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THE DISEASES

OF

THE WILL.

BY

Th. RIBOT,

AUTHOR OF "THE DISEASES OF MEMORY."

TRANSLATED FROM THE FRENCH BY J. FITZGERALD, A.M.

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CHAPTER I.

INTRODUCTION.—THE QUESTION STATED.

DURING the last few years several authors have treated in detail certain departments of psychology according to the principle of evolution, and it has appeared to me that these questions might be discussed with advantage in the same spirit though in a different form, by studying the process of *dissolution*. I propose therefore in the present work to attempt such a study of the Will as I before made of the Memory; to investigate its anomalies, and from this research to draw some conclusions touching the normal state. In many respects the problem that confronts us here is more difficult than the former one: the term *will* denotes something more vague than the term *memory*. Whether we regard memory as a function, a property or a faculty, it is at all events a stable mode of being, a psychic situation that all may understand. The will on the other hand is resolvable into volitions, each one of which is a thing apart, an instable form of activity, a resultant varying according to the causes that produce it.

Besides this first difficulty there is another one that might seem greater still, but this we shall have no hesitation in dismissing summarily. Is it possible to study the pathology of the will without touching upon the irresolvable problem of free will? I hold it to be possible, and even indispensable, to abstain from such discussion; nor is it timidity that imposes this abstention upon us, but simply method. Psychology, like all other experimental sciences, must strictly eschew all research into first causes, and to that class of studies does the problem of free will belong. One of the great services rendered to philosophy by Kant and his disciples consisted in proving that the problem of the freedom of the will resolves itself into the question whether we are able to place ourselves outside the series of effects and causes so as to make an absolute beginning. This power "which summons, suspends, or dismisses," as it has been defined by a contemporary writer who has studied it profoundly,* can be affirmed only on the condition that we enter the domain of metaphysics.

The task before us here is different. Experience both inward and outward is the one object of our research: its limits are our limits. We take volitions as facts, with their immediate causes, that is to

* Renouvier, "Essai de Critique Générale," 2d edition, I., 395-406.

say the motives which produce them, without inquiring whether these causes suppose causes *in infinitum*, or whether there is not some measure of spontaneity added to them. Hence the question presents itself in a form equally acceptable to the determinists and to their opponents, being consistent with either hypothesis. We expect furthermore to pursue our researches in such a manner that the absence of any sort of solution of the free will problem will not even be noticed.

I shall endeavor to show that in every voluntary act there are two distinct elements, namely the state of consciousness—the "I will"—which indicates a mental situation but which of itself possesses no efficiency; and a highly complex psycho-physiological mechanism in which alone the power of acting or of inhibiting has its seat. As this general conclusion can only be reached as the result of particular conclusions furnished by pathology, I will for the time being abstain in this introduction from any systematic view of the subject, and will simply consider the will in its twofold mechanism of impulsion and inhibition, and in its source—the individual character—regardless of details that do not concern our subject.*

The fundamental principle governing the psychology of the will in its impulsive form both in the healthy and the morbid state, is that every state of consciousness always tends to express itself, to interpret itself by a movement, by an act. This principle is only a particular phase, special to psychology, of the fundamental law that reflex action is the sole type of all nerve action, of all life of relation. Properly speaking activity in an animal is not a beginning but an end, not a cause but a result, not a first appearance but a sequel. This point is of the highest importance, and it must not be lost sight of. It alone can explain the physiology and the pathology of the will, for this tendency of the state of consciousness to expend itself in a psychological or a physiological act whether conscious or unconscious, is the one simple fact to which are reducible all the combinations and all the complexities of the highest will activity.

The new-born babe, as Virchow defines it, "is but a spinal creature." Its activity is purely reflex, manifested by such a multiplicity of movements that for a good while its education must consist in suppressing or in checking the greater part of them. This prodigality of reflex actions, which has its ground in anatomical relations, exhibits in all its simplicity the transformation of excitations into movements. These movements, whether they are conscious or whether they awaken only an inchoate consciousness, in neither case represent voluntary action: properly they do but express the activity of the species—that which has been acquired, organized, and fixed by heredity: but these are the material out of which the will shall be fashioned.

Desire marks a higher step in the progress from the reflex state to the voluntary. By desire we understand the more elementary forms of the affective life—the only ones that can exist prior to the birth of the intelligence. Physiologically these do not differ from reflex actions of a complex nature: psychologically they differ from the latter by the state of consciousness, often very intense, which accompanies them. Like as in reflex action, they tend directly and irresistibly to express themselves in acts. In the natural state, and so long as it is free from admixture, desire tends to satisfy itself immediately: such is its law imprinted in the organism. Children and savages are good instances. In the civilized adult desire is no longer in the natural state, being altered or curbed by education, habit or reflection. Often however it resumes its right; and history shows that in the case of despots, who in their own esteem and in that of others stand above all law, desire rules uncontrolled.

Pathology will show us that this form of activity grows as will power declines, and persists when the latter has disappeared. Nevertheless it marks a progress from the first period, inasmuch as it denotes a beginning of individuality. On the common ground of the activity which belongs to the species, desire limns in faint outline the individual character: it reflects the mode of reaction peculiar to an individual organism.

When a sufficient store of experiences exists to allow of the birth of the intelligence, there appears a new form of activity,—*ideomotor* activity it has been called, ideas, thoughts, being here the cause of movements. The term *ideomotor* has the further advantage that it points out the relationship between these movements and those of reflex action, of which the former are but a development.

* The reader will find in a recent work by Schneider, "Der Menschliche Wille vom Standpunkte der neueren Entwickelungstheorien" (Berlin, 1882), a good monograph on the will in its normal state, and from the point of view of evolution.

How can a thought produce a movement? This question is one that seriously embarrassed the old psychology, but it presents no difficulty when we look at the facts as they really are. It is now a truth currently accepted in cerebral physiology, that the anatomical basis of all our mental states comprises both motor and sensorial elements. I shall not dwell upon a question that has been treated fully in another place * and which would involve a digression. I would simply repeat that our sense perceptions, especially the important ones of sight and touch, involve as integral elements movements of the eye or of the members. And if movement is an essential element when we see an object actually, it must play the same part when we see an object ideally. Mental images and ideas, even abstract ideas, involve an anatomical substratum in which movements are represented in one way or another.

True, on studying the question more closely, it might be said that we must distinguish two kinds of motor elements, viz.: those which serve to constitute a state of consciousness, and those which serve to expend it—the former being intrinsic, the latter extrinsic. The idea of a ball, for instance, is the resultant of impressions made by surfaces, and of special muscular adjustments; but the latter are the result of muscular sensibility, and as such they are sensations of movement rather than movements proper—they are elements going to make up our idea of the object, rather than a mode of giving it expression.

Nevertheless this close relation established by physiology between ideas and movement enables us in some measure to see how the one produces the other. In reality, an idea does not produce a movement. Were an idea, as defined by the spiritualists,† to produce a play of the muscles, it were little short of a miracle. It is not the state of consciousness, as such, but the corresponding physiological state, which is transformed into an act. In short the relation is not between a psychic event and a movement, but between two states of the same kind—between two physiological states, two groups of nervous elements, the one sensitive, the other motor. So long as we persist in regarding consciousness as a cause, all is obscure; but when we look upon it as simply the accompaniment of a nervous process, which alone is the essential element, all becomes clear, and factitious difficulties vanish.

This granted, we can roughly classify ideas in three groups, according as their tendency to transform themselves into acts is strong, moderate or weak and in a certain sense null.

1. The first group comprises intellectual states of high intensity: fixed ideas may be regarded as the type of these. They pass into act almost with the rapidity of reflex actions. These are ideas that "come home to us." The old psychology, affirming a fact of every day experience, used to say in its own language that the intelligence does not act upon the will save through the intermediation of the sensibility. This means that the nervous state corresponding to an idea is more readily translated into a movement, in proportion as it is accompanied by those other nervous states, whatever they may be, which correspond to feeling or sentiment. Nervous action is more energetic in proportion to the number of elements upon which it acts.

Most of the passions when they rise above the level of mere appetite, are to be referred to this group as principles of action. The whole difference is one of degree only, according as the affective elements predominate, or *vice versa*, in the complex thus formed.*

2. The second group is the most important for us. It represents rational activity—the will in the common acceptation of the word. Here the thought is followed by the act after longer or shorter deliberation. If we reflect we shall find that most of our actions are reducible to this type, allowance being made for the forms already mentioned, and for habits. Whether I rise to take the air at my window, or whether I enlist in the army with the purpose of becoming some day a general, the difference is only one of more and less; a highly complex volition like that last instance resolving itself into a series of simple volitions successively adapted to times and places. In this

* "Revue Philosophique," Oct., 1879.

† As opposed to "Materialists." It need hardly be said that the author has not in mind "Spiritists," or "Spirit Rappers."—TRANSLATOR.

* The relative independence of thought and feeling as causes of movement is clearly demonstrated by certain pathological cases. It may happen that the idea of a movement is of itself incapable of producing that movement: but let emotion be added and it is produced. A man that is paralyzed cannot by any effort of will move, say, his arm, yet it will be strongly agitated under the influence of an emotion caused by the arrival of a friend. In the case of softening of the spinal cord inducing paralysis an emotion, or a question addressed to the patient may give rise to more violent movements in the inferior members, upon which the will has no action.

group the tendency to act is neither instantaneous nor violent. The concomitant affective state is moderate. Many of the actions which constitute the ordinary course of our lives were at first accompanied by a feeling of pleasure, or curiosity and the like: now that feeling is weakened, still the connection between the idea and the act is fixed: when the idea comes up in the mind, the act follows.

3. With abstract ideas the tendency to movement is at a minimum. These ideas being representations of representations, pure schematisms, generalized concepts, the motor element is minimized in the same degree as the representative element. If we were to look upon all the forms of activity we have been considering as successive complications of simple reflex action, we might say that abstract ideas are a collateral ramification weakly attached to the main trunk, and which has developed in its own way. Their motor tendency is restricted to that inner speech, feeble as it is, which accompanies them, and to the awakening of some other state of consciousness. For just as in physiology the centrifugal period of a reflex action does not always end in a movement, but quite as often in the secretion of a gland or in some trophic action; so in psychology a state of consciousness does not always end in a movement, but in the summoning up of other states of consciousness, according to the well known mechanism of association.

The contrast so often noted between contemplative minds, who live among abstractions, and practical men is only the outward palpable expression of the psychological differences just mentioned. A few commonplace observations may be cited here, as the difference between knowing what is right and practicing it, between recognizing the absurdity of a creed and renouncing it, between condemning an unlawful passion and withstanding the same. All this is explained by the fact that the motor tendency of ideas, left to themselves, is exceedingly weak. We know not what are the anatomical and physiological conditions requisite for the production of an abstract idea, but we may without rashness affirm that once it becomes a motive to action other elements are added to it: this is the case with those who are "devoted to an idea." Men are governed by feeling and sentiment.

In the light of the foregoing remarks voluntary activity appears to us as a stage in that progressive evolution which proceeds from simple reflex action, where the tendency to movement is irresistible, to the abstract idea, where the tendency to action is at the minimum. We are unable to determine precisely its beginning or its end, the transition from one form to another being almost imperceptible. Of set purpose and for the sake of clearness we have not examined the problem in its complexity: we have even eliminated one of the essential characteristic elements of will. Regarded as we have regarded it so far, will might be defined as a conscious act, more or less deliberate, having in view an end whether simple or complex, proximate or remote. It is thus that contemporary authors, as Maudsley and Lewes, understand it, when they define it to be *impulse by ideas*, or the *motor reaction of feelings and ideas*. Thus understood, volition would be simply permissive. But it is something very different. It is also a power of *arrestation*, or, to use the language of physiology, a power of *inhibition*.

For a psychology grounded only on inner observation this distinction between permitting and hindering is of little importance; but for a psychology that seeks to find in the physiological mechanism some explication of the operations of mind, and which regards reflex action as the type of all activity, it is of vital significance.

The currently received doctrine teaches that the will is a *fiat* which the muscles obey no one knows how. On this hypothesis it matters little whether the *fiat* commands a movement or an inhibition. But if with all contemporary physiologists we hold that reflex action is the type and the basis of all action whatever, and if consequently there is no occasion to ask why a state of consciousness is transformed into a movement—for that is the law—we have still to explain why it is not transformed. Unfortunately physiology is full of obscurity and indecision touching this point.

The simplest instance of the phenomenon of inhibition is seen in the suspension of the movements of the heart by excitation of the pneumogastric nerve. We know that the heart (independently of the intracardiac ganglia) is innervated by nerve filaments coming from the great sympathetic which accelerate its pulsations, and by filaments from the vagus nerve. Section of the latter increases the movements; excitation of its central terminus on the contrary suspends them for

a longer or shorter time. The vagus therefore is an inhibiting nerve, and inhibition is generally regarded as the result of interference. The reflex activity of the cardiac centers is retarded or suspended by excitations coming from the medulla. In other words, the motor action of the pneumogastric expends itself in the cardiac centers and produces an arrest of movement. This has no direct psychological significance, but here is something that concerns us more nearly:

It is a well known fact that the reflex excitability of the spinal cord becomes greater when it is withdrawn from the action of the brain. The state of decapitated animals gives striking evidence of this. But not to recur to those extreme cases, we know that reflex action is much more intense during sleep than in the waking state. To account for this some authors have held that there are in the brain centers of inhibition. Setschenow locates them in the optic thalami and in the region of the tubercula quadrigemina, his ground being the fact that when we stimulate by chemical or other means the parts named, we produce a depression of the reflex actions. Goltz locates the centers of inhibition in the brain proper.

These and other similar hypotheses * have been sharply criticized, and many physiologists hold simply that in the normal state excitations are distributed both to the brain taking an upward route and to the spinal cord by a transverse route; and that on the other hand in cases where the brain cannot play a part, the excitations now finding only one route open, the result is a sort of accumulation, the effect of which is an excessive reflex excitability. Ferrier † holds that in the frontal lobes are to be found controlling centers which are the essential factor of attention.

Not to go into further detail, it is seen that for explaining the mechanism of inhibition we have no clear and generally accepted theory such as we have with regard to reflex action. Some authors hold that inhibition results from two contrary tendencies clashing or destroying each other; others maintain the existence of inhibition centers (and even inhibiting nerves) capable of suppressing instead of re-enforcing a transmitted impulse; and there are sundry other hypotheses, but it would be of no advantage to enumerate them.* In this state of ignorance, we must examine the question as best we may.

In all voluntary inhibition two things have to be considered: the mechanism that produces it—of this we have just spoken; and the state of consciousness that accompanies it: of this we have to speak now. In the first place there are cases where the inhibition needs no explanation—where the will incitation ceases of its own accord: for instance, when one throws aside a decidedly tedious book.

Other cases appear to be explained by one or other of the hypotheses mentioned. We voluntarily arrest laughter, yawning, coughing and certain passionate movements, by putting in action, apparently, the antagonistic muscles.

In cases where as yet we know not how inhibition is produced, where the physiological mechanism is unknown, pure psychology may teach us something. Take the most commonplace instance—a fit of anger stayed by the will. Lest we exaggerate the power of the will, we would remark that such inhibition is far from being the rule. Some individuals appear to be utterly incapable of it. Others exercise it, but very unequally, their power of inhibition varying according to times and circumstances. Few men are at all times masters of themselves.

The first condition of the exercise of this power is time. If the incitation to anger be so violent as to pass immediately into action, that is the end of it. Whatever may be the excess of passion there is no help for it. But if the condition of time be filled; if the state of consciousness calls up antagonistic states, and if these are sufficiently stable, then there is inhibition. The new state of consciousness tends to suppress the other one, and by weakening the cause puts a check on the effects.

It is of supreme importance for the pathology of the will to investigate the physiological phenomenon that takes place in such cases. There is no doubt that the quantity of the nervous influx—whatever our opinion may be as to its nature—varies between individuals, and from one moment to another in the same person. Neither is there any doubt that, at a given moment, in any individual, the available quantity may be variably distributed. It

* For a full history of this question the reader may consult Eckhard, "Physiologie des Rückenmarks" in Hermann's "Physiologie," vol. ii., part 2, p. 33 *seq*. He will there find an account of the experiments of Setschenow, Goltz, Schiff, Herzen, Cyon, and others, with their interpretations.

† "The Functions of the Brain," §§ 103, 104.

* See Wundt's "Mechanik der Nerven;" Lewes's "Physical Basis of Mind."

is clear that in the case of the mathematician making a computation and in that of a man gratifying a physical passion the quantity of nervous influx is not expended in the same way, and that one form of expenditure prevents the other, as the available capital cannot be employed at once for two purposes.

"We see," says a physiologist, "that the excitability of certain nerve centers is reduced by calling other nerve centers into action, if the excitations that reach the latter possess a certain intensity. If we consider the normal functionment of the nervous system, we find that there exists a necessary equilibrium between the different apparatus of this system. This equilibrium may be destroyed by the abnormal predominance of certain centers, which seem to divert to their own advantage too large a proportion of the nervous activity; as a consequence, the functionment of the other centers appears to be disturbed.... There are certain general laws that govern the distribution of the nervous activity at the different points in the system, as there are mechanical laws which govern the circulation of the blood in the vascular system: if any great perturbation occurs in an important vascular department the effect is necessarily felt at all other points in the system. These laws of hydrodynamics we can appreciate because the fluid in circulation is accessible to us, and because we know the properties of the vessels that contain it, the effects of elasticity, of muscular contraction, etc. But who knows the laws of the distribution of nervous activity, of the circulation of what has been called the nerve fluid? We recognize the effects of breaks in the equilibrium of nerve activity, but these are disturbances essentially variable, nor can they be reduced under any theory. We can only note their production, taking account of the conditions that accompany them."*

Applying these general considerations to our particular case, what do we find? The original state of consciousness (anger) has called forth antagonistic states which necessarily vary in different individuals—the idea of duty, the fear of God, the opinion of men, the law, disastrous consequences, etc. The result is the production of a second center of action, or in physiological language, a diversion of the nervous afflux, a weakening of the first state to the advantage of the second. Is this diversion sufficient to restore the equilibrium? The event alone can decide.

Still when the inhibition takes place, it is always only relative, and its only result is that the action is weaker. What remains of the original impulse expends itself as best it can through half-restrained gestures, in perturbation of the viscera, through some artificial outlet, as for instance in the case of the soldier who when he was being shot to death, chewed a bullet so that he might not make any exclamation. Very few persons are so endowed by nature or so formed by habit as to be able to reduce their reflex actions to imperceptible movements.

This diversion of the nervous influx therefore is not a primordial fact, but a state of secondary formation, set up by means of an association at the expense of the state which it displaces.

We would observe that in addition to these two antagonistic centers of action there are other causes which tend to weaken directly the primitive impulse.

But we must examine the difficulty more closely, for though the coexistence of their two antagonistic states* suffices to produce indecision, incertitude, non-action, it is not sufficient to produce voluntary inhibition in the true sense of the phrase, "I will not." One condition more is needed, and this is found in an affective element of the highest importance, of which we have not yet spoken. The feelings and emotions are not all stimulants to action: many of them have a *depressive* effect. Of these terror may be regarded as the extreme type. In its highest degree, terror paralyzes. A man suddenly visited with a great affliction is incapable of any reaction, whether voluntary or reflex. The cerebral anæmia, the arrest of the heart's action—often producing death by syncope—the profuse perspiration with chilling of the skin, the relaxation of the sphincter muscles: all these prove the excitability of the muscular, vaso-motor, secretory and other centers to be for the time being suspended. The case is an extreme one, but it gives us a view of the subject as through a magnifying glass. Between terror and indifference we have all possible degrees of fear with the corresponding degrees of depression.

If from this maximum we descend to moderate fear, the depressive effect grows less, but without changing its character. How do we arrest the movements of anger in a child? By threats, by reprimands, that is to say by producing a new state of consciousness of a depressing kind, capable of checking action. "An infant of three and a half months," says B. Perez.

* Franck, "Dictionnaire Encyclopédique des Sciences Médicales," art. NERVEUX.

* Of course we do not separate them from their physiological conditions, which are the principal element.

"knows from one's looks, from the tone of one's voice, when he is reprimanded. He frowns, his lips quiver convulsively, he pouts for an instant, his eyes fill with tears, and he is ready to cry." The new state therefore tends to supplant the old not only by its own force, but also by the weakness it imposes on the whole physical structure.

If, in spite of repeated menaces there is no inhibition, the individual is hardly, if at all, capable of education in this respect. But if inhibition is produced the result is that, in virtue of a well known law, an association tends to be formed between the two states: the first calls forth the second —its corrective—and from habit inhibition becomes more and more easy and rapid. With those who are masters of themselves inhibition takes place with the certainty that always marks a fully developed habit. Of course temperament and character are of more importance than education.

Hence it is not matter of surprise that a storm of passion should give way before a passionless idea, before states of consciousness whose motor tendency is quite weak. The reason is that back of these lies an accumulated force, latent and unconscious, as we shall see.

To understand this paradox, we must study, not the educated adult person, who reflects, but the child. In the child—and the savage, the man of gross nature and incapable of education is comparable to a child—the tendency to act is immediate. The work of education consists precisely in awakening these antagonistic states. And by education we understand not only the training the child gets from others, but also that which he acquires by himself.

I do not consider it necessary to prove that all sentiments and feelings which produce inhibition, as fear or respect for persons, law, usage, fear of God, and the like, originally were and ever are depressive states which tend to diminish action.

In short, the phenomenon of inhibition may be accounted for, in a way sufficient for our purpose, by an analysis of the psychological conditions under which it occurs, whatever theory one may entertain as to its physiological mechanism. It were no doubt desirable to have clearer notions on this point, to have a fuller understanding of the *modus operandi* whereby two almost simultaneous excitations neutralize each other. Were this obscure question cleared up our conception of the will as a power of inhibition would be more precise, and perhaps it would be different. But we must needs wait for this consummation. We shall again meet this difficult problem under other forms.

So far we have been considering voluntary activity under an exclusively analytical form, but this can give us no exact idea of it, nor exhibit it in its totality. It is neither a simple transformation of states of consciousness into movement, nor a mere power of inhibition: it is a reaction proper to the individual. We must dwell upon this point, for without it the pathology of the will is unintelligible.

The primary character of voluntary movements consists in their being *adapted*, but this character they have in common with the vast majority of physiological movements: the difference is only one of degree.

Apart from movements of the pathological order (convulsions, chorea, epilepsy, etc.), which occur in the form of a violent and irregular discharge, adaptation is found from the top to the bottom of the scale.

Ordinary reflex actions are reactions of the spinal cord adapted to conditions that are very general and therefore very simple; and they are uniform and invariable between one individual and another, save in exceptional cases. They possess a *specific* character.* Another group of reflex actions represents the reactions of the base and of the middle portion of the encephalon—the medulla, the corpora striata, the optic thalami. These reactions too are adapted to general conditions that vary little, but which are much more complex: they exhibit the "sensorimotor" activity of some authors. Even these are specific rather than individual, being very much the same in all the individuals of the same species.

The reflex actions of the brain, especially those of the highest type, consist of a reaction adapted to conditions highly complex, variable and instable, and differing between one individual and another, and from one moment to another in the same individual. These are the ideomotor reactions—volitions. How perfect soever this adaptation may be, it does not concern us here. It is only an effect, the cause of which is, not volition, but intellectual activity. The intelligence being a correspondence, a continual adjustment of internal relations to external, and in its highest form a perfectly coördinated ad-

* That is, they belong to the *species*.—TRANSLATOR.

justment, the coördination of these states of consciousness implies coördination of the movements that express them. So soon as an end is chosen, it acts after the manner of what is called by metaphysicians a final cause: it involves the choice of the means proper for its attainment. The adaptation therefore is a result of the mechanism of the intelligence. This point need not detain us.

But what interests us is this *choice*, this preference declared after a longer or shorter comparison of the motives. This it is which represents the individual reaction, as distinguished from the specific reactions: in the pathology of the will the former is sometimes superior, sometimes inferior to the latter.

What is this choice? Considered in its form, it is nothing but a *practical* affirmation, a judgment that executes itself. It is to be noted that considered physiologically and from without there is nothing to distinguish a voluntary from an involuntary movement: the mechanism is the same whether I wink my eyes reflexly or as a signal to an accomplice.* Considered psychologically and from within, there is nothing to distinguish a judgment in the logical sense of that term, *i.e.*, a theoretic affirmation, from a volition, save that the latter expresses itself by an act and thus is a judgment put in execution.

But what is it considered in its essence and not merely in its form? We will dwell for a moment on this point and will endeavor to throw some light upon it. By descending to a few very lowly biological facts we shall perhaps better understand wherein a choice consists. I shall not wander afield in search of analogies—for instance, the affinity of the magnet for iron. In the vegetable kingdom I shall simply quote the fact that insectivorous plants, as Dionæa, choose certain bodies that come in contact with them, to the exclusion of other bodies. So too the Amœba chooses certain organic fragments for its nourishment. These facts are incontestable, but they are difficult of interpretation. They are explained in a general way on the theory of a relation between the molecular composition of the organism choosing and the organic substance chosen. No doubt the choice is exercised here in a very narrow field; no doubt, too, this is the rudest form of choice. With the rise and development of a more and more complex nervous system this blind affinity is transformed into a conscious tendency, and then into several contradictory tendencies whereof one gains the mastery—the one which represents the maximum of affinity. Example: a dog hesitating between several pieces of meat and choosing one. But in every case the choice expresses the nature of the individual at a given moment, under given circumstances, in a given degree: that is to say, the weaker the affinity the less marked the preference. Hence we may affirm that the choice, whether it results from one tendency or from many tendencies, from a present sensation, from images recalled, from complex ideas, or from complicated calculations projected into the future, is always based on an affinity, an analogy of nature, an adaptation. This is true of animals whether the lower or the higher, and of man, with respect either to vice or to virtue, science, pleasure or ambition. To restrict our remarks to man, two or more states of consciousness arise as possible ends of action; after some oscillations one end is preferred, chosen. Why so, unless it is that between this state and the sum of states conscious, subconscious and unconscious (the latter purely physiological) which at this moment constitute the person, the Ego, there exists agreement, analogy of nature, affinity? This is the only possible explanation of the choice, unless we say it is without a cause. Some one suggests that I kill my friend: that tendency is rejected with horror, excluded; that is to say it is in contradiction to my other tendencies and feelings, there is no association possible between it and them, and by that very fact it is suppressed.

In the mind of the criminal on the contrary there appears to be a certain agreement, that is an analogy, between the murder and his feelings of hate or avarice, and consequently it is chosen, affirmed as something that ought to be. Hence considered as a state of consciousness, volition is nothing but an affirmation (or a negation). It resembles a judgment, with this difference, that the one expresses a relation of agreement (or disagreement) between ideas, while the other expresses the same relation between tendencies; that while the one is a repose for the mind, the other is a stage of progress

* Physiologists distinguish between voluntary and involuntary muscles, but admit that the distinction is in no wise absolute. There are persons, like E. F. Weber, the physiologist, who can at will stay the movements of the heart; others, like Fontana, who can produce contraction of the iris, and so on. A movement is voluntary when, after repeated successful experiments, it becomes associated with a state of consciousness and falls under its control.

toward action; while the one is an acquisition, the other is an alienation, for intelligence is a saving and will an expenditure. But volition in itself, as a state of consciousness, has no more power of producing an act than the judgment has of producing a truth. That power comes from another source. We will return, toward the conclusion, to this important point.*

The ultimate reason of choice is therefore in the character, that is to say in that which constitutes the distinctive mark of the individual in the psychological sense, and differentiates him from all other individuals of the same species.

Is the character, or, to use a more general term, the person, the Ego, which for us is a cause—is it in its turn an effect? Undoubtedly it is, but we are not concerned here with the causes which produce it. The science of character, which 40 years ago John Stuart Mill regarded as a desideratum, does not yet exist, nor will it ever, in my opinion. Were there such a science we should have only to accept its results, without essaying an excursion into its domain, for to be ever tracing effects to their causes would be to follow the devious steps of metaphysics. As regards the matter in hand, we repeat, character is an ultimate fact, a true cause, though for another order of research it is an effect. We would remark in passing, and as a simple suggestion, that character —the Ego so far as it reacts—is an exceedingly complex product to the formation of which heredity and physiological circumstances both anterior and posterior to birth, as education and experience, have contributed. We may also affirm that what constitutes character is affective states, and the individual's own feelings, much more than any intellectual activity. It is the general tone of the individual's feelings, the general tone of his organism that is the first and the true motor. If this is lacking, the individual cannot exercise will at all, as we shall learn from pathology. It is precisely because this fundamental state is, according to the individual constitution, stable or fluctuating, continuous or variable, strong or weak, that we have three principal types of will —strong, weak and intermittent—with all intermediate degrees and shades of difference between the three. But these differences, we repeat, spring from the character of the individual, and that depends upon his special constitution. We cannot push the inquiry beyond that point.

We are thus fully in agreement with those who say that the predominance of a motive by itself does not explain volition. The preponderant motive is only a part of the cause, and always the weakest part too, though the most visible: nor has it any efficaciousness except inasmuch as it is chosen, that is, as it forms an integral part in the sum of the states constituting the Ego at a given moment, and as its tendency to action is added to the group of tendencies that spring from the character, forming one with them.

Hence it is not necessary to look on the Ego as an entity nor to place it in some transcendental region, in order to recognize in it a causality of its own. It is a very plain fact of experience; the contrary is incomprehensible.

Physiologically all this means that the voluntary act differs both from simple reflex action, where one impression is followed by one contraction, and from the more complex forms of reflex action where one impression is followed by a number of contractions; that it is the result of the entire nervous organization, which itself reflects the nature of the whole organism, and which reacts in consequence.

Psychologically it means that the voluntary act in its complete form is not merely the transformation of a state of consciousness into movement, but that it presupposes the participation of that whole group of conscious or subconscious states which make up the Ego at a given moment.

We are therefore justified in defining the will to be an individual reaction, and in regarding it as that which is inmost to us. The Ego, albeit an effect, is a cause, and that in the strictest sense.

To sum up, we have seen that from the lowest reflex action to the highest act of will the transition is imperceptible, and that we cannot say precisely where volition proper, that is the personal reaction, begins. The difference is most pronounced at the two ends of the series: at one end extreme simplicity, at the other extreme

* What has been said amounts simply to a statement of the evident fact that a choice proceeds always in the direction of the greatest pleasure. No animal, whether void of reason or gifted with it, whether sound or diseased can will anything save what *seems* to it at the moment to be its greater good or its less evil. Even the man who elects death rather than disgrace or apostasy, chooses the less disagreeable alternative. Individual character and development of the reason cause the choice now to rise very high, again to fall very low; yet always it tends toward that which promises more pleasure. The contrary is impossible. This is a psychological truth so clear that the ancients held it to be an axiom, and it has taken volumes of metaphysics to obscure it.

complexity; on one hand a reaction that is ever the same in all the individuals of the same species, on the other a reaction which varies according to the individual. Simplicity and permanence, complexity and change are here paired.

From the evolution standpoint all these reactions clearly were in their origin individual. They have become specific, from having been repeated times beyond number in the individual and in the race. The beginning of will is found in the property of reacting possessed by all living matter, and its extinction in the property possessed by living matter of acquiring habits; and it is this involuntary activity, fixed and unalterable, which serves as the groundwork and the instrument of the individual activity.

But among the higher animals the hereditary legacy, the chance circumstances of birth, the continual adaptation to conditions that vary every instant, do not permit the individual reaction to become fixed nor to assume the same form in all the individuals. The complexity of their environment is their safeguard against automatism.

Here we bring to an end these preliminary remarks, the only purpose of which was to prepare the ground for the pathology of the will, which we are now to consider.

CHAPTER II.

IMPAIRMENT OF THE WILL.—LACK OF IMPULSION.

As we have seen, the term will denotes acts differing widely with respect to the conditions of their genesis, but all possessing this character in common, that they represent in one form or another, in one degree or another, a reaction of the individual. Without reverting to that analysis we would for clearness' sake note two external characters which distinguish all true volition: it is a definitive state; and it is expressed by act.

Irresolution, which is the beginning of a morbid state, has inner causes which pathology will enable us to grasp; it springs from the weakness of the incitements, or from their ephemeral action. Of persons of irresolute character some—though these are very few indeed—are such from affluence of ideas. The work of comparing motives, of balancing arguments, of calculating consequences constitutes an exceedingly complex cerebral state, wherein the tendencies to action interfere with one another. But affluence of ideas is not of itself a sufficient cause of irresolution; it is only an adjuvant. The true cause here as everywhere is in the character.

This is seen more clearly in persons of irresolute will who have few ideas. They always act in the direction of least action or of weakest resistance. Their deliberation results with difficulty in making up their minds, and after they have made a choice the next step, action, is more difficult still.

Volition on the contrary is a definitive state; it closes the debate. By it a new state of consciousness—the motive chosen—is imported into the Ego as an integral part of it, to the exclusion of other states. The Ego is thus constituted fixedly. In fickle natures this definitive action is always provisional, that is, the Ego willing is so instable a compound that the most insignificant state of consciousness that happens to arise modifies it, alters it. The compound formed at this moment has no force of resistance the moment following. In all the states conscious and unconscious that each moment represent the causes of volition, the part played by the individual character is a minimum, the part played by external circumstances a maximum. Here we have that lower form of will mentioned before which is simply permissive.

We must not forget that to will is to act and that volition is a passing to action. To reduce the will as some do to a simple resolution, that is, to the theoretic affirmation that such or such an act will be done, is to base it upon an abstraction. Making the choice is but one step in the will process. If it does not translate itself into act, whether immediately or at the fit time, then it is in no wise distinguishable from a logical operation of the mind.

The diseases of the will we divide into two principal classes, accordingly as they indicate that the will is *impaired*, or that it is *abolished*.

Impairment of the will constitutes the most important part of its pathology; it exhibits the will mechanism deranged. We shall consider cases of impairment of the will under two heads, viz.: 1. Impairment of the will from lack of impulse; 2. Impairment of the will from excess of impulse. We will consider separately, 3, impairment of voluntary attention, on account of its great importance. And 4, under the head of "Caprices," we will study a special state, wherein will either is not constituted at all, or only by accident.

The first group comprises certain simple and well defined phenomena that may be studied with profit. We find in the normal state many of the elements of this group in those soft and pliant characters who in order to act require that another will should be joined to theirs; but disease will exhibit to us this state enormously exaggerated. Guislain has described in general terms that impairment which physicians designate by the term *aboulia*: "The patients," he says, "can will to themselves, mentally, according to the dictates of reason. They may feel a desire to act, but they are powerless to make a move toward that end. . . . Their will cannot overpass certain bounds: one might say that this force of action undergoes an arrest. The *I will* is not transformed into impulsive will, into active determination. Some patients are themselves surprised at the impotence with which their will is stricken. . . . Left to themselves, they will pass whole days in bed, or sitting in a chair. When spoken to or aroused, they speak rationally though curtly; they judge of things fairly enough."*

As those patients are the most interesting whose intelligence is intact, we shall cite such cases only. One of the earliest observations, and the best known of all, we owe to Esquirol. "A magistrate," he writes, "highly distinguished for his learning and his power as a speaker, was seized with an attack of monomania, in consequence of certain troubles of mind. He regained entirely his reason, but he would not go into the world again, though he acknowledged himself to be in the wrong in not doing so; neither would he attend to his business though he well knew that it suffered in consequence of this whim. His conversation was both rational and sprightly. When advised to travel or to attend to his affairs, 'I know,' he would answer, 'that I ought to do so, but I am unable. Your advice is very good; I wish I could follow it; I am convinced; but only enable me to will, with the will that determines and executes. . . . It is certain,' said he one day to me, 'that I have no will save not to will, for I have my reason unimpaired, and I know what I ought to do, but strength fails me when I ought to act.'" †

Prof. J. H. Bennett records the case of "a gentleman who frequently could not carry out what he *wished* to perform. Often on endeavoring to undress he was two hours before he could get off his coat, all his mental faculties, volition excepted, being perfect. On one occasion having ordered a glass of water, it was presented to him on a tray, but he could not take it, though anxious to do so; and he kept the servant standing before him half an hour, when the obstruction was overcome." He described his feelings to be "as if another person had taken possession of his will." *

Thomas De Quincey describes this paralysis of the will from personal observation. His remarks are the more valuable as coming from a man of subtile mind and fine literary tact. From the effects of long continued abuse of opium he was compelled to give up the studies in which he had been wont to delight. "I shrunk from them," he writes, "with a sense of powerlessness and infantine feebleness the greater from remembering the time when I grappled with them [mathematics, intellectual philosophy, etc.] to my own hourly delight; and for this further reason, because I had devoted the labor of my whole life to . . . .constructing one single work. . . . This was now likely to stand a memorial of hopes defeated, of baffled efforts, of materials uselessly accumulated. . . . In this state of imbecility I had for amusement turned my attention to political economy." He speaks of "the utter feebleness of the main herd of modern economists" with whose writings he had been familiar. At length he read Mr. Ricardo's book, and before he had finished the first chapter, wonder and curiosity that had long been dead in him were re-awakened. Conceiving however that some important truths had escaped even Ricardo's eye, he drew up his "Prolegomena to all Future Systems of Political Economy." Arrangements were made for printing this work, and it was even twice advertised. But the author had a preface to write and a dedication to Ricardo, and he found himself quite unable to accomplish all that. So the arrangements were countermanded and the "prolegomena" was not published. "I have thus described and illustrated my intellectual torpor in terms that apply more or less to every part of the four years during which I was under the Circean spells of opium. But for misery and suffering, I might in-

* Guislain, "Leçons Orales sur les Phrénopathies," vol. i., p. 479. See also Griesinger, "Traité des Maladies Mentales" (French translation), p. 46; Leubuscher, "Zeitschrift für Psychiatrie," 1847.

† Esquirol, I., 420.

* Quoted by Carpenter, "Mental Physiology," p. 385, from Bennett, "The Mesmeric Mania of 1851."

deed be said to have existed in a dormant state. I seldom could prevail on myself to write a letter; an answer of a few words to any that I received was the utmost that I could accomplish; and often that not until the letter had lain weeks or even months on my writing table. Without the aid of M. all records of bills paid or to be paid must have perished, and my whole domestic economy, whatever became of Political Economy, must have gone into irretrievable confusion. I shall not afterward allude to this part of the case; it is one however which the opium eater will find in the end as oppressive and tormenting as any other, from the sense of incapacity and feebleness, from the direct embarrassments incident to the neglect or procrastination of each day's appropriate duties, and from the remorse which must often exasperate the stings of these evils to a reflective and conscientious mind. The opium eater loses none of his moral sensibilities or aspirations; he wishes and longs as earnestly as ever to realize what he believes possible and feels to be exacted by duty; but his intellectual apprehension of what is possible infinitely outruns its power not of execution only but even the power to attempt. He lies under the weight of incubus and nightmare; he lies in sight of all that he would fain perform, just as a man forcibly confined to his bed by the mortal languor of a relaxing disease, who is compelled to witness injury or outrage offered to some object of his tenderest love: he curses the spells which chain him down from motion; he would lay down his life if he might but get up and walk; but he is powerless as an infant and cannot even attempt to rise." *

I shall cite only one observation more. It is recorded by Billod in the "Annales Médico-pathologiques," and exhibits the disease in all its aspects. The patient was a man 65 years of age, "of strong constitution, of lymphatic temperament, with a faculty specially developed for business, and of middling sensibility." Being strongly attached to his profession (he was a notary) he hesitated long before he decided to sell his office. Having done so, he fell into a state of profound melancholy, refusing all food, deeming himself undone, and going so far in his desperation as to attempt suicide. In the narrative which follows I omit only a few details of purely medical interest, and permit the observer to describe the case in his own words:

"The faculty that seemed to us to be most notably affected was the will. The patient oftentimes manifests an inability for willing to perform certain acts although he has the wish, and although his sound judgment, after prudent deliberation, convinces him of the fitness and often even the necessity of so acting." The patient was at this time confined in the asylum at Ivry, and it was desired that he should go to Italy with Dr. Billod.

"When told that he must soon leave, 'I never can,' said he, 'yet I am tired of this place.' On the eve of his departure he again protested that he never could leave. The next morning he rose at six o'clock to go and make the same declaration to Mr. M. Some resistance therefore was anticipated, yet when I presented myself he made no opposition whatever, saying only, as though he felt that his will was ready to lapse, 'Where is the coach, so I may lose no time in getting into it.'

"It would be tiresome were we to take the reader with us and exhibit to him all the phenomena presented by the patient during this tour. These phenomena may conveniently be represented by three or four of the principal ones which I shall offer as a sample of all the rest. The first presented itself at Marseilles. The patient was requested, before he took ship, to execute a paper authorizing his wife to sell a house. He drew up the document himself, made a copy on stamped paper, and was in the act of signing his name when a difficulty arose for which we were quite unprepared. After having written his name, he was utterly unable to make the flourish. In vain he struggled to overcome the difficulty. A hundred times at least he went through the requisite movements with his hand raised above the paper—proving that the obstacle was not in the hand; a hundred times the will was unable to command the fingers to bring the pen down to the paper. Mr. P. was in an agony. He would rise from the desk with impatience, and stamp on the floor: then he would sit down again and try once more. Still he could not bring the pen to the paper. Will any one deny Mr. P.'s strong desire of completing his signature or assert that he does not understand the importance of the act? Will any one question the soundness of the organ that has to execute the flourish? The agent (the hand) seems to be as free from defect as the legal instrument, but the former cannot apply itself to the latter. Plainly the will is at fault. This struggle lasted three quarters of an hour. At last the effort had some result, after I had given up all expectation of any. The flourish was very imperfect, but it was executed. I was an eye witness of this struggle, taking the liveliest interest in it, and I declare that

* "Confessions of an Opium Eater," Boston edition, 1851, p. 106 *et seqq.*

it was impossible to give more manifest proof of the impossibility of willing, in spite of the desire.*

"A few days later I observed another instance of disability of a kindred nature. It was proposed to go out for a little while after dinner. Mr. P. wished very much to do so, desiring, as he told me, to get some idea of the appearance of the city. For five days in succession, he took his hat, arose from table, and got ready to go out. Vain hope! His will could not command his legs to put themselves in motion, and carry him into the street. 'Evidently I am my own prisoner,' he would say; 'it is not you that prevent me from going out, nor is it my legs that refuse; then what is it?' Thus would Mr. P. complain of his *not being able to will*, much as he wished it. At last, after five days, he made a final effort, and succeeded in getting out of doors, but five minutes later he came back perspiring and out of breath, as though he had run a distance of several kilometers, and much astonished himself at what he had just done.

"Instances of such inability were occurring every moment. If the patient longed to go to the theater, he could not will to go. If at table with agreeable company he wished to take part in the conversation, the same inability was experienced. True, oftentimes this lack of force existed, so to speak, in apprehension only: the patient feared lest he should not be able, and yet he succeeded in more instances than he failed: often however, it must be admitted, his apprehensions were justified."

After passing six days at Marseilles, patient and physician took ship for Naples, "though not without the utmost difficulty." During these six days

"the patient formally expressed his disinclination to embark, and his desire of going back to Paris, dreading in advance the thought of finding himself, with his diseased will, in a strange country, and declaring that he would have to be taken on board in irons. On the day appointed for sailing, he made up his mind to leave the hotel only when he believed that I was about to resort to force. Once outside the door, he stopped on the street, and there no doubt would have remained, were it not for the intervention of some sailors, and they had only to show themselves.

"Another circumstance goes to show still further the lesion of the will. We reached Rome on the day of Pius the Ninth's election. 'This is a fortunate circumstance, I should say,' he remarked, 'were I not ill. I wish I could assist at the coronation, but I do not know that I can. I shall try.' On the morning of the day he arose at five o'clock, shaved, took out his black coat, etc., and said to me, 'You see I am doing a good deal; I do not yet know whether I shall be able to go.' At last, when the hour for the ceremony was come, he made a great effort, and with much ado succeeded in going down stairs. Ten days afterward, on the feast of St. Peter, after making the like preparations, and the same efforts, no result was reached. 'You see,' he said, 'I am still my own prisoner. It is not the wish that is wanting seeing that I have been getting ready for the last three hours. Here I am dressed, shaven and gloved, yet I cannot budge from here.' In short it was impossible for him to attend the ceremony. I had used a good deal of urgency, but judged that I must not force him.

"I will conclude this narrative, already too long, with one observation. It is that the instinctive movements—those which are not subject to the will proper—were not affected in this patient like those which may be called the ordinated movements. Thus, on arriving at Lyons, upon our return journey, our coach ran over a woman that the horses had thrown down: my patient regained all his energy, and not waiting for the vehicle to stop, threw off his cloak, opened the door, and was the first to descend and offer assistance to the woman."

The author adds that the voyage had not the good effect he had anticipated; that the patient however felt better when riding in a carriage, especially in a jolting vehicle over a rough road; and thus he went home to his family in about the same state.*

The cases just cited represent a very definite group. From them we gather some very precise facts, and a few highly probable inferences. And first let us consider the facts.

1. The muscular system and the organs of movement remain intact: they offer no impediment. The automatic activity which constitutes the ordinary routine of life persists.

2. The intelligence is intact—at least there is nothing that would warrant us in saying that it has suffered in the least. Ends are clearly apprehended, means likewise, but to pass to action is impossible.

Here then we have a disease of the will in the strictest sense. And we may remark that disease makes for our behoof a curious experiment. It creates exceptional conditions, such as can be produced in no other way: it makes two halves of the man, utterly extinguishing all power of individual reaction, but leaving intact all else; it produces for us, so far as the

* *Je déclare qu'il était impossible de constater plus manifestement une impossibilité de vouloir, malgré le desir.* I transcribe this observation literally, without any reflection upon the author's psychological doctrine. (Author's note.)

* "Annales Médico-Psychologiques," vol. x.

thing is possible, a being reduced to pure intelligence.

Whence comes this impotence of will? Here the inductions begin. As to its immediate cause two hypotheses only are possible: it consists of an impairment either of the motor centers or of the incitements they receive.

The first hypothesis has no valid reason to rest on.* At least we know too little about this matter to warrant even conjecture.

The second hypothesis remains. Experience confirms it. Esquirol has preserved for us the remarkable answer made to him by a patient who had been cured: "This lack of activity was owing to the fact that my sensations were too faint to exert any influence on my will." The same author has also noted the profound change such patients experience in their general sense of existence (cœnæsthesia). "My existence is incomplete," writes one of his patients to him. "The functions, the power of performing the ordinary acts of life, remain with me: but in the performance of them there is always something wanting, to wit, the sensation proper to each and the pleasure that follows them. Each one of my senses, each part of myself is, so to speak, separated from me, nor can it now procure for me any sensation." No psychologist could better define the point at which the affective life of the patient was impaired.

Billod relates the case of a young Italian woman "of brilliant education" who became insane from having been crossed in love; she recovered, but afterward fell into a profound apathy. "She reasons soundly on every subject, but no longer has any power of will or of love; no consciousness of what happens to her, of what she feels or of what she does. She says she is as one that is neither dead nor alive; like one living in continual sleep, to whom objects appear as though wrapt in a cloud, to whom persons seem to move like shadows, and words to come from a world far away." †

If, as we shall see later, the voluntary act is made up of two distinct elements, viz., a state of consciousness totally incapable either of producing action or prohibiting it, and organic states which alone have this power, then it must be admitted that the two elements, though usually they are simultaneous, as being the effects of one same cause, are here dissociated. The inability to act is a fact. But the intensity of the state of consciousness, which intensity is clearly intermittent—is that a fact? If so, then we must say that the requisite conditions are present here, but only so far as this element is concerned. But is this intensity of consciousness an illusion? I am inclined to believe that it is. The strong desire to act that some of the patients suppose themselves to have seems to me to be simply an illusion of consciousness. The intensity of a wish is something entirely relative. The patient being in a state of general apathy, an impulse that to him appears to be strong is in fact below the average: hence inaction. When we come to study the state of the will in somnambulism we shall see that though some patients firmly believe their acts while in that state to be controllable by their will, experience at last compels them to admit that this judgment is erroneous and that their consciousness deludes them completely.*

When however an excitation happens to be very strong, sudden, unexpected, that is when it combines all the conditions of intensity, then in most cases it serves as an impulse to action, as in the case of the patient who recovered his energy to save a woman from being run over.† Every one can realize for himself this state of aboulia, for there is no one but has had his hours of weakness when all incitements, whether inward or outward, all sensations and all ideas have been ineffective, leaving him impassive. Between this state and aboulia there is only a quantitative difference—the difference between a transient and a chronic state.

If these patients are unable to will the reason is that however many projects they may conceive, only a feeble desire to act is awakened. I employ these terms in order to conform myself to the current phraseology, still it is not the weakness of the desire, as a simple state of consciousness, that produces inaction. To infer that it is, is to reason from mere appearances. As we have already shown, every nervous state—every sensation, every idea—is all the more surely translated into movement, as it is accompanied by those other nervous states, whatever they may be, which correspond to feeling and sentiment. It is from the weakness

* It must be remembered that we are speaking not of the motor organs, but of the *centers*, whatever opinion may be held as to their nature and their localization.

† "Annales Médico-Psychologiques," *ubi supra*.

* See Chapter VI., *infra*.

† I learn from Dr. Billod that this patient regained his activity, in consequence of the events of June, 1848, and the emotions they excited in him.

of these states that aboulia results, and not from weakness of desire, which is only a sign.

The cause therefore is a comparative insensibility, a general impairment of sensibility: that which is impaired is the affective life, the emotional faculty. But whence comes this morbid state? The question is purely a physiological one. Indisputably there exists in these patients a notable depression of the vital activities; and this may attain to such a degree as to involve all the faculties, so that the individual becomes like some inanimate thing. Physicians call this state melancholia, lypemania, stupor, and its symptoms are a slowing of the circulation, a lowering of the temperature of the body, and an almost absolute immobility. These extreme forms do not belong to our theme, but they exhibit to us the ultimate causes of impotence of the will. Every depression in the vital tone, be it slight or be it grave, transient or lasting, has its effect. So little is the will like a faculty controlling as a master, that it depends momentarily upon the most trivial causes: it is at their mercy. And yet, inasmuch as it has its source in biological actions that take place in our inmost tissues, we see how truly it is said to be our very self.

The second group is like the first in its effects (impairment of the will) and in its causes (depressive influences). The only difference is that the incitement to act is not suppressed. The first group presents positive causes of inaction; the second, negative causes. Inhibition results here from an antagonism.

In all the cases now to be mentioned the impairment of the will springs from a sense of fear, based on no rational ground, and varying from simple anxiety to anguish and paralyzing terror. In some instances the intelligence appears to be intact, in others impaired. Again, some of these cases are of an indefinite character, and it is difficult to say whether they indicate a disease of the will alone.*

The following case shows the transition from one group to the other; in fact it belongs to both. "A man of 30 years found himself involved in certain civic tumults which frightened him greatly. Thereafter, though he retained perfectly his mental balance, managing his private affairs very well and carrying on a large business, he would not remain alone either on the street or in his chamber, but was always accompanied. If he went out, it was impossible for him to return home alone. Whenever he went out unattended, which he rarely did, he would soon halt on the street, and there remain indefinitely, neither going on nor turning back, unless some one led him. He seemed to have a will, but it was the will of those around him. Whenever the attempt was made to overcome this resistance of the patient, he would fall into a swoon."*

Several alienists have recently described under the names of "peur des espaces," "Platzangst," and agoraphobia, a curious sort of anxiety that paralyzes the will, and against which the individual is powerless to react, or at least does so only in a roundabout way. A case observed by Westphal may serve as a type. A traveler of strong constitution, perfectly sound of mind and presenting no disorder of the motor faculty, is suddenly seized with a feeling of alarm at the sight of an open space—as a public square—of some little size. If he must cross one of the great squares of Berlin, he fancies the distance to be several miles and despairs of ever reaching the other side. This feeling grows less or disappears if he goes around the square, following the line of houses, also if he has some person with him, or even if he supports himself on a walking cane. Carpenter† quotes from Bennett a case of "paralysis of the will" which seems to me to belong to the same class. "If when walking in the street this individual [a patient of Dr. Bennett's] came to a gap in the line of houses, his will suddenly became inoperative and he could not proceed. An unbuilt-on space in the street was sure to stop him. Crossing a street also was very difficult, and on going in or out of a door he was always arrested for some minutes."

Again, some persons while walking in the open country are more or less uneasy unless they keep close to the hedges or to the trees. Many other illustrations might be given, but that is needless, for they would add nothing to the fundamental fact.‡

* Here it is well to remark once for all that, as we are studying the diseases special to the will, we have had to eliminate all cases where the psychic activity is affected as a whole, and those in which affections of the will are only the effect and the expression of intellectual insanity.

* Billod, *loc. cit.*, p. 191.

† Op. cit., p. 385.

‡ For further details see Westphal, "Archiv für Psychiatrie," vol. iii. (two articles); Cordes, *ibidem*; Legrand du Saulle, "Annales Médico-psychologiques" (1876), p. 405; Ritti, "Dictionnaire Encyclopédique des Sciences Médicales," art. FOLIE AVEC CONSCIENCE; Maudsley, "Pathology of Mind."

The medical discussions of this morbid state do not concern us here. The psychological fact is reducible to a sense of fear, and that this fear is puerile and imaginary as regards its causes makes no difference for us: we have to do only with its effect, which is to disable the will. But we must inquire whether this depressive influence only arrests the will-impulse, the latter being in itself intact, or whether the power of individual reaction also is weakened. The latter hypothesis is well grounded for, the sense of fear not being insurmountable—as these patients prove in some instances—we must infer that the individual's power of reaction is fallen below the general level. Hence the arrest of volition results from two causes acting in the same direction.

Unfortunately we are ignorant of the physiological conditions of this impairment. Many are the conjectures that have been made. Cordes, himself subject to this infirmity, regards it as "a functional paralysis symptomatic of certain modifications of the motor centers, and capable of producing upon us impressions, in particular an impression of fear, which gives rise to a momentary paralysis; this effect is almost nothing if the imagination alone is in play, but it is carried to a very high degree by the operation of the accompanying circumstances." According to Cordes, then, the primary cause is "a paresic exhaustion of the motor nervous system, of that portion of the brain which governs not only locomotion but muscular sensibility also."

This explanation, were it firmly established, would be of great consequence for our research. It would show that the impotence of the will depends on an impotence of the nerve centers—and this would have the advantage of supplying to our inquiries an assured basis in physiology. But it would be premature to draw here conclusions that will come in more fitly at the end of our work.

I shall have little to say of the mental state denominated "grübelsucht." It represents the pathological form of irresolution of character, just as aboulia represents that of the apathetic character. It consists of a state of continual hesitation, for the most frivolous reasons, with inability to reach any definitive results. This hesitation is seen at first in the purely intellectual order. The patient keeps asking himself questions continually. I take an illustration from Legrand du Saulle. "A very intelligent woman could not go into the street but she would be asking herself, 'Is some one going to jump out of a window and fall at my feet? Will it be a man or a woman? Will the person be wounded or killed? If wounded, will it be in the head or the legs? Will there be blood on the pavement? Shall I call for assistance, or run away, or recite a prayer? Shall I be accused of being the cause of this occurrence? Will my innocence be admitted?' and so on. These questionings go on without end. Several cases of a like nature are recorded in special treatises." *

If it involved only this "psychological rumination,"—to use Mr. du Saulle's expression—we should have nothing to say about this morbid state; but the perplexity of the mind expresses itself in acts. The patient durst not attempt anything without endless precautions. If he has written a letter, he reads it over and over again, for fear he should have forgotten a word or committed some fault of spelling. If he locks a drawer, he must make sure again and again that it was done aright. It is the same as to his dwelling: he has to satisfy himself repeatedly as to the doors being locked, the keys in his pocket, the state of his pocket, etc.

In a graver form of the malady the patient, haunted by ridiculous abhorrence of contact with anything dirty or unclean, will not touch a piece of money, a door knob, a window fastening or the like; and he lives in a state of constant apprehension. Such was the cathedral beadle mentioned by Morel, who, worried for twenty-five years by absurd fancies, feared to touch his staff; the man would reason with himself, and rail at himself till his apprehensions were counteracted, yet he always was afraid that the next time he should not succeed.†

This malady of the will results in part from weakness of character, in part from the state of the intelligence. It is quite natural that this current of vain imaginings should find expression in frivolous acts; but the impotence of the individual reaction plays an important part. We find also a lowering of the general tone, and the proof of this is seen in the causes of this morbid state, namely hereditary neuropathy and debilitating maladies; also in the crises and the syncope brought on by the effort to act; so too in those extreme forms of the disease where

* See particularly Legrand du Saulle, "La Folie du Doute avec Délire du Toucher" (1875); Griesinger, "Archiv für Psychiatrie" (1869); Berger, *ibidem* (1876); Ritti, "Dict. Encycl.," *loco citato*.

† "Archives Générales de Médecine" (1866).

the patient, harassed by his unceasing apprehensions, will neither write, nor listen, nor speak, but keeps muttering to himself, or perhaps only moving his lips.

Finally let us notice those cases in which the impairment of the will approaches extinction. When a persistent state of consciousness is accompanied by an intense feeling of terror, there is produced an almost absolute inhibition, and the patient seems stupid without really being so. Such was the case with the young man mentioned by Esquirol, who appeared to be idiotic, who had to be dressed, put to bed, fed like a child, and who after his recovery declared that an inward voice used to say to him, "Do not budge, or you are dead." *

Guislain also reports a curious case, but in this instance the lack of psychological data leaves us in a quandary and no positive explanation can be offered. "A young lady, courted by a young man, was seized with an alienation of mind the true cause of which was unknown, but its distinctive feature was a strong aversion to society, which soon was transformed into a morbid mutism. During twelve years she made answer to questions only twice, the first time under the influence of her father's imperative words, and the second time on her being committed to an asylum. On both occasions she was strangely, surprisingly laconic."

For two months Guislain made repeated efforts to effect a cure. But "my efforts were vain, and my exhortations without effect. I persisted, and before long noted a change in her features, and a more intelligent expression in her eyes. Shortly afterward, from time to time, she would utter sentences, expressing her thoughts clearly, but this was at long intervals, for she manifested extreme repugnance to comply with my requests. It was evident that her self-love was each time gratified by the victory she gained over herself. In her answers it was impossible to detect the slightest sign of disordered intellect: her insanity was purely a disease of the impulsive will. Oftentimes a sort of bashfulness seemed to restrain this patient, whom I was beginning to regard as convalescent. For two or three days she ceased to speak, and then, yielding to renewed solicitations, she recovered speech again, till finally she took part of her own accord in the conversation going on in her hearing. . . . This recovery is one of the most surprising instances of cure that have come under my observation." The author adds that restoration was complete and permanent.

This state of morbid inertia, of which aboulia is the type, where the "I will" is never followed by action, shows volition, as a state of consciousness, and the effective power of acting to be two distinct things. Not to dwell on this point at present, let us direct our attention to this fact of effort —a vital point in the psychology of the will, and which is lacking here.

The feeling of *muscular* effort has been studied so thoroughly and so minutely by Dr. William James * that there is no need of going over the ground again; it will suffice to recall his conclusions. That physiologist has shown that the sense of the muscular force expended in the performance of an act is a complex afferent sensation coming from the contracted muscles, the tense ligaments, the compressed articulations, the shut glottis, etc. He considers in detail, taking his stand upon the results of experiment, the opinion which holds it to be an *efferent* sensation connected with the motor discharge and coincident with the *outgoing* current of nervous energy. In particular he has shown, after Ferrier and other writers, that if in case of paralysis the patient retains the feeling of effort though quite unable to move the paralyzed member, the reason is because the conditions of the consciousness of effort persist, the patient moving the opposite member or organ.

But Dr. James justly distinguishes the *muscular* from the *volitional* effort which in many cases either involves no immediate movement at all, or only an exceedingly weak muscular energy. This we see in the case of the man who, after long hesitation, decides to put arsenic into his wife's glass to poison her: and every one is familiar through personal experience with this state of mental struggle in which the effort is all internal. But here we part regretfully with this author who locates this effort in a region apart and supersensible. To us it seems to differ from muscular effort only in this one point: its physiological conditions are ill understood, and we can offer only hypotheses.

There are two types of this volitional effort, of which the one consists in arresting the instinctive, the passional, the habitual movements, the other in overcoming languor, torpor, timidity. The one is an effort with a negative and the other an ef-

* Esquirol, vol. ii., p. 287.

* "The Feeling of Effort," Boston, 1880.

fort with a positive result: the one produces inhibition the other impulsion. These two types may themselves be reduced to one formula: there is effort when the volition follows the line of greatest resistance. This volitional effort never takes place when the impulsion (or the inhibition) and the choice coincide, when our natural tendencies and the "I will" go in the same direction: in simpler language, when that which is *immediately* agreeable to the individual and that which is chosen by him are the same. It always takes place when two groups of antagonistic tendencies are struggling to supplant each other. As every one knows, this struggle takes place between the lower tendencies, whose adaptation is restricted, and the higher tendencies, whose adaptation is manifold. The former are always by nature the stronger; the latter are sometimes the stronger on account of adventitious circumstances. Again, the former represent a force enregistered in the organism; the latter a recent acquisition.

How comes it then that these naturally weaker tendencies prevail? It is because the "I will" is an element in their favor—this, of course, not inasmuch as it is a mere state of consciousness, but because underneath this volition there exist the causes known, half-known, or unknown which we have often designated by the term individual character. These minor active causes, which constitute the individual physically and psychically, are not mere abstractions: they are physiological or psychophysiological processes; they presuppose work done in the several nervous centers. Is it rash to maintain that the feeling of volitional effort too is an effect of these physiological processes? The only objection that can be urged is our inability to determine its mechanism. This point is all the more obscure because the mechanism must be different according as the effect to be produced is an impulsion or an inhibition; so too the feeling of volitional effort is not the same in the two cases.

The inward struggle is accompanied by a sense of fatigue often intense. Though we know but little about the nature and the causes of this state, it is generally supposed that even in muscular effort the seat of fatigue is in the nerve centers that call forth the contraction, not in the muscles: that there is nervous exhaustion, not muscular. In reflex contractions no fatigue is felt. Among subjects of hysteria contractions are seen to persist indefinitely, and yet the patient has no sense of lassitude; hence it is the voluntary effort that causes fatigue and not the contraction of muscle.*

Apart from our ignorance, we have no reason to attribute to the volitional effort a peculiar character. Are the nerve elements capable of furnishing a surplus of work for a given period in all cases where this volitional effort comes into play? Or, on the contrary, are they, owing to their nature or for the want of training and exercise, quickly exhausted and incapable of acquiring fresh strength? Have they or have they not a sufficiency of available force stored up? The problem of action in the direction of greatest resistance is reduced to its ultimate terms. It is this hidden, almost unsuspected work that makes itself known through the feeling of volitional effort. Hence the feeling of effort in all its forms is a subjective state corresponding to certain processes going on in the nerve centres and in other portions of the organism, but differing from them even as the sensation of light or of sound differ from their objective causes. To be capable of great muscular effort, the appropriate nerve centers must be able to produce a good deal of work for a prolonged period, and this depends on their constitution and on the rapidity with which they repair losses. So too, to produce a great moral or intellectual effort, the appropriate nerve centers, whatever they may be (and our ignorance touching this point is nearly total), must be able to produce intense work over and over again, and must not be quickly exhausted and slow to repair losses. The capacity for effort is therefore in the last analysis a natural gift.

To make our meaning clearer take the case of a vicious character. Suppose that never in his life, whether spontaneously or under the influence of others, he has experienced any faint desire of amendment: the reason is, because he entirely lacks the moral elements and their corresponding physiological conditions. Should the thought of amendment by any chance occur to him, it is to be remarked in the first place that this occurrence is no act of the will, though it supposes the pre-existence of certain psychophysiological elements and their being called into play. Now suppose he elects to pursue this object, approves this course, wills it; if the

* Richet, "Physiologie des Nerfs et des Muscles," pp. 477-490; Delbœuf, "Étude Psychophysique," pp. 92 *et seqq.*, in "Éléments de Psychophysique," vol i.

resolution does not persist, it is because in the man's organization there exists no capacity for that iterated work of which we have spoken; but if the resolution does persist, it is because it is supported by an effort, by that inner work which produces arrest of the opposite states. Organs are developed by exercise, and this holds good here; so that repetition becomes easy. But if nature has laid no foundation, given no potential energy, there is no result. Hence the theological doctrine of grace as a free gift appears to be bottomed on a far more correct psychological theory than the opposite opinion,* and we see how easily it might be made to undergo a physiological transformation.

To return to the morbid forms that are the objects of our study, they involve a temporary, accidental incapacity for effort, which however extends to almost the entire organism.

CHAPTER III.

IMPAIRMENT OF THE WILL.—EXCESS OF IMPULSION.

WE have just been considering instances in which, though the intellectual adaptation—that is the correspondence between the intelligent being and his environment—is normal, the impulse toward action is either null, very weak, or at least insufficient. In the language of physiology, the cerebral actions which are the basis of intellectual activity (as the thought of ends and of means, choice, etc.), remain intact, but they lack the concomitant states which are the physiological equivalents of the feelings, and the absence of these causes failure to act.

We are now to study phenomena quite the opposite of these in certain respects. In this second group the intellectual adaptation is very little, or at all events very instable; the motives dictated by reason are forceless either for action or for restraint; and the lower impulses gain what the higher impulses lose. The will, that is to say the rational activity, disappears, and the individual reverts to the domain of instinct. Nothing could prove more effectually that the will, in the strict sense of the term, is the crown, the final term of an evolution, the result of a multiplicity of disciplined tendencies coördinated with one another; that it is the most perfect species of activity.

Let us examine the facts. We will divide them into two groups: 1. Those which, being hardly if at all conscious, denote an absence rather than an impairment of will; 2. Those which are accompanied by perfect consciousness, but in which, after a longer or shorter struggle, the will succumbs, or is saved only by assistance from without.

1. In the former case "the impulsion may be sudden and unconscious, followed by immediate execution, the understanding even not having had time to take cognizance of it. . . . In such case the act possesses all the characters of a purely reflex phenomenon, without any intervention whatever of the will: it is in fact a convulsion differing from ordinary convulsions only in that it consists of movements associated and combined in view of a determinate result. Such is the case of the woman who, seated on a bench in a garden, oppressed with unwonted sadness, suddenly rose to her feet, threw herself into a ditch full of water, as if to drown herself, and who, after being rescued and restored to herself fully, declared a few days later that she was unconscious of having wanted to commit suicide and had no recollection of the attempt she had made." *

"I have seen," says Luys, "a number of patients who repeatedly attempted suicide in the presence of those who watched them, but they had no recollection of the fact in their lucid state. And what proves the unconsciousness of the mind under these conditions is the fact that the patients do not perceive the inefficiency of the methods they employ. Thus a lady who attempted suicide whenever she saw a table knife, did not notice one day when I was watching her that I had substituted for the knife a harmless instrument. Another patient tried to hang himself with a half rotten cord that was not strong enough to bear even slight tension." †

Impulses of this kind are so frequent among epileptics that pages might be filled with accounts of them. Hysterical patients too furnish innumerable examples: they manifest an uncontrollable tendency toward the immediate gratification of their caprices or the satisfaction of their wants.

Other impulsions produce effects that

* The doctrine of grace is found even among the Hindus, particularly in the "Bhagavad Gitâ," xi., 53. Consult Barth, "Les Religions de l'Inde," pp. 48, 136.

* Foville, "Nouveau Dictionnaire de Médecine," art. FOLIE, p. 342.

† "Maladies Mentales," pp. 373, 439, 440.

are less serious, but they indicate the same psychic state. "In some patients the overexcitation of the motor forces is such that they keep walking for hours at a time without stopping, never looking about them, like mechanical figures that have been wound up." "A marchioness possessed of very great intelligence," says Billod, "would in conversation interrupt a sentence with an unseemly or an obscene epithet addressed to some one in the company, and then take up the broken sentence again. The utterance of this epithet was accompanied by a blush; the lady seemed to be annoyed and confounded, and the word was as it were jerked out, like an arrow that is shot unawares from the bow." "An aged victim of hysteria, a woman of much intelligence and very clear-headed, used to feel at certain times the need of going into some lonely place and shouting aloud; there she would give vent to her grievances and her complaints against her family and her surroundings. She knew perfectly well that it was wrong to publish certain secrets, but, as she used to say, she must speak and satisfy her grudges."*

This last case brings us to irresistible impulses that are conscious. But at present we have to do with those which are unconscious. Cases of this kind we might cite in abundance. They exhibit the individual reduced to the lowest degree of activity—that of pure reflex action. His acts are unconscious (or at least not deliberate), immediate, irresistible, and their adaptation is of little complexity and invariable. Considered from the point of view of physiology and of psychology, the human being, under these conditions, is like an animal that has been decapitated, or at least deprived of its cerebral lobes. It is generally held that the brain can govern the reflex actions, and this opinion rests upon the following grounds: An excitation, starting from any point of the body becomes divided on reaching the spinal cord, and then pursues two routes. It is transmitted to the reflex center by a transverse route, and to the brain by a longitudinal and ascending route. Since the transverse route presents the greater resistance, transmission in that direction takes some time, while transmission longitudinally on the contrary is much more rapid. Hence there is time for the suspensive action of the brain to take place and to regulate the reflex actions. The brain being in the causes just mentioned without action, its activity remains at its lower degree and volition does not occur, its necessary and sufficient conditions not being present.

2. The phenomena of the second group are worthy of more detailed study: they explain the overthrow of the will and the artificial means that support it. The patient is fully conscious of his situation; he feels that he is not master of himself, that he is dominated by an inner force and irresistibly urged on to perform actions that he condemns. The intelligence remains sufficiently sane, and the insanity affects only the acts. We find in a work by Marc that is now almost forgotten* a rich collection of facts upon which later writers have freely drawn. We quote a few.

A lady subject at times to homicidal impulses used to request to be put under restraint by means of a strait waistcoat, and would let her keeper know when the danger was passed and when she might be allowed her liberty. A chemist haunted with similar homicidal impulses used to have his thumbs tied together with a ribbon, and in that simple restraint found the means of resisting the temptation. A servant woman of irreproachable character asked her mistress to let her go away, because she was strongly tempted to disembowel the infant she took care of whenever she saw it stripped. Another woman, a person of much intellectual cultivation and very affectionate to her relatives, "began to beat them in spite of herself and called for assistance, begging that she might be held down in an armchair." A victim of melancholia haunted with the thought of suicide arose in the night, knocked at his brother's door and cried out to him, "Come quick; suicide is pursuing me and soon I shall be unable to withstand it."

Calmeil in his "Traité des Maladies Inflammatoires du Cerveau" cites the following cases, of which he was a witness and which I will give in detail, for so I shall be dispensed from recounting many more:

"Glénadel having lost his father in childhood, was brought up by his mother who adored him. On attaining his 16th year his character underwent a change. Till then he had been a good and dutiful son, but now he became gloomy and taciturn. Being pressed

* Luys, *loco citato*, 167, 212; Billod, *loco citato*, 193 *sq.*

* "De la Folie considérée dans ses Rapports avec les Questions Médico-judiciaires." 2 vols. 8vo. Paris, 1840.

with questions by his mother, he at length resolved to make a confession:

"'To you I owe everything,' he said, 'and I love you dearly: still for the last few days a thought that is ever in my mind has been driving me to kill you. Do not let me at last give way to it, do not let so great a misfortune befall, but give me leave to enlist.' In spite of her urgent solicitations he was immovable in his resolution, left his home and made a good soldier; yet a lurking desire was ever urging him to desert, so that he might return and kill his mother. At the close of his term of service this thought was as strong as on the first day. He enlisted for another term, and still the homicidal instinct persisted, though now another victim was substituted. He no longer thinks of killing his mother; night and day he now is conscious of a horrid impulse to murder his step-sister. In order to withstand this second impulse he condemned himself to lifelong exile from his home.

"At this juncture a man from his own neighborhood joined the regiment, and to him Glénadel confided his distressing secret. 'Cheer up,' said the other, 'that crime is out of the question, for your step-sister died a short time ago.' On hearing these words Glénadel sprung to his feet like a captive set free. He was filled with joy and set out for his home, which he had not seen since his boyhood. Arrived there he saw his step-sister alive. He uttered a cry, and the terrible impulse instantly seized him again. That evening he had his brother to put him under restraint. 'Take a strong cord,' he said, 'and tie me up in the barn like a wolf, and send word to Dr. Calmeil.' The physician obtained for him admission to an asylum for the insane. On the eve of his admission he wrote to the director of the asylum: 'Sir, I am about to enter your establishment: I shall behave there as in my regiment. People will think I have recovered, and at times perhaps I shall feign recovery. You must not believe me, and I must never be permitted to leave under any pretext. When I beg to be allowed to go at large, redouble your vigilance, for the only use I shall make of that liberty will be to commit a crime I abhor.'"

It is not to be supposed that this case is unique or even a very uncommon one: in works on insanity we find recorded many instances of persons who, tormented by the impulse to kill those who are dear to them, take refuge in asylums, becoming voluntary prisoners.

The irresistible though conscious impulse to steal, to set fire to houses, to commit suicide by alcoholic excess, belongs to the same category.* Maudsley in his "Pathology of Mind" (Chapt. VIII.) presents so many examples that I cannot do better than to refer to that work. I thus spare the reader useless repetition. For me it suffices to point out the enormous multitude of facts which justify the considerations I am about to offer.

It is to be remarked that the transition from the sane state to these pathological forms is almost imperceptible. Persons that are perfectly rational experience insane impulses, but these sudden and unwonted states of consciousness are without effect, do not pass into acts, being suppressed by opposite forces, by the dominant mental habit. Between this isolated psychic state and the states antagonistic to it there exists so great a disproportion that there is even no struggle between them. In other cases, usually regarded as of very little moment, "there is some eccentricity of behavior but nothing reprehensible or dangerous—simple oddity, capriciousness. Or again, a person is given to acts which though not seriously compromising are nevertheless mischievous—as destroying or beating an inanimate object, tearing one's clothing, etc. We have at the present time under observation a young woman who chews up all her gowns. Then there is the oft quoted case of the art amateur who, happening at a museum to see a valuable painting, felt an instinctive impulse to punch a hole through the canvas. Oftentimes these impulsions go unnoticed, except by the consciousness of the one who experiences them."*

Sometimes fixed ideas of a character frivolous or unreasonable find lodgment in the mind which, though it deems them absurd, is powerless to prevent them from passing into acts. Many curious examples of this are to be found in a work by Westphal. A man, for instance, is haunted by the thought that perchance he might commit to writing that he has been guilty of some crime, and lose the paper. Accordingly he carefully preserves every bit of paper he finds, picks up paper on the streets to make sure that it contains no writing, takes it home and hoards it. He is fully conscious of the absurdity of the phantasy which worries him continually: he does not believe in it, nevertheless he is powerless to dismiss it.†

* See Trélat, "Folie Lucide;" Maudsley, "Crime and Insanity."

* Foville, *opus citatum*, p. 341.

† Westphal, "Ueber Zwangsvorstellungen," Berlin, 1877. We may add that the fear of doing an act sometimes leads one inevitably to do it. This we see illustrated in vertigo, when a person throws himself down in the street through fear of falling, when one wounds himself through fear lest he should wound himself, etc. These phenomena are explained by the nature of the mental representation, which by reason of its intensity passes into act.

Between acts that are frivolous and those which are dangerous the difference is only quantitative: what the former exhibit to us foreshortened, the latter exhibit in enlarged proportions. We will try to explain the mechanism of this disorganization of the will.

In the normal state an end is chosen, approved, attained; that is to say the elements of the Ego, whether all or a majority of them, concur toward attaining it. Our states of consciousness—feelings and ideas, with their respective motor tendencies—and the movements of our members form a *consensus* that converges toward this end with more or less effort by means of a complex mechanism made up both of impulsions and inhibitions.

Such is the will in its perfect, typical form. But this is not a natural product; it is the result of art, of education, of experience. It is a structure that has been built up slowly, bit by bit. Observation both subjective and objective shows that each form of voluntary activity is the fruit of a conquest. Nature supplies only the raw material—in the physiological order a few simple movements, in the psychological order a few simple associations. To assist these simple and almost invariable adaptations, there must be formed other adaptations more and more complex and variable. For instance, the babe must acquire the power of using its legs, arms, and all the movable portions of its body, by means of experiment, combining the movements that are appropriate and suppressing those which are of no advantage. The simple groups so formed must be combined in complex groups, these into groups more complex still, and so on. A similar operation is necessary in the psychological order. What is complex is never won at the first effort.

But it is plain that in the edifice so built up little by little the original materials alone are stable, and that as complexity increases stability diminishes. The simplest actions are the most stable anatomically, because they are congenital, registered in the organism; and physiologically, because they are continually repeated in the experience of the individual, as also—if we take account of heredity, which opens up an illimitable field—in the innumerable experiences of the species and of all species.*

On the whole, the surprising thing is that the will, the complex and higher order of activity, should become predominant. The causes which raise it to that rank and hold it there are the same which in man raise and hold the intelligence above the sensations and the instincts: and taking humanity as a whole, facts prove the dominion of the one to be as precarious as that of the other. The great development of the mass of the brain in civilized man, and the influence of education and of the habits it produces, explain how it is that, in the face of so many adverse chances, rational activity so often retains the mastery.

The pathological facts that have been cited prove that the will is no entity reigning by right of birth, but a resultant that is always instable, always liable to break up, and in truth only a lucky accident. These facts—and they are innumerable—represent a state that may be regarded equally as a dislocation of the will and a retrograde form of activity.

If we study cases of irregular impulsions accompanied by full consciousness, we find that this subordination of tendencies—the will—is here broken in twain: for the *consensus* which alone constitutes the will is substituted a conflict between two groups of opposite and nearly equal tendencies, and hence it may truly be said that the will is dislocated.*

Considering the will not as a constituted whole but as the culminating point of an evolution, we must say that the lower forms of activity have the mastery and that the activity which is distinctively *human* retrogrades. We would observe however that the term "lower" has no moral implication here. One group is lower because it is evident that the activity which expends itself wholly in expressing a fixed idea or a blind impulse is by its nature restricted, adapted only to

* The will-power being constituted when certain groups of movements obey certain states of consciousness, we may cite as a pathological case the fact mentioned by Meschede ("Correspondenzblatt," 1874) of a man who "found himself in this curious condition, that when he would do anything, whether of his own accord or at the instance of others, he, or rather his muscles, did just the contrary. If he would look to the right, his eyes turned to the left; and this anomaly extended to all his movements. It was simply a contra-direction of movement without any mental derangement, and it differed in this from involuntary movements, that he never produced a movement save when he willed it, though the movement was always the reverse of what he willed."

* We might show, were this the place, how fickle a thing is the unity of the Ego and how unreliable. In these cases of conflict which is the true Ego, that which acts or that which resists? If you decide in favor of neither, then there are two Egos. If you decide in favor of either, you must admit that the preferred group represents the Ego about as in politics the party that is slightly in the majority represents the state. But these questions cannot be discussed incidentally. I hope some day to devote a monograph to them.

the present and to a very small number of circumstances, while rational activity on the other hand transcends the present and is adapted to a great number of circumstances.

It must be admitted, though language does not lend itself readily to such a form of expression, that the will, like the intelligence, has its idiots and its geniuses, with all the degrees intermediate between these two. From this point of view the cases cited in the first group (impulses not attended by consciousness) would represent will-idiocy, or, in more precise language, will-dementia; the facts of the second group would exhibit a weakness of will analogous to weakness of intellect.

Pursuing our research, we must now pass to an analysis of the facts and must determine their causes. Is it possible to ascertain the conditions upon which this weakening of the higher activity depends? First of all we have to inquire whether the overthrow of the will is an effect of the predominance of the reflex actions, or whether on the contrary it is the cause of that predominance: in other words, whether the weakening of the will is the primary or the secondary fact. This question admits of no general answer. Observation shows that both propositions are true with respect to different cases, and consequently we can give only a special answer for a special case whose circumstances are fully known. No doubt oftentimes the irresistible impulse is the *origo mali*: it constitutes a permanent pathological state. There is then produced in the psychological order a phenomenon analogous to hypertrophy of an organ, or to the overproliferation of a tissue, as for example that which leads to the formation of certain forms of cancer. In both instances, whether the physiological or the psychological, this vicious development makes itself felt throughout the entire organism.

The cases wherein voluntary activity is affected directly and not as an indirect effect, are of most interest for us. What takes place in such cases? Is it the power of coördination or the power of inhibition that is affected, or both? An obscure point upon which only a conjecture may be offered. To obtain some light upon it, let us investigate two new groups of facts, viz., the artificial and momentary impairment of the will produced by intoxication; and the chronic impairment produced by lesion of the brain.

As every one knows, the intoxication caused by alcoholic liquors, by hashish, by opium, after a first period of superexcitation brings about a notable impairment of the will. The individual is more or less conscious of this: other persons see it more distinctly. Soon—especially under the influence of alcohol—the impulsions become excessive. The extravagances, violences and crimes committed in this state are innumerable. The mechanism of the onset of intoxication is subject of warm controversy. It is generally supposed that it begins with the brain, later acting upon the spinal cord and the medulla, and lastly upon the great sympathetic. There is produced an intellectual hebetude—that is to say, the states of consciousness are vague, indefinite, of little intensity: the physiopsychological activity of the brain is reduced. This decline of activity extends also to the motor power. Obersteiner has proved by experiments that under the influence of alcohol one reacts less promptly, though he imagines that the contrary is the fact.* It is not the ideation alone that is affected but also the ideomotor activity. At the same time the power of coördination becomes null or ephemeral and forceless. Now since coördination consists both in converging certain impulsions toward an end and in directing impulsions that are useless or antagonistic to that end, it follows from the fact that the reflex actions are excessive or violent in any case, that the power of inhibition—whatever may be its nature and mechanism—is impaired, and that its part in constituting and maintaining will-action is all-essential.

The pathology of the brain affords other confirmatory facts, all the more striking because they show a sudden and permanent change in the individual. Ferrier and other writers cite cases where lesion of the frontal convolutions, especially the first and second, led to almost total loss of will, and reduced the patient to automatism, or at least to that state wherein the instinctive activity reigns almost alone, without possibility of inhibition.

An infant was wounded by a knife in the frontal lobe. Seventeen years afterward his physical health was good, "but he was incapable of occupations that demanded mental exertion. He was irritable, especially when he drank intoxicating

* "Brain," Jan., 1879. A considerable number of experiments have been made with respect to this point, with uniform results. See Exner, in "Pflüger's Archiv," 1873; Dietl and Vintschgau, *ibidem*, 1877; also an account of an important research made by Kræpelin in Wundt's psychophysiological laboratory, published in "Philosophische Studien," pp. 573 *seqq*.

liquor or when he was under any extraordinary excitement." A patient of Lepine's suffering from an abscess in the right frontal lobe "was in a state of hebetude. He seemed to understand what was said to him, but only with difficulty could he pronounce a word. On being bidden he would sit down; raise him from the chair and he could walk a few steps unassisted." A man who had received a violent blow which destroyed the greater part of the first and second frontal convolutions "lost all will-power. He understood what was said and acted as he was bid to act, but in an automatic, mechanical way."

Many similar cases are on record,* but the one which is most important for us is that of the "American carrier." A bar of iron shot from a mine passed through his skull, injuring only the præfrontal region. He recovered and survived the accident twelve years and a half; but of the patient's mental state after recovery the following particulars are given: His employers, who before the accident regarded him as one of their best foremen, found him so changed that they could not restore him to his former position. The equilibrium, the balance between his intellectual faculties and his instinctive tendencies, seemed to have been destroyed. He had become nervous, disrespectful and grossly profane. He showed now but little politeness to his equals, was impatient of contradiction, and would listen to no advice that ran counter to his own ideas. At times he was exceedingly obstinate, though capricious and indecisive. He would make plans for the future, and forthwith reject them and adopt others. He was a child intellectually, a man in passions and instincts. Before the accident, though he had not received a school education, he had a well-balanced mind, and was regarded as a man of good natural ability, sagacious, energetic and persevering. In all these respects he was now so changed that his friends said they no longer recognized him.†

In this case we see the will impaired in proportion as the inferior activity becomes stronger. Furthermore we have here an *experiment*, for here is a sudden change brought about by an accident under clearly defined circumstances.

It is to be regretted that we have not many observations of this kind, for with their aid a great deal might be done toward the interpretation of the diseases of the will. Unfortunately the researches so vigorously prosecuted with regard to localization of functions in the brain have had to do mostly with the motor and the sensorial regions, and these, as we know, occupy only a portion of the frontal region. So too there is need of a critical examination of the opposite class of facts, those namely which go to show that though the brain has suffered lesion, the will-power is apparently undiminished. This work accomplished, then Ferrier's theory that there exist in the frontal lobes centers of inhibition for the intellectual operations, would assume greater consistence and would supply a solid basis for the determination of the causes. As things stand, we may not attempt anything beyond conjectures.

When we compare the case of aboulia with that of the existence of irresistible impulses, we see that in the two cases will is in default owing to totally opposite conditions. In the one case the intelligence is intact, but impulsion is wanting; in the other, the power of coördination and of inhibition being absent, the impulse expends itself in purely automatic fashion.

* See Huxley's essay on "Animal Automatism." It will be published in No. 52 HUMBOLDT LIBRARY.

† Ferrier, "Localization of Diseases of the Brain."

CHAPTER IV.

IMPAIRMENT OF VOLUNTARY ATTENTION.

WE are now to study impairment of the will in a less striking form, namely, impairment of the power of *voluntary attention*. This does not in its essence differ from the impairments belonging to the group we have just been considering, since like them it consists in an impairment of the power of directing and of adaptation. It is a diminution of will-power in the strictest, straitest, and narrowest sense of the term, and it is indisputable even in the eyes of those who restrict themselves most obstinately to interior observation.

Before we turn our attention to acquired impairment, let us consider *congenital* impairment of voluntary attention. We will take no note of narrow or mediocre minds, in which feelings, intelligence and will are at one dead level of weakness. It is more interesting to study a great mind, some man gifted with high intelligence, with a quick sensibility, but who lacks the power of direction: thus we shall see a perfect contrast between thought and will. We have in Coleridge an instance of this.

"There was probably no man of his time or perhaps of any time who surpassed Coleridge," says Dr. Carpenter,* "in the combination of the reasoning powers of the philosopher with the imagination of the poet and the inspiration of the seer; and there was perhaps not one of the last generation who has left so strong an impress of himself in the subsequent course of thought of reflective minds engaged in the highest subjects of human contemplation. And yet there was probably never a man endowed with such remarkable gifts who accomplished so little that was worthy of them, the great defect of his character being the want of Will to turn his gifts to account; so that with numerous gigantic projects constantly floating in his mind, he never brought himself even seriously to attempt to execute any of them. It used to be said of him that whenever either natural obligation or voluntary undertaking made it his *duty* to do anything, the fact seemed a sufficient reason for his not doing it. Thus at the very outset of his career, when he had found a bookseller generous enough to promise him thirty guineas for poems which he recited to him, and might have received the whole sum immediately on delivering the manuscript, he went on week after week begging and borrowing for his daily needs in the most humiliating manner, until he had drawn from his patron the whole of the promised purchase money, without supplying him with a line of that poetry which he had only to *write down* to free himself from obligation. The habit of recourse to nervine stimulants (alcohol and opium) which he early formed and from which he never seemed able to free himself doubtless still further weakened his power of volitional self-control, so that it became necessary for his welfare that he should yield himself to the control of others.

"The composition of the poetical fragment 'Kubla Khan' in his sleep, as told in his 'Biographia Litteraria,' is a typical example of automatic mental action. He fell asleep whilst reading the passage in 'Purchas's Pilgrimage' in which the 'stately pleasure house' is mentioned, and on awaking he felt as if he had composed from two to three hundred lines, which he had nothing to do but to write down, 'the images rising up as things, with a parallel production of the correspondent expressions, without any sensation or consciousness of effort.' The whole of this singular fragment as it stands, consisting of fifty-four lines, was written as fast as his pen could trace the words; but having been interrupted by a person on business who stayed with him above an hour, he found to his surprise and mortification that 'though he still retained some vague and dim recollection of the general purport of the vision, yet with the exception of some eight or ten scattered lines and images, all the rest had passed away like the images on the surface of a stream into which a stone has been cast, but, alas! without the after-restoration of the latter.'"

Dr. Carpenter then quotes the description of Coleridge given in Chapter VII. of Carlyle's "Life of John Sterling":

"Coleridge's whole figure and air, good and amiable, otherwise, might be called flabby and irresolute, expressive of weakness under possibility of strength. He hung loosely on his limbs, with knees bent and stooping attitude. In walking he rather shuffled than decisively stepped; and a lady once remarked he never could fix which side of the garden walk would suit him best, but continually shifted in corkscrew fashion and kept trying both.

"Nothing could be more copious than his talk; and furthermore it was always virtually or literally of the nature of a monologue; suffering no interruption however reverent: hastily putting aside all foreign additions, annotations or most ingenious desires for elucidation as well-meant superfluities which would never do. Besides it was talk not flowing any whither like a river, but spreading everywhither in inextricable currents and regurgitations like a lake or sea; terribly deficient in definite goal or aim, nay, often in logical intelligibility; *what* you were to believe or do on any earthly or heavenly thing, obstinately refusing to appear from it. So that most times you felt logically lost, swamped, near to drowning in this tide of ingenious vocables spreading out boundless as if to submerge the world.

"He began anywhere. You put some question to him, made some suggestive observation; instead of answering this or decidedly setting out toward answering it, he would accumulate formidable apparatus, logical swim-bladders, transcendental life-preservers and other precautionary and vehiculatory gear for setting out; perhaps did at last get under way, but was swiftly solicited, turned aside by the glance of some radiant new game on this side or that into new courses and ever into new, and before long into all the universe, where it was uncertain what game you would catch or whether any. His talk, alas! was distinguished like himself by irresolution: it disliked to be troubled with conditions, abstinences, definite fulfilments; loved to wander at its own sweet will and make its auditor and his claims and humble wishes a mere passive bucket for itself.

"Glorious islets too, balmy, sunny islets of the blest and the intelligible I have seen rise out of the haze, but they were few and soon swallowed in the general element again.

"Eloquent, artistically expressive words you always had; piercing radiances of a most subtle insight came at intervals; tones of noble pious sympathy, recognizable as pious though strangely colored, were never wanting long; but in general you could not call this aimless, cloud-rapt, cloud-based,

* "Mental Physiology," pp. 266-7.

lawlessly meandering human discourse of reason by the name of 'excellent talk,' but only of 'surprising,' and were bitterly reminded of Hazlitt's account of it: 'Excellent talker, very—if you let him start from no premises and come to no conclusion.'"

We now turn to familiar instances of *acquired* impairment of voluntary attention. It occurs in two forms. The first is characterized by excessive intellectual activity, superabundance of states of consciousness and abnormal production of feelings and ideas in a given time, as we have seen when speaking of alcoholic intoxication. This exuberance of cerebral activity is more noticeable still in the more intellectual intoxication produced by hashish and opium. The individual feels himself to be overwhelmed by the irresistible tide of his ideas, and language is too slow to render the rapidity of his thoughts; but at the same time the power of directing the course of his ideas becomes weaker and weaker, and the lucid moments shorter and shorter.* This state of psychic exuberance, whatever its cause, —fever, cerebral anæmia, emotion—always has the same result.

Between this state and attention there is a perfect antagonism: one excludes the other. We have here in fact only a special case of excessive reflex action, only that here we have to do with psychic reflex action. In other words all states of consciousness tend to expend themselves, and this they can do only in two ways, either by producing a movement, an act; or by calling forth other states of consciousness, according to the law of association. The latter process is a case of reflex action of a complex kind—psychic reflex action—but like physiological reflex action it is only a form of automatism.

The second form brings us back to the type of aboulia. It consists in a progressive diminution of the directive power and eventual impossibility of intellectual effort.

"In the incipient stage of disease of the brain," says Forbes Winslow,† "the patient complains of an incapacity to control and direct the faculty of attention. He finds he cannot without an obvious and painful effort accomplish his usual mental work, read or master the contents of a letter, newspaper or even a page or two of a favorite book. The ideas become restive and the mind lapses into a flighty condition, exhibiting no capacity for continuity of thought.

"Fully recognizing his impaired and failing energies, the patient repeatedly tries to conquer the defect, and seizing hold of a book, is resolved not to succumb to his sensations of intellectual incapacity, physical languor and cerebral weakness; but he often discovers (when it is too late to grapple with the mischief) that he has lost all power of healthy mental steadiness, normal concentration, or coördination of thought. In his attempt to comprehend the meaning of the immediate subject under contemplation, he reads and re-reads with a determined resolution, and apparently unflagging energy, certain striking passages and pages of a particular book, but without being able to grasp the simplest chain of thought, or follow successfully an elementary process of reasoning; neither is he in a condition of mind fitting him to comprehend or retain for many consecutive seconds the outline of an interesting story, understand a simple calculation of figures or narrative of facts. The attempt, particularly if it be a sustained one, to master and converge the attention to the subject which he is trying to seize, very frequently increases the pre-existing confusion of mind, producing eventually physical sensations of brain lassitude and headache."

Many general paralytics, after passing through the period of intellectual overactivity—the period of gigantic projects, of immoderate purchases, of purposeless voyages, of incessant loquacity, during which the will is dominated by the reflex actions, reach later the period when it is impotent from atonicity: effort persists but for a moment, till at last this ever increasing passivity ends in dementia.*

The reader sees without any commentary that the diseases of voluntary attention are reducible to the types already considered. It will be best therefore without citing any further instances to inquire what instruction may be derived from that state of the mind called attention, as to the nature of the will, and what suggestions bearing upon the present research. For this purpose it is not necessary that we make a study of attention, however interesting, however ill-understood that subject may be. The question

* Moreau, "Du Hashish et de l'Aliénation Mentale," p. 60; Richet, "Les Poisons de l'Intelligence," p. 71.

† "On Some Obscure Diseases of the Brain and Mind," chap. xii.

* Of this class of patients some, but they are few pass through a period of struggle which shows wherein the will is master and how it eventually succumbs. "I have seen at Bicêtre," says Billod, "a general paralytic whose *délire des grandeurs* was of the most ultra type, escape from the establishment and go barefoot through a driving rain storm and in the middle of the night from Bicêtre to Batignolles. The patient remained outside for a whole year, during which he struggled with all his will against his intellectual delirium, knowing well that should he betray the first symptom of insanity, he would be sent back to Bicêtre. He came back nevertheless. I have met with several other instances of soundness of will persisting for a considerable time in general paralytics."

can be considered here only in part, that is so far as it concerns the will. I shall restrict my conclusions upon this point to the following propositions:

1. Voluntary attention, which is commonly credited with marvelous feats, is only an imitation, artificial, instable and precarious, of spontaneous attention.

2. The latter alone is natural and effective.

3. It depends, as regards its origin and its permanence, upon certain affective states, upon the presence of agreeable or disagreeable *feelings:* in a word it is sensitive in its origin, and hence allied to the reflex actions.

4. The inhibiting action appears to play an important but as yet indefinable part in the mechanism of attention.

To establish these propositions it is well first to examine spontaneous attention, considering it in all its different forms. The crouching animal watching its prey; the child intently gazing at a commonplace spectacle; the assassin awaiting his victim in a nook of a wood—here the mental image takes the place of the real object; the poet contemplating an inward vision; the mathematician studying out the solution of a problem:* all present essentially the same interior and exterior characters.

With Sergi I define the state of intense spontaneous attention to be a differentiation of perception producing greater psychic energy in some of the nerve centers, and a sort of temporary catalepsy in other centers.† But I have not to study attention in itself, only to determine its origin, its cause.

Plainly in the states above enumerated and in their analogues, the true cause is an affective state, a feeling of pleasure, love, hate, curiosity: in short a state more or less complex, agreeable, disagreeable or mixed. Because the prey, the spectacle, the thought of the victim, the problem to be solved produce in the animal, the child, the assassin, the mathematician, an emotion that is intense and sufficiently durable, they are attentive. Eliminate emotion, and all is gone: but while emotion lasts, so does attention. The *modus operandi* is as in those reflex actions which seem to be continuous, because an excitation that is incessantly repeated and which is ever the same keeps them up till nervous exhaustion is produced.

Is a counter proof required? Observe the incapacity for protracted attention of children, women, and in general those of inferior mental force. The reason is that objects awaken in them only superficial, instable feelings, and they are quite inattentive to high, complex, profound questions, for these do not touch their emotions. On the other hand they are attentive to trifles, for these interest them. I might add that the orator and the writer hold the attention of their public by addressing their feelings. Look at the matter from whatever side, and the same conclusion is inevitable; nor would I dwell upon so evident a fact were it not that the authors who have studied the subject of attention seem to have forgotten this all-important influence.

Spontaneous attention gives a maximum effect with a minimum of effort, while voluntary attention gives a minimum effect with a maximum of effort, and the contrast between the two is sharper in proportion as the one is more spontaneous and the other more voluntary. Voluntary attention in its highest degree is an artificial state in which with the aid of factitious emotion we keep up certain states of consciousness that are ever tending to die out—for instance when for politeness' sake we carry on a wearisome conversation. In the case of spontaneous attention it is our own individuality that produces this specialization of consciousness; in voluntary attention it is an exceedingly limited portion of our individuality. Many questions suggest themselves here, but as I have already said, I have only to study attention in itself. I had simply to show—and this point I hope is beyond controversy—that attention is by its origin of the nature of reflex action; that under the form of spontaneous attention it possesses the regularity of the reflex actions and their potency of action; but that in both cases it is a sensitive excitation that causes it, keeps it up, and measures its intensity.

Again we see that the voluntary rests upon the involuntary and derives from it all its force, and that, compared with the latter, it is very precarious. Education of the power of attention consists in the last resort simply in calling out and developing these factitious emotions, and in striving to make them stable by repetition; but as there is no creation *ex nihilo*, they must have some basis however weak in nature. To conclude as regards this point, I confess that for my part I accept the paradox

* Of course we speak of poets and mathematicians that are such by nature, not by education.

† Sergi, "Teoria Fisiologica della Percezione." See also Lewes, "Problems of Life and Mind," Third Series; Maudsley, "Physiology of Mind;" Wundt, "Grundzüge der Physiologischen Psychologie;" Ferrier, "The Functions of the Brain."

of Helvetius so often disputed, that "all intellectual differences between one man and another spring only from attention," with the proviso that attention here be taken to mean spontaneous attention alone: but then the dictum amounts only to this, that the differences between men are innate and natural.

Having shown how attention is produced, we have next to inquire how it is kept up. The difficulty is with voluntary attention only, for, as we have seen, spontaneous attention explains itself. It is continuous because the excitation which causes it is continuous. On the other hand, the more voluntary it is, the more effort does attention require, and the more instable is it. The two cases are in effect a struggle between states of consciousness. In the first case (spontaneous attention) a state of consciousness—or rather a group of states of consciousness—possesses such intensity that no struggle against it is possible, and it assumes the mastery by sheer force. In the second case (voluntary attention) the group of states of consciousness is not of sufficient intensity to dominate competing states, and it gets the upper hand only by the aid of an additional force, namely, by the intervention of the will.

By what mechanism does attention act? Apparently by an inhibition of movements. Thus we are brought back to the problem of inhibition, more involved in obscurity here than anywhere else. Let us see what is to be learned upon this point. In the first place it is hardly necessary to repeat that the brain is a motor organ, that is to say that many of its elements have for their function to produce motion, and that there is hardly a single state of consciousness which does not contain in some degree motor elements. It follows that every state of attention implies the existence of these elements. "In movements of the limbs and trunk the feelings of operation are very conspicuous; they are less so in the delicate adjustments of the eye, ear, etc., and are only inductively recognizable in the still more delicate adjustments of attention and comprehension, which are also acts of the mind in more than a metaphorical sense. . . . The purest intellectual combinations involve motor impulses (feelings of operation) quite as necessarily as the combination of muscles in manipulation. The feelings of effort and relief in seeking and finding our way through an obscure and tangled mass of ideas—the tentatives of hypothesis and induction—are but fainter forms of the feelings in seeking and finding our way along a dark road or thick forest, checked by failure and enlightened by every successful step." *

Again every state of consciousness, particularly when it is highly intense, tends to pass into movements; and so soon as it enters its motor phase, it loses its intensity, it is in decline, it tends to disappear out of the consciousness. But a state of consciousness has another way of expending itself: it may transmit its tension to other states through the mechanism of association—an expenditure inward, if you please, in lieu of an expenditure outward. But association does not proceed in one fashion only. In spontaneous attention certain associations gain the mastery themselves alone, and by themselves alone, in virtue of their own intensity. In voluntary attention—of which reflection is the highest form—we are conscious of a radiation in different directions; and in cases where we have much difficulty in being attentive, the associations which have the upper hand are those which we do not wish, that is to say those which are not chosen, not affirmed as the ones that ought to be kept up.

By what means then are the weaker associations maintained? In order to get as clear an idea as may be of the process, let us consider some analogous phenomena, though of a less abstruse kind. A man is learning to play a musical instrument, or to handle a tool, or better still, a child is learning to write. At first he makes many movements that are quite useless: he keeps moving his tongue, his head, his legs, and only by degrees does he learn to hold his members in subjection, and to confine himself to the required movements of the hands and the eyes.

In voluntary attention the process is similar. The associations which go out in all directions may be likened to these useless motions. The problem in both cases is to substitute a limited for an unlimited association. For this purpose, we eliminate all associations not helpful to the end we have in view. Properly speaking, we do not suppress states of consciousness, but we do prevent their surviving to call forth like states and to increase and multiply at pleasure. As every one knows the attempt to do this often fails and is always laborious, and while we check divagation, the available nerve force is economized to our advantage, for

* G. H. Lewes, "Problems of Life and Mind," 3d Series cont'd, page 397.

to lessen purposeless diffusion is to increase useful concentration.

Such is the idea we may form of this obscure phenomenon when we strive to get at its mechanism, instead of having recourse to any supposed "faculty" of attention, which explains nothing. Still we must admit with Ferrier that "on what physiological basis this psychological faculty rests is an extremely difficult question, and is one scarcely capable of experimental determination."* We would add that the foregoing remarks do not pretend to be an explication, but only an approximation.

CHAPTER V.

THE REALM OF CAPRICE.

To will is to choose in order to act: such is for us the formula of normal will. The anomalies so far considered may be classed in two great groups: in one impulsion is absent, and no tendency to act appears (aboulia); in the other a too rapid or too intense impulsion prevents the act of choice. Before we consider instances of extinction of the will, where there is neither choice nor acts, let us study a type of character in which either the will is not formed at all or at best exists only in an extremely instable and inefficient form. The best instance of this is seen in the hysterical constitution. Properly speaking we find here rather a constitutional state than a mere derangement. A simple irresistible impulse is like an acute disease; permanent and invincible impulses are like a chronic malady; but the hysterical character is a diathesis. It is a state in which the conditions of volition are nearly always lacking. From the description recently given by Dr. Huchard of the characters of hysterical subjects I take the following particulars bearing upon our subject:

"One prominent trait of their character is mobility. From day to day, from hour to hour, from minute to minute they pass with incredible rapidity from joy to sadness, from laughter to tears. Changeable, freakish or capricious, at one moment they talk with amazing loquacity, but the next they are gloomy and taciturn, have not a word to say, being lost in reverie or plunged in profound depression. Then they are possessed by a vague indefinable feeling of sadness accompanied by a choking sensation and oppression in the epigastric region. They have fits of sobbing, and seek to hide their tears in solitude; again on the other hand they have outbursts of immoderate laughter, without sufficient cause. 'They behave,' says Ch. Richet, 'like children who oftentimes can be made to laugh heartily, while their cheeks are still wet with the tears they have shed.'

"Their character changes like the views of a kaleidoscope, a fact which led Sydenham justly to remark that inconstancy is their most constant trait. Yesterday they were joyous, amiable, gracious: to-day they are ill-humored, touchy, irascible, vexed by every trifle, testy and snappish, dissatisfied with everything; nothing interests them, they are tired of life. They conceive a strong antipathy to-day toward the person they esteemed and loved yesterday, or *vice versa*, and they are as zealous to hate certain persons now as before they were eager to show them every mark of affection.

"Sometimes their sensibility is aroused by a most trivial cause, while the profounder emotions scarcely touch it: they are indifferent, unmoved by the recital of a real sorrow, while they shed abundant tears and give themselves up to despair on account of some harmless speech that they misinterpret, or some trivial pleasantry that they transform into an affront. This *moral ataxy* is exhibited even with regard to their nearest interests. One hysterical subject will be entirely indifferent about the conduct of her husband; another will be heedless of the danger that threatens her fortunes. By turns they are gentle or violent, says Moreau of Tours, kind or cruel; impressionable to excess; rarely master of the first movement of passion; incapable of resisting impulses of the most opposite kinds; they show a lack of equilibrium between the higher moral faculties—will, conscience,—and the lower faculties—instincts, passions and desires.

"This extreme mobility in their state of mind and their affectional disposition, this instability of character, this want of fixedness, this absence of stability in their ideas and volitions, explains their incapacity to keep the attention long fixed upon a book, a study or a task of any kind whatever.

"All these changes take place with great rapidity. In hysterical subjects the impulsions are not altogether free from control by the intelligence, as they are in epileptics, but they are quickly followed by acts. This is the explanation of those sudden movements of anger and indignation, those outbursts of enthusiasm, those fits of desperation; the mad gayety, the sudden affectionateness or the equally sudden transports of wrath during which they stamp the floor like spoiled children, break the furniture, and so on.

"Hysterical women are governed by the passions. Nearly all the different phases of their character, of their mental state, may be summed up in these words: they know not how to will, they cannot will, they will not will. Just because their will is ever waver-

* "Functions of the Brain." The two paragraphs devoted to this question will be read with profit.

ing and tottering; because it is ever in a state of instable equilibrium; because it turns like the weather vane to the slightest gust: for all these reasons do hysterical subjects show such variableness, such inconstancy in their desires, their ideas and their affections."*

Having reproduced this faithful portrait we may abridge our comments. The reader has here placed before his eyes this state of incoördination, of broken equilibrium, of anarchy and of "moral ataxy;" but it still remains for us to justify the assertion made at the beginning of this chapter, that we see here a constitutional impotence of will; that the will cannot exist here because the conditions of its existence are wanting. For clearness' sake, I will anticipate what will be established by proofs and in fuller detail when I sum up the conclusions of the work.

If we take an adult person endowed with an average will, we find that his activity (that is to say his power to produce acts) is of three degrees. In the lowest degree are automatic acts, simple or composite reflex actions, habits; next above these come the acts produced by the feelings, the emotions and the passions; highest of all the acts dictated by reason. These last presuppose the other two, rest upon them and consequently depend upon them, though they give to them coördination and unity. Capricious characters, of which the hysterical character is the type, possess only the two lower forms; the third is as it were atrophied. The rational activity is by nature, the very rare exceptions apart, always the weakest. It becomes predominant only on condition that the ideas in the mind call into action certain feelings that are far more apt than ideas to pass into acts. As we have seen, the more abstract an idea, the weaker is its motor tendency. In subjects of hysteria the regulative ideas either do not come into being at all, or they remain simply theoretic concepts. It is because certain ideas, as those of utility, convenience, duty and the like remain in this state of theoretic conceptions, that they are not *felt* by the individual, that they produce in him no affectional reverberation, so to speak, that they do not enter into his moral fiber but remain as it were a foreign element: hence they are without action; hence they are practically as though they did not exist.

The individual's power of acting is maimed and imperfect. The tendency of the feelings and passions to pass into acts is doubly strong, both in itself and because there is nothing above it to hamper it or to be a counterpoise to it. And as it is the characteristic of the feelings as of the reflex actions to go straight to their object, and to have an adaptation in one direction only—unilateral, whereas rational adaptation is multilateral,—the desires, rapidly conceived and immediately satisfied, leave the ground free for other desires whether like or opposite, according to the ever changing whims of the individual. There is nothing but caprice, or at most velleity, the merest simulacrum of volition.

Still the fact that desire proceeds only in one direction and tends to expend itself unchecked, does not explain the instability of the hysteric character nor its lack of will. If a desire that is ever satisfied is ever recurring, there is stability. The predominance of the affectional life does not of necessity preclude will: indeed a passion intense, stable, consented to is the very basis of an energetic will. Such passion we find in men of great ambition —in the martyr whose faith is not to be shaken; in the redskin who in the midst of his tortures defies his enemies. We must search deeper therefore for the cause of the instability found in the hysteric character; and this cause cannot be anything else but a state of the individuality, that is, in the last resort, of the organism. We say that will is strong whose aim, whatever it be, is fixed. If circumstances change, means are changed: adaptations are successively made, in view of new environments; but the center toward which all converges does not change. Its stability expresses the permanency of character in the individual. If the same end is ever chosen, approved, the reason is that the individual continues to be the same. But suppose an organism with instable functions, whose unity—which is simply a *consensus*—is ever in process of dissolution and reconstitution upon a new plan according to the sudden variations of the functions that make it up: clearly in such a case choice can hardly exist and cannot be enduring: there are only velleities and caprices. This is what takes place in subjects of hysteria. The instability is a fact: its cause is very probably to be found in functional disorders. Anæsthesia of the special senses or of the general sensibility, hyperæsthesia, derangement of the motor apparatus, contraction of muscles, convul-

* Axenfeld et Huchard, "Traité des Nevroses," 2d edition, 1883, pp. 958–971.

sions, paralysis, derangement of the vaso-motor, secretory and other functions—all of these causes occurring successively or simultaneously, keep the organism constantly in a state of instable equilibrium; and the character, which is only the psychic expression of the organism, varies in the same degree. For a stable character to rest upon so wavering a base were a miracle. Here therefore we see the true cause of the impotence of will, and this impotence is, as we have said, constitutional.

Certain facts, while they seem to conflict with this theory, only give confirmation to it. Hysterical patients are sometimes possessed by a *fixed* idea, of which it is impossible to disabuse them. One refuses to eat, another to speak, a third to use her eyes, on the ground that the work of digestion or the exercise of the vocal or the visual organs would, as they imagine, cause them pain. More frequently we find the species of paralysis known as "psychic" or "ideal." The patient remains abed for weeks, months or even years, in the belief that she is unable to stand or to walk. Some moral shock, or simply the influence of some one who possesses her confidence, or who acts with authority effects a cure. One betakes herself to her feet at the alarm of fire; another rises from her bed and goes to meet her long-absent brother; a third decides to partake of food out of fear of her physician. Briquet, in his "Traité de l'Hystérie," mentions several cases of women whom he cured by inspiring them with faith in their recovery. We might quote many of those so-called miraculous cures which have amused the curiosity of the public from the time of the deacon Pâris to our own day.

The physiological causes of this sort of paralysis are subject of keen disputation. Looking at it from the psychological point of view, we recognize the existence of a fixed idea the result of which is an inhibition. Now since an idea does not exist of itself, nor without certain cerebral conditions, and since it is only a part of a psychophysiological whole—the conscious part—it must correspond to an abnormal state of the organism, of the motor centers perhaps, and thence it must have its origin. However that may be, there is no "exaltation" of the will, as some physicians have stoutly contended: on the contrary there is absence of will. We come again upon a morbid type that we have already studied, differing from that only in form: it is inhibitory. But there is no reaction springing direct from the individual, against the fixed idea. It is an influence from without that interposes and produces an opposite state of consciousness, with the concomitant feelings and physiological states. The result of this is a strong impulsion to act, which suppresses and takes the place of the state of inhibition: but it is hardly a volition: at best it is a volition produced with the assistance of others.

The conclusion to which we are led by these phenomena is, again, that the conditions of will are wanting, and will cannot exist.

CHAPTER VI.

EXTINCTION OF THE WILL.

THE cases of extinction of the will, which we are now to study, are those in which there is neither choice nor action. When the whole psychic activity is, or seems to be completely suspended, as in deep sleep, in artificial anæsthesia, in coma and similar states, there is a return to the vegetative life. Of this we will not treat: the will disappears because all psychic life disappears. We have to do here with cases where one form of mental activity continues, though there remains no possibility of choice followed by act. This extinction of the will is seen in ecstasy and in somnambulism.

Authors distinguish divers kinds of ecstasy—as mystic, morbid, physiological, cataleptic, somnambulic, and so forth. These distinctions are of no consequence here, for at bottom the mental state is the same in all the forms. Most ecstasists reach the ecstatic condition naturally, in virtue of their physical constitution; but others assist nature by artificial processes. The religious and philosophical literature of the Orient, India particularly, abounds in writings from which it has been possible to compile a sort of working manual showing how to bring about ecstasy. To stand motionless; to gaze fixedly at the sky, or a luminous object, on the tip of the nose, or on one's navel (after the manner of the monks of Mt. Athos hence called *Omphalopsychi*); to repeat continually the monosyllable OM (Brahm) contemplating the while the supreme being; to "hold in the breath," *i.e.* to retard respiration; "to have no heed of time or place:" such are the acts which "cause one to be like

unto the placid light of a lamp set in a place where the wind blows not." *

Having attained this state the ecstasist presents certain physical characters: now he is motionless and mute; anon he interprets the vision that holds him entranced, by speech and song and gesture. Seldom does he quit the spot where he stands. His physiognomy is expressive, but his eyes though open see not. Sounds no longer reach his sense, save in some cases the voice of a particular person. The general sensibility is gone: he feels no contact: neither pricking nor burning causes pain.

What he feels inwardly the ecstasist alone may tell, and were it not that at waking he retains a very distinct recollection of it, the profane would have to rely on inductions. The speeches and the writings of ecstasists show striking uniformity amid differences of race, of belief, of mental constitution, of time and of place. Their mental state is reduced to one image-idea standing either isolated or as the center of a single group which engrosses the entire consciousness and maintains itself there with extreme intensity. Many mystics have described this state with great precision, and above all St. Theresa. I take a few passages from her autobiography in order thus to place before the reader an authentic description of ecstasy.

In communion with God there are four degrees of "prayer," which she compares to four ways of watering a garden, "the first by drawing the water by main force out of a well: this is sheer hard work; the second, by drawing it by means of a *noria* (Persian wheel)—in this way one obtains more water with less fatigue; the third, by conducting the water from some river or brook; the fourth and incomparably the easiest is an abundant fall of rain, God himself undertaking to water the garden without the slightest fatigue on our part."

In the first two degrees there are as yet only the rudiments of ecstasy, as she observes in passing: "Sometimes while reading I would suddenly experience a sense of the presence of God. It is utterly impossible for me to doubt that he was within me or that I was quite lost in him. This was not a Vision. . . It suspends the soul in such a way that it seems to be quite outside of itself. The will loves, the memory to me appears almost lost, the understanding acts not at all, yet it is not lost." In a higher degree which is "neither a ravishment nor a spiritual sleep," "the will alone acts and, not knowing how it is made captive, gives simply to God its consent, that he may imprison it, in the assurance that it becomes the thrall of him whom it loves. . . . The understanding and memory come to the assistance of the will, to the end it may become more and more capable of enjoying so great a good. Sometimes however their aid serves only to disturb the will, in this close union with God. But then the will, not suffering itself to be disturbed by their importunity, must cleave to the delights and to the profound calm which it is enjoying. The attempt to exercise these other two powers [faculties] would lead the will astray with them. They are then like doves which, dissatisfied with the food provided for them by their master without any exertion on their part, go in search of other food, but which, after seeking in vain, make haste to return to the dove-cote." In this degree "I look on it as a great advantage, when writing, to find myself in the prayer of which I am speaking, for I then see clearly that neither the expression nor the thought comes from me; and after it has been written, I cannot understand how I could ever have done it: this happens to me often."

In the third degree we have the ecstasy:

"This state is a sleep of the powers [faculties] wherein, though not altogether lost in God, they nevertheless know not how they operate. . . . It is as though one who longs for death were already holding in his hand the blessed candle, and had but to draw one breath more to attain the fulfillment of his longings. It is for the soul an agony full of inexpressible delights, wherein it feels itself dying almost entirely to all the things of the world, and reposes with rapture in the enjoyment of its God. No other terms do I find to portray or to explain what I experience. In this state the soul knows not what to do: knows not whether it is speaking or is silent: whether it laughs or weeps: it is a glorious delirium, a heavenly madness, a supremely delicious mode of enjoyment. . . . And while it

* "Bhagavad Gita," VI. The Buddhist teachers say that there are four degrees in the contemplation which leads to the earthly *nirvâna*. The first degree is the inward feeling of happiness which springs up in the soul of the ascetic when he declares himself to have at length come to distinguish the nature of things. The *yoghi* is then detached from all other desire save the *nirvâna*: he still exercises judgment and reason; his intelligence is all centered on the *nirvâna*, and feels only the pleasure of inner satisfaction, without judging of it, without even understanding it.

In the third degree, the pleasure of satisfaction is gone, and the sage is indifferent about the felicity which his intelligence still experiences. The sole pleasure that remains for him is a vague sense of physical well-being, obscure and all as it is; he has also lost all memory; he has lost even the sense of his indifference. Free of all pleasure and of all pain, he has attained impassibility: he is as near to *nirvâna* as he can be in this life. (Barth. Saint-Hilaire, "Le Bouddha et sa Religion," pp. 136, 137.)

thus searches for its God, the soul feels with a very lively and a very sweet pleasure that it is fainting almost quite away: it falls into a sort of swoon which little by little deprives the body of respiration and of all its strength. It is unable without a very laborious effort to make the slightest movement of the hands. The eyes close without any purpose of the soul to shut them; and if it keeps them open it sees almost nothing. It is incapable of reading, even if it would; it sees indeed the letters, but can neither distinguish them nor assemble them. When spoken to it hears the sound of the speaker's voice, but no distinct words. So too it receives no service of its senses. . . . All its outer strength departs: conscious that thereby its own strength is increased, it can the better enjoy its glorious privilege. . . . In truth, if I am to judge from my own experience, this 'prayer' is at first of so brief duration as not to reveal itself in so manifest a way by external signs and the suspension of the senses. It is to be observed, at least in my opinion, that this suspension of all the powers never lasts long: the suspension is a protracted one that lasts half an hour, and I do not think with me it ever lasted so long. Still it must be confessed that it is difficult to judge of this matter, seeing that one is at the time deprived of feeling. I would simply call attention to one point, namely that whenever this general suspension occurs hardly any time elapses before some one or other of the powers [faculties] comes to itself. The will is the faculty which persists best in the divine union, but the other two soon begin to importune it. As it is in serenity, it brings them back and suspends them again; thus they remain tranquil for a moment, and then resume their natural life. With these alternations the prayer may continue and does in fact continue for some hours. . . . But that state of perfect ecstasy in which the imagination does not wander to any external object is, I repeat, of short duration. I would add that as the powers come to themselves only imperfectly, they may remain in a sort of delirium for some hours, during which God from time to time enraptures them anew and fixes them in himself. . . . What occurs in this secret union is so hidden that it is impossible to speak of it more clearly. The soul then sees itself to be so near to God, and so strong is its certitude touching that fact, that it cannot have the slightest doubt that it enjoys such a favor, all its powers lose their natural activity: they have no knowledge of their operations. . . . Thus the butterfly, memory, sees its wings scorched here, and it no longer can flit hither and thither. The will no doubt is occupied with loving, but it understands not how it loves. As for the understanding, if it understands at all it does so in a way that remains unknown to itself, nor can it comprehend aught of what it understands."*

* "Vie de Sainte Thérèse écrite pur elle-même." Compare Plotinus, "Enneades," VI.; Tauler, "Institutio Christiana."

I will not follow St. Theresa in her description of "rapture"—"that divine eagle which with sudden impetuosity seizes you and carries you off." These extracts suffice, and whoever reads them attentively will not hesitate to attribute to them all the value of a good psychological observation.*

On examining the detailed narratives of other ecstasists, which I cannot present here, I find that ecstasy may be conveniently for the purpose of our work divided into two classes. In the first motor power persists in a certain degree. The ecstasist follows the several phases of the Passion, the Nativity or some other religious drama, reproducing it with appropriate movements. There is a series of highly intense images with one invariable order of succession, being repeated again and again with perfect automatism. Marie von Moerl and Louise Lateau are well known instances.

The other class is that of ecstasy in repose. Here the idea alone reigns, commonly an abstract or metaphysical idea: in the case of St. Theresa and Plotinus it is the idea of God; for Buddhists it is *Nirvâna*. All movements are repressed: there is felt only "a residuum of inward agitation." Observe in passing how all this agrees with what has already been said, that with abstract ideas the tendency to movement is at the minimum, and that these ideas being representations of representations—pure schematisms—the motor element grows weaker in the same degree as the representative element.

But in both cases the mental state of ecstasy is a complete reversal of the laws of the normal mechanism of consciousness. Consciousness exists only on the condition of perpetual change: it is essentially discontinuous. An homogeneous and continuous consciousness is an impossibility. Ecstasy fulfills the conditions of

* St. Theresa thus describes her physical state during her "raptures": "Oftentimes my body would become so light that it no longer possessed any weight—sometimes I no longer felt my feet touching the ground. While the body is in rapture it remains as though it were dead, and often is absolutely powerless to act. It retains whatever attitude it may have assumed at the moment of the access; thus it continues standing or seated, the hands open or closed, in a word it continues in the state wherein the rapture found it. Though commonly a person does not lose feeling, still it has happened to me to be entirely deprived of it. This has occurred very rarely and it has lasted only for a very short time. Most frequently feeling remains; but a person experiences an indefinable disturbance; and though it is impossible to perform any external act, one still can hear a sort of confused sounds coming from a distance. And even this kind of hearing ceases when the rapture is in the highest degree."

such consciousness in the highest degree possible, but as St. Theresa remarks, either consciousness disappears, or the understanding and the memory—that is discontinuity—come back at intervals bringing consciousness back with them.

This psychological anomaly is complicated with another. All states of consciousness tend to expend themselves in proportion to their intensity. In the highest ecstasy the expenditure is naught, and it is owing to the absence of the motor phase that the intellectual intensity is maintained. The brain, which is in the normal state an organ at once intellective and motor, ceases to be a motor organ. Furthermore, in the intellectual order the heterogeneous and manifold states of consciousness which constitute the ordinary staple of life have disappeared. The sensations are suppressed, and with them the associations they call out. One single representation absorbs everything. If we compare the normal psychic activity to circulating capital that is continually modified by receipts and outlays, then we may say that here the capital is massed in one sum; concentration takes the place of diffusion, extensive force is transformed into intensive. It is no wonder therefore if in this state of mental erethism the ecstasist seems to be transfigured, lifted above herself. Certainly the visions of the rude peasant girl of Sanderet who saw a virgin all of gold in a silvery paradise, bear but little resemblance to those of a Saint Theresa; but every intelligence does its maximum in the moment of ecstasy.

Is there any need now of inquiring why there is neither choice nor acts in that state? How could there be choice, seeing that choice presupposes the existence of that complex whole, the Ego, which has disappeared? The personality being reduced to one idea or one vision, there is no state that can be chosen, that is incorporated with the whole, to the exclusion of others. In a word there is nothing that can choose, nothing that can be chosen. As well might we suppose an election without either electors or candidates.

Thus action is nipped in the bud, utterly estopped. Only its elementary forms remain, as the respiratory movements, etc., without which organic life were impossible. We have here a curious instance of psychological correlation or antagonism: whatever one function gains is lost by some other: whatever thought gains is lost by movement. In this respect ecstasy is the opposite of the states in which motility is predominant, as epilepsy, chorea, convulsions, etc. In these cases we see maximum of movements, minimum of consciousness: in ecstasy intensity of consciousness with minimum of movement. There is at all times only a certain sum of nervous and psychic force available: if this is monopolized by one function, the other functions are impoverished. Whether the excess shall be on the one side or on the other depends on the nature of the individual.

Having studied extinction of the will in its highest phase, we may remark that we find in the act of contemplation, of profound reflection, modified and minor forms of the same phenomenon. The unfitness of contemplative minds for action has its physiological and psychological reasons, and these are explained to us by the state of ecstasy.

It is of equal interest to the psychologist and to the physiologist to know what it is that produces abolition of consciousness in somnambulism whether natural or artificially induced, and from what organic conditions it results. But though the subject has been a matter of eager research for some years, we have nothing to offer but theories, and the reader may choose between several hypotheses. Some authors, as Schneider and Berger, regard it as a result of "expectant attention" producing a unilateral and abnormal concentration of consciousness. Preyer holds it to be a special case coming under his theory of sleep. Other authors, as Rumpf, favor the theory of reflex changes in the cerebral circulation—hyperæmia and anæmia in the surface of the hemispheres of the brain. Heidenhain who opposes this last theory refers hypnotism to an inhibiting action. There occurs, he says, a suspension of the activity of the cortical nerve cells, probably resulting from a change in their molecular arrangement, and in this way the functional movement of the gray matter is interrupted. This hypothesis seems to be most in favor, and since it is, at least from the psychological standpoint, simply a statement of fact, we may adopt it.

There is no need to describe a state so many times described before, and that so carefully. We would merely remark that the terms somnambulism, hypnotism and their analogues do not designate a state identical in all individuals and in every case. This state varies in the same individual from simple drowsiness to profound stupor; between one individual and

another it varies according to their respective constitutions, pathological conditions, etc. It would therefore be illogical to affirm that there is always abolition of the will power. As we shall see, some cases are very doubtful.

Take first hypnotism in the form designated by many authors Lethargic. The mental inertia here is absolute; consciousness is utterly gone; the reflex actions are in excess—an excess which always keeps pace with the decline of the higher activity. At a word from the operator, the hypnotized subject rises, walks, sits down, sees absent persons, goes on a journey, describes the landscape, and so on. The only will, as we say, is that of the operator. The meaning of this expressed in more precise terms, is: In the vacant field of consciousness a state is called up; and since states of consciousness tend to action, whether immediately or after having called forth associations, an act follows. The passage to action is here all the easier because there is nothing that hinders it, neither power of inhibition nor an antagonistic state, the idea suggested by the operator having the sole dominion in the slumbering consciousness. Other phenomena apparently more anomalous are explained in the same way. We know that by giving to the members of the hypnotized subject certain postures we can awaken in him the emotion of pride, terror, lowliness, devotion, etc.; if we place him in the position for climbing, he makes as though he were going up a ladder; if we put in his hands any instrument he has been wont to employ, he goes to work with it. Plainly the position given to the members awakens in the cerebral centers the corresponding states of consciousness with which they have become associated by much repetition. The idea, once it is awakened, is in the same condition as one coming from the direct order or suggestion of the operator. All these cases therefore are reducible to the same formula: the hypnotized subject is an automaton that is made to act according to the nature of his organization. There is absolute abolition of will, the conscious personality being reduced to one single state which is neither chosen nor rejected, but suffered, imposed.

The automatism is spontaneous in natural somnambulism; in other words, it has for its antecedent some cerebral state, and that in turn has for its antecedent some special excitation in the organism. Often the automatism is of a high order: the series of states of consciousness called out is long and each term of the series is complex. As its type we may cite the singer whose history is given by Mesnet. If a cane were offered to him he would take it to be a musket, his recollections of army life coming back to him; he would load his weapon, lie prone upon the ground, take aim and fire. Give him a roll of paper, and his recollection of his present calling were called forth; he would open the roll and sing at the top of his voice.* But the unvarying repetition of the same acts in the same order in each paroxysm gives to all these phenomena a very definite character of automatism from which all will power is eliminated.

Some cases however are doubtful. Burdach tells of "a very fine ode" that was composed in the somnambulic state. The story has often been told of the abbé who in preparing a sermon corrected and pruned his sentences, changed the places of epithets, etc. Again, a man made sundry attempts at suicide and each time tried different means. Facts of this kind are so numerous that, even making allowance for credulity and exaggeration, it is impossible to reject them all.

It might be said that such acts involve comparison followed by a choice, a preference—in other words a volition: and hence that we have here will power, that is a true reaction of the individual, faint, indeed, obscure, limited, but active.

But we may also hold that automatism is of itself sufficient. For is it not a recognized truth that in the normal state the intellectual work is often automatic, and all the more valuable on that account? Is not what the poets call inspiration an involuntary and almost unconscious sort of brain work—at least is it not conscious only in its results? We read our own writings over again, and our corrections are often spontaneous, that is to say, the movement of thought brings a new association of words and ideas which is immediately substituted for the other. Hence it may be that the individual as one that chooses and prefers is here of no account. Examining the matter more minutely, we may hold that all these cases are not strictly comparable: if to compose an ode automatism suffices, it does not suffice for correcting it; in the latter case there is choice, however rapid, however insignificant we may suppose it to be. Instead of a zero of will we should have a minimum of will. This opinion is reduci-

* "De l'Automatisme de la Mémoire et du Souvenir dans le Somnambulisme Pathologique." Paris, 1874.

ble to the first, and differs from it only by a hair's breadth.

The reader will choose between these two interpretations. I pass now to cases in which the data are more definitely ascertained. We find among hypnotized subjects instances of *resistance*. An order is not obeyed, a suggestion is not followed immediately. The mesmerists of the last century recommended the operator to assume the tone of authority and advised the subject to practice trust, confidence, which produce assent and prevent resistance.

"While in the state of somnambulism B. performed certain acts at the word of command, but others she refused to perform. Usually she would not read though we are confident she could see, despite the apparent occlusion of her eyelids. When her hands were placed in the attitude of prayer, her mind was impressed accordingly. Asked what she was doing, she said she was praying to the Blessed Virgin, but that she did not see her. So long as her hands remained in the same position, she continued her prayer, and *showed displeasure* if any one sought to distract her. When the position of the hands was changed, the praying ceased immediately. However exempt it may be from will action, the praying is in this case in some sort under the control of the reason, for the subject shows a dislike to being distracted, and is able to argue with any one who would interrupt her prayer."* One of Richer's subjects readily allowed himself to be metamorphosed into an officer, a sailor, etc., but he refused with tears in his eyes to be transformed into a priest. This was sufficiently explained by the man's habits and the atmosphere in which he had lived.

Hence there are cases in which two states co-exist—one produced by outside influences, the other by influences from within. We know what the automatic power of the former is. But in the other state this is effaced by a contrary state: there is here something resembling inhibition. But the inhibition is so weak that commonly it succumbs before repeated attacks: and it is so vague that we cannot say what its nature is. Is it not simply an antagonistic state of consciousness awakened by the very suggestion, so that it would all amount to the co-existence of two contrary states of consciousness? Or is the case more complex, and must we say that it represents the sum of the tendencies still existing in the individual, and some residue of that which constitutes his character? If we accept Heidenhain's theory we must recognize in the so called lethargic state a complete arrest of functional activity; the order or the suggestion of the operator would set in action an exceedingly limited number of nerve elements in the cortex; but in the state of resistance we should see awakening from their sleep some of those elements which in the normal state constitute the physiological and psychological basis of the individuality, being the synthetic expression of the organism. It must be confessed that, even admitting this second hypothesis, all that would remain of will power, of the individual's power of reacting according to his nature, would be an embryo, a power so stripped of efficacity that it is hardly to be called will.

Again it may be remarked that if it is difficult for the observer to say what power of reacting persists in the person who resists, the person himself is no better judge. "A close analysis of the phenomena such as can be made by educated, intelligent men submitting to the action of animal magnetism, proves how difficult it is even for the magnetized patient to make sure that he is not simulating. To make these observations, the sleep should not be very profound. In the period of *engourdissement* consciousness is retained, but nevertheless there is a very plain automatism." A physician of Breslau told Heidenhain that magnetization made no impression on him; yet after he had been brought into the state of *engourdissement*, he was unable to pronounce a single word. On being awakened, he declared that he could have spoken easily enough, and that if he had said nothing, it was because he had preferred not to speak. Put in the state of *engourdissement* again by a few passes, he was again unable to speak. Once more he was awakened, and had to confess that if he had not spoken the reason was that he could not speak. A friend of mine having been *engourdi*, and not quite put to sleep, observed closely this phenomenon of impotence coincident with the illusion of the possession of power. When I indicate to him a movement to be performed, he always executes it, though before being magnetized he was quite determined to resist. This he has the greatest difficulty in accounting for after awakening. 'Certainly,' he says, 'I could resist, but I have not the will to do so.' Sometimes he is tempted to believe that

* P. Richer, "Étude sur l'Hystéro-Épilepsie," pp. 426, 427.

he is simulating. 'When I am dozing,' he says, 'I simulate automatism though I could, as it seems to me, act otherwise. I begin with the firm resolve not to simulate, but in spite of me when sleep begins it seems to me that I simulate.' Of course this sort of simulation of a phenomenon is absolutely identical with its reality. Automatism is demonstrated by the very fact that perfectly honest subjects are unable to act otherwise than as automata. It is of little consequence that they imagine that they are able to resist. *They do not resist.* That is the fact that must be taken into consideration, and not the illusion that possesses them that they have the power of resistance."*

Still this power of resistance, weak though it be, is not equal to zero: it is a last survival of the individual reaction exceedingly reduced; it is on the confine of nullity but does not pass over. The illusion of this feeble power of inhibition must answer to some equally precarious physiological state. In short the state of somnambulism whether natural or induced may justly be regarded as a state of abolition of the will. Exceptions are rare and obscure, but they bring their own measure of instruction. They prove once again that volition is not an invariable quantity, but that it diminishes till the point is reached where we may with equally good reason either affirm or deny its existence.

I will mention in passing a fact that hardly belongs to the pathology of the will but which furnishes matter for reflection. Certain hypnotized subjects may be commanded to perform an action at some future time, at a given time in the same day, or even at a later time, say eight or ten days hence. After they have come to, they execute the command at the prescribed time, on the appointed day, commonly saying that they know not why. In some curious instances these persons give specious reasons to explain their conduct, to justify this act which does not spring from their own spontaneity, but is imposed upon them though they know it not. I cite a case that came under my own observation. A young man at 10 o'clock ordered his mistress who was in the hypnotic state to leave him at three o'clock in the morning; then he restored her to the normal state. Toward three o'clock she awoke, made ready to go, and though he begged her to stay, she found reasons to excuse and justify her going at that unseasonable hour. "Our illusion of free will," says Spinoza, "is only ignorance of the motives that lead us to act." Do not facts of this kind support the dictum?*

* Ch. Richet, in the "Revue Philosophique," 1883.

CHAPTER VII.

CONCLUSION.

HAVING examined the different morbid types, let us now see whether we can discover a law which shall sum up the pathology of the will and throw some light upon the normal state.

As a matter of fact, volition alone exists, that is to say a choice followed by acts. Certain conditions are requisite to produce a volition. A lack of impulsion or of inhibition, an excess of automatic activity, of a tendency, of an appetite, a fixed idea, all these may prevent volition for a moment, an hour, a day, a period of one's life. The sum of these necessary and sufficient conditions may be called will. With respect to volition the will is a cause, though it is itself a sum of effects, a resultant varying with its elements. This has been proved by pathology.

These elements, briefly stated, are as follows: 1. Tendencies toward action (or inhibition) resulting from the circumstances, the surroundings, the counsels, the education that influence a person. In a word all tendencies which are the effect of external causes.

2. Character, the principal element, which is the effect of interior causes, and not an entity but the resultant of the innumerable infinitesimal states and tendencies of all the anatomical elements that constitute a given organism. Or briefly, character is for us the psychological expression of a given organism, deriving from it its proper complexion, its special tone and its relative permanence. It is the ultimate stratum whereon rests the possibility of will and which makes the will strong or weak, intermittent, average or extraordinary.

If now we consider the will not in its constituent elements but in the phases through which it passes in its evolution, we see that volition is the final term in a progressive series whereof simple reflex action is the first step. It is the highest form of activity—activity being understood

* Many similar facts are recorded in Ch. Richet's article already quoted, "Rev. Philos.," March, 1883.

in the precise sense of power to produce acts, power of reaction.

The will has for its basis a legacy coming down from generations innumerable, and registered in the organism, namely primordial automatic activity, which is almost invariable, and quite unconscious, although in the distant past it must have been accompanied by a rudiment of consciousness which later faded away, in proportion as coördination, growing more perfect, became organic in the species.

Upon this basis rests the conscious and individual activity of the appetites, desires, feelings, passions, whose coördination is more complex and far less stable.

Higher still we have ideomotor activity which in its extreme manifestations attains a coördination at once very stable and very complex: this is perfect volition.

It may therefore be said that perfect volition has for its coördination a *hierarchic coördination*, that is to say, it is not enough that reflex actions be coördinated with reflex actions, rational tendencies with rational tendencies, but there must be coördination between these different groups—coördination with subordination, so that all shall converge toward a single point, namely the end to be attained. Let the reader recall the morbid cases already cited, and in particular those irresistible impulses which in themselves represent almost the entire pathology of the will, and he will see that they are all reducible to this formula: Absence of hierarchic coördination, independent, irregular, isolated, anarchic action.

Hence whether we regard the will in its constituent elements or in the successive phases of its genesis—and the two aspects are inseparable,—we see that its ultimate result, volition, is not a phenomenon supervening we know not whence, but that it has its root deep in the nature of the individual, nay beyond the individual in the species and in all species. It comes not from above but from below; it is a sublimation of the lower elements. Volition may be compared to the keystone of an arch. To that stone the arch owes its strength, even its existence; nevertheless this stone derives its power from the other stones that support it and press it on all sides, as it in turn presses them and gives them stability.

These preliminary observations were requisite for an understanding of the law which governs overthrow of the will; for if the foregoing considerations be just, then since dissolution always pursues a course the reverse of that followed by evolution, it follows that the more complex will manifestations must disappear before the more simple and the more simple before automatism. To express the law in its exact form, and regarding volition not as a phenomenon *sui generis* but as the highest manifestation of individual activity, we should say that dissolution proceeds in a retrograde direction from the more voluntary and the more complex to the less voluntary and the more simple, *i.e.* toward automatism. We have now to show that this law is confirmed by facts, and here we have only to select our materials.

In 1868 Hughlings Jackson, while engaged in the study of certain disorders of the nervous system, observed, for the first time as I believe, that the more voluntary and the more specialized movements and faculties are the first to be affected, and that in a greater degree than the others.* This "principle of dissolution," or of "reduction to a more automatic state" was proposed by Dr. Jackson as the correlative of Herbert Spencer's doctrines touching the evolution of the nervous system. He takes a very simple case, that of hemiplegia from lesion of the corpus striatum. A clot of blood here makes an experiment for us. The patient, whose face, tongue, one arm and one leg are paralyzed, has lost the more voluntary movements of a portion of his body, without losing the more automatic movements. The study of cases of hemiplegia, says he,† proves that the external parts which suffer most are those which psychologically speaking are most controlled by the will, and which physiologically speaking imply the greatest number of different movements, produced with the greatest number of different intervals. If the lesion be serious and if it affect not only the more voluntary parts, as face, arms, legs, but also those which are less voluntary, as when the patient loses the power of certain movements of the eyes, the head and one side of the chest, we find that the more voluntary parts are much more gravely paralyzed than the others.

So too Ferrier observes‡ that the general destruction of the motor region in the cortex, as of the corpus striatum, produces the same relative disorder of the different movements, those movements being most

* "Clinical and Physiological Researches on the Nervous System." London, 1875.

† "Clinical and Physiological Researches on the Nervous System."

‡ "Localization of Diseases of the Brain."

affected and paralyzed which are most under the influence of the will, at least after the first shock has passed away. Facial paralysis has its seat especially in the inferior facial region, and affects the more independent movements, the frontal and the orbicular muscles being only slightly affected. The movements of the legs are less affected than those of the arm, and those of the arm less than those of the hand.

The same author draws a distinction between the different *kinds* of movements and their respective centers—those which imply consciousness (and which are called voluntary in the strict sense of the word), and those which are described as automatic, instinctive, responsive (including motor-adaptations of the equilibrium and of motor-coördination, and the instinctive expression of the emotions) which are more or less perfectly organized in the centers underlying the cortex. And he says that the latter possess a relative independence which is at its maximum in the lower vertebrates (the frog, the pigeon) and at the minimum in the monkey and in man. He thinks that in animals whose motor faculties do not seem to suffer much from destructive lesion of the nervous centers, those movements are paralyzed which imply consciousness (voluntary movements) and which are not automatically organized. This, he adds, is proved by the researches made by Goltz. That author has shown that though the paw of a dog is not absolutely paralyzed as an organ of locomotion by lesion of the cortex, it is absolutely paralyzed *in so far as it serves as a hand and is employed as such.* This observation is of prime importance for us, as showing that when an organ is adapted both for locomotion and prehension, the former function persists, though impaired, while the latter function, which is the more delicate one, disappears.*

The instability of the voluntary, complex, higher action as compared with the automatic, simple, lower action is seen again in a *progressive* form in general paralysis of the insane. "The earliest imperfections of the motor power," says Foville, "those which betray themselves by a beginning, and hardly a beginning even of a break in the harmony of the muscle contractions, are the more readily appreciated because they concern the more delicate movements, and those which require the greatest precision and the greatest perfection. Hence it is not surprising that the delicate muscular movements which go to produce phonation should be the first affected." It is known that an impediment of speech is one of the first symptoms of this malady. Though at first this is so slight that only a practiced ear can detect it, the defect of pronunciation increases steadily and ends at last in unintelligible babble. "The muscles which aid in articulation lose all their harmony of action; they are able to contract only with an effort; the words spoken cannot be understood. In the several members lesions of the motility at first affect only the movements that require the greatest precision. The patient can walk long distances and can use the arm in work that only calls for general movements; but he is unable to perform any of the minor and more delicate operations of the fingers without some degree of tremor, and he has to try again and again. The defect is noticed when the man is asked to pick up a pin from the ground, to wind his watch, etc. Artisans accustomed in their trade to work of great exactitude are incapacitated far more quickly than those whose tasks require but little precision. In writing the pen is held with a degree of indecision which manifests itself in the more or less irregular form of the letters. And as the disease progresses the handwriting becomes more tremulous and irregular, so that by comparing a series of letters written at different periods, we may trace the progress of the malady, till in the end the patient becomes quite unable to write.

"At a later stage the vacillation of the superior members is seen even in their general movements: owing to tremulousness and feebleness of the muscles of the arm the patient is unable to pass food to his mouth, to take out his handkerchief or to replace it in his pocket, etc.

"In the inferior members the course of the malady is much the same. At first insane general paralytics are able to walk firmly when going straight forward: but when they have to turn to the right or to the left, and above all when they have to wheel round in order to retrace their steps, they show hesitation and lack of precision in their movements. Later, even when they are walking straight forward, they

* Ferrier, "Localization," etc. From Goltz's experiments it appears that if the lesion is in the left brain, then in all movements in which the dog was wont to employ the fore paw as a *hand*, he gives up the use of the right paw. Thus he will hold a bone with the left fore paw only, and will employ only that paw in scratching the ground, or in touching his wound. If the dog has been trained to give his paw, he will, after mutilation, give only the left paw. (Goltz, in "Dict. Encycl. des Sci. Méd.," art. NERVEUX.)

advance with a heavy tread and with ill-coördinated steps. Later still they have difficulty in making even a few paces." *

Compare the disorders of the motor system which follow the abuse of alcohol. Tremor is one of the earliest phenomena. "The hands are first affected, next the arms, the legs, the tongue and the lips. As the disorder progresses the tremulousness becomes complicated with another affection of a more serious kind, muscular debility. This too first affects the superior member in nearly every case. The fingers lose their cunning, the hand holds objects imperfectly and lets them slip from its grasp. Then this feebleness extends to the forearm and to the arm. The patient now can use his superior members only in a very imperfect fashion, and in time he is unable to take his food without assistance. Later these phenomena extend to the inferior members. To stand becomes difficult; the gait is unsteady, tottering; and these symptoms become more and more pronounced from day to day. The muscles of the back in turn succumb, and the patient must keep his bed." †

Compare also what takes place in convulsions, chorea, etc. This steady advance, which for the physician possesses only a clinical interest, has for us a psychological interest. These familiar facts will suffice, I hope, to prove that the course of dissolution is from the complex to the simple, from the voluntary to the automatic, and that the final term of evolution is the initial term of dissolution. We have so far studied, it is true, only the disorganization of movements, but those who treat psychology as a natural science will find here nothing that needs to be restated. Inasmuch as volition is for us not an imperative entity reigning in a world apart, but the ultimate expression of an hierarchic coördination; and as each movement or group of movements is represented in the nerve centers, it is plain that with each group that is paralyzed an element of coördination disappears. If the dissolution is progressive, the coördination, which is continually being stripped of some element, becomes more and more restricted: and since experience shows that the disappearance of movements is in direct ratio to their complexity and their precision, our theory is justified.

We might further pursue this verification of our law by calling attention to what takes place in diseases of speech. Here we touch upon the inmost mechanism of the mind: but I will not discuss over again a subject I have already treated at length. In "The Diseases of Memory," * I have endeavored to show that many cases of aphasia result from motor amnesia, that is, from a forgetfulness of motor elements, of those movements which constitute articulate speech. I will simply repeat that it was an observation of Trousseau that "aphasia is always reducible to a loss of memory either of the vocal signs or of the means whereby words are articulated;" and that W. Ogle also recognizes two word memories —one, recognized by every one, whereby we are conscious of a word, and besides this another whereby we express it. This forgetfulness of the movements, though primarily it is a disease of memory, reveals to us furthermore an impairment of the motor power, a disordered condition of voluntary coördination. The patient wishes to express himself, but his volition comes to naught or manifests itself imperfectly; that is to say the sum of the coördinated tendencies which at the moment constitute the individual in so far as he would express himself, is partially hindered in its passage into act; and experience teaches us that this impotence of expression affects first words, *i.e.* rational speech; next exclamatory phrases, interjections, what Max Müller calls emotional language; lastly, and only in rare cases, gesture. Here too then dissolution proceeds from the more complex to the less complex and to the simple: from the voluntary to the semivoluntary and the automatic; but the latter is in most cases unaffected.

We may now advance further into the purely psychic life, but here all becomes vague and fluctuating. As we no longer can refer each volition to a group of movements of the vocal, locomotory or prehensile organs, we must needs grope. Still we cannot but perceive that the highest form of volition, voluntary attention, is rarest of all and the most instable. If instead of considering voluntary attention † after the fashion of the subjective psychologist who studies himself and there halts, we consider it in the mass of sane adult persons, in order to determine approxi-

* Foville in the "Dictionnaire de Médecine," art. PARALYSIE GÉNÉRALE.
† Fournier, *ibidem*, art. ALCOOLISME.

* See HUMBODLT LIBRARY, No. 46, Chapter III., page 39.
† We do not speak of involuntary attention, which is natural, spontaneous. This point has already been explained in Chapter IV.

mately what place it holds in their mental life, we shall see how seldom it occurs and for how short a time it lasts. If it were possible to survey humanity as a whole for a given period of time, and to compare the sum of the acts produced by voluntary attention with the sum of the acts produced without it, we should find the ratio to be nearly as zero to infinity. By reason of its very superiority and its extreme complexity, it is a state, a coördination * that can seldom come into existence and which begins to break up as soon as it is formed.

To confine ourselves to admitted facts, is it not a familiar observation that inability to hold the mind attentive is one of the first symptoms of mental impairment whether temporary as in fevers, or permanent as in insanity? The highest form of coördination therefore is the most instable, even in the purely psychological order.

And what is this law of dissolution but a phase of the great biological law already pointed out with respect to memory, viz., that the functions last to be acquired are the first to degenerate. In the individual automatic coördination precedes coördination springing from the appetites and passions; this latter precedes voluntary coördination: and the simpler forms of voluntary attention precede the more complex. In the development of species, according to the evolution theory, the lower forms of activity existed alone for ages; then with the increasing complexity of the coördinations came will. Hence a return to the reign of impulsion, with whatever brilliant qualities of mind it may be accompanied, is in itself a regression. This being so, the following passage from Herbert Spencer will serve us as a summation and a conclusion upon this point:†

"There is one other trait of nervous debility on which a few words may be said—the accompanying change of character or modification of the emotional nature.

"Even small ebbings of the nervous fluid hardly to be called abnormal produce slight modifications of this kind, as is observable in children. The highest coördinating plexuses being in them the least developed, children betray more quickly than adults any defective action of these plexuses; and they habitually do this when the general nervous pressure is below par. Sluggishness of the alimentary canal, implying partial failure of nutrition and decreased genesis of energy, is accompanied by fretfulness—by a display of the lower impulses uncontrolled by the higher.

"It is however in the chronically nervous whose blood, deteriorated in quality and feebly propelled, fails to keep up a due activity of molecular change, that we see this connection of phenomena most clearly. The irascibility of persons in this state is matter of common remark; and irascibility implies a relative inactivity of the superior feelings. It results when a sudden discharge, sent by a pain or annoyance through those plexuses which adjust the conduct to painful and annoying agencies, is unaccompanied by a discharge through those plexuses which adjust the conduct to many circumstances instead of a single circumstance. That deficient genesis of nervous fluid accounts for this loss of emotional balance is a corollary from all that has gone before. The plexuses which coördinate the defensive and destructive activities, and in which are seated the accompanying feelings of antagonism and anger, are inherited from all antecedent races of creatures, and are therefore well organized—so well organized that the child in arms shows them in action. But the plexuses which by connecting and coördinating a variety of inferior plexuses adapt the behavior to a variety of external requirements have been but recently evolved; so that besides being extensive and intricate they are formed of much less permeable channels. Hence when the nervous system is not fully charged these latest and highest structures are the first to fail. Instead of being instant to act, their actions, if appreciable at all, come too late to check the actions of subordinate structures."

Having step by step followed the course of dissolution of the will, the fundamental result seems to be that the will is a coördination varying in complexity and in degree; that this coördination is the condition of all volition; and that when the coördination is either partially or wholly broken up, volition is either abolished or maimed. Upon this result we would now insist, limiting ourselves to a few brief suggestions upon certain points.

I. Let us first examine the material conditions of this coördination. Will, though among a privileged few it attains extraordinary power and performs great feats, has a very lowly origin. It has its rise in a biological property inherent in all living matter and known as irritability, that is to say reaction against external forces. Irritability—the physiological form of the law of inertia—is in some sense a state of primordial indifferentiation whence shall spring, by an ulterior differentiation, sensibility properly so called and motility, those two great bases of psychic life.

* Just as groups of simple movements have to be organized and coördinated to allow of the higher coördination from which come delicate and complex movements; so must groups of simple states of consciousness be organized, associated and coördinated to allow of this higher coördination called attention.

† "Principles of Psychology," vol. i., § 262.

Motility, which alone concerns us here, manifests itself even in the vegetal kingdom under divers forms, as by the movements of certain spores, of the Sensitive Plant, of *Dionæa* and sundry other plants to which Darwin has devoted a well known work. The apparently homogeneous protoplasmic mass which alone constitutes certain rudimentary organisms, is possessed of motility. The amœba, the *white* corpuscle of the blood, move little by little by the aid of the processes which they send out. These facts which are described in many special works teach us that motility made its appearance long before the muscles and the nervous system.

We have no occasion to follow the evolution of these two apparatus through the animal series. We would only remark that researches upon the localization of the motor centers—a subject that very nearly concerns the mechanism of the will—have led some physiologists to study the state of these centers in new-born animals. "This investigation, very carefully made by Soltmann in 1875, gave the following results: In hares and dogs, there does not exist, immediately after birth, any point in the cortex capable, under electric irritation, of producing movements. Not until the tenth day are the centers for the anterior members developed. On the thirteenth day the centers for the posterior members appear. On the sixteenth these centers are distinguishable from one another and from those belonging to the face. One conclusion to be drawn from these results is that the absence of voluntary motor direction coincides with the absence of the corresponding organs, and that the more the animal becomes master of its movements, the cerebral centers in which the volitional process takes place gain a more manifest independence."*

Flechsig and Parrot have studied the development of the brain in the fœtus and in the infant. From the researches of the latter author† it appears that if we follow the development of the white matter of an entire hemisphere, we find it rising successively from the peduncle to the optic thalami, then to the internal capsule, to the hemispheric center, and finally to the mantle of the brain. The parts which are slowest to develop are those which are destined to perform the highest functions.

The formative period past, the mechanism of will action seems to be as follows: The incitation starts from the so called motor regions of the cortex (parietofrontal region) and follows the pyramidal fasciculus called by some authors the voluntary fasciculus. This fasciculus which is formed by the grouping of all the fibers coming from the motor convolutions, descends through the oval center, and forms a small part of the internal capsule, which as we know penetrates into the corpus striatum "like a wedge into a piece of timber." Then it follows the peduncle and the medulla where it undergoes more or less perfect decussation and passes to the opposite side of the cord, so forming a great commissure between the motor convolutions and the gray matter of the cord, from which are given out the motor nerves. This rough sketch gives some notion of the complexity of the elements requisite for will action, and of the close connection which exists between them.*

Unfortunately there are differences as to the interpretation of the real nature of the brain centers from which comes the incitation. According to Ferrier and many other authors these are motor centers in the strict sense, that is to say, in them and through them the movement begins. Schiff, Hitzig, Nothnagel, Charlton Bastian and Munk have given other interpretations not all of equal clearness or of equal probability. But they generally agree in regarding these centers as being rather "sensory" in their nature, the motor function proper being referred to the corpus striatum. "The nervous fibers that extend from the cerebral cortex, in higher animals and in man, down to the corpora striata are in their nature strictly comparable with the fibers connecting the 'sensory' and the 'motor' cells in an ordinary nervous

* François-Franck, in the "Dictionnaire Encycl. des Sci. Méd.," art. NERVEUX, p. 585.
† "Archives de Physiologie," 1879.

* The process is described as follows by Dr. Charlton Bastian. Taking the spinal and medullary mechanisms as being either developed or in process of development we may now turn our attention more particularly to a consideration of the parts whence and of the channels through which cerebral incitations pass in emotional, ideomotor and volitional movements. One part of the route has been pretty clearly defined.

Motor stimuli pass from certain parts of the cerebral cortex downward to the corresponding corpora striata. These bodies are called into activity in a way which cannot be defined, though from them the motor stimuli seem to be continued and redirected toward the motor mechanisms in the medulla and spinal cord. The tracks of these latter stimuli are fairly well known. They pass from each corpus striatum through the inferior layers of the crus cerebri and through the pons Varolii on the same side; while below this bridge they are gathered together in the anterior pyramid of the medulla, which after a course of a little more than an inch decussates in part with its fellow, so that many of the fibers of each pyramid pass over into the opposite lateral column of the cord, while some continue to descend on the same side in the anterior column.—"The Brain as an Organ of Mind," chap. xxvi.

mechanism for reflex action."* In other words, there exists in the cortex "circumscribed regions experimental excitation of which produces in the opposite side of the body determinate localized movements. Seemingly these points ought to be regarded much rather as centers of voluntary association than as motor centers properly so called. They are the seat of incitements to voluntary movements, and not actual starting points of movements. They are to be compared rather to the peripheric organs of sense than to the motor apparatus of the anterior cornua of the medulla. These centers then are psychomotor centers because by their purely psychic action they command true motor apparatus. . . . We believe that the different points indicated as motor centers for the members, the face, etc., correspond to the apparatus which receive and transform into voluntary incitation the sensations of peripheric origin. These are volitional centers, not true motor centers."†

But notwithstanding this question remains still undecided, and notwithstanding the matters of detail respecting the part played by the cerebellum that are as yet undetermined, we may say with Charlton Bastian that "if since Hume's time we have not learned in any full sense of the term 'the means by which the motion of our bodies follows upon the command of our will,' we have at least learned something as to the parts chiefly concerned, and thus as to the paths traversed by volitional stimuli."‡

II. If we look at the question on its psychological side, voluntary coördination assumes so many forms and exists in so many degrees that we can only note its principal features. It would be the natural course to consider the lowest form, but I judge it best, for the sake of clearness, to follow the reverse order.

Coördination of the most perfect kind is seen in great men of action whatever be the nature of their activity—in Cæsar, Michelangelo or Saint Vincent de Paul. Its properties are unity, stability, power. The outer unity of such men's lives is founded on the unity of their aim which they steadily pursue, and which according to circumstances makes new coördinations and adaptations. But this outer unity itself is but the expression of an inner unity —the unity of their character. It is because they remain the same that their aim is the same. What is fundamental in their nature is a mighty, irrepressible passion which controls all their thoughts. This passion is the man—the psychic expression of his constitution as nature made it. Such men present the type of a life always in harmony with itself, because in them everything conspires and converges to a definite aim. Such characters are found in everyday life, but they are unknown to fame because either loftiness of aim, or circumstances, or, above all, strength of passion has been lacking. They possess only stability. The great historic Stoics, as Epictetus and Thraseas —I speak not of their Sage, who is only an abstract ideal—have realized this higher type of will in its negative form—inhibition—conformably to the maxim of the school, Bear and refrain.

Below this grade of perfect coördination, there are characters that show an intermittence of coördination: whose center of gravity, while ordinarily stable, oscillates nevertheless from time to time. A group of tendencies will temporarily secede from the coördination, expressing, so far as they are active, one side of the character. Neither as regards themselves nor as regards others have these individuals the unity characteristic of strong wills; the more frequent and the more complex these infractions of perfect coördination, the less is the will power.

Lower in the scale we find lives in which two contrary or two different tendencies reign alternately. There are in the individual two alternating centers of gravity, two points of convergence for coördinations successively preponderant but partial. This type is perhaps the most common one, as we may convince ourselves by looking about us or by consulting the poets and the novelists of every age who are ever declaring that there are two natures in every one. The number of these successive coördinations may be larger still; but it is useless to pursue further this analysis.

One step more and we enter the region of pathology. Take a case where sudden and irresistible impulses hold the will every moment in check: here is an unduly strong tendency ever destroying the equilibrium, for its intensity will not allow of its being coördinated with the other tendencies: it commands instead of subordinating itself. And when such impulses have come to be not an accident but a habit, not one side of the character but the character itself, then there is only an

* Bastian, "The Brain as an Organ of Mind," chap. xxvi.
† François-Franck, *loc. cit.*
‡ *Loc. cit.*

intermittent coördination—it is the will that becomes the exception then.

Lower still, and will is simply accidental. In the indefinite succession of impulsions that vary from minute to minute, a chance volition finds only at long intervals its conditions of existence. Caprices take the place of volitions. The hysterical character furnishes the type of this perfect *incoördination*. Here we reach the final term of the will. At a grade lower than this there are no diseases of the will, but an arrest of development which precludes will altogether. Such is the state of idiots and imbeciles. We will add a few remarks upon these mental states in order to complete our pathological study.

"In profound idiocy," says Griesinger, "effort and determination to action are always instinctive. Generally they are prompted by the craving for food, and in most instances they possess the character of reflex actions of which the individual is hardly conscious. Certain simple ideas however may incite them to effort and movement, as when they amuse themselves by playing with bits of paper or the like. Without taking into account those sunk in the profoundest idiocy, the question arises, Is there here anything that represents will? What is there in them that can will?

"In many idiots of this last class the only thing that seems to arouse the mind in some degree to action, is the desire to eat. The lowest idiots manifest this desire only by grunts and bodily agitation. Those in whom mental degeneration has not gone so far move the lips or the hands slightly, or even cry: thus do they express their desire of food. In idiocy of a less pronounced type, the basis of the character is inconstancy and obtuseness of feeling and weakness of will. The humor of idiots belonging to this class depends on their surroundings and the treatment they receive. They are docile and obedient when well cared for, but perverse and malicious when ill used." *

Before we quit this subject, we would remark that if the will is a coördination, that is to say a sum of relations, it may be affirmed *a priori* that it will be of far rarer occurrence than simpler forms of psychic activity, because a complex state has much less chance of coming into existence and of enduring, than a simple state. And so it is in fact. If in any human life we take note of the parts played by automatism, by habit, by the passions, and above all by imitation, we shall find that the number of acts that are in the strict sense of the term purely voluntary is very small. For the majority of mankind imitation suffices: they are contented to accept that which has been matter of voluntary choice by others, and as they think in the thoughts, so they act with the will of the multitude. Viewed in connection with the habits that render it of no use, and with the diseases that maim or destroy it, the will, as we have already said, is a happy accident.

We need hardly observe how closely this coördination, ever growing more complex, of tendencies, which constitutes the different degrees of will, resembles the coördination, ever growing more complex, of sensations and mental images which constitutes the different degrees of intelligence. The one has for its basis and fundamental condition character, the other "forms of thought." They are each a more or less perfect adaptation of the individual to his surroundings whether in respect to action or to cognition.

We are now ready to formulate the general conclusion of this inquiry, already incidentally indicated. It will, I hope, throw light retrospectively upon the path we have been pursuing. It is as follows:

Volition is a final act of consciousness resulting from the more or less complex coördination of a group of states whether conscious, subconscious or unconscious (purely physiological) which all together find expression in an action or in an inhibition. The principal factor of the coördination is character, and character is simply the psychic expression of an individual organism. It is character which gives unity to the coördination, not the abstract unity of the mathematical point, but the concrete unity of a *consensus*. The act whereby this coördination takes place and is affirmed is choice founded on a natural affinity.

Thus volition, so often observed, analyzed and explained by subjective psychologists, is in our view simply a state of consciousness. It is only an effect of that psychophysiological activity, so often described, whereof a part only enters consciousness under the form of a deliberation. Furthermore, *volition is not a cause at all.* The acts and movements that follow volition result directly from the tendencies, feelings, mental images and ideas which have succeeded in being coördinated in the form of a choice: from this group comes all the efficiency. In other terms, and to leave no ambiguity, the psychophysiological work of deliberation results on the one hand in a state of consciousness,—the volition; on the other hand in a sum of movements or inhibitions. *The* "I will" *shows that a situation exists,*

* Griesinger, *opus citatum*, pp. 433, 434.

but does not constitute it. I should compare it to the verdict of a jury which may be the result of very passionate pleadings and of the charge of the judge, and which may be attended by grave consequences extending far into the future, *but which is an effect and not a cause*, being in law a simple determination, or ascertainment.

If the will be insisted on as a faculty, an entity, all is contradiction, obscurity, confusion. If on the contrary we take the facts as they are, we at least free ourselves of factitious difficulties. We do not have to ask ourselves how an "I will" can make my members to move. That is a mystery that does not need to be explained, for the simple reason that it does not exist, volition being in no sense a cause. We must look for the secret in the natural tendency of feelings and mental images to find expression in movements. Here we have only a very highly complicated case of the law of reflex action in which between the period of excitation and the motor period there appears a capital psychic fact—volition—showing that the first period ends and the second begins.

Observe further how the strange malady called aboulia may be easily explained, and with it the analogous forms considered in Chapter II., and even the simple feebleness of will—hardly a morbid state—so common among persons who say they have the will and act not. The explanation is that the individual organism had two effects to produce and produces only one—the state of consciousness, choice, affirmation; but the motor tendencies are too weak to pass into acts. There is sufficient coördination, but insufficient impulsion. In the case of irresistible acts, on the contrary, impulsion is in excess, while coördination is defective or non-existent.

Thus then we obtain from the study of the pathology these two results, viz., that the "I will" has no efficacy in producing action; and that will in the sane man is a coördination exceedingly complex and instable, and by reason of its very superiority easily broken up, being "the highest force yet introduced by nature—the last consummate efflorescence of all her wondrous works." *

* Maudsley, "Physiology of the Mind."

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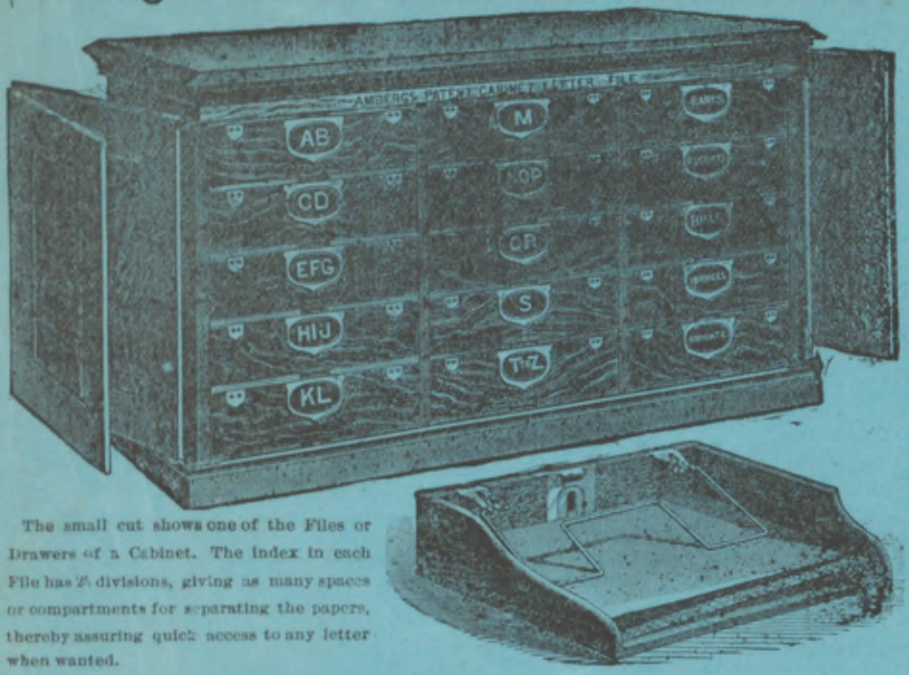

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