seems as if the nerve movements worked in ceaseless activity in the production of images and feelings in which no traces of regularity, no succession of similar features by similar, were discoverable. But here we must again remember that we are not able to isolate the phenomena of purely spontaneous redintegration from the influences derived from or through the lower parts of the nervous organism. Consequently dreams offer the least sure ground for the special question before us. Waking dreams or reveries are a more certain field,
because we are more likely to be aware of bodily or physical changes which may influence them; and these with the brief intervals of purely spontaneous reintegration in daily life must furnish us with indications for our hypothesis, and supply its justification. (See on the subject of dreams the Note at the end of this Chapter.)

7. With these explanations I am inclined to adopt the following view of the general laws of spontaneous reintegration, in place of the similar but imperfect analysis offered in "Time and Space," Chap. v. First as to the recurrence of images, in which term for brevity's sake I shall suppose included the feelings which pervade them: 1st, an image or a sequence of images tends to recur in proportion to its vividness; 2nd, an image or a sequence of images tends to recur in proportion to its previous frequency or habitualness; 3rd, an image or a sequence of images tends to recur, in a healthy state of the nervous organism, in proportion to the degree of specific pleasure which it possesses for us, and, in unhealthy states, in proportion to the degree of specific interest, which may be of a more or less painful kind. Here then are three variables, three tendencies of nerve movements, distinguished by the states of consciousness which they support, the resultant of which in combination will be the course actually taken by spontaneous reintegrations. The two first tendencies may be called the tendencies to fixity or sameness in sequences of reintegration, the third the tendency to change the order which they would establish. The mode of operation in which these three tendencies combine to produce the actual order of a sequence in reintegration may be thus conceived: A vivid image occupies
the mind, and the image which has been most habitually connected with it arises and accompanies it; now, were the movements evidenced by vividness and habit the only movements in redintegration, we should keep going backwards and forwards from one to the other, never leaving one train of images; the movements once set on foot would repeat themselves for ever, unless modified by new presentations; some movement causing change in the sequences must be present, counteracting those which tend to sameness, since it is clear that trains of purely representative redintegration show a great variety of direction, and are fertile in new images. I suppose therefore that these movements are those which are evidenced by some pleasure or interest in the images of the sequence, the interesting or pleasing images being thus brought into prominence, and those which were habitual or vivid made fainter. Yet no sooner have the movements upon which pleasing or interesting images depend deflected the opposite, and given a new turn to the combined movements, than these opposite movements react, and bring into prominence an image which is either the most habitual companion of the pleasing one now present, or which makes up for a less degree of habitual connection by its own vividness. We must distinguish, therefore, in the order of redintegration the movements which support and are evidenced by specific pleasures and interests, whether these are in emotions or in their frameworks, as the instruments and exponents of change in a course of representations which would otherwise be governed by the vividness of particular images and by the habitualness of connection between them.
8. That the movements which support the change in redintegrations are movements which are evidenced by specific pleasure or specific interest, is an hypothesis which the difficulty of isolating the phenomena in sufficient lengths forbids us to bring to a decisive test by observation. The difficulty of observing arises from the different elements which each image consists of, so that we are unable in a short sequence to say which of them is the determinant of the changes; for instance, a recurring image may be both vivid and pleasureable, or vivid and painful, or vivid with a painful interest; to which of these elements are we to attribute its greater liability to recurrence? For instance, suppose I have been beaten in an argument to which I attached great importance, I shall naturally dwell much upon the recollection of it, and find it constantly recurring to my thoughts; it seems to possess great interest for me, yet it certainly is not a pleasureable image. The question is, does it recur in virtue of its interest, though painful, or in virtue of the vividness with which it has been impressed, and in spite of the interest which I feel in forgetting it. Nevertheless the present hypothesis is quite in accordance with the phenomena of reveries and other instances of spontaneous redintegration in common life, so as not to be contradicted by any fact that I am aware of. Yet it is not the only, nor even perhaps the simplest, hypothesis which might be framed. For instance, we might suppose that the parts of an image which were less vivid than the rest died out of consciousness first, and that this alone caused the change to a new image, which was then governed by habit as before, without having recourse
to movements of pleasure or interest as the instruments of the change from one image to another. I have adopted the latter view because of some facts which seem to demand that the agency of change should be of the nature indicated. First, there is the fact that dreams, when the system is disordered, assume a shape characterised not merely by general modes of pain, but by images of a specifically painful character. The unhealthy character of the redintegrations reveals itself in the changed images themselves, as well as in the general sense of gloom or terror. How should the specific character of the images be altered, from specifically pleasureable to specifically painful, if the movements which supported these specific characters were not agents or instruments in directing the total movement? In the second place, the analogy of nerves of presentative perception is in favour of our hypothesis. A diseased state of nerve betrays itself by specific pain as well as by general uneasiness; for instance, cutting and burning in the nerves of touch; and in special senses, a diseased palate produces specifically unpleasant tastes. Specific pain and specific pleasure, as well as general, appear to be connected with the diseased or healthy action of nerve; and it is according to analogy to suppose that the healthy action of the organ of redintegration is marked by a tendency to reproduce specific pleasure, and its unhealthy action specific pain. And this requires us to suppose that the movements supporting both one and the other exercise an influence over, or enter into combination with, the course of the movements as a whole. A third reason is that, in reveries, the pleasureable character which usually distinguishes
them seems most readily explicable by supposing that the movements of change from image to image are movements characterised by specific pleasure or interest; since those reveries which are the least interrupted and the longest are also those in which there is at once the most change of images, and the most pleasureable character in each image and in the whole sequence. The last reason for adopting the hypothesis is, that in voluntary redintegration, which we cannot but suppose has its foundations laid in spontaneous, so as to be but the intensifying of the movements there existing, the movements of specific pleasure and specific interest become undeniably the most prominent agents in directing the course of redintegrations. And it is difficult to see how this can be, unless the movements are really existent in spontaneous redintegration, in a less degree of potency. These reasons, but especially the last, lead me to enumerate the movements underlying specific pleasure and specific interest, side by side with those which support vividness and habit, as the active movements in spontaneous redintegration.

9. In illustration of this theory of spontaneous redintegration I copy from my note-book an instance which happened to myself, and which, as I also noted there, was written down immediately after its occurrence. "I was reading one evening in the Mémoires du Cardinal de Retz, Liv. ii. vol. i. p. 252, ed. 1777, the following passage: 'Je ménageai avec soin ces dispositions; j'échauffai M. de Longueville, et par moi-même, et par Varicarville, qui étoit son pensionnaire, et auquel il avoit avec raison une parfaite confiance.' Whether I actually took in the whole sentence I know not, but at or before the end of it
I found myself thinking of a person who had applied to me for pecuniary assistance, and with whose case I was much occupied. The train of my thoughts had passed entirely from the book I was reading to my own affairs. I started; here said I to myself is a clear case of spontaneous redintegration, let me examine it. I then remembered that I had dwelt upon the word pensionnaire, and had explained it to myself by saying that it meant a person who was in the receipt of money from his patron, M. de Longueville. From this point, this image, my mind, not being intently interested in the book I was reading, passed at once to the same circumstance which was at the time habitually or vividly occupying my thoughts; the single circumstance expressed by the word pensionnaire being common to the two sets or the two connections.” Here it seems plain, that the specific interest attaching to the image, pensionnaire, was the determinant of its being retained alone out of its first set of connected images; and that the habit or vividness, for the time being, of the second set of connected images was the determinant of their being selected, out of all possible sets containing the same feature, to group themselves round it. In other words, the second set of images followed the first because of the specific interest of their common feature combined with the habitualness or vividness of the second set. This instance shows also how general characters such as similarity, contrast, and causation, came to be fixed upon as the determining laws of association, in the first theories that were formed of it.

10. It remains to notice the combination of these redintegrative movements with the degrees of vigour
or elasticity in the movements proper to the organs themselves. A high degree of vigour in these is favourable to the action of those movements which support specific pleasure and specific interest in representations, and the changes in the order of vividness and habit which depend upon them; and this in two ways. First, since the rapidity of redintegration is greater, the number of times at which the pleasure and interest movements come into operation is greater, the single order of vividness and habit is deflected more frequently, and new habits are added to the old. The number of habitual sequences acquired can only be increased at the expense of the tendency of any one of them to exclusive dominance. Secondly, since greater vigour gives greater intensity of specific feeling, a number of specific pleasures and interests, which would have no motive power in a mind of small vigour, acquire an intensity in a vigorous mind which enables them to become the starting points of new sequences; so that a greater number of specific pleasures and interests are enabled to take advantage of the increased number of opportunities offered by the increased rapidity of redintegration. The general difference between a vigorous mind and its opposite, in point of feeling, is that the vigorous mind, which is most keenly alive to specific pleasures and pains, is also most energetic in reaction against the painful ones, retains the longest and restores the soonest its active healthy tone in circumstances of distress and anxiety. The general modes of pleasure are also great in a mind of this kind, while in its opposite the general modes of pain will be greater and of pleasure less, the specific modes of both being small.
II. On the whole we must regard spontaneous redintegration as a process in which two forces are balanced against, or in conflict with, each other, the movements supporting vividness and habit of images and their sequences on one side, those supporting specific pleasures and interests on the other; the degree of vigour or elasticity in the movements of both sides being favourable to the first kind of movements if it is low, to the second if it is high. The conflict between these two kinds of movement is often nearly equally balanced, and then comes itself into consciousness, as a sense of effort or tension; a state of consciousness which is more or less painful. In using the term conflict of nerve movements, I must guard against being supposed to imply any particular mode of conflict in which they are balanced against each other, or to infer that it is any perception of their being in conflict which causes the resulting state of consciousness to be a sense of effort. It is we who characterise their state as one of balance or conflict; the conflict is not perceived at all at first, but only when the feelings on either side are strong and of nearly equal strength; it becomes then an element in their perception, not in the shape of a conception of their being in conflict, but in that of a sense of effort or tension. The moment this state of consciousness arises, the process in which it arises begins to pass into a process of voluntary redintegration. The same forces, the same images, are carried up into a new arena, with increased powers. The sense of effort is but the evidence of this increasing energy in the movements which are in conflict with each other. The next step in the enquiry, therefore, is the analysis of voluntary redintegration.
12. Before however entirely quitting the present subject, it must be distinctly remarked, that redintegration both spontaneous and voluntary is redintegration of emotions and passions, no less than of images which are their frameworks; the pleasures and interests which are motives in their sequences are emotional no less than sensational; redintegration includes passion no less than thought. The changes of emotion through which we pass, the changes of passion which we experience, are accounted for by this analysis which places the motives of redintegration in specific pleasures and interests. This fact is concealed from common observation by the circumstance, that the expression of sequences of emotion and of passion, at any rate for purposes of analysis, for music is one mode of expressing them, is only possible by means of words, and words express immediately only the images which are their framework; and it consequently appears as if the process of redintegration was nothing more than an intellectual process, than what was formerly understood by the phrase Association of Ideas. The movement of emotions and passions is found delineated only in poetry, and chiefly in dramatic poetry, expressed chiefly in lyrical; in real life this movement is only expressed imperfectly and by fragments. And even in dramatic poetry, the greater part of the imagery employed to express the movement of passion is the invention of the poet, in the sense that he makes his characters speak not only much more than they would in real life, but also in imagery which only a poetical mind could invent; bare verisimilitude is departed from, in order to express more perfectly the real truth of na-
ture. The spontaneous redintegrations of the actors in a drama are thus clothed in language which is the result of the voluntary redintegration of the poet imagining their spontaneous redintegrations. They speak in the drama the language which they would speak in real life, had they the freedom and the wish to express the emotions which agitate them, added to the poet's facility in expressing the images which those emotions pervade. Hence it is to poetry that we must look for those instances of redintegration, both spontaneous and voluntary, and the one interwoven with the other, where the passions and emotions predominate over the framework, where the motives of change are strongly marked as of an emotional and not of a sensational nature. Transports of passion, enthusiastic emotions, are cases of extreme vividness of the emotional element in spontaneous redintegration.

§ 54. 1. We now enter on the examination of voluntary redintegration, the most important part of our subject for the purposes of Ethic, since it includes all actions for which the agent is said to be a responsible person. The link which connects spontaneous with voluntary redintegration is the sense of effort, and this depends upon a conflict between nerve movements which are seeking to become harmonised. The sense or perception of effort alone, without the perception of what the effort is for, that is, without the perception called wish, desire, purpose, or choice, is not volition; it will lead if continued to the perception of desire, were it only the desire to get rid of the sense of effort, but it is not a desire by itself. A volition is a compound feeling, one component of which is the sense of effort; it is the sense of effort for a purpose, that is, a wish, a desire, or a choice.
The hypothesis of two kinds of movements opposed to each other, one evidenced by vividness and habit, the other by specific pleasure or interest, which we will now call the retentive and the reactive movements, gives us the clue to explain the mode in which spontaneous becomes voluntary redintegration. Desire is nothing else, to express it in terms of consciousness, than an increase in the vividness of specific pleasures or interests in contrast to the habitual feelings, or to the feelings which are vivid and painful, in antagonism to them. That is to say, in volition we feel both the contrast, which depends upon the nerve conflict, and the pleasureable side of one of the contrasted states, with greater vividness than before. The explanation is, that the reactive movements, evidenced by the specific pleasure or interest, are increased in energy. In terms of consciousness, desire, wish, sense of effort for a purpose, in one word, volition, is the greater intensity of pleasureable states in greater contrast with habitual states, or with states which are vivid without being pleasureable. In terms of nerve movement, the reactive movements, being themselves increased in energy, find also a greater resistance than before from the retentive movements. The sense of effort is the result and the evidence of the conflict between the two movements; the desire is the result and the evidence of the contrast between them in kind, one being a movement supporting a pleasure, the other supporting a comparative pain. The nature of the desire, consisting in the nature of the contrasted states, depends upon the nature of the movements supporting them; the effort in desiring depends upon the conflict between them.
2. All voluntary actions may be described generally as those in which we are conscious, not only of what we are doing while we are doing it, but of what we mean to do before we do it; in other words, as a constant application of means to ends, of doing something as a step to something else. Now in voluntary actions thus generally described it is clear that there are two main divisions, one which is an effort of attention or of reasoning, having no immediate effect beyond the mind, the other an effort of action by means of muscles upon the external world; the first may be called immanent, the second transmunt action; and these correspond respectively to the distinctions which we have traced in both the groups of organs below the third group, namely, the distinction between perception on one side and the muscular sense and motion on the other. This being a general description of voluntary action, let us now see how our analysis of voluntary redintegration harmonises with and explains it.

3. Let us take a case which includes both immanent and transmunt action; suppose that in spontaneous redintegration we have the image of the Paris Exhibition, and of the pleasure of going to Paris to see it. We are then conscious in the first place of a wish, desire, or choice, that is, of a representation of a kind which is pleasureable, and in contrast to representations painful or less pleasureable, which are those forced upon us by habit or vividness of perception, which form part of the same total state of representation; (and note here that we always identify ourselves with the desire or pleasure, and consider the antagonist representations as forced upon us, which is not the first origin of the perception of the Ego
itself, but the ground or means of distinguishing from the Ego what I have called the True Ego;) in the next place we are conscious of the representation of circumstances or events which are means to the realisation or accomplishment of the pleasureable representation, its accomplishment meaning its being made more vivid than at present, and its disengagement from the painful or less pleasureable representations with which it is at present in conflict, conditions which are fulfilled by its actual presentation; thirdly, we are conscious of the motion of some muscle or set of muscles, and of the consequent presentative perceptions which contribute, as such means previously represented, to make the represented wish an actual enjoyment, and to liberate it from the contrasted representations, which are conceived in virtue of that forced connection as the obstacles to its realisation.

4. Now at every step of this process the motive, or conscious state evidencing the motive power, is an increased vividness in the pleasureable elements or moments of consciousness; in the first step of the process, the vividness of the pleasure in representation is plainly increased, but at the same time the feeling of effort arising from the contrasted representations is increased also, that is to say, we are pari passu aware more particularly of the obstacles to the realisation of the wish; at the second step, out of these connected representations, is developed a distinction between them; and some are perceived as forming a series leading up to the desired pleasure, for the connected representations on both sides increase in number as well as in minuteness of detail, being only limited by our habitual states of conscious-
ness, and the dwelling upon the pleasure and its connected and contrasted representations brings out into consciousness, in accordance with the law of habit in spontaneous redintegration, the whole panorama of our knowledge with reference to the one fixed representation of the desired pleasure. Out of these connected representations, then, is now developed the distinction of them into means and obstacles to the accomplishment of the desired end; and those parts which compose the series of means are, in that character and from the circumstance of their connection with the end, invested with a derivatively pleasureable character, even though by themselves they are painful or irksome. This state of redintegration shows the increasing energy in the movements supporting the pleasure, since the pleasure is spread into the antagonist's camp, and the means are adopted, though painful, because they have become derivatively pleasureable as being connected in representation with the source of pleasure, the represented pleasureable end. This is the crisis or decisive moment in the whole voluntary process; the question is, whether the reactive force, which supports the pleasure, is sufficient to overcome the retentive force, which supports the connected representations of obstacles and means, so far as to bring the means into distinct consciousness as such, and to replace the retentive force which supports them by the reactive force, which will be evidenced by the means themselves becoming objects of desire. At the third step, the actual muscular movements employed to realise the wish (in the case supposed, those necessary to take the journey to Paris) are stimulated, and their resistance overcome, at every stage of the