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THE PSYCHOLOGY OF THE FUTURE


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THE BOIRAC METHOD

This is a variation of the Mouin Process for determining the sensitiveness of a person to magnetic influence. As the subject does not know the operator's intention, there can be no possibility of fraud.— *Page 88.*

THE PSYCHOLOGY OF THE FUTURE

("L'AVENIR DES SCIENCES PSYCHIQUES")

BY

ÉMILE BOIRAC

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TRANSLATED AND EDITED WITH AN INTRODUCTION BY

W. DE KERLOR

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TRANSLATOR'S NOTE

THE immediate success which the translation of *La psychologie inconnue* (*Our Hidden Forces*) received, and the sympathetic response it created in all sections of the American public, justly encouraged me to translate the present work. Its title, "The Psychology of the Future," seems to me fully justified; for the matter contained in its pages constitutes an entirely new departure in the field of psychological study and experimentation.

Hitherto, psychological experimentation has been limited to the investigation of mental processes, to the principles of appeal and response as applied to business and everyday life, to the relieving of mental and nervous ills, to self-analysis with a view to determining vocational aptitudes, the qualities and defects of the psycho-physiological organism of man. In a word, the psychology of the present day has limited itself to the field of man's conscious and unconscious, objective and subjective, activities; but it has not as systematically devoted itself to the investigation and experimentation of his hyperconscious activities.

In the world of learning, there are always two aspects: the academic and the pioneer. As a rule, the academic aspect is years behind the true facts which constitute human knowledge. For years it lingers in reticence, routine, and scepticism. It abhors the birth of new things which tend to alter or change its funda-

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mental concepts of life and man. Its organism is like that of an old man: made up of habits, opinions and notions, content in routine.

But, as in the scheme of the universe new things always supersede the old, and are revolutionary in their process of evolution, so we may trace, in the habits of the old man or of the old system, the apparent resistance to their adoption. Conventional thought and conventional habits form, therefore, the primary obstacles to the speedy evolution of human progress, in society as well as in knowledge. And if we could only remove the beam of conventional-thinking from our eye, we would at once see clearly and justly into the realm of the mysterious subconscious and hyperconscious self.

Although the subjects dealt with in this book have been known to exist by a few scientific pioneers of thought, and have been practised by a still greater number of unscientific enthusiasts, it is but very recently that the academic bodies of learning have been willing — though reluctantly so — to lend their ear to the overwhelming accumulation of facts. The mass of evidence, now gathered, of the phenomena of thought-transmission, divination, prophecy, psychic and mental healing, and transcendental manifestions, has opened wide the breach into the citadel of conservatism. These facts are at last about to conquer " their place in the sun " in the world of academic thought. They have crossed their Rubicon.

Do we not already see experiments of thought-transmission in certain psychological laboratories? Are there not many large business houses employing the

services of psychologists and psychics as advisers, whether in the selection of "the right peg for the right hole," or in the counseling of future policies? Are there not to be found, daily, advertising men and "knights of the pen" who are consciously alive to the fact that their thoughts are flying about and are "being caught"? And where are the employers who are not conscious of the "harmonious atmosphere" of their secretaries and managers; and do they not reject those whose "personal atmospheres" they find not to harmonize with their own mental and personal atmospheres?

I feel that it would not be too presumptuous to say that when political, military, and business heads will have found the method whereby they can select their co-workers by their "personal atmospheres" unerringly, there will be fewer cabinet changes, fewer blunders made, and less time and energy lost, not to mention the friction and the life enmities often created. But theirs is not the business to find the method. It is for science to make haste and find it, and give it to the world. It is for scientists trained in the conventional schools of learning to divest themselves of their encumbering mental baggage, to take their coats off, and go energetically to work in their laboratories, with new methods of research and newer ideals.

With the advent of radium, X-rays, wireless telegraphy, and telephony, new problems have been created to which new solutions have had to be found. With the coming of psycho-therapy and psycho-analysis — which have laid bare the soul of man, to himself and to others — new problems, also, have developed; new

faculties have been found in activity. Within himself, man — the microcosm — has the potentialities of a universe: his will, his thoughts, his "radiations," his presentiments, his visions.

Man: *body, soul, and spirit.* A carnal self, a mental self, an unconscious and a superconscious self. A higher self and a beastly-brutal self. Man's consciousness is the go-between that links the higher and the lower realms of his own universe. In the life of the poet, the artist, the mystic, consciousness of the higher, super-normal activities is of daily occurrence. Not so, however, with the materialist; for his mind is too engrossed with material concepts: dollars and cents and power and possession. They obscure his consciousness of the higher, the better, the truer things of life.

The democratic-consciousness which is sweeping the world to-day, hurling crowns and princes into the abyss of dark oblivion, heralds the coming of a new age. It speaks of the beginning of a new cycle in the evolution of man. It brings in its trail: freedom of thought, freedom of action, equality, and the emancipation from the old order of things. The old is making place for the new. A new sense is being born. It is the "sense of life."

But on the battlefields of the old world many are they, also, who are developing a new sense: "the sense of death"— that inward sense, the sense of premonition which tells the conscious self that the old must make place for the new. A new life in a new world; a new humanity in place of the old.

The eighteenth century was the age of rationalist reaction. The nineteenth that of science and of me-

chanical inventions, material withal. The twentieth is the age of psychology, the age of the " science of man." Vocational and applied psychology together with psycho-therapy already pave the way. Another step forward will bring us nearer to the realization of *the Soul in man,* then *the God in man.*

May this work, therefore, help to hasten the making of the science of man. May it find a sympathetic response at the hands of young and new pioneers: makers of the new race where men shall judge their brothers, not in the light of their worldly, weighty possessions, but in the light of their souls, and with the " single eye " of their spirit.

W. DE KERLOR.

New York, January, 1918.

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INTRODUCTION

CAN the study of psychical phenomena really become a science?

A science, according to the general conception, consists in a systematized ensemble of knowledge of facts, each clearly defined yet all so closely related as to form a veritable system in which each supports and explains the other in logical sequence: as, for example, mathematics. This was the idea of the ancient philosophers, and it has become the classical conception.

Science as thus understood acquires a dogmatic authority. It is opposed absolutely not only to ignorance, but also to more or less probable opinion or belief. When once established, it becomes as immutable as Truth itself. It is transmitted through teaching; and the disciple or pupil can but accept it docilely from the hands of those who have received and treasured it. It is in this sense that the libraries, schools, universities, and academies have become the sanctuaries of science.

But it is evident that all those who hold this conception find it difficult to think of psychical matters as a science. Vainly might one search for a series of doctrines, solidly established and rigorously related, that would correspond to that title. But does such a conception of science actually conform to reality? Does it not represent an ideal toward which all the sciences lean, which might not be entirely realized in any of

them, not even in mathematics, the closest of all?

If science were to fall from heaven, ready-made by some supra-terrestrial genius, it no doubt would verify the definition just given; as it is left in the hands of men to make, and as men must make it slowly, progressively, not without hesitation and error, the result is that two periods are obtained: (1) that in which science is in the process of being made; (2) that in which it is made, at least to some extent. This corresponds to the period *in-fieri* of the scholastics, and to that of science *in-facto*. Perhaps these are not two successive periods, but rather two points of view which coexist and from which all science can and must be judged: the point of view of the researcher who creates it and that of the professor who teaches it. There is always, in it, on the one hand a knowledge acquired and integral, and on the other hand a knowledge in the process of acquisition and integration, a static *in-facto* and dynamic *in-fieri*. It can be demonstrated through numerous examples that the proportion of the *in-facto* and of the *in-fieri* varies from one science to another, and even in a particular science according to the period of its history in which it is being considered.

Mathematics appears to many the perfect type of established science, forever immobilized in the possession of eternal truths. Yet do we not behold, with each successive generation, a host of new thinkers, conquering new fields in the domain of thought? For a mathematician of genius, such as Descartes, Liebnitz, Cauchy, Poincaré, for example, is not the real science that which he invents and to which he gives life?

The history of physics shows, it would seem, successive periods in which the static and the dynamic viewpoints alternately predominate. Take the first half of the past century, for instance: the physicists were not far from considering that their science had been completed, at least in its essential parts. Each chapter of which it was composed — weight, sound, light, heat, electricity — undoubtedly might be capable of new developments; but it was not believed possible that any new chapters could be opened. Nature, as a whole, it was thought, was virtually understood in all her phases, and the task of the future would lie solely in depth and not in width. Yet, one after the other, the successive discoveries of the " X-rays " and of the radiating properties of matter, radium, etc., came to dethrone the limits too hastily fixed. And it would not be an exaggeration to assert that what we know of physics to-day is practically nothing in comparison with what yet remains to be discovered.

This is true also of chemistry and biology. For in these sciences too we can distinguish, on the one hand, an ensemble of acquired knowledge ready to be used for the purpose of education, while on the other hand we see an ensemble of researches being made, or still in the stage of project, awaiting the moment of being taken out of the laboratories then to be handed to the schools.

Should we, then, reserve the name " science " exclusively for that of the two which turns its attention to the past, and refuse it to that which is directed toward the future? Is not the researcher entitled to the name

of scientist at least as much as, if not more than, the professor?

Let us say that the more complex a science is, the more difficult, the more recent its constitution, the greater is the part played by *researches* than that by *knowledge*. And this is just the position of the *psychical sciences*. As yet they are hardly organized, but this makes them all the more attractive for the student bent on research, for the unknown quantities are full of promises and of hopes.

In order to justify the existence of these sciences, therefore, it is sufficient to show the existence of the object of their researches, and that it really belongs to the world of realities.

That, precisely, is the aim of this book.

Perhaps it would be well to trace the principal reason for the defiant objections leveled against psychical sciences. At first they were called *occult sciences*. They belonged in the beginning to that ensemble of empiric observations and traditions known as astrology, alchemy, chiromancy, magic, and other such pseudo-sciences of the Medieval and Renaissance periods. It is only since barely two centuries ago that they have emerged from this chaos, although we may still see the mystic attitude of mind of the ancient adepts in those who conduct their investigations to-day. This should form a stronger reason, therefore, for scientists to introduce, with all the concentrated efforts of their energies, the real scientific spirit of the experimental method.

And, with this attitude of mind, just as astronomy emerged from astrology and chemistry from alchemy, so will the psychical sciences emerge from magic and sorcery.

One might say that all the sciences, without exception, and including mathematics, pass successively through two phases in their history: *a mystic phase,* to which occultism corresponds; and *a positive phase,* which is that of positive science.

The sole difference between them is that some passed rapidly from the first phase to the second; in certain others this passage was effected slowly and gradually; and in still others, it occurred after a greater lapse of time and the transition was sudden and quick. In this we find a sort of verification of the celebrated law of *the three states* formulated by the founder of the positivist school, Auguste Comte, according to which all human knowledge passes necessarily through the *theological state* (or mystical) to the *positive state* (or scientific), passing through the *metaphysical state* (or philosophical) as intermediary by its position and nature between the other two.

It is true that it might be objected that this transformation has not been quite complete and that in certain of the sciences, and particularly in the psychical, the old or occult form remains side by side with the modern or positive form. At the present time there are still believers in animal magnetism and in spiritism whose state of mind does not differ to any appreciable extent from that of the occultists of the Middle Ages and of the Renaissance period. Similarly it may be said that alchemy and astrology still retain a host of

firmly convinced partisans and believers. This may be a regrettable fact, but is it astronomy and chemistry that suffer? The loss is wholly for those who persist in confounding doctrines built on mere faith and imagination with researches which depend exclusively upon experimentation and reasoning.

Hitherto, we have spoken of the *psychical sciences,* as if the study of psychical phenomena must necessarily be divided into several distinct sciences. But would it not be more legitimate to say that there is but one psychical science: that which we ourselves have called *unknown psychology* (*psychologie inconnue*)?

We have attempted to show that there is no contradiction in admitting certain particular psychical sciences side by side with a general psychical science, according to one's position: analytical or synthetical. On the one hand, the phenomena which are the object of these sciences can be classified in groups sufficiently distinct so that each of them may become a special science; on the other hand, they have in common such important characteristics, they are related to one another by such close and numerous ties, that, in order to study them profitably, one must necessarily take into consideration the keen affinity and the intimate solidarity which unites them.

To designate these different sciences and their own particular orders of phenomena it has seemed to us indispensable to devise new names. This is done constantly in the case of all sciences which encompass new objects and new relations as they grow. In *Our Hidden Forces* we found it necessary to introduce such

new words as *hypnology, cryptopsychism, psychodynamy, telepsychism, hyloscopy,* etc.; and in the present work we are using *metagnomy, biactinism, diapsychism,* etc.

We have been reproached for the creation of these neologisms taken from the Greek, and which appear somewhat barbarous and pretentious. Yet the importance of the language and vocabulary in the general economy of science is generally recognized. Condillac's aphorism, "All errors, without exaggeration, proceed from our habit of using certain words before determining their proper signification, or even before having felt the need of determining it," is especially applicable to the psychical sciences.

Unfortunately, the students of these sciences have not always been aware of the importance of having a really appropriate language. They were satisfied with the use of current words to designate new facts or to express new ideas; and it is those very words which now are an obstacle to the formation of a rational vocabulary. For many of the difficulties which have impeded the progress of the psychical sciences have been due to the insufficiency of their verbal equipment.

Take, for instance, the controversies between the School of Nancy and the School of the Salpêtrière upon the nature of suggestion and hypnotism. In current language, the word *suggestion* designates a very simple and banal fact which, from the psychological point of view, is reduced to an association of ideas. To use it to designate an entirely different and less ordinary fact, in which the customary laws of thought and action appear momentarily upset,— does this not give the im-

pression, prior to all examination, that the two facts are identical in reality? Similarly, when Braid coined the word *hypnotism* to designate a certain state in which human beings can be placed by means of certain processes, he asserted that this state was of the same nature as sleep. It is wholly a theory which is insinuated by this word, no less misleading than the word *suggestion;* and unless we were put on our guard we should be dragged into endless discussions such as were instigated by the Schools of Charcot, Liébeault, and Bernheim.

We cannot propose the substitution of *ideoplasty* and *hypotaxy,* created by Durand de Gros, for the words *suggestion* and *hypnotism,* although the phenomena are rendered less equivocal by their use. It is too difficult to swim against the current of acquired habits!

In the same way, the term *animal magnetism,* introduced by Mesmer and his disciples to designate a whole ensemble of parapsychical facts, irreducible by hypothesis to the facts of suggestion and hypnotism notwithstanding their analogies, is responsible for a great part of the repugnance which scientists still manifest toward it. This term not only designates a certain order of facts: it implies at the same time an hypothesis, it prejudges the explanation of these facts. And as a result, all those to whom this hypothesis is repugnant, all those who find the explanation inadmissible, reject the facts themselves and refuse to study them.

For this reason we have found it desirable to substitute a new term for the old. The word *biactinism,* without allusion to any hypothesis, to any explanation, serves to designate merely " the action which the nerv-

ous systems of two individuals may exert, one upon the other; any communication whatsoever that is established between them," with the ensemble of the resulting effects.

A similar contention might be made as to the word *spiritism,* which is as equivocal and misleading as the others. For it is now applied to a certain philosophical, if not religious, doctrine which admits of the intervention of the dead,— souls or spirits,— in the affairs of this world. And it is applied equally to a certain ensemble of enigmatical facts which some pretend to explain by an intervention of this nature, but for which a totally different explanation may be conceived — facts that can and should become the objects of systematical study. Here, again, it would be necessary to find a new denomination, foreign to all the old associated ideas, one which would not implicate a sort of tacit faith in "discarnated spirits." But such a denomination has yet to be found.

A third disadvantage in terms borrowed from ordinary language is that they are difficult to handle and do not lend themselves well to the formation of derivatives and compound names, which science needs constantly. If, for instance, physics had to limit itself to the words *warmth* and *heat* it would be most embarrassed, in speaking of all that relates to heat and warmth, in dealing with the measure of heat and the instruments pertaining to it, with the theory of the rapports existing between mechanical work and heat quantities, etc. All the difficulty is eliminated, however, by the use of such words as *thermic, thermometer, thermometry, thermodynamic,* and others.

This is precisely what the psychical sciences will need in the process of their evolution: a vocabulary that is at once supple and easy of manipulation. We easily can see, in this connection, that the term *hypnotism* is preferable to *nervous sleep* or *artificial somnambulism*, which it has replaced; for how could one obtain with those words the equivalent of such derivatives as *hypnotic, hypnotizable, to hypnotize, hypnotist, hypnotizer*, etc.?

For the same reason, instead of the terms *lucidity, clairvoyance, second-sight, double-sight*, etc., we would prefer the word *metagnomy;* for this, besides the greater generalization of its meaning, has the advantage of giving the derivative *metagnomic*, and of permitting such expressions as *metagnomic perception, metagnomic memory, metagnomic rays, metagnomic negatives*, etc. And similar neologisms, in connection with other popular expressions, would be more than justifiable in replacing *mental suggestions, transmission or penetration of thought, transfer of the personality, dissociation of consciousness*, and even *exteriorization of the sensibility, motricity*, etc.

But the constitution of a technical vocabulary for the psychical sciences will not be made without resistance and slow progress. The great number of people to whom the coining of new words is repugnant and even those who believe in their necessity will not always be in accord as to their choice. All sciences, however, have encountered similar difficulties, until in the course of time the objections have been met. This, we may believe, will be equally true with the psychical sciences.

Although psychical phenomena have aroused the curiosity of men for a long time past, the sciences which have these phenomena for their object have not yet been given a place in the ensemble of the sciences. Yet it is clear enough, as the name itself indicates, that they are linked to psychology, not as a part of philosophy, but as an experimental science.

If it be established that the phenomena are not only abnormal or super-normal, but essentially pathological, it could be said that they constitute a special branch of morbid psychology or psychopathology. But such a thesis is not yet proved. It would be more exact to say that they constitute a sort of *side* psychology, or *parapsychology,* recognizing, at the same time, that the relations between this and psychopathology are numerous and most important.

It should not be forgotten that the divisions which we imagine in our classifications of the many different orders of natural phenomena are all more or less arbitrary and artificial. Thus psychology, in its ensemble, is inseparable from physiology; and physiology is inseparable from the physical sciences. The soul is non-existent without life; and life is not existent without matter. It should not be surprising, therefore, if the psychical sciences go even beyond psychology and penetrate physiology, especially the physiology of the brain and of the nervous system; or perhaps they may go even farther, in the regions of physics, where the theory of the most subtle and imponderable forces of nature are elaborated. This is one of the reasons why these sciences can progress only slowly; for their prog-

ress is conditioned to a large extent by that of those more general sciences upon which they depend and to which they contribute.[1]

To conduct experimentation satisfactorily, researches specializing in the psychical sciences should be assured the constant collaboration of psychologists, physiologists, and physicists thoroughly acquainted with the methods and results of their respective sciences. Or else each of the specialists in psychical research should be a combined physicist-physiologist-psychologist. That, however, is a difficult combination to realize. In fact, all those who hitherto have studied these phenomena have been recruited from among medical men and physiologists — Mesmer, Charcot, Dumontpallier, Bernheim, Richet, Joire, Janet, etc.; from among physicists and chemists — Reichenbach, Gregory, William Crookes, Oliver Lodge, etc.; or from among the ranks of philosophers, moralists, litterateurs — many were mere " amateurs "— Flournoy, William James, Frederic Myers, and most of the members of the S. P. R. of London and New York. It is perhaps the psychologists who have been least numerous, although it would seem that psychology, more than any other branch of science, should be able to dissipate the heavy mist that still surrounds the psychical sciences.

A frequent objection leveled against psychical research is that one cannot see what practical value it may have, even if it were to be brought to a satisfactory

[1] It cannot be believed otherwise than that the experimental researches conducted by William Crookes in certain parapsychical phenomena influenced him in his conceptions of the radio-activity of matter and of the discoveries which followed.

conclusion. No science, we are taught, has as its goal the mere satisfaction of a purely speculative curiosity. Scientific theories are fully justified only when their application and the power they confer upon man assures him the ability to enslave the forces of nature at will. The difference between science and philosophy, or the ancient conception and the modern, is that to-day we expect from science not only a knowledge of reality, but also a knowledge of the means to modify and transform it for our own use. Said Auguste Comte: "Know, so that you may foresee and provide."

If the psychical sciences do not meet this condition, they will not merit the name of science.

Although we recognize the fact that science cannot consist in a sort of intellectual dilettantism which would have no interest in the aims of practical life, we must also appreciate that its proper and immediate object is, above all things, the *real,* and not merely the useful or proper; and that in the interest of its own task it should impose upon itself a provisional, relative, and apparent disinterestedness in regard to every other object. It is impossible for any one to anticipate what useful applications may result from the discovery of a truth which, at first sight, may appear thoroughly sterile in practical possibilities. The scientist who would aim systematically at the practical instead of first aiming at the real, would inevitably miss the real and the useful.

In the psychical sciences, the first group — which includes all the hypnotic and suggestive facts — already has been advanced sufficiently far to permit of practical applications. We do not refer to the useful con-

tribution to psychology in general for the experimental study of the various human faculties: consciousness, memory, will, etc. This usefulness might appear more theoretical than practical. We do not refer even to the services which this first group — *hypnology* — will render in obtaining knowledge, in a practical way, of the character of individuals, or in their education when the processes of ordinary pedagogy have failed, notwithstanding the interesting indications of Durand de Gros and Bêrillon. We refer especially to medicine; for it is here that hypnology has its most important applications. Every one knows the remarkable results obtained by the practitioners of the School of Nancy, whose method is now in current use in the practise of psycho-therapy, especially in the treatment of nervous affections.

The other branches of psychical science are not as yet sufficiently advanced to be capable of being utilized unerringly in practical ways. When, however, the day arrives when the study of animal magnetism, systematically pursued in a scientific spirit, will confirm all that is expected of it, it will then positively bring a contribution to the science of therapeutics no less important than that of hypnology. For whatever exaggerations may be found in the stories of the marvelous cures reported by the chroniclers of the old mesmerists, it is perfectly evident that the facts described by them show that the biactinic force emanating from the human body produces some singular and powerful curative effects. The question would be to determine with sufficient precision the conditions in which these effects operate.

Shall we ever be able to establish scientifically the reality, and so be able to formulate the laws, of the seemingly incomprehensible phenomenon of *clairvoyance?* If in the future the reply should be in the affirmative, it would not be too daring to say that there will be found in man an organ of communication which can be compared with telegraphy, telephony, and telephotography. Already there are many who have been asking *whether it would not be possible to utilize the clairvoyant faculty in helping the police in their investigations; and particularly whether this could not be used in time of war, to foresee the means of attack and of defense of the enemy.* But our present knowledge of the mechanism of clairvoyance is too imperfect to justify our risking an instrument of which we are not quite sure. Hyloscopy, on the other hand, under the form of actual prospecting for water and mineral deposits, has already entered the field of practical applications. Have not the French already used the divining-rod and the pendulum to find water wells in Algeria? Did not the English find, by the same means, wells of water during the Gallipoli expedition in regions thoroughly deficient in drinkable water? And it is said that the Germans found mines in their colonial possessions in Africa by means of the divining-rod. If, as is asserted, the special sensitiveness which is revealed by the movements of the rod or the pendulum is to be found existent, in a latent state, in the majority of people, it perhaps may be through this branch of the psychical sciences that the breach will be opened through which all the others shall pass, thereby making it impossible to doubt the reality of influences which to

our material senses are imperceptible, yet which are capable of being revealed to us by reactions *sui generis* of our nervous system.

To go a step farther, it is not premature to conceive the day when even the spiritoidal phenomena will be possible of practical applications. And when that is realized, it will mean in the affairs of men a revolution as considerable as that produced by the applications of steam or of electricity.

Let us suppose for one moment that it can be proved experimentally that the strange phenomena of levitation, materialization, or of distant action, such as produced by mediums like Daniel D. Home or Eusapia Palladino, are phenomena as real as the fall of a stone, an electrical discharge, or a chemical combination. Let us suppose still farther that we shall be able to prove experimentally that the cause of these effects resides in a particular condensation or transformation of a force emanating from the nervous system, and that we shall discover the laws according to which this force, latent in every human being, acts, develops, and transforms itself. What then would we need in order to derive from these theoretical constatations certain practical consequences of extraordinary value? It would be necessary that the laws should be such as to enable our own *will* to use them for the purpose of manipulating this force, as it already can utilize the laws that govern steam and electricity.

It is evident that we do not know, to-day, whether such a condition can be realized. It may be that the productive energy of the Palladinian phenomena, owing to its nature, escapes the control of the will, exactly as

that which produces storms and lightning, and which, in spite of our knowledge of the laws of electricity, we cannot and perhaps never shall be able to control at will.

But it might also be otherwise. In this case it would be sufficient to condense this force artificially in order to obtain, through the sole resources of human organisms, certain mechanical, calorific, luminous, electrical and other effects, of which it is impossible to limit *a priori* the diversity and the power.

Utopia, you will say?

Perhaps! But when Galvani studied the contractions of the legs of the frogs he had suspended from his balcony, who could foresee that the force which manifested itself under his very eyes, in effects so puerile, would one day, in the hands of man, circulate ceaselessly thought, light, and motion around the globe?

THE PSYCHOLOGY OF THE FUTURE

CHAPTER I

HOW THE PSYCHICAL SCIENCES STAND TO-DAY

BEFORE entering upon the many special subjects which this book will cover, it may be well to give a general — and as exact as possible — idea of the actual state of the psychical sciences at the present time. In order to do this, we must first try to determine, on the one hand, those results that may be considered as having been acquired, and, on the other, the problems that are still unsolved, the researches that still remain to be undertaken.

It is this balance of the psychical sciences that we shall endeavor to establish in the present chapter.

I

First of all, by far the most important result — obtained little by little, and not without much struggle and great effort, during the second half of the past century — is *the recognition of the existence of the psychical sciences.*

Just how far the domain of psychical phenomena extends, and where in that domain the field of reality ends and that of illusion begins, are questions that still

are being debated, and will continue to be debated for many years to come. But there are at least two points upon which, we believe, all those capable of understanding the terms fully agree:

First, the *reality* of psychical phenomena,[1] constituting in nature an order *sui generis,* undoubtedly related to the ensemble of psychological phenomena but having their own particular characteristics and their own peculiar laws.

Second, that these phenomena can and must be objects of science; and, as such, the psychical sciences are legitimate, as worthy of being studied as are physical, biological, or social sciences.

Those who devote their time and labor to this study are no longer necessarily considered as charlatans or fools. There is in the attitude of the public — and particularly of the scientific public — regarding psychical phenomena and the psychical sciences, a change that is becoming more and more pronounced; and this change, in a more or less distant future, will enable these now imperfectly defined sciences to be definitely organized.

All the honor of this change, which is nearly a revolution, must be credited to the work of the Schools of the Salpêtrière and Nancy, and to that of the English Society, and its young sister, the American Society, for Psychical Research — in a word, to such men as Colonel de Rochas and Professors Charles Richet and Flournoy.

The very fact that the *Académie des Sciences* has accepted the foundation of a prize[2] destined to encour-

[1] Called *occult* by Grasset, *metapsychic* by Charles Richet, and *parapsychic* by Flournoy and the author of this book.

[2] *Publisher's Note:* The Fanny Emden Prize. In a competitive

age psychical research concerning " suggestion, hypnotism, and physiological actions likely to be exerted from a distance upon the human organism in general " is sufficient to measure the road traversed since the comparatively recent time when the same *Académie* refused to receive any communication relative to animal magnetism, relegating it to the ranks of the fourth dimension and perpetual motion. And is it not a significant fact that such savants as d'Arsonval, Branly, and the late Pierre Curie participated in the whole series of experiments made in 1906 with the medium Eusapia Palladino at the *Institut Général Psychologique?*

II

A second result which appears equally to have been acquired is *the recognition that the only method that can adequately be applied to the study of psychical phenomena is the experimental method,* such as that used by the precise and practical Claude Bernard and Pasteur, with the modifications of detail necessary to adapt it to the particular conditions of this class of phenomena.

Nearly all scientists agree that it is no longer a question of forming, *a priori,* systematic theories as to the universal or life fluid, or the constitution of matter or of spirit, and from them deducing, without either experiment or control, the explanation of more or less extraordinary facts. It is these facts themselves which

contest, two thousand francs of this prize was awarded to Prof. Boirac for the best work submitted to the *Académie des Sciences* on these subjects. His contribution, *La Psychologie inconnue,* was translated into English by Dr. W. de Kerlor, and published in America under the title, *Our Hidden Forces.*

it is necessary first of all to verify, to observe, to analyze, to classify, and then to submit to repeated and varied experiments before patiently deducing the laws which control them — laws always subject to revision. That the hypothesis has its place and its rôle in this method is fully recognized; but under the express condition that, suggested by phenomena already known, its object is not to give us an ingenious though sterile explanation, but to help us in the discovery of phenomena still unknown, and to enable us to produce these phenomena by new experiments.

That which at the present time remains to be determined, and which the development of the psychical sciences will gradually establish, is (1) the particular method to be used in the study of these sciences — the manner of observation and of experimentation especially adapted to the nature of the phenomena to be studied — and (2) the hypotheses that will permit experimenters to see their way clearly in their researches and to advance to the point where they will discover facts still unknown and laws still unformulated.

III

It is necessary to review briefly the different branches of the psychical sciences in order to show the extent of the progress each has made. For this purpose we may use the classification suggested in *Our Hidden Forces*,[3] as it seems both practical and convenient.

[3] *Our Hidden Forces* (*La Psychologie inconnue*), Emile Boirac. Translated by Dr. W. de Kerlor. (New York: Frederick A. Stokes Company.)

The two Congresses of Experimental Psychology held in Paris in the years 1911 and 1913 adopted it in arranging the program of their work; and most of the terms comprised in it are entering more and more into current usage among authors whose works lie in the field of psychical sciences.

In this classification the psychical phenomena — or parapsychic, according to the definition we have given: " the phenomena which, produced in animate beings or as an effect of their action, do not seem to be entirely explicable by the laws and forces of nature already known "— are divided into three great classes, superimposed one upon the other in the order of their increasing complexity and difficulty, and in such way that knowledge of the first is an indispensable condition and an efficacious instrument in the study of those that follow.

The first of these three classes is that of *hypnoidal phenomena.* These apparently may be explained by forces already known, supposing only that these forces, under certain conditions, operate according to laws of which we are still ignorant, or which are known to us only imperfectly — laws more or less different from those which are now known. To this class belong the phenomena of hypnotism and suggestion, especially studied by the Schools of the Salpêtrière and Nancy, and the phenomena of dissociation of the personality which Dr. Pierre Janet submitted to a methodical investigation for the first time in his book, *Automatisme psychologique,* and carried farther in another work, *Névroses et idées fixes.* The general term *hypnology* may be given to this first class of phenomena, thus reserving the term

cryptopsychism [4] for the special study of the phenomena of *subconsciousness.*

The second class is that of *magnetoidal phenomena.* These appear to involve the intervention of forces still unknown, distinct from those that science has so far discovered and studied, but of a *physical* nature and more or less analogous to the radiating forces of physics: light, heat, electricity, magnetism, etc. In this class there are three distinct groups of phenomena, which nevertheless are imperceptibly related to one another. They are:

(1) *Animal magnetism;* or, as the English aptly call it, *mesmerism.*

(2) *Telepsychic phenomena,* comprising numerous varieties, such as the transmission or penetration of thought, the exteriorization of the sensitiveness, psychometry, telepathy, clairvoyance or lucidity, etc.

(3) *Hyloscopic phenomena,* where physical matter appears to exert over animate beings, especially human beings, an action that does not seem to be explicable by any physical or chemical properties already known and that seems, consequently, to reveal in it a force irreducible to any that science has studied up to the present time. To this third group of magnetoidal phenomena belong the effects obtained by seekers of subterranean sources of water and metals, as demonstrated by the rod- and pendulum-diviners who so strongly aroused public interest during the Congress of Experimental Psychology held in Paris in 1913.

The third and last class is that of *spiritoidal phe-*

[4] This term has been adopted by Prof. Flournoy in his book, *Esprits et médiums.*

nomena. These also seem to imply the hypothesis of agents as yet unknown; but in this case they are agents of a *psychological nature, more or less analogous to human intelligence,* situated, perhaps, outside of our ordinary world, in a plane of reality exterior to that in which we live. This class embraces all the phenomena of *spiritism* or *mediumism* when it does not seem that they may properly be included in either of the preceding classes — disregarding, of course, the dogmatic assertion as to their real causes.

It is in the psychical sciences of the first degree, hypnology and cryptopsychism, that we find the greatest number of results acquired — results that now are incontestably established. In this field we are on nearly firm ground. More than one question of detail still remains obscure and uncertain, but it can be said that, on broad lines at least, these sciences are definitely constituted.

In spite of a few isolated cases of the old skepticism,[5] there exists no doubt as to the fact that a human being may, under certain conditions, sink into a particular state of torpor and automatism, where certain of his faculties are more or less annihilated while others are singularly exalted, and that the characteristics of this state, called hypnotic, are more or less variable, and are known as catalepsy, lethargy, somnambulism, etc. There exists no doubt that suggestion — that is to say, the human word, or, to go back to its origin, the *thought,* as a species of imagination and faith — can exercise a quasi-magical action upon not only the faculties of our moral being, but also the functions of our

[5] Prof. Babinski, for instance, declares that it is impossible to know if hypnosis is not always a case of simulation.

organism. Nor can there exist any doubt that such action is able, without our knowledge, to produce in us beneath our conscious personality another personality that is still ourselves yet appears to be some one else: a personality that feels, thinks, and acts, entirely without our being conscious of it except for its exterior manifestations.

All these points are firmly and incontestably established. There now remains the necessity for knowing more precisely the determining conditions of the different phenomena, the study of their effects, the practical applications that may be drawn from them.

In passing to the psychical sciences of the second class — magnetoidal phenomena — we enter a region little explored by scientists, who have been unwilling to risk themselves there, for fear of compromising their professional dignity or their reputation as prudent and serious persons. The number of results acquired in this class, therefore, is much less considerable than in the preceding class. Here all is more or less doubtful, or at least invariably contested. The facts are either denied or ignored, or else they are treated as effects of the imagination, or attributed to fraud. In the most favorable hypothesis they are credited to will, or to some force that, temporarily, it is impossible to analyze from facts of the first class.

It well seems, however, that the day may not be very far off when science will end by recognizing the existence of a force emanating from the human organism, really of the nerves and of the brain, and capable of acting at a distance. That force is now almost uni-

versally admitted to explain the phenomena of transmission of thought and telepathy.

Owing to a frequent confusion of terms, due to their similarity, *suggestion,* which is no longer contested, permits us to admit the phenomenon of *transmission of thought* christened *mental suggestion.* And this latter apparently does not differ essentially from the other, in that it implies, above all, an influence exerted by one brain upon another *through a field imperceptible to our senses.* Strange to say, however, animal magnetism, which seems to be the more general phenomenon — the condition for mental suggestion — is denied its right of existence, when mental suggestion is but one of its particular consequences.

But sooner or later, no doubt, when logic recovers its right, it will be recognized that animal magnetism conceals in reality the key to psychical phenomena under all their forms. This is one of the truths that we especially endeavored to establish in *Our Hidden Forces;* and we hope that our example may encourage other researchers to labor in this field, so that there may be acquired to science one more definite result.

The recent scientific discovery of X-rays and of emanations from radium has disposed savants to admit more easily the existence in nature of a multitude of radiations and influences too subtle to be observed ordinarily by our senses; and it is perhaps this which explains the reception — rather than the encouragement — given by the scientific world to the recent experiments of water-diviners.

There, too, a result seems to have been acquired.

However, it has not been definitely decided that the movements of the divining-rod or of the pendulum are caused, as Chevreul claimed, solely by the unconscious thought of the operator, to the exclusion of all objective influences. And one is not obliged to believe that such thought is not under some secret influence of an unknown though real force.

Hyloscopy now is merely at the threshold of science; but it will not be long before it will have crossed over.

The phenomenon of *clairvoyance,* whose mysterious mechanism passes all human understanding, occupies, as it were, the middle position between hyloscopy and telepsychism, since it supposes an action exerted by objects, in spite of sometimes enormous distances, upon the sensibility of the subject; and in the same subject a faculty of perception susceptible of being brought into play by this remote and incomprehensible action.

Science is far from admitting the reality of this phenomenon, but it is beginning to submit it to scientific study; and such works as those of Edmond Duchâtel on *Psychometry* and Dr. Osty on *Lucidity and Intuition* undoubtedly hasten the moment when the phenomenon, being recognized as real, will enable us to discover experimentally the laws that regulate it.

At the present time we may see in those who study the phenomenon of clairvoyance a tendency to place it on the same level as that of penetration of thought — that is to say, to believe that the visions of clairvoyants are not connected directly with the objects themselves but with the human brains in which the objects are represented. In other words, clairvoyance might be essentially not a rapport of *brain with object,* but a rap-



THE PENDULUM

Any one susceptible to magnetic influence will follow, involuntarily, the movements of the operator's hand, even when it is not in contact with the shoulder.

port of *brain with brain.* Thus would be effaced the distinction which early magnetizers established between real clairvoyance or lucidity and the transmission of thought.

It is left to future researches to solve the question definitely and finally.

There remains the science of the third class, which has for its object the troublesome and baffling phenomena of *spiritism.* The farther we advance in our inquiries in this field, the more rare become the results acquired. Let us not believe, however, with the ordinary public, that these phenomena have nothing of truth in them. For it is certain, it has been proved beyond all doubt, that tables turn and rap, that they make, by means of certain codes, intelligible answers to questions that are asked them. And it is incontestably proved that certain individuals, called *mediums,* do write, speak, and act, without being conscious of what they are doing, exactly as if they were the instruments of foreign personalities. All these facts are amply established; it is only the ignorant who deny them.

Now, to what cause must they be attributed? Are they, as their appearances suggest, as the mediums insist, the effects and the proofs of *the intervention of spirits?* Is it really *the souls of the dead* who come from the other world to cause the tables to move and who inhabit momentarily the bodies of the living?

In this there is a wholly different problem.

That which is acquired is the *reality* of the spiritoidal phenomena, at least of a certain number of them; that which is far from being acquired in the manner in which they may be explained.

To admit these phenomena does not necessarily mean admitting such or such explanation that may be proposed. From the viewpoint of the scientist, the explanation, whatever it may be, is of secondary importance; the essential thing is the methodical study of the facts, their establishment and their analysis. To prove or to refute a certain philosophic or religious doctrine is not sufficient; it is necessary to know whether certain facts actually occur, and, if so, how they occur.

The most important results will be acquired in researches of this order only when all those whose experiments lie in this field are persuaded that it is with that attitude of mind that they must labor. The experimental method only, loyally and patiently practised, will enable the researcher to ascertain if certain phenomena generally considered unbelievable — levitation, apports, materialization — are actually real or if they are but " tricks " and fraud. This method alone will permit him to arrive at interpretations — tentative without doubt and hypothetical, but useful nevertheless to guide the experimenter through obscurities more impenetrable than those of the forest of Dante's *Inferno.*

IV

However imperfect may be the actual state of the psychical sciences at the present time, this brief review shows that they are sufficiently organized to live and to be developed regularly; that experimenters may be assured of the reality of their object, each being in the firm possession of his method, a certain number of essential results already having been acquired.

What is it that is necessary for the hastening of their

evolution, that the number of results may be increased steadily from day to day?

First of all, that public opinion, better informed, may understand the interest and the utility of the researches and may become accustomed to considering them as real sciences, and not as playthings, oracles, or pastimes for society. No less important is the necessity for establishing "numerous centers of research throughout the civilized world — institutes and laboratories where researchers who are specially trained into scientific and philosophical discipline, and accorded the same respect by other scientists as is given to physicians, chemists, and physiologists, could devote themselves exclusively to the exploration of the psychical field in its widest sense, and where they could check each other constantly." [6]

[6] *Our Hidden Forces.*

CHAPTER II

THE RIGHT AND THE WRONG METHODS

THE question of the method to be adopted in the study of the psychical sciences is of great importance when considering that at the present time these sciences are still in the form of an enormous mass of infinitely diverse, complex, mysterious, sometimes contradictory, facts, regarding which there arise the most enigmatic problems.

Is it possible to establish order in all this confusion? If so, let us see how.

I

One fact imposes itself upon our attention. The different phenomena comprised in the psychical sciences are divided naturally into groups sufficiently distinct that each of these groups can and should become a special science in itself. Yet they have in common such important characteristics, and they are connected by relations so numerous and so closely woven, that it is impossible to study them satisfactorily if we do not take into account their deep affinities and their intimate solidarity. It is because of having disregarded this twofold circumstance that the greater part of the researchers have hitherto erred *au hasard* or their methods have remained unimproved.

In the prescientific epoch of their history, the psy-

chical sciences were found, pell-mell with astrology, alchemy, and magic, in the obscure chaos of occultism; and this state of confusion began to be cleared up only toward the end of the eighteenth century, when Mesmer and his disciples aroused public curiosity about the phenomena of animal magnetism which they produced.

It is then that analysis was introduced into the study of psychical facts, and it resulted, at one and the same time, in the necessary precisions and the inevitable contradictions.

Braid recognized the reality of a certain state of the nervous system provoked by physical actions — such as the prolonged fixation of gaze upon a brilliant point — and he fully described the principal effects. However, outside of hypnotism thus defined, he did not admit as real anything more from among all the strange and wonderful facts reported by the early observers. The School of the Salpêtrière confined its doctrine within these same limits. And so, also, similar to Abbé Faria and General Noiset, the School of Nancy, with Liébeault, Liégeois, and Bernheim, studied the power of thought and idea, allied to belief and emotion, upon the mind and the human organism, and proclaimed that suggestion is in itself "the key to all the phenomena of hypnosis." All so-called psychical facts, when real, are caused by suggestion; all facts not so caused are purely imaginary.

Thus, under the exclusive influence of analysis, each searcher specializes in the study of a certain order of phenomena, and systematically ignores or denies all those that may exist outside of his own field of study and experimentation. The same narrowness is shown

by the disciples of Mesmer, who, for the greater part, refused to recognize hypnotism and suggestion as being side by side with and quite distinct from animal magnetism.

With the study of spiritistic phenomena and those of mental suggestion and telepathy, two new branches of researches spring from the main trunk of psychism. But here still we find the same tendency to believe that each of these studies can suffice entirely in itself, and constitute alone the totality of the psychical sciences.

The true method is to give to analysis and to synthesis the part that legitimately belongs to each of them.

It is absolutely necessary that the multitude of psychical phenomena be divided into a certain number of groups, and that these groups be studied separately. For the human mind, study is not possible, science is not possible, without division, order, classification. Analysis is in itself the very condition of synthesis; every synthesis that is not preceded by analysis is necessarily confused. That is why, in *Our Hidden Forces,* we were compelled to classify the different psychical sciences according to three great divisions: *hypnoidal, magnetoidal,* and *spiritoidal.* And under these heads we arranged the different groups of phenomena covered by them, giving to each a special name — hypnology, cryptopsychism, psychodynamy, telepsychism, hyloscopy, etc.— thus recognizing, as it were, their distinct individuality.

But any such classification, in drawing the many and varied psychical sciences together into unity, compels the mind to consider them as necessarily coordinated among themselves. They are independent, though at

the same time solidary, parts of one and the same whole.

Therefore, in the pursuit of any one of these particular sciences — for example, hypnotism or suggestion — it may be well, in order to advance the analysis as far as possible, to consider the psychical facts from a certain angle only, disregarding all the facts and all the elements of facts that are not visible from that angle. It must not be forgotten, however, that this is but an artifice of the method; that, if one's special branch of pursuit succeeds in realizing, in its conceptions or in its experimentations, that isolation of one of the essential elements of psychism, it does not follow that *in reality* that element may not often be inseparably united to other elements equally essential, objects of some other branch of science.

Thus the point of view of the synthesis must always, in psychical sciences, complete and correct the point of view of the analysis.

II

However, it must be acknowledged that although the different psychical sciences are connected with and dependent upon one another, they are not all on the same plane. There exists between them a certain order, a certain hierarchy of connections and dependencies. Thus the simplest, the most elementary phenomena, the easiest to isolate and to reproduce experimentally, come logically first, before those that are on a higher plane, that are more complex, more difficultly controlled by the experimenter, and consequently are relatively more independent.

This is, we believe, a point of extreme importance, one upon which it is necessary to insist.

It determines the *general direction of the method* in psychical research, if it be true that the human brain must, according to the precept of Descartes, " conduct one's thoughts in order, by beginning with the simplest and the most easily understood objects and climbing little by little, by degrees as it were, to the knowledge of the most complex. . . ."

Let us apply this particular rule to the study of the psychical sciences. The result is that the science of *hypnoidal* phenomena must be considered as the preliminary condition of the study of *magnetoidal* phenomena; and that these two must be advanced sufficiently far before it will be possible to begin, with any hope of success, the scientific exploration of *spiritoidal* phenomena.

Up to the present time those savants who have ventured into this field have attempted to study only the most extraordinary phenomena, those that most excite the curiosity and stir the imagination: in other words, the spiritoidal phenomena which assume the strangest forms, such as are reported by William Crookes, de Rochas, Richet, etc. In a similar way, in studying the phenomena of telepathy — of which the English and American Societies for Psychical Research have collected numerous examples — the savants have confined themselves to those magnetoidal phenomena in which the mechanism is the most obscure and the most complex.

Is not such a method directly contrary to the principle that we have laid down?

But that principle has already been contested. Dr. Gustave Geley, in a remarkable study on "a special experimental method in metapsychism," after having remarked, with ourselves, that "all the metapsychic phenomena, from the simplest and most elementary to the highest and most complex, are absolutely connected," affirms that "the scientific method, fully adequate to the new science, resides entirely in this formula: *to consider as temporarily negligible all the elementary phenomena and to attack immediately and systematically the most complex phenomena that are known to us.*" He is fully aware that "such a methodological principle is revolutionary." It conflicts, he says, with the teachings of the most eminent psychists. "It breaks away from the standard, classical method, admitted by all the other sciences, in which it is necessary always to proceed from the known to the unknown and from the simple to the complex."

But this savant does not stop there; for, according to him, "in metapsychism the simplest is found to be the most difficult to recognize." Consequently, it is by the study of *physical* phenomena, in preference to *intellectual,* that we are asked to begin the systematic investigation of metapsychism. And from among the physical phenomena, that of *materialization* should be the first.

It is apparent that this author understands by "metapsychism" not the ensemble of the psychical phenomena (or *parapsychic,* to use our own term) — with its three relatively distinct branches and the whole inseparably connected and hierarchically superposed — but exclusively a section of that ensemble, the third and

last, the spiritoidal phenomena, commonly called *spiritism.*

If the word *psychical* be kept to designate, as usage has established it, all phenomena whatsover of the unknown in psychology, it will enable us to distinguish, on the one hand, the phenomena properly called *parapsychic,* and, on the other hand, the *metapsychic* phenomena, which it seems very difficult to strip of their supernatural or extra-natural appearances.

It is not a question, therefore, with this author, of the general method of *parapsychism,* including at the same time parapsychism properly called and metapsychism, but uniquely, exclusively, of the special method of *metapsychism,* which he seems to consider as absolutely independent, separable by right and in fact from the rest of parapsychism; susceptible consequently to be approached *de plano,* without previous recourse to the study of the antecedent disciplines.

We should not be willing, on our part, to admit any such viewpoint.

As we shall show later in detail, when considered in themselves, all hypotheses as to their origin being disregarded, the metapsychic (or spiritoidal) phenomena do not differ essentially from the others: there can always be found in each of them a correspondent of the same kind in the series of phenomena that are really parapsychic (hypnoidal and magnetoidal). Thus the state of trance of a medium is a fact wholly analogous to the state of hypnosis of a subject placed in catalepsy or somnambulism; the spiritistic messages obtained by means of the table, automatic writing, etc., singularly resemble the facts of dissociation of the

personality experimentally provoked; the phenomena of thought-reading or of clairvoyance, frequently mentioned in the reports of spiritistic séances, are analogous to those of perceptive telepsychism or of psychometry, observed outside of all spiritistic ambient, etc.[1]

Spiritism thus appears, as we have said, a "spontaneous synthesis of all or nearly all the parapsychic facts determined by a certain nervous and mental state" — to which perhaps may be given, with Professor Flournoy, the name *spiritogène*. This is why science, faithful to the principle of economy, prefers, until the contrary be proved, to consider spiritoidal (or metapsychic) facts as reducible to facts of the preceding orders, or at least attempts that reduction as far as possible.

Even if admitting the hypothesis of spirits and their effective participation in the production of spiritoidal phenomena, it is necessary to note that "the whole action of these spirits consists in arousing in certain susceptible subjects (mediums) the greater part of the hypnoidal and magnetoidal phenomena (hypnotism, suggestion, dissociation of the personality, telepathy, clairvoyance, etc.) constated in ordinary subjects, either spontaneously or as the effect of the experimenter's action. It can be said that *spirits* operate exactly as do hypnotists and mesmerists."

Is it not right, then, to conclude that "from the point of view of the method, the study of spiritoidal phe-

[1] For this reason we cannot well agree with Dr. Geley that the study of the "supernormal and subconscious faculties of vision at a distance without the aid of the senses, of telepathy, of thought-reading, of lucidity," appertains essentially to *metapsychism*. Its place seems to us to be incontestably marked in *parapsychism* properly called.

nomena must be strictly subordinated to that of phenomena of the two preceding orders, and that it is only when these have been advanced sufficiently far that the experimenter can begin to see his way a little more clearly in the study of the third order"— in other words, that parapsychism is the necessary introduction, the inevitable pathway to metapsychism?

Hence, to begin the study of the ensemble of parapsychic phenomena, or metapsychic, by attacking first and exclusively a phenomenon as complex and as difficult to manage as that of materialization, seems to us to be comparable to physicists who would regret that the study of electricity or of physics in general had not begun with the study of globe lightning — a problem certainly highly interesting, but the solution of which will be found only in a more or less distant future, and because of the increasing extent of our knowledge in electricity and other branches of physics.

CHAPTER III

OBSERVATION, THE FIRST STEP

I

It is not enough to show the *general direction* of the method in the psychical sciences; it is necessary also to determine *the nature and the rapports of the different processes* of which the method is composed.

Whatever may be the particular nature of the facts under study, all sciences based upon facts are necessarily and exclusively amenable to the experimental method. Those — as certain theosophists or certain occultists — who would pretend to build up the science of psychical facts upon the foundation of authority or of reasoning would succeed only in excluding psychical facts from science.

The experimental method, as we have shown elsewhere,[1] consists essentially of four processes, disposed in the following order:

(1) Observation
(2) Hypothesis
(3) Experimentation
(4) Induction

The *order* has in this case such great importance that if, keeping the same elements, we dispose them in any

[1] *Our Hidden Forces.*

other manner, the ensemble obtained is not the experimental method, but a method wholly different.

Thus observation in the experimental method has but one aim — to make possible the hypothesis; the hypothesis has but one aim — to make possible the experimentation; just as the experimentation has but one aim — to make possible the induction. *From observation to supposition; from supposition to experimentation; from experimentation to induction* — that is the succession, the necessary subordination of the proceedings in the experimental method.

Of these four operations, the first and the third — observation and experimentation — are processes of information, of *constatation* of the particular facts. The second and the fourth — hypothesis and induction — are processes of *interpretation,* of reasoning relating to general laws. The originality of the experimental method consists in the fact that it counterchecks the two kinds of operations in such a way that they provoke and complete or control each other.

The entire method can be summarized in the following formula:

First period: Preparatory constatation (observation).

Second period: Temporary interpretation (hypothesis).

Third period: Decisive constatation (experimentation).

Fourth period: Definitive interpretation (induction).

It is by the persevering and scrupulous application of the experimental method, as it is thus comprised, that

the study of psychical phenomena will be progressively transformed into a real science.

But the processes of this method, owing to the peculiar conditions in which psychical phenomena present themselves, assume in their study particular characteristics which it is important to note.

II

In natural science — physics, chemistry, physiology, etc.— observation is made or can always be made *directly:* the savants themselves, by means of their own senses, constate the phenomena they study. In psychical sciences the observation is often *indirect* and *mediate,* owing to the fact that scientists know of the nature of the phenomena only through the testimony of unscientific observers — persons not trained in science — who witnessed them by chance and described them, orally or in writing.

This manner of observation *by testimony* is not confined exclusively to psychical sciences; it is found in all the moral and social sciences, in all sciences which have man for their object. It is the indispensable instrument of history, where these sciences find their principal support. As a result, psychical sciences partake at the same time of the nature of physical sciences and of that of moral sciences; and this, perhaps, as Prof. Bergson aptly showed in his masterly address of May 28, 1913,[2] is one of the reasons why many savants — who conceive all sciences as in the light of natural sciences only

[2] *Annales des sciences psychiques* (November and December, 1913). Address delivered by Prof. Bergson at the time of his election to the presidency of the Society for Psychical Research, of London.

— refuse " to consider as real, certain facts that can be known only through a method of observation founded upon testimony, too similar to the historical method or to that of a magistrate gathering testimony."

Yet in natural science there are a great number of facts that can be known by this method only: for instance, the rare and accidental facts in astronomy and pathology, such as the falling of meteorites, diseases peculiar to certain climates or observed in a small number of individuals, etc.

It is true that in such sciences we take into account only observations reported by witnesses who can be considered as scientists; but we should singularly restrict the means of obtaining information for the psychical sciences were we to reject, even for the sake of inventory, all observation presented by non-professionals. Where, moreover, does the category of people acceptable for testimony begin and where does it end? Should we, for instance, reject wholly and without examination all the accounts in which the early magnetizers — de Puységur, Deleuze, Lafontaine, du Potet, etc.— report the facts observed by them, under the pretext that none of them was a professional scientist and that the interpretation that they proposed does not seem to be in accordance with the ideas held in the sciences of to-day? Should we grant the quality of scientist to naturalists, to physicians, to physicists, to chemists, to physiologists — such as Antoine Laurent de Jussieu, Dr. Husson, Reichenbach, W. Gregory, Charles Richet, W. Crookes, Oliver Lodge, etc.— and consent to give credit to their testimony when they tell us of facts which they affirm that they themselves con-

stated and controlled? If we were to answer in the negative, how could we justify such intransigence?

The psychical sciences are perfectly in their right in seeking in indirect observation the first elements of their study; providing, of course, that the information thus gathered be submitted to the most severe criticism (as has been done, for instance, by the Society for Psychical Research with telepathic facts). Then they should be completed and controlled as far as possible by direct observation, especially by *provoked observation* (frequently and wrongly confused with experimentation).

By *provoked observation* is meant an observation in which the observer himself intervenes actively in the production of the phenomenon, but only in order to establish it in the best possible conditions of certainty and accuracy, without any previous hypothesis as to the mechanism of its production. An observation of this kind is commonly called *an experiment;* and it is in this sense that it is said that "to put a subject to sleep," "to make the table move," etc., is to "conduct an experiment."

But this, we believe, is a wrong use of the word.

Real experimentation exists only in the verification of an hypothesis. The experiment, thus understood, must be prepared in such a way that it may be a question asked of Nature, forcing her to answer in the affirmative or the negative.

The so-called experiments independent of all hypotheses and previous analyses have, without doubt, a superiority over ordinary observation that permits them to repeat and multiply the facts; but, from the

point of view of their position and their rôle in the ensemble of the experimental method, it is impossible to see in them anything but a particular form of observation.[3]

An example will better explain the difference and the *rapports* of these three forms of observation in psychical sciences:

First: One of my friends wrote me that he had witnessed a fact which had impressed him. He saw a man, who called himself a mesmerist, suddenly attract another man, several inches away, by presenting his hands at the height of the latter's shoulder-blades. As I have the greatest confidence in the judgment and character of my friend, I consider this fact real, interesting, and worthy of being related. When I study the magnetoidal phenomena I shall not hesitate to give it a place among the elements of the problems to be solved. This is what may be called *indirect* or *mediate* observation.

Second: But I would not stop there. Desiring to be able to confirm for myself the testimony of my friend, I went to the town where he lives, and there made arrangements to observe with my own eyes the phenomenon which he described. This enabled me to understand more exactly all the circumstances and even to note some which had escaped the first observer. This is a *direct observation of the first degree,* in

[3] These are those groping experiments, those "trying to see" experiments, which Bacon called "hazards of the experiment (*sortes experimenti*)" and which he justified by saying it is necessary sometimes "to lift every stone in Nature." They are especially useful in the still too-little-advanced sciences where, as Claude Bernard says, the savant must "try to fish in troubled waters."

which I act personally but simply in the rôle of spectator.

Third: I then placed myself in the conditions in which I had seen the mesmerist operate, in order to produce the phenomenon myself; or I engaged different people to place themselves in these conditions, and I verified each time the results obtained. This constitutes a *direct observation of the second degree,* which I have previously called a " provoked " observation.

It can be said that these three forms or degrees of observation attract and complete one another naturally, although, in certain cases, we may unfortunately be compelled to stop either at the first or at the second degree of the scale, without being able to pass from the first to the second, and from the second to the third.

III

Let us see now in what spirit and with what precautions the observation of psychical phenomena must be conducted in order to make possible a correct and efficacious application of the subsequent processes of the experimental method.

In all sciences based upon facts, observation is proposed, first and above all, to constate the facts in the best conditions of certainty and authenticity and to permit a description as exact and complete as possible. When it is a question of facts so obscure, so capricious, as psychical facts (understood in their broadest sense) the first aim of observation is very difficult to attain.

On one hand, the observer is constantly grappling with a first cause of error: *illusion.* This not only must be guarded against in the observation actually

before the experimenter, but it must be hunted out in the preceding observations, too often reported by testimony foreign to all scientific discipline but which it is impossible not to take into account.

On the other hand, a second cause of error, no less formidable, and from which physical and natural sciences are generally exempt, is *simulation* — deception, conscious or unconscious, which subjects frequently use toward their observers.

To what extent do these two causes of error intervene in the different branches of psychical sciences, and by what means can their effects be prevented?

That question is too complex for us to treat of it here. It is sufficient to know that these causes do exist; and in order to give a reliable account, every observer must also play the part of *critic*.

But in an experimental science, observation is not in itself its real end. Beyond the constatation and the description of the fact, it aims at another object: to gain a tentative interpretation of the fact, an anticipated idea, an hypothesis that will permit of the substitution, in place of the simple observation, of that other process, called *experimentation*.

" All experimental initiative," says Claude Bernard, " is in the *idea*, for it is that which provokes the experiment. Reason or reasoning serves only to deduce the consequences of that idea and to submit them to experiment. An anticipated idea or an hypothesis is therefore the point of departure necessary for all experimental reasoning. Without that it will not be possible to make any instructive investigation; one will accumuluate only sterile observations. An experiment

without a preconceived idea is but an experiment made at random."

Unfortunately — and it is Claude Bernard himself who makes the statement — there do not exist precise and certain rules that enable us to sort out from the observation of facts the directing idea that alone warrants real experimentation. "The nature of the idea," said this great French savant, who practised, better than all others, the experimental method, "is wholly individual: it is a particular statement, a *quid proprium,* which constitutes the originality, the invention, or the genius of each."

This, perhaps, is a repetition of the words that are attributed to Buffon: "Genius resides in great patience"; and Newton's response to those who asked him how he had discovered universal gravitation: "By always thinking."

He who, in observing phenomena, is being constantly dominated by the idea and desire to extract from them certain circumstances and relations which will enable him to divine their hidden mechanism — has he not a greater chance to behold, some day, the long-sought-for hypothesis, than the one who confines himself solely to producing the phenomena and then describing them as real facts?

We cannot, therefore, too emphatically recommend to all students of psychical phenomena that interrogative attitude of mind which is not satisfied merely in the knowledge that a fact is real, but which intends to know *how* it is possible, and which imagines, supposes, that it is the *effect of such cause* or is the outcome of such law.

We well appreciate, however, the nature and rôle of the hypothesis thus understood.

There is not here an hypothesis that is in any way *theoretical,* general, having for its aim the integration and the coordination of an ensemble of truths already acquired — such as, for example, in physics the hypothesis of ether as a vehicle for heat, light, and electricity; in chemistry the atomic hypothesis; in astronomy the hypothesis of Laplace; in natural science the hypotheses of Lamarck and Darwin, etc. It is an *experimental* hypothesis, special and precise, bearing upon the probable cause or the probable effect of such determined phenomenon as the savant may be observing, and suggested by that same observation. It has for its aim not the explanation of the results, but the direction of future researches, destined consequently to be submitted immediately to the control of experimentation, to be either verified or contradicted by it.

From this point of view, it could be said that there are two kinds of hypotheses:

(1) The *inert,* idle, in the sense that, whatever satisfaction they may give by their simplicity, their coherence, their reality, etc., they do not suggest action, they do not open the field for experimentation by which any research can be made in the attempt to discover other facts beyond those of which they pretend to furnish the explanation.

(2) Those hypotheses which, on the contrary, are *active,* laborious, in the sense that they have to be realized immediately in effective experiments. Their purpose is less to explain the facts already known than

to discover new facts, and after those facts, still others, *ad infinitum.*

One of the principal means of advancing psychical sciences will be to substitute more and more the experimental and active hypotheses for the theoretical and inert hypotheses with which these sciences are still encumbered. Among these latter, moreover, several seem to us to be susceptible of reflecting, in a certain measure, the form of the first — such, for example, as the hypothesis of animal magnetism, as we have endeavored to show in *Our Hidden Forces.* On the other hand, we do not see how any such transformation would be possible in the case of hypotheses such as that of *the astral plane* proposed by theosophists to explain clairvoyance. Hypotheses of that kind seem to us to be irremediably *inert.*

There now remains the determination of the particular conditions of experimentation and of induction in the psychical sciences.

CHAPTER IV

HOW TO EXPERIMENT

I

All future progress in psychical research depends upon the measure in which it will be possible to apply to that research the four processes of the experimental method, especially that one from which the method derives its name and which alone characterizes it: *experimentation.*

But, as has been indicated in a preceding chapter, current language assembles under the one name, *experimentation* (or *experiment*), two operations which, while they resemble each other in their exterior appearances, are notably different if the place and the rôle of each in the ensemble of the experimental method be considered.

They have this in common: that they necessitate the active intervention of the savant in the production of the phenomena which he wishes to observe; and they both combat observation proper, where the savant is more or less the passive spectator of the phenomena which present themselves to him in the ordinary course of nature, without his making any effort to arouse or to modify them.

But there is between the two operations this capital difference: that one aims merely to establish the fact to

which it is applied and to permit as exact and complete a description of it as possible, while the purpose of the other is to verify a preconceived idea, an hypothesis relative to the mechanism of the production of the fact.

The first has, then, absolutely the same object and the same rôle as observation; it is a *provoked* observation. The second, on the contrary, differs from observation in giving, not the *fact* itself, but the *idea* that enables one to comprehend it, while connecting it with the universal determinism of cause and effect, and in having as its rôle the transformation of that anticipated idea into a law, henceforth acquired to science.

Really, the first of these two operations is intermediary between observation and experiment; it forms the passage from one to the other. It may, therefore, be called observation or it may be called experiment, according to the angle from which it is viewed.

It is only the latter which gives to the experimental method its proper character and real importance, for it is this only which permits induction to be made with certainty, as Claude Bernard so deftly demonstrated in his *Introduction á l'étude expérimentale de la médecine.* Separated from it, all the other processes of the method constitute no more than an empiricism to which science might resign itself temporarily, for want of a better method.

II

Here are the first questions which arise regarding the subject of experimentation in the psychical sciences:

Is it possible to provoke artificially, experimentally,

the diverse phenomena studied in these sciences? Does this possibility not exist for some of the phenomena and not for all? Can it be supposed that eventually it will exist for all?

In order to answer these questions, it is necessary for us to consider first the nature of psychical facts (or parapsychic) in general; then that of the different branches into which they are divided — hypnoidal facts, magnetoidal facts, and spiritoidal facts.

The parapsychic facts are all *human* facts, they are produced in human beings, and for this reason they oppose difficulties that are often insurmountable. Experiments cannot be made with human beings in the same way that they can with *things* or even with *animals*.

In the first place, experimentation may encounter obstacles of a *moral* nature. Is it permissible to subject an individual, even with his consent, to experiments which — as those of hypnotism, magnetism, or spiritism — are susceptible of temporarily upsetting the equilibrium of his physical forces and his intellectual and moral faculties?

This is a *cas de conscience* regarding which scientists are far from being in accord.

Let us, however, suppose this first obstacle to be removed. We encounter a second in the often unfavorable attitude of the individual upon whom we wish to experiment. For instance, a certain subject, who at first is willing to be successfully experimented upon, resists the influence or refuses to submit himself to further experimentation, owing to some inexplicable caprice.

At other times his complaisant attitude is but a sham, its aim being to deceive through the production of a simulated phenomenon.

These, it may be said, are the inherent drawbacks to all studies bearing upon human facts. And they are especially pronounced in the parapsychic facts, because these facts are special, accidental, abnormal: that is to say, observable only in certain individuals of the human race, in certain comparatively rare and exceptional circumstances. It follows that the same experiment, made in what seem to be the same conditions, succeeds with some individuals and does not succeed with others; it succeeds with one individual on a certain day and does not succeed with the same individual another day. And it is impossible for us — at the present time — to anticipate or to explain these disconcerting variations.

Let us add that a characteristic common to all these individuals — subjects or mediums — is their extreme propensity to autosuggestion, or to the influence of either conscious or unconscious suggestion of others. This is a propensity in nature to alter, to a greater or less extent, the results of the experiment, by introducing surreptitiously among the causes admitted by the experimenter a cause capable of neutralizing or of counteracting the effects.

The case would be still more serious were we to admit, as some pretend, that a second characteristic common to all subjects and mediums is an ineradicable tendency to *simulation,* in all its forms: falsehood, fraud, mystification, etc. However true it may be that the experimenter must also be on his guard, no less

than the observer, against this possible cause of error, it seems, nevertheless, that simulation may not be so constant nor so general as has been pretended.

These — autosuggestion, conscious or unconscious suggestion by others, and simulation — independently of the complexity and the polyetism [1] of parapsychic phenomena (and common also to biological and sociological phenomena) are the principal difficulties which the experimenter encounters in all this order of research. He will conquer them, however, through the constant exertion of prudence, vigilance, and tenacity.

III

If we review the different branches of the psychical sciences, we shall find that each of them presents certain difficulties more or less peculiar to itself; and that the difficulties in their ensemble increase in proportion to their rank in the hierarchy of the sciences, from hypnotism to animal magnetism, and from animal magnetism to spiritism.

The study of hypnoidal phenomena is certainly the one which best adapts itself to experiments of the first order (experiments *to see*) and in which, consequently, experiments of the second order (experiments *to know*) have a greater chance to be introduced with success. We have at our call a certain number of practical means to produce at will the different varieties of these phenomena — somnambulism, catalepsy, lethargy, etc.— and at the same time the means to discover, by suffi-

[1] This word — coined, we believe, by Durand de Gros — means the particularity that certain phenomena present of being able to be produced indifferently, by many different causes — at least those which science cannot in any way unify.

ciently precise and constant signs, the persons in whom susceptibility to these phenomena exists.

What is the *action* of the agents and processes used by the experimenter in provoking the hypnotic state? He himself ignores the question; it is one of those which his later investigations will have to solve. For the moment, it is sufficient for him to know that these agents are effective, and to have the necessary technical ability to use them advantageously. Here, as in many other fields of science, our power, whatever Bacon may have said, exceeds our knowledge.

Let us therefore confine ourselves, in the present state of the psychical sciences, to the fact that suggestion, the gaze, the passes, the fixation of a brilliant point, etc., produce hypnosis; and that, similarly, suggestion, the breath, the passes, etc., arrest it. We must use these different means — perhaps separate, perhaps united — in our experiments, just as the physicist and the chemist use light, heat, electricity, the catalytic force, etc., without necessarily knowing the nature of the diverse agents or how they produce their effects.

Of the different processes which we have enumerated — suggestion, the gaze, passes, etc.— it is the first which, the School of Nancy pretends, forms in reality the basis of all the others, and it is to this alone that they owe their whole efficiency. Consequently, the experimenters whose doctrines are inspired by this School have a tendency to reduce all their technical operations practically to suggestion alone.

But, as we shall show later in detail, even though the question may be extremely interesting and important from the theoretical point of view, we must not over-

look the fact that it is not solved at all. It would be necessary, for its solution, to conduct a long series of experiments of the second order, patiently and methodically carried out and tabulated; and this, so far as we know, has never been done. On the other hand, from the practical point of view, it is not necessary that it be solved if we are sure that the processes other than suggestion (no matter what these others may be in reality or in appearance) produce identical, or equivalent, effects — so long as our object is to provoke hypnotic states.

From this point of view, it can be said that each experimenter has his own habits and his preferences, which respond, undoubtedly, to his particular aptitudes, natural or acquired; and it would be wrong to try to impose them upon other experimenters in virtue of some such reasoning as this: "I employ in my experiments only one process (for example, suggestion), and it always succeeds. Therefore, no other process exists, and this is the only one which can succeed."

Yet the great majority of those who employed these different processes rarely had a scientific aim. Many sought, rather, a therapeutic result. They endeavored to exploit provoked sleep, or the power of suggestion, in order to facilitate surgical operations, or to aid certain treatments for the cure of nervous affections and other maladies. Or often, also, they wished to entertain or strike the imagination of the participants in their spectacular experiments. They have accumulated a great quantity of facts of which indirect observation can and should make the fullest use. But perhaps it is not exaggerating to say that the real *experi-*

mental study of hypnoidal phenomena yet remains to be made.

However, we except a certain category of hypnoidal phenomena — that which may be designated by the name of *cryptopsychism,* and which Dr. Pierre Janet has exhaustively studied under the name of *dissociation of the personality.* Here we find ourselves in the presence of a systematic investigation, carried as far as can be possible, by means of the processes and according to the spirit of the true experimental method.

There exists a whole ensemble of special means for the provocation of cryptopsychic phenomena: subsequent somnambulism, suggestion by distraction, automatic writing, and vision in the crystal. By these means it is possible to institute preordained experiments, as Dr. Pierre Janet has done, so as to solve such particular problems as are relative to parapsychic phenomena.

IV

The study of magnetoidal phenomena, also, lends itself to experimentation, especially if the experimenter possess, in a sufficient degree, the force or special aptitude necessary to produce them.

Perhaps, it is quite true, subjects capable of presenting these phenomena and of reacting under the influence of this force — subjects really magnetic — are more rare than hypnotizable or suggestionable subjects. On the other hand, phenomena of animal magnetism are much less easy to simulate than phenomena of suggestion.

Unfortunately, in almost all experiments up to the

present time, little effort has been made to dissociate these two orders of phenomena, which accompany each other almost inevitably, and are, moreover, capable of counterfeiting and substituting each other. Suggestion, in particular, tends to slip surreptitiously into all the parapsychic phenomena. This is why it is necessary to have a special technique which shall rigorously exclude suggestion from all experiments having for their real object the study of the magnetic force and its diverse manifestations.

In *Our Hidden Forces* we indicated the essential principles of that technique. They can be summarized by saying that they consist in the complete isolation of the subject upon whom the experiment is being made:

First, by removing all possibility of his seeing what happens about him.

Second, by observing, and having others observe, before, during, and after the experiment, an absolute silence.

Third, by acting only at a distance, without contact, through the supposed radiation of some organ of the operator, principally the hand.

And if *vital-radiation* does exist, nothing can prove that human beings alone are sensible to it. It is possible that it acts also — in an objective, therefore observable, manner — upon animals, upon plants, and upon certain material objects. Thus there arises the possibility of a new series of experiments, either to establish the reality of this force, or to determine its effects and conditions.

What a vast field this study of magnetoidal phenomena offers to the experimenter!



AUTOMATIC WRITING

The subject shown here is in the waking state, writing under the influence of the magnetic radiation from the operator's hand.

There is, however, in this field of research, a part to which access seems almost entirely closed. It is that of telepsychism, or at least of its most characteristic forms: clairvoyance, mental suggestion, and telepathy.

What position can the experimenter take in regard to *clairvoyance?* Once having provoked it by his suggestions, his rôle becomes nothing more than that of an observer. As yet we cannot see how he could intervene in the phenomenon so as to take its mechanism apart and place it together again.

In the same way it would appear that, as *mental suggestion* usually works between the subconsciousness of the operator and the subconsciousness of the subject, the will of the experimenter, in making an effort to provoke the phenomenon, thereby hinders its production. The old saying: "Seek it, it runs away from you; run from it, it will seek you!" may be applied to this case. If this is actually its nature, as those who suspect its latent presence in almost all the parapsychic phenomena affirm, then mental suggestion (thus improperly named) not only refuses to lend itself to experimentation, but introduces an element of uncertainty in all parapsychic experimentation in general. It still remains to be known, it is true, if this conception of mental suggestion entirely conforms to reality.

As to the facts of *telepathy,* we are compelled to register them as they occur. There does not seem to exist, as yet, in spite of numerous attempts made, positive and reliable means which experimenters can use for the provocation of telepathy at will.

It is easy to understand, however, that experimentation has a marked place in hyloscopy; for it is a ques-

tion there of studying the effects produced by material agents upon the nervous system of subjects apt to reveal them because of their exceptionally fine sensibility.

V

The spiritoidal phenomena, in spite of their contrary appearances, do not lend themselves well to experimentation. They are, above all, *spontaneous* phenomena — which, it is true, we can try to provoke at will in certain conditions: for example, in assembling a number of persons about a table upon which they put their hands in a state of expectation. But they are merely waiting for the phenomenon, without knowing if it will be produced or how it will be produced. Is this really the way to *experiment?* Is it not rather to observe, or simply to *seek to observe?* This is the staging of almost all the pretended experiments in spiritism.

It is precisely this spontaneity of the spiritoidal phenomena — *spontanéité irréductible* — which causes spiritists to attribute them to the action of intelligent entities, of invisible operators residing in the world of the Beyond. If this hypothesis be admitted, is it not evident that the rôle of experimenter belongs effectively to these entities, in which case our rôle must be confined to that of simple observer?

Perhaps this situation is only temporary. It may be that future discoveries will reverse these rôles. In the present state of our knowledge, however, it must be admitted that our experimental capacity in the matter of spiritism is singularly limited. In the case of "haunting" phenomena it is reduced to zero. In

mediumistic phenomena it is limited to placing the mediums in the conditions supposed to be the most favorable for the manifestation of their powers, noting and observing the phenomena, more especially when they are of an intellectual order. Experimentation can then be of positive value when considering phenomena of a physical order, especially if, as is probable, these phenomena obey the great law of psychic conductibility.

To summarize: It is possible to experiment in the fields of hypnotism, cryptopsychism, animal magnetism, and hyloscopy. Experimentation is impossible, or extremely difficult, in the domains of metagnomy, mental suggestion, telepathy, and spiritism, where indirect observation plays too great a part.

And we shall remain in this position until some practical means of producing these phenomena at will shall be discovered.

CHAPTER V

THE RÔLE OF THE HYPOTHESIS

I

THE hypothesis, as Claude Bernard has definitely established, is the great pivot of the experimental method. All real experimentation is brought into being and directed by an hypothesis, the aim of which is to verify it. In natural science, however, the hypothesis is legitimate only when its purpose is primarily to arouse and direct experimentation.

This is the modern conception of the experimental method, so essentially different from that which Bacon and even Stuart Mill had previously elaborated.

We have shown, in the preceding chapter, that the application of this method is not possible — at least at the present time — in all branches of the psychical sciences, inasmuch as a general condition of it is the possibility for the savant to intervene actively in the production of the phenomena which he studies — either in order to create them, or to modify them, from the point of view of quantity as well as from that of quality. Now, this condition is not actually fulfilled in many branches of psychical research, where the savant is reduced to mere observation, and often, indeed, to indirect observation.

Where this condition does exist, however, let us examine the connections between the four processes of

the experimental method in the psychical sciences. And especially let us note the place and the rôle which should be assigned to the hypothesis.

II

To illustrate our point, we shall give an example which we already have used:

We have seen a man place his hands, for several moments, against the shoulder-blades of another person, then withdraw them slowly; and this latter has appeared to be attracted backward more or less violently.

This is an *observation.* We have repeated it many times; we have tried to apperceive the different particularities as exactly and completely as possible; and we have given a full and faithful description of it. We might easily multiply *ad infinitum* observations of this kind; but in so doing we could not go beyond the limits of pure empiricism.

Wishing to ascertain if we too can produce this phenomenon, we apply our hands to the shoulder-blades of another, and establish the fact that it determines a sort of attraction.

Strictly speaking, this might be called an experiment; but this experiment has, in reality, the same signification and the same value as an observation; it is what we may call a *provoked observation.* Nevertheless, it has a very great importance. For it is this which makes possible the application of the experimental method to the study of this phenomenon; it is this which leads the way to true experimentation.

What must we do, in order to pass from this first

stage — the stage of observation — to the second, and enter effectively the domain of the experimental method?

First of all, it is necessary that a *question* be formed in our mind, and then that we *imagine an answer* to that question.

That one person attracts, or appears to attract, another by the imposition of the hands upon the shoulder-blades is a fact that we have proved, or, better, that we ourselves have provoked. But if this fact is not changed by us into a *problem,* it remains sterile, useless, from the point of view of scientific and experimental research.

How is this attraction possible? On what conditions does it depend? By what mechanism is it produced?

This problem, in its turn, must suggest to us a *possible solution;* and it is this possible solution which is really the experimental hypothesis.

For example, we can suppose that the attraction, real or apparent, is caused (1) by the *fatigue* of the individual, resulting from the more or less prolonged standing — that he unconsciously leans against the hands of the operator; or (2) by the *loss of equilibrium* which the withdrawing of the hands determines; or (3) by the involuntary *suggestion* which results from the conditions of the experiment; or (4) by an *effective action,* of a nature yet unknown, but really radiant, which the hands have the property of projecting.

If we hesitate to compare these hypotheses among themselves, to enumerate them, to weigh the reality

and the unreality of each of them, or even if, in choosing one to the exclusion of all the others, we endeavor, by reasoning only, constructing and complicating it by additional hypotheses, to demonstrate that this is the sole possible solution to the problem, we shall only turn our back upon the real experimental method, and we shall not arrive at any positive result.

How, then, shall we proceed?

First of all, it is evident that, among the diverse solutions or hypotheses possible, we must choose one, at least tentatively. This once chosen, we must determine by deductive reasoning, the consequences which we may be able then to submit to the control of the experiment. This phase — of capital importance — is what Claude Bernard called *experimental reasoning*. It is at this moment that the mind decides upon the *plan* of future experiments: (1) If the phenomenon depends upon certain supposed conditions, it cannot be produced if these conditions be suppressed. (2) The phenomenon can be produced if these specified conditions be realized, regardless of all other circumstances. (3) If the conditions be modified in a given way, the phenomenon will be found modified correspondingly.

The savant can at the beginning write down on paper an outline of the combinations, and then try to realize them, one by one. These, according to the extent of his success, will either confirm or refute the hypothesis being put to the test.

There is here wholly an intellectual work, where the imagination plays as great a part as, and sometimes greater than, reasoning; as is the case also in mathe-

matics, where the solution of the problem is often a matter of imaginative ingenuity as much as, or more than, of deductive rigor.

This ingenuity, this sagacity of the savant, is manifested in the choice, among a more or less large number of hypotheses, of that one which will lead him most directly and surely to some important and decisive discovery. "It is," said Claude Bernard, "a particular sentiment, a *quid proprium,* which constitutes the originality, the invention, or the genius of each experimenter."

Thus, in the example cited a moment ago, an experienced researcher will not waste much time in considering the hypotheses of fatigue or of the loss of equilibrium; he will devote his attention immediately to the hypothesis of suggestion or that of magnetoidal action, and all his effort will be bent upon deciding, by a series of appropriate experiments, which of these two accord, to the exclusion of the other, with all the particularities of the fact.

III

According to Claude Bernard, there are no rules that will enable us to create in the brain, apropos of an observation made, a just and fruitful idea which may be for the experimenter a sort of intuitive anticipation of the mind toward a successful research. When the idea is once gained, we can show how it is necessary to submit it to definite precepts and precise and logical rules. But its conception has been wholly spontaneous and its nature wholly individual.

Although it is not possible to anticipate the details

of the hypotheses that will cause the savant to observe a certain particular fact, it seems possible to us, at least in psychical research, to determine the order in which these hypotheses will range themselves; and consequently the foreknowledge of this order will itself serve to guide the researcher through the labyrinth of the phenomena.

They constitute, in effect, the general hypotheses implicitly included in the particular hypotheses which up to this point have been the only ones regarded. They are, it might be said, the abstract and schematic formulæ to which these latter can be reduced and which are found again in them, but clothed in concrete circumstances which complicate and diversify them.

We shall not consider here these general hypotheses in their *rapport* with the experimental method; but it is certain that they have been and are still considered by many from a wholly different point of view — as theories subsisting and having value of themselves, without necessary relation to the experimental method, as *explanations* permitting the rational coordination of a whole ensemble of phenomena which otherwise would remain an enigma incomprehensible to the human mind.

Is it necessary to state once more that such a point of view, although admissible when it is a question of sciences relatively far advanced in experimental knowledge of the facts being studied, seems absolutely untenable in an order of researches as imperfect, as rudimentary, as that which has for its object the parapsychic phenomena?

Theories of this nature can find a place only at the point of arrival of investigations patiently and success-

fully conducted. In the parapsychic sciences we have scarcely left the point of departure.

Let us guard, then, against theorizing, and not take these general hypotheses for more than they really are — simple tools to be employed in the field of experimentation, and utterly valueless if put to any other

IV

It will not be without interest to review these different hypotheses, as they are encountered at each step, immediately the domain of the psychical sciences is entered. It is comparatively easy to recognize each of them under the modifications brought about by the diversity of uses to which each is susceptible.

Most often, these hypotheses consist in an *extension* to new facts of a general law or proposition of which the truth has already been recognized by other facts. It may be, for example, the hypotheses of *illusion* and *simulation,* which are frequently invoked by a number of savants in order to produce the most marvelous, the most improbable, phenomena. There are numerous and circumstantiated narrations of these in the literature of mesmerists, occultists, and spiritists. That in a given case there may be illusion or simulation is not an hypothesis; it is a fact already proved. But that in other cases, in all cases, there may be nothing more than illusion or simulation — this cannot be affirmed without forming in itself an hypothesis; and it is justly this hypothesis which it will be well to prove, not merely by the logic of reasoning, but, if possible, by experimental verification.

Similarly, *suggestion, cryptopsychism,* and even, although less surely, the *transmission of thought* (commonly called *mental suggestion*) are not, when taken in themselves, hypotheses. They are facts, in the sense that it has been positively established, in definite cases, that suggestion, cryptopsychism, the transmission of thought, really exist. But they become hypotheses when one supposes their intervention in other cases where their existence is not at all manifest and where it can only be believed that it is possible.

At other times, the hypothesis consists in the *introduction* of a new general law or proposition, of which the truth is entirely problematic, but which is more or less analogous to some general law or proposition of which the truth is incontestably known in another order of knowledge. Thus we know, in physics, that the magnet attracts iron; but we have no proof in physiology that a human organism can similarly exert an attractive action upon another organism. If, then, in order to explain the process of Moutin, we suppose a magnetic action emanating from the operator and influencing the nervous system of the subject, we shall have an hypothesis bearing not only upon the existence of a law already known but upon the introduction of a law still unknown.

In a similar way, we know that the human intelligence and the human will produce, through the medium of human organs, certain effects directly observable; but we have no proof that these same effects can be produced by other intelligences and other wills, without organs or through the medium of other organs. To suppose that this happens in certain cases is to in-

troduce a new law, and not simply to extend an old law to these new cases.

There can, then, it seems, be distinguished in this order of researches two categories of hypotheses:

(1) *Inductive hypotheses.* Those that lead hypothetically from certain facts to other facts which appear to be of the same kind.

(2) *Analogical hypotheses.* Those that consist in applying by analogy to a certain order of facts a law similar to that which governs another order of facts.

Looked at from the point of view of strict logic, it is evident that the inductive hypotheses must be preferred to the hypotheses by analogy. Recourse to the latter, a logician would readily say, is not permissible except when it is absolutely impossible to make the facts agree with the inductive hypotheses. And without doubt the experimenter would be wrong in disregarding the logician's indication. But from the point of view of the experimental method, which is necessarily his own, the *fecundity* of the hypotheses is a quality as valuable as their *truth.* The *discovery of new facts and of new rapports* is much more important in the experimenter's eyes than the *explanation of the facts and the rapports already known.*

It would seem, therefore, that analogical hypotheses, which permit us to open new chapters in the book of Nature, are from this point of view — all things being equal — more favorable to the enlargement of science than inductive hypotheses, which permit us merely to add new paragraphs, new "items," to the chapters already open.

V

These hypotheses, however, appear to us to be purely logical, and to lend themselves badly to the regular applications of the experimental method. In their relation to this method they are, it might be said, restrictive and negative hypotheses: such, for example, as those hypotheses which ally *all* the parapsychic phenomena to *illusion* or *simulation*.

Certainly the experimenter must always have in mind the possibility of one or the other of these hypotheses; but they must be excluded after control, as it is only after this exclusion that he can effectively experiment under the direction of positive hypotheses. If he undertook his researches with the intention of reducing systematically to illusion or to simulation all the facts which he will study, he would close to himself the road to experimentation. Would not such disposition of mind be equivalent, in effect, to declaring that, inasmuch as the parapsychic phenomena are all illusory and simulated, these pretended phenomena do not really exist, and that consequently it is useless and even impossible to make them the object of scientific investigation?

This appears evident to us regarding the hypothesis of illusion.

As to the hypothesis of simulation, it is true that the experimenter could aim to see if it is not possible to simulate experimentally the different hypnoidal, magnetoidal and spiritoidal phenomena, reported by other observers or experimenters as authentic. Here,

certainly, is a whole series of attempts which it will well be worth the trouble to undertake, especially in order to be able to determine precisely which are, in the ensemble of these phenomena, those which can be simulated and those which cannot; and also in what conditions and to what extent this simulation is possible, when it is present. It is certain, for example, that the greater part of the phenomena of hypnotism and of suggestion can be simulated with the utmost ease; although there exist, perhaps, means (of which it would be interesting to make a special study) to distinguish the "paste" from the "diamond." But the conclusions which could be drawn from this work, even in supposing them favorable to the hypothesis, would advance the question but little; for the fact that a certain phenomenon can be simulated does not necessarily mean that it cannot equally exist also in an authentic form.

Yet the partizans of the hypotheses of illusion and simulation refrain ordinarily from entering the experimental field, being content to reason in the abstract and *a priori;* they treat the problem not as *experimenters* but as *dialectitians.* Their argumentation consists first in showing, by the analysis of a certain number of cases reported by other observers, the presence of illusion or fraud; and then in inferring, without any further information, that all other cases of the same kind could be analyzed in the same way, that an identical result would be arrived at infallibly in all cases similar to the one under discussion. According to this *stereotyped-reasoning,* the troublesome obligation to examine the enigmas raised by the parapsychic phenomena is removed

once for all. This " simple previous question " is all that is required to bring these phenomena *en bloc* to the door of science.

But those who employ this convenient artifice of procedure must fully realize that it has nothing to do with the experimental method.

VI

It is necessary that we review the principal positive hypotheses to which the psychical sciences can and do have effective recourse, in order to apply to the diverse orders of phenomena the processes of the experimental method.

These hypotheses, which are indissolubly linked to experimentation, in place of being, as the preceding, mere matter for argumentation, require a certain previous knowledge, both theoretical and practical, not only of the most general difficulties opposed to experimentation by the very nature of the phenomena, but also, and above all, a knowledge of the best means to overcome these difficulties.

Before beginning the study of the positive hypotheses, we shall discuss this necessary preliminary knowledge of the difficulties and of the means of overcoming them.

CHAPTER VI

OUR LATENT PSYCHIC FACULTIES

I

THE first, and not the least, of the difficulties presented by the study of the parapsychic phenomena is that these phenomena are not produced in an ordinary way, but allow themselves to be perceived only rarely and in exceptional and abnormal circumstances. The truth is that, in order to study them, it usually is necessary for us to provoke them ourselves, artificially. But here experimentation encounters a new difficulty. *The same processes do not succeed with all subjects, nor in all circumstances.*

The most disconcerting character of these phenomena is their irregularity. One may well endeavor to observe, each time, identical conditions; but sometimes the phenomena manifest themselves at the least effort, while at other times they obstinately remain invisible, to the extent that we almost doubt their possibility. We are here, it seems, in the domain of the unexpected and the indeterminate.

If we consider, in particular, the simplest phenomena, those which are as the first links of the parapsychic series — the phenomena of hypnotism and suggestion — we establish the fact that, although they are more frequent and in some ways more accessible than the

others, they are themselves also subject to the most incoherent exceptions and inexplicable caprices.[1]

The School of Nancy claims, it is true, that all human beings are suggestionable and hypnotizable. But that assertion remains purely theoretical; practise shows us that the same maneuvers, applied to different individuals, with the aim of suggestioning or hypnotizing them, produce immediate and surprising results with some, while with others they fail miserably.

Let us remember, however, that electrical phenomena presented the same appearance at the beginning. The laws which regulated them could be ascertained only when they could be produced experimentally: that is, when the savants could distinguish among natural bodies those which conserve and condense electricity, once produced, and those which conduct it and disperse it instantaneously.

So, among human beings, it is an incontestable although still inexplicable fact that some are naturally apt to present the phenomena of hypnotism and suggestion immediately they are submitted to the influence, while others are, or appear to be, incapable of this mode of reaction.

How can we explain this difference in the effects of causes apparently identical?

Undoubtedly, it is due to some profound difference in the physical and moral constitution of the human beings submitted to the experiment; but its nature is

[1] Charles Richet, in *L'homme et l'intelligence,* says: "All that is observed is inconstant, irregular, mobile. There is no fixed rule; the phenomena observed vary with each observer and with each subject. That which is announced is not produced, and that which is not announced is produced."

absolutely unknown to us, and the words *hysteria, nervousness, weakness of temperament* or of *will,* often heard in popular phraseology, serve only to mask our ignorance. Not until we shall know precisely in what this difference consists, until we shall know in an accurate and positive manner the necessary and sufficient conditions which determine the special sensibility of certain individuals and the apparent insensibility of others — not until then will the science of psychical phenomena be definitely established. It will then cease to be in great part empirical and become really experimental.

But while waiting for this decisive evolution, it would be very useful to be able to distinguish at once, from among a certain number of individuals, those who are susceptible of presenting the parapsychic phenomena, at least in its elementary forms, and those who are not. Really, these phenomena exist in many more people than is ordinarily believed. But we do not know, or we know only imperfectly, how to discern that potentiality when it does exist; and it is this which hinders us from actualizing it at will.

The first question, then, which arises when the experimental study of the psychical sciences is begun, is this:

How shall we discover, from among human beings, those who are capable of manifesting the parapsychic phenomena,— those who are "subjects"?

In other words, the first point to be considered is the finding of the *subjects* themselves.

There is no special term to designate the *quality* of the subjects: that is, the condition or the ensemble of

conditions which makes them subjects. In spiritoidal phenomena, we have the word *mediumistic,* which corresponds to the word *medium;* but usage does not permit us to employ the word *subjectivity* (used in philosophy with a wholly different meaning) to correspond to the word *subject.* As a special term seems to us absolutely indispensable, and as the most general characteristic that the subjects present is their more or less great obedience to suggestion, we shall employ, for want of a better term, the word *suggestibility,* to designate in a general manner the aptitude to manifest the parapsychic phenomena — the most complex as well as the most elementary.

Two objections can be made to the choice of this word: one of a simple form, another which goes much deeper.

First of all, it can be observed, with Durand de Gros, that the word *suggestible* cannot be applied correctly to persons. An act — flight, for example, or murder — can be suggested, and is therefore suggestible; but when it is a question of a person, it must be said that he can be *suggestioned* or that he is *suggestionable.* The correct term, then, would be *suggestionability.* But this word seems too ponderous, too cumbersome; and, moreover, the question has less interest for us than for grammarians and lexicographers.

The second and more serious objection is that any such denomination seems to belong to the three or four great theories which have been proposed by the interpretation the phenomena present in the subjects, and about which opinion is still divided among the savants engaged in this study. These theories are:

suggestion, hypnotism, animal magnetism, and *telepathy* or *mental suggestion.*

We believe that each of these four interpretations has its share of reality. Each of them responds more particularly to a certain category of phenomena. There are subjects, perhaps the most numerous, in whom all happens in conformity with the theory of suggestion as professed by the School of Nancy. There are others who verify the assertions of the School of the Salpêtrière, which has especially defended the theory of hypnotism. There are still others in whom are observed certain phenomena inexplicable by the hypotheses of these two Schools and which seem to justify those of the partizans of animal magnetism and telepathy.

From this, at least four types of subjects would be possible:

1. The suggestible (or suggestionable).
2. The hypnotic (or hypnotizable).
3. The magnetic or mesmeric (magnetizable or mesmerizable).
4. The telepathic subject.

But in practise, let us hasten to say, it is very rare to find subjects who offer each of these types in a state of absolute purity: almost always a suggestible subject is also hynotizable, and *vice versa;* in an experiment where the operator believes he is employing nothing but suggestion or hypnotism, very often animal magnetism or telepathy intervenes unconsciously. Unless special measures of extraordinary precision and delicacy be employed, it is almost impossible to determine

in each particular case the exact part of each of these agents.

In employing the word *suggestibility* to designate the quality of the subjects, we shall use the word in the most general sense; it will signify for us susceptibility to hypnotic, magnetic (mesmeric), or telepathic influences, as well as to suggestive influences, except to distinguish, in its place, the different specific modalities of that general susceptibility.

II

Are there any signs or processes, any reactives, which enable us to discover suggestibility thus understood: that is to say, the general aptitude to present the parapsychic phenomena?

First, let us consider the easily observable physiognomic signs.

(1) Subjects, it is sometimes said, are individuals of nervous or lymphatic temperament. In admitting that this may be true, it would be necessary to know by what indications these two temperaments may be recognized. The question thus is carried back a step, not solved. Then, if subjects are most often nervous or lymphatic, does it follow that all people who are nervous or lymphatic may be subjects?

(2) The magnetizer, Charles Lafontaine, claims to have discovered that all persons who have bulging eyes are subjects; but, lacking necessary proof to the contrary, it is very difficult to know that this generalization is true.

(3) The impression is received, in the presence of

many subjects, that there is a particular characteristic in the look in their eyes. But it is more easy to *feel* this peculiar characteristic, this something, than it is to define it; it is, it might be said, a humid and cloudy *éclat,* a light shining behind a darkened glass. But how could we make practical use of an indication so vague?

(4) It is claimed that any one whose ear, deprived of the lobe, is directly fastened to the cheek, is infallibly a subject. It does not appear, however, that an extended observation would verify this generalization.

(5) There is a similar pretension regarding a certain form of thumb: thick, short, and rounded.

(6) It is often claimed that subjects have moist hands; or have the habit of biting their nails. But can it be concluded that all those who have the habit of biting their nails are subjects?

" Certain favorable conditions," says Charles Richet in *L'homme et l'intelligence,* " can be determined with sufficient precision. Women are more sensitive than men. Regarding the age, I believe that children can be put to sleep; but I have never attempted the experiment with very young subjects, as I did not wish to create in them a nervous state that would not be without inconvenience. . . . I have put to sleep young girls of seventeen to eighteen. But that age would not seem to be the most favorable. It appears that the best age would be from twenty-five to forty years. As to the very old, I believe that they are extremely rebellious to magnetism. I have succeeded in putting to sleep a woman sixty years old; but in her the sleep

has never been complete, and the symptoms have had little interest. Nervous temperaments are, as will easily be concluded, more susceptible than others. In general, small women, brunettes, with black eyes, black hair, heavy eyebrows, are the most favorable subjects. However, experiments have succeeded very well with pale and lymphatic women, and have failed with very nervous persons. In sleep, the delicate women, nervous, languid, afflicted with a chronic malady or convalescent, are certainly, more than all others, apt to react to the influence of magnetism."

It can be seen that these indications, although given by one of the leading scientists in this field, are nevertheless vague, and difficult to utilize in practise. Besides, it does not seem to us absolutely sure that women may be, as is affirmed, more sensitive than men. Experiments which have been made up to the present time have been, in the great majority, with women, and it is consequently very natural that those who made the experiments have considered women more sensitive than men. To obtain certainty in this matter, it would be necessary to have experiments and comparative statistics infinitely more numerous and more precise than all those which have existed thus far.

In view of the lack of easily observable signs, various kinds of apparatus have been devised to reveal suggestibility, as the thermometer reveals temperature.

Dr. Ochorowicz has proposed his *hypnoscope,* a magnetic steel tube which is put on the finger like a ring. Any one who feels marked sensations of chill, of numbness, etc., is, it is said, suggestible and hypnotizable. But Dr. Crocq, Jr., of Brussels, declares

that he has never observed any constant action with this apparatus, and that everything has always depended upon autosuggestion.

The *sensitivometer* of Durville, a curved magnetic steel bar which is placed round the wrist, the negative pole being put beside the thumb, does not appear to give many very sure indications.

Dr. Gaston Durville has conceived an ingenious employment of a dynamometer to reveal, and at the same time measure, the suggestibility. Under the name of *suggestometer,* he describes an ordinary medical dynamometer, a simple ellipsoidal steel spring, provided on one side with a needle, on the other with a "scale of sensibility." This scale was established after numerous experiments (560), and permitted the classification of people into five categories, according as their sensibility is neuropathic, very great, great, medium, or nil. The subject takes the apparatus in his strongest hand and squeezes it with his maximum effort. After a few moments of rest, the suggestion is given him, during almost a minute or two, that his arm becomes weak, numb; and he is then asked to squeeze the apparatus again. According as the muscular force sinks to zero, decreases three-fourths, one-half, one-quarter, or remains constant, he is placed in one of the five categories indicated.

Unfortunately, the employment of this apparatus is not always practical, because it is hardly possible to have recourse to it without the subject's being aware of the proof to which he is to be submitted, and without his giving his consent. It would be necessary for us to

have a method which would permit us to recognize subjects *without their knowledge.*

III

What we need, then, is a reactive which can be applied easily, without the subject's knowledge, almost without attracting his attention, and which will reveal his latent susceptibility, positive or negative, with regard to psychical influences.

We should be able thus to divide individuals into good and bad conductors of these influences, just as in physics material bodies have been divided into good and bad conductors of electricity.

This reactive has been found to exist. It was discovered by Dr. Moutin (of Boulogne-sur-Seine), a well-known observer and experimenter of the highest order. Scientists, however, are not sufficiently familiar with it; and physicians, in particular, who should employ it constantly, are wholly ignorant of its existence, or know it only vaguely and attach no importance to it.

Here, briefly, is the process of Moutin:

The experimenter stands behind the person in whom he wishes to determine the sensibility, and applies against his back, on a level with the shoulder-blades, the palms of his two hands, fully extended, the two thumbs meeting over one of the vertebræ of the spinal column. After a few seconds of application, the hands are slowly drawn backward. If the person follows the movement of the hands, to which his back seems to adhere, or which appear to attract it with an irresist-

ible force, he can be considered as "presenting the sign of Moutin," at least in the first degree. In a greater degree, he is drawn and forced backward, even when the hands do not touch the shoulder-blades and are separated by a distance of 10, 20, 30, or 40 centimeters. If this application of the hands be prolonged, a sensation of intense heat, almost of burning, will be experienced by some individuals. Also, if instead of applying the two hands, only the palm of the right hand be applied at the nape of the neck, the effect produced will be essentially the same.

Dr. Moutin has related, in his thesis, *Le diagnostic de la suggestibilité,* how he discovered his process:

One day, in 1878, he was walking with a friend in the outskirts of the town of Orange. The two stopped at the edge of a field, and, in leaning over to watch an insect, Dr. Moutin unconsciously put his hand on the back of his friend's neck. Suddenly the friend exclaimed:

"Take your hand away! You are burning my neck with your cigarette."

Surprised, Dr. Moutin answered: "But I have no cigarette."

And after showing his empty hand, he placed it once again on his friend's neck.

"This," said he, "is the position in which we were a moment ago."

"It is strange," replied the friend, "but I still feel your hand burning me."

Removing his hand, Dr. Moutin, with increasing surprise, saw his friend totter, as if he had lost his equilibrium, and almost fall backward.



THE MOUTIN PROCESS

A method which can be applied easily, often without the subject's knowledge, for discovering latent susceptibility to psychical influences. This process has great practical value, especially for physicians and teachers.

Being already acquainted with hypnotism and animal magnetism, he suspected the probable signification of this singular phenomenon, and asked the brother of his friend, the director of a large paper factory, to let him try some experiments upon a number of the workers. Two hundred subjects, men and women, were put at his disposal. Out of about fifty upon whom he experimented, thirty presented, in varying degrees, the same symptoms of attraction, of sensations more or less abnormal, etc., and were thus revealed to be suggestible or hypnotizable in different degrees. Dr. Moutin was able also to note the opposition, the strongly characterized duality, of the individual reactions provoked by his process, and the relation existing between a distinctly positive reaction and the real susceptibility to suggestion or hypnotic influence.

An objection to the current employment of this method might be that, when the person in whom the research is made knows in advance the object of the experimenter, it is possible for him either to simulate or at least to exaggerate the action, or, on the contrary, to suppress it by voluntary resistance. And how can he be prevented from knowing the purpose of the operation, when he sees that the observer stands behind him and places his hands upon his shoulder-blades?

This objection loses its value when the process of Moutin, which should be called the *neurocritic process,* is applied by a physician. For he can always combine, *without informing the patient,* the application of this process with that of the classical and customary processes of auscultation, percussion, palpation, etc. Not seeing in the neurocritic process anything more than a

phase of a general examination to which he is submitted, and not having any reason to distinguish it especially from the others, the patient will react with entire spontaneity and good faith.

A variation of this process, which I recently discovered, escapes this objection entirely. It may be applied not only to patients by physicians, but, to some extent, to every one and by any one. It is this:

Standing face to face with the person with whom you are conversing, place your right hand on his left shoulder (or inversely), either as a gesture of friendly familiarity or under the pretext of examining more closely some part of his features. Think, then, as strongly as possible that he will lean forward or backward. In the well-known experiment of the pendulum of Chevreul, it suffices to "think" the movement of the pendulum in a certain direction; and so, in order to move the subject unconsciously in the direction thought, an infinitesimal push given to the body of an individual whose nervous system is particularly sensitive becomes immediately intensified a hundredfold and determines in the subject an irresistible movement of attraction or of repulsion, as if he were a veritable living pendulum. This experiment will be still more convincing if the attraction or the repulsion continues to be produced even *without contact,* following the movements of the hands of the operator held some centimeters above the shoulder.

Can it be concluded from this that there exist in human beings, from the particular point of view of parapsychic susceptibility, two opposed types of temperament: (1) the *moutinien* or *pendular* type, which is

that of subjects suggestible and hynotizable in varying degrees; and (2) the *non-moutinien* or *rigid* type, that of individuals more or less completely refractory to all hypnotic or suggestive influence?

IV

The discovery of Dr. Moutin has been very little utilized, except by professional hypnotists and mesmerists, whom it served to show quickly in a mass of spectators the subjects susceptible of experimentation.

But it has a much greater importance, if we consider the part that it may play in psychical research; not to mention other manifold applications that could be made of it, whether to ordinary psychology, to history, pedagogy, to the diverse moral sciences, or to psycho-therapeutics and medicine in general.

Viewed as an instrument of research, the process of Moutin opens to those who employ it methodically an unlimited field of experimentation, as it permits them to find an indefinite number of subjects in a manner extremely simple and rapid. A few seconds of light pressure of the hand upon the back or upon the shoulder suffices to reveal the parapsychic potentialities, positive or negative, of any person whatsoever, thus preventing delay in the preliminary attempts at hypnotization, which are often unfruitful, and are fatiguing for the operator as well as for the subject.

One of the most interesting problems that arises at the beginning of psychical research is this:

In what proportion are individuals apt to present the parapsychic phenomena — at least under the most elementary forms, suggestion and hypnotism — en-

countered in the human race? And how is this aptitude apportioned among them according to sex, age, temperament, state of health or illness, etc.?

It is, we believe, through the general and systematic employment of the process of Moutin, only, that the establishment of statistics bearing upon a great number of individuals will give us an exact solution to the problem.

Even, however, at the same time that this process constitutes for researchers a valuable instrument of study, it can and must itself be for them the object of a special study; for it opens up a whole series of problems to which the experimental method appears to be directly applicable.

What causes this singular phenomenon of the apparent attraction of one individual for another?

If it is the *sign* of suggestibility, in what measure is it also the *effect*?

Is it exclusively a function of the individuality of the *subject,* or does it depend equally upon that of the *operator*?

Is it capable of undergoing variations; and, if so, under the influence of what causes?

Besides the indications which it gives of parapsychic susceptibility, does it produce in the nervous state or in the mental state of the individuals, modifications more or less profound, more or less durable, although perhaps latent, that it would be possible to bring into evidence by the employment of appropriate means?

It cannot be doubted that the solution of these different problems would throw a bright light upon the question, even if controversed, of the nature and the

rapports of suggestion, hypnotism, and animal magnetism.

On the other hand, it will be understood that knowledge of the different degrees of suggestibility presents considerable interest for ordinary psychology, history, and in general for all the moral sciences, if it be reflected that, contrary to common opinion, suggestibility is not an exceptional attribute of some rare subjects, but exists in a very great number, perhaps even in the greater number, of human beings.

Its importance is no less from the point of view of pedagogy. "Logical education," said Dr. Bérillon, "would consist in utilizing the best part of the mental malleability — that is to say, of the *suggestibility;* and in order to obtain that result it would be well to exercise over the minds only such pressure as is strictly necessary. We should take into account the interest that educators would have in knowing of processes permitting them to appreciate precisely the mental malleability of each of their pupils. The result would be, certainly, the proportioning of the pressure upon the mind of the child in accordance with the extent of his resistance. What sterile efforts, what erroneous judgments, and also what inconsiderate chastisements would thus be averted!"

Similarly, from the social and juridical points of view, the question of criminal responsibility, and that of human testimony, change their aspects singularly according to the extent that one knows or ignores suggestibility in human beings.

From the medical point of view, we have only to consider the enormous part played by suggestion and

autosuggestion in both the production and the curing of ills, to understand how much it means to the physician to have a practical method for diagnosing the suggestibility of patients. If there is an exaggeration to pretend, as the School of Nancy was inclined to do, that suggestion is the sole agent, or even the principal agent, of all therapeutic efficacy, it must no less be recognized, with Charcot, that in a great number of patients " the faith that cures " is the best of remedies. The question, then, that all physicians must raise each time they find themselves in the presence of a new patient is this:

" Does he belong to the class of individuals capable of being cured or helped by psychical treatment; or is he, on the contrary, of those with whom medicine or diet is the only efficient remedy? "

Knowledge of the process of Moutin will permit that question to be answered immediately. According as to whether the patient is, or is not, a *moutinien,* the diagnosis and the treatment of his affection must be undertaken in a wholly different fashion.

For the same reason, therefore, that it is helpful or necessary to examine a patient to learn the state of his lungs, his heart, his liver, etc., by the classical processes of auscultation, percussion, etc., it would be equally helpful and necessary to examine him by the *neurocritic process* to learn the state of his nervous sensibility. And, as we have previously stated, the two examinations should be made at the same time.

The process of Moutin must be viewed as a valuable acquisition to medical science. It deserves to have a place in semeiology beside the classical signs, the sign

of Sheyne-Stockes, of Romberg, of Lasègue, of Kernig, etc., which have immortalized the names of those who discovered them.

CHAPTER VII

HYPNOTISM, OR ARTIFICIAL HYPNOSIS

I

THE importance that Charcot and the School of the Salpêtrière attributed to knowledge of the different hypnotic states is well known. The increasing predominance of the adverse doctrines of the School of Nancy singularly weakened it in the opinion of the contemporaneous medical world, it is true; but it may be asked whether this knowledge, duly proved and generalized, does not remain, after all, one of the guiding principles to which all those who are endeavoring to place the study of parapsychic phenomena in the field of positive science must necessarily have recourse.

Charcot seemed to be a partizan of the idea that hypnotism — or hypnosis, as it should be called — constitutes a particular state, *sui generis,* of the nervous system and of the entire human organism, provoked by certain agents or processes and defined by a certain number of characteristics more or less closely connected among themselves. This state differs from the state of wakefulness — called the normal state — and also from the state of sleep, although it partakes in certain respects of the characteristics of both. It is itself susceptible of assuming different forms, which may be considered as secondary hypnotic states, each having its special excitator and its special characteristics, but de-

pending evidently upon common conditions and substituting one another with a certain facility.

The principal secondary forms are three in number: (1) catalepsy, (2) somnambulism, and (3) lethargy. They can present themselves spontaneously during certain forms of illness, or under the influence of certain physical agents, or they can be made to appear artificially. It is for hypnosis thus produced — artificial or experimental hypnosis — that usage seems especially to reserve the name *hypnotism*.

Reduced to these terms, the theory of the School of the Salpêtrière seems to be a simple exposition of the facts, and the objections which are ordinarily made do not weaken it. Charcot's mistake was to claim that *provoked hypnosis* manifests itself always under one of these three clearly defined forms: catalepsy, somnambulism, or lethargy. It is palpably evident that it is often found also under intermediary forms, which do not enter completely into any of these three classical forms.

A still graver mistake has been to believe that the determining conditions of the various hypnotic states and the invariable order of their succession proceeded from quasi-mathematical laws. Over this point the critic of the School of Nancy seems to us to have well established the error of the School of the Salpêtrière. But it is no less true that hypnosis constitutes a special state, as distinct from the state of normal waking as that state is distinct from sleep; and that catalepsy, somnambulism, and lethargy, in whatever way they may be produced, present to us three distinct modalities of hypnosis, responding to three types sufficiently definite and

constant. For there is an essential difference between the rigid attitude of the cataleptic, the independent motions of the somnambulist, and the complete muscular inertia of the lethargic.

It is true that from the philosophic, or scientific, point of view, it can be claimed that all things in nature are continued and mingle with one another, in such a way that all the separations, all the distinctions that we place between them are necessarily more or less relative, arbitrary, artificial. Who could say exactly where, in the solar spectrum, any one color — violet, blue, green, yellow, orange, red, indigo — ends, and where the following color begins?

Even the ancients knew this method of reasoning; they called it "bald-headed argument" or "quantitive argument." For instance: Here is a thick head of hair; one hair is pulled out, then another, then still another; at that moment could it be said that the head has become bald? One grain of wheat certainly does not make a pile, nor two grains of wheat, nor three, nor four. How many grains are necessary to make a pile?

Similarly, when a man goes to sleep, it is impossible to indicate at what precise moment the sleep has replaced the waking state; between the two extreme states there can always be imagined an infinity of intermediary states by which the passage is made from one of these extremes to the other.

But all this specious reasoning — which perhaps could be qualified as sophism — does not abolish the fact that there are, in nature, decided differences and irreducible oppositions of which we must take account if we would see clearly in our minds, and more so still

if we would adapt our practise to the real world without.

This question apropos of hypnotism is, moreover, of a very general order, and is found, under other forms, in all or almost all branches of science. It is thus that physics recognizes three different states of matter: the solid state, the liquid state, and the gaseous state, each of which is characterized by a definite number of properties. To these three states scientific researchers have added, perhaps, a fourth: Sir William Crookes has, indeed, spoken of a fourth state of matter, which he has called *the radiant state.* And it can well be supposed that the list of possible states of matter contains even others. There is also, very assuredly, between the solid state and the liquid state, and between the liquid state and the gaseous state, a certain intermediary margin where they meet, are continued and mingled. However, it must be recognized that the distinction of the three states — solid, liquid, gaseous — is one of the indispensable bases of physics. And chemistry, biology, etc., would present considerations of an analogous nature.

II

So far we have considered only the knowledge of the state as in its rapport with hypnosis. Hypnosis, however, is itself but a species of a more extensive genus — the genus of parapsychic phenomena. It will be well, then, to generalize this knowledge by applying it to all these phenomena. In other words, we must admit that in the nervous system and the organism of human beings there exist a certain number of states more or less distinctly characterized, which, once

brought into being, render parapsychic phenomena of many sorts possible. It is these different states that should first be determined and studied if we would place the psychical sciences henceforward on a solid basis.

We can indicate here only a few of these states.

Can the phenomena observed during séances of spiritism be fully identified with the phenomena of hypnotism?

This is a very obscure problem, which is still far from being solved. Without affirming the identity of the two states, however, we can at least show the strong analogies between the *trance* of mediums and the *hypnosis* of subjects. Just as the different hypnotic phenomena do not appear in subjects until they have been put, by appropriate means, into a particular state, so, it would seem, the special faculties of mediums are not manifested until they also are put into a state that is certainly not their normal state — by normal is meant their customary state outside of spiritistic séances. In many of them this state is distinctly apparent, and resembles strongly the state of somnambulism. In others it is latent or, so to speak *larvé;* but we know that this is sometimes true also of somnambulistic hypnosis. A subject may have all the appearances of being fully awake, in an entirely normal state; but if he be studied closely, it can be recognized that he is in reality in that condition which sometimes is called a " second state."

Similarly, under the influence of very strong physical and mental excitations, there are produced in certain individuals singular states which well seem to belong to

the category of those we are now considering. By movements and cries indefinitely repeated, the Aïssaouas manage, it is said, to put their nervous system in such a state of insensibility that they can support with impunity burns and wounds which, in ordinary conditions, would be mortal. And it is claimed that the fakirs of India owe to the employment of a system of ascetic means — fasting, respiratory exercises, etc.— the development of supernormal faculties evidently connected with a special state of their nerves and their organism. The history of the Camisards of Cévennes, of the Convulsionaries of the Cemetery of St. Médard, shows us also that religious exaltation can produce in crowds a state generating the most extraordinary and varied parapsychic phenomena. It would be interesting, from this point of view, to investigate to what extent the ecstasy, the prophetic inspiration, etc.— phenomena very frequent in the history of all religions — can be compared to the states previously enumerated.

Certain morbid causes provoke the apparition of similar states. The visions of Mohammed are explained, at least in part perhaps, by epilepsy, of which he often had attacks. It is known that in epilepsy, and perhaps also in some other nervous affections, the patients are subject to fits which can last for weeks and even months, and return periodically; and during these fits they talk and act with all the appearances of the normal state, but without any consciousness of their usual personality — as if another *self* had taken. in them, the place of the old.

Dr. Azam, of Bordeaux, has described in detail the singular alternation of two distinct personalities in one

of his patients, Félida, famous in the annals of morbid psychology. It is impossible to understand this alternation unless we suppose that each of these two personalities is linked to a particular nervous and organic state which makes it appear or disappear according to its own vicissitudes.

Dr. Pierre Janet reports the adventure of a young man who, without apparent consciousness, suddenly abandoned his family, having completely forgotten all his past. He walked from Paris to Melun, following many different trades, and finally recovered his normal state three months later in Auvergne, in the company of an old plate-mender, wholly incapable of remembering how he had got there, or anything that had happened during the interval.

These examples are sufficient to give an idea of the multiplicity and the diversity of the parapsychic states; for it is not our intention here to give a complete list of them, nor even to attempt their classification. Our sole object is to show that such states do exist, and to make the reader understand how interesting and necessary it would be to submit them to systematic study.

This study should begin with the hypnotic states, inasmuch as they are unquestionably those which we can most easily produce and modify at will, and those which, consequently, lend themselves best to the application of the experimental method.

III

First of all, it is important to forestall a misunderstanding which may be due largely to the imperfection of our technical vocabulary.

As waking and sleeping are the two normal states which in the life of man succeed each other, so it is that these two states have become for us the means, or gage, by which we instinctively endeavor to describe other states. Thus, instead of considering all those states which are different from ordinary waking and sleeping, as constituting a *third state,* susceptible of assuming several and various forms, we connect them with sleep in giving them the terms *hypnosis, hypnotism, somnambulism,* etc., which imply the idea of sleep because of their Greek and Latin roots.

Of a man in the hypnotic state it is commonly said that "he is asleep"; and that "he wakes" when he comes out of the hypnotic state. To "hypnotize" some one, and to "put him to sleep," are two expressions which are used indifferently, one for the other. For this reason there is a general tendency to regard hypnosis as a kind of sleep, and therefore to attach undue importance to the characteristics in which it resembles sleep.

For this same reason, and especially among the partizans of the School of Nancy — by whom suggestion, or rather suggestibility, is considered a natural, fundamental, permanent property of all human beings, the key to all hypnotic, and undoubtedly also parapsychic, phenomena — there is a tendency to disregard all signification and all value of the hypnoidal characteristics of hypnosis, these being considered but the accidental effects of suggestion. For those who have this point of view, hypnotic sleep is in reality nothing but natural sleep provoked by suggestion: if the operator had not this preconceived idea that his subject must sleep, and

had not imposed it upon him, or caused him to inculcate the idea in himself, all the phenomena called hypnotic could be just as well produced in the waking state.

Many unnecessary words and controversies would be avoided if it could be realized that the hypnotic state is *neither a waking state nor a sleeping state,* but *a third state* and of multiform expressions. This third state blends in various proportions the characteristics of sleep and of waking, adding other characteristics which belong exclusively to it, the principal of these being an *abnormal suggestibility,* certainly very different, whatever the School of Nancy may say, from the *normal suggestibility* common to all human beings.

Thus, in conclusion, the different states through which the nervous system passes may constitute a sort of spectrum, of which the two end colors are the waking and sleeping states, corresponding to the red and the violet of the solar spectrum; and our mental life is colored alternately by one or the other of these two extremities. But there exists in the interval, and perhaps also beyond the extremities of this spectrum, a multitude of other colors, of other shades, with which our life is sometimes tinted in an accidental and more or less transitory way, under the action of causes still undetermined. The hypnotic and magnetic processes disengage and firmly establish certain of these colors, normally latent or fugitive, and permit us to study them experimentally.

We already have indicated the three hypnotic states generally admitted: catalepsy, somnambulism, and lethargy; but there exists also a fourth. It is that

which certain scientific writers have called *the state of fascination* or *the state of credulity*.

The subject in this state presents all the appearances of being awake. His eyes are open; he has complete liberty of his movements; if his arm is raised it falls again of its own accord; and his sensibility usually remains normal. But he does not use his mental faculties in a normal way. He is incapable of evoking voluntarily any recollection: ask him his name, his address, what he did the previous day, he cannot answer. And he becomes extremely suggestible: he does not control either his sensations or his acts, but believes or does blindly all that he is commanded to believe or to do. Often, but not always, once brought out of this state, he retains no memory of it.

We believe, however, that beyond these four states there exists a state still more superficial, so slight, so little characterized, that we have long doubted its reality. It might be called *the state of torpor* or *the state of passivity*.

The subjects who exhibit this state are incapable of being led farther. When submitted to the hypnotic processes of the fixation of the gaze, passes, verbal suggestion, they appear not to feel any effect whatsoever. Their eyes remain open indefinitely; they can move their limbs at will. Sensations or acts may be suggested to them; but they appear to feel none of the sensations, and they do none of the acts. Yet they are not in their normal state. In the first place, their thought is arrested, so to speak. If they are asked of what they are thinking, they invariably answer:

"Nothing." And this state of *mental farniente* is, they claim, most agreeable. Close their eyelids, and they remain closed, as if they had lost all power to open them. Their limbs obey the slightest impulsion imparted to them, and remain motionless in the most uncomfortable or the most ridiculous of attitudes, without the subject's seeming to have any idea of changing them. For hours at a time, the subjects lend themselves to all the manipulations that it pleases the operator to devise; and they apparently resent nothing.

This *state of torpor* is dissipated with extreme rapidity, leaving behind it quite faithful recollections. Because of its wholly negative character, however, it is not strange that it has remained unperceived by the majority of observers.

IV

One can realize the extent and the complexity of the field of study offered to scientists by the parapsychic phenomena. After having enumerated and defined the principal species, each of them should be analyzed according to three successive periods:

1. Its preparation.
2. Its constitution.
3. Its completion.

The preparation or incubation of a psychical state can be extremely rapid, it can appear to be even instantaneous, and it also can last a long time. As an effect of repetition or habit, this initial period tends always to shorten itself. In many cases it might be said that, in order to produce the state, a certain quantum of energy of a special nature may be necessary,

just as zero (Centigrade) or one hundred degrees of heat are necessary to freeze water or to make it boil. When this quantum is attained, and only then, the state is wholly constituted.

It is only after a certain number of passes that the subject enters into the somnambulistic state. The insensibility of the Aïssaoua does not reach its climax until he excites himself a sufficiently long time and with sufficient intensity. Usually, at the moment when the state begins to appear, the observer is informed by some apparent sign — the eyes of the subject entering into hypnosis close, his chest heaves, he sighs deeply, etc. But sometimes the state is produced insensibly, and already exists without anything having occurred to make its presence suspected. The operator, believing that he has not yet produced any result, prolongs the fixation of gaze, increases the passes, until some accidental circumstance shows him that the subject has already been for some time in the hypnotic state.

In what does it consist, this constitution of the parapsychic state — sometimes slow, sometimes instantaneous and unexpected?

That is an extremely difficult problem to solve. When the state is once existent, we can easily establish and describe its exterior manifestations (although many of them escape us if we do not know or do not possess the proper reactives to arouse them); but we do not penetrate its intimate nature.

When a subject is somnambulistic, for example, that which is of the greatest importance is not the different phenomena by which this state is revealed — the clos-

ing of the eyelids, insensibility of the teguments, extreme suggestibility, etc. It is something we do not see, something we cannot see: the particular state of the brain and of the nerves, from the point of view of the distribution and the tension of the nerve force, of the chemical and vital activity, of the circulation of the blood, etc. It is all these internal and unknown factors which constitute, properly speaking, the parapsychic state, which are the effective *substratum;* and not a certain more or less impressive external phenomenon, such as suggestion, that "choice-bit" of the School of Nancy, which imagines that all questions can be answered by this abstract word, just as the scholastics imagined that all things could be explained by their entities and their occult powers.

As long as this *substratum* subsists without notable change, the state continues; immediately that the substratum ceases to be, or is modified in its essential elements, the state vanishes, is resolved into a different state.

How many patient and minute researches still remain to be undertaken in the psychical sciences in order to elucidate these problems!

CHAPTER VIII

SUGGESTION: AS A FACT AND AS AN HYPOTHESIS

I

THE work of the School of Nancy has definitely put beyond all doubt the important rôle that suggestion plays in the greater part of the parapsychic phenomena.

That suggestion is a *fact,* is a point already acquired to science; but we have yet to understand, in an absolutely definite and precise way, the nature and the conditions of this fact. We have yet to determine, with sufficient rigor, the cases in which suggestion intervenes, without any possible doubt as to its effective presence, and the cases in which this presence is simply supposed as the more or less true explanation or interpretation. In other words, we must determine when suggestion is really a *fact,* immediately proved by its very constatation, and when it is simply an *hypothesis,* of which the proof remains to be made.

II

It is important, first of all, to specify precisely what must be understood by *suggestion,* in the particular order of researches which we are now considering; for the term can be understood in many ways.

As we have shown in *Our Hidden Forces,* there is suggestion each time that one individual evokes — usually by word — in the mind of another individual, an

idea that would not have occurred to him in the natural course of his thoughts, *an idea capable of influencing his sentiments or his conduct.*

But in this sense one cannot by any means foresee the final effect of the idea thus evoked. It may be that it will determine sentiments and actions conforming to it. It may be, also, that it will be deflected, either immediately or after examination, by the person to whom it is suggested. But in either of these cases the word does not imply necessarily the idea of *an irresistible influence.*

On the contrary, the word *suggestion* implies *an involuntary or automatic obedience* of the person to the idea which has been suggested to him; and the remarkable part of the phenomenon is precisely this impossibility when the person is found not to do or not to believe what is said to him.

From this comes the name *subject,* generally given to the individual thus suggestioned, to indicate the state of subjection in which he is actually placed toward the one who gives him a suggestion of this nature. Also, we have the name *hypotaxy* (literally: *subordination, submission*) given by Durand de Gros to the supposed state of the nervous system which permits of this forced obedience of the subject to the suggestion.

There would be suggestion in this sense if I were to say to a person, for instance: "In five minutes your legs will not be able to support you; you will fall to your knees," and he would fall, in spite of his incredulity and his resistance. Or, "That chair attracts you; you will be forced to go to it and sit down," and he would go. Or, "You have forgotten your name, your

profession, your address," and he could not remember them. Or, " You are very warm, very cold; you are about to laugh, to cry, to run," and he experienced all these sensations. Or, " You are going to sleep — to sleep ! " and he fell asleep.

However singular these phenomena may appear to those who have never witnessed them, it is not possible to doubt their reality. Of course, in some particular cases, it can evidently be asked if the individual is really suggestioned or if he is not simulating suggestion; but this would be to advance skepticism so far as to pretend, with a certain contemporary neurologist, that one cannot be sure that there was ever any case of authentic suggestion.

In order to distinguish suggestion thus comprised from *ordinary suggestion,* it is often called *hypnotic suggestion.*

Ordinary suggestion — that which the individual can normally resist, or else which he obeys because of a more or less deliberate consent or as an effect of his credulity and his natural docility — is produced in the waking state, while he is fully conscious and has complete use of all his faculties.

Hypnotic suggestion, on the contrary,— that which the subject cannot resist, even if he should have the desire to do so, and which he obeys outside of all deliberate consent, as the effect of a credulity and a docility in some way artificial and abnormal — is produced during hypnosis, or during an apparent waking state more or less fundamentally analogous to hypnosis.

From this point of view, the characteristic of the second kind of suggestion would be its liaison with a

state or disposition *sui generis* of the nervous system, a hypnotic state or disposition. In other words, suggestion thus comprised would be a function of *hypnotism,* which could then be defined, at least partially: "A state which develops a special and an absolutely automatic and irresistible suggestibility."

In order to define hypnotism more completely, it would be necessary to be able to characterize it in itself, disregarding all relation with suggestion and suggestibility; but in the actual state of our researches, we do not yet possess a sufficiently complete knowledge of its characteristics and its effects to be able to establish this definition.

The name given to it, and which likens it to sleep, shows that it is generally conceived as "a state of torpor or of cerebral stupor, when the greater part of the superior functions are suspended or inhibitive," while an exceptional dynamogenic state is produced in the inferior centers of the cephalo-rachidian axis.

This seems to us to be the conception of hypnotic suggestion resulting from the simple description of facts such as all the world can observe. Yet it conflicts with a conception wholly different, which pretends to come from observation, but which seems to be the product of a systematic spirit, and in which it is difficult for us to see anything but pure construction *a priori.* This conception is that of the School of Nancy.

According to Professor Bernheim, who is the theorist of that School, hypnotic suggestion does not differ, in reality, from ordinary suggestion; or, more properly speaking, there is only one kind of suggestion, which is

defined: "The act by which an idea is introduced into the brain and accepted by it." Then, there is suggestion whenever an idea, being introduced into the mind of an individual, is accepted by him, believed and obeyed, and he feels and acts accordingly. From that, suggestion is everywhere in human life — example, education, eloquence, moral authority, so many forms of suggestion which do not differ essentially from hypnotic suggestion.

This, wholly as the other, depends directly and exclusively upon a general and normal property of the human brain — suggestibility; that is to say, upon that credulity and natural docility, common to all human beings, which causes them to believe and to do what is told them, under the immediate impression of all idea that is presented to them with sufficient force or insistence.

It is, then, useless, from this point of view, to suppose that suggestion has for a preliminary condition a certain state of the nervous system, more or less analogous to sleep, and named hypnotism. *Far from suggestion being a function of hypnotism, it is hypnotism which is a function of suggestion.* "Suggestion," said Dr. Bernheim, "is the key to all the phenomena of hypnotism." In other words, there is no hypnotism, there is only suggestion. The so-called hypnotic sleep is no more than suggested sleep, identical in essence with ordinary sleep. In the same way that laughing, dancing, nausea, etc., can be produced by suggestion, so sleep can be produced; but there is no reason for according a preponderant importance to this particular effect of suggestion and for considering it more

characteristic than any other. Once more, let us repeat, it is suggestion which explains all, while suggestion itself is self-explanatory.

From the very opposition of these two conceptions, it can be concluded that if suggestion is, in certain respects, a fact, it is in certain other respects an enigma which presents a problem, or many problems, to be solved. Consequently, before employing it, or in order to be able to employ it with some certainty as an hypothesis, it must be minutely studied in its different forms, and analyzed by all the processes of the experimental method.

It does not seem to us that, up to the present time, this preliminary work has been done, or at least that it has been carried sufficiently far.

Whatever the School of Nancy may say, the differences which separate hypnotic suggestion from ordinary suggestion are too striking for it to be possible to make them disappear by a pure and simple negation. Willingly or unwillingly, this problem presents itself to the mind: How does it happen that in the case of hypnotic suggestion the subject loses all control over his sensations, his ideas, even his acts, and becomes an automaton in the hands of the one who suggestioned him?

The artifice to which the School of Nancy has recourse in order to suppress the difficulty consists, on the whole, in abusing the principle of continuity. As we have shown in the preceding chapter, it is always possible, from the philosophic or scientific point of view, to claim that all things in nature continue insensibly and are mingled one in another. Between two ex-

treme states, such as the abnormal state and the state of hypnotic suggestibility, there can be imagined an infinity of intermediary states by which the passage is made from one extreme to the other. But this is true also in all the orders of natural facts, and nevertheless this universal continuity does not prevent science from establishing in all these facts the distinctions and the oppositions without which it would not be possible for us to submit them to the influence of our thought and our action.

On the other hand, the doctrine of the School of Nancy, if we understand it correctly, sees in suggestion nothing but an exclusively psychological phenomenon. In any case, if it does not deny that there may be in suggestion extra-psychological elements, it disregards it completely. The definition given by Bernheim, which we have mentioned above, speaks, it is true, of the brain, and that gives it a physiological appearance. But it is nothing more than an appearance.

This formula: "Suggestion is the act by which an idea is introduced into the brain and accepted by it," should not be taken literally. From a strictly physiological point of view, there is no *idea* in the brain, but cells, fibers, blood, diverse humors, perhaps also currents and discharges more or less analogous to electrical currents and discharges. Therefore, it cannot be seen how the brain could accept or reject an idea, in the same way that the stomach accepts or rejects food. The word "brain" is used here improperly instead of the word "mind," and the definition that it gives us is, in reality, purely psychological. It does not contain

any indication, it does not throw any light upon what can happen simultaneously in the brain when an idea is introduced into the mind and accepted by it.

The analyses — too rare and too superficial, moreover — which the School of Nancy has made of suggestion, remain always confined within the psychological field. It is a question of *belief*, of *persuasion*, of *expectant attention*, of *imagination*, etc.— all terms which are connected exclusively with the states of consciousness. Also, the processes employed habitually by the School of Nancy to produce suggestion are, or at least pretend to be, of purely moral order. It peremptorily states that the subject is gazed at more or less fixedly, that his forehead, his eyelids, etc., are touched lightly; but all these gestures have no importance: they are simply to fix the attention of the subject and to strike his imagination. The true agent, the only one which is really efficacious, is the word of the operator, which inculcates or imposes the idea; and suggestion is realized finally when the mind believes.

The essential thing would be, then, to induce the subject to believe; belief once installed in his mind dispenses with all the rest.

Let us note that the theory of the masters of the School of Nancy is the expression of their personal practise and technique. They are not scientists who experiment in laboratories in entirely disinterested researches; they are physicians who work in clinics for the purpose of curing or relieving patients. The patients themselves come to them knowing that they come to be treated by suggestion, being already convinced of the

efficacy of the treatment, and impressed by the mysterious power which they attribute to these physicians.

One can understand that, in these conditions, not employing — or not believing that they employ — anything but persuasion, the School of Nancy actually imagines that there is no other process. Looking elsewhere, however, we will find that their formula is really too restricted to agree with all the ensemble of facts observed.

First of all, a large number of operators claim that, by purely *physical* processes, without the intervention of any *idea,* they obtain a particular condition called the hypnotic state, which is usually accompanied by an abnormal suggestibility. It is thus that Braid claimed to have provoked hypnosis by the prolonged fixation of a brilliant point, independently of all suggestion. He says:

> I called one of my domestic servants who knew nothing of mesmerism, and in the instructions which I gave him I made him believe that his fixed attention was necessary in order to watch a chemical experiment dealing with the preparation of a medicine. As I had frequently asked him to do this, he expressed no surprise.
>
> Two minutes and a half later his eyelids closed slowly, with a vibratory movement; his head fell forward on his chest; he heaved a sigh, and was instantly plunged into a deep sleep.

However this fact may be explained, it is wholly impossible to discover in it the elements of true suggestion; for Braid had not suggested to his servant that he should go to sleep but, quite the contrary, he had told

him to pay strict attention in order to watch a chemical experiment.

Here is another instance, reported by Dr. Lajoie, of Nashua, New Hampshire:

> I was called to a twelve-year-old child who had slept for twenty hours. Greatly alarmed, the parents asked me what this meant. I woke the child, but not easily, by suggesting to him the idea of waking. And this boy showed me a shining crystal bowl on the table. "I was amusing myself watching the sun shine on that bowl," he said; "I felt tired; and I do not remember anything else."

It is true that Dr. Lajoie added: "There is no evidence there of any suggestion other than that due to fatigue." He may have said this, however, to be in accord with the doctrine of suggestion.

And this does not explain how the sensation of fatigue was able to suggest to the child the idea that he must go into a sleep that would last twenty hours and be so deep that his parents could not wake him — a sleep which, however, was able to cease merely by the suggestion of waking.

Another case of the same kind has been observed by Dr. Auguste Voisin. It is that of a young girl, twenty years old, affected with convulsive attacks, whom he hypnotized by means of Dr. Luys' rotative mirror, without any suggestion whatsoever.

Similarly, Dr. Crocq asserts that he has hypnotized an hysterical patient in the hospital of Molenbeek by the simple fixation of the gaze. No one knew at the time that Dr. Crocq studied these questions, and previous to this experiment none of the kind had ever been

made there. This patient presented, after the first séance, true somnambulism, with complete insensibility.

"In these conditions unconscious suggestion is not possible," says Dr. Crocq. And he adds: "Since then, at any instant, I have succeeded in putting to sleep, by the fixation of a brilliant object, subjects absolutely ignorant of what was required of them."

Finally, hypnotization in animals is scarcely explained by the hypothesis of suggestion. When a cockerel is hypnotized by the process of Father Kircher — in having his beak fixed for several minutes over a white line drawn on the ground — it is easy to understand that there is no suggestion there: that is, no effect produced by an idea, as if the cockerel understood that it was intended that he should go to sleep, and persuaded himself *ipso facto* that it was impossible not to go to sleep.

It would be better to be resigned to establishing the fact, and to confess that the mechanism is not yet known. But nothing is harder for certain minds, even though trained by scientific culture, than to acknowledge, ingenuously, their ignorance.

It seems to us, then, extremely probable that there exists a particular state of the nervous system — hypnotism — undoubtedly connected by close *rapports* with suggestion, but which cannot be made to coincide with it completely.

This state resembles sleep, and appears to be accompanied, as sleep also is, by a sort of stupor or torpor of the psychological activity of the individual, a diminution of his mental energy, a contraction of his consciousness, a more or less complete paralysis of his

will — all of this being perhaps originally produced by purely physical causes. It possesses, as an ordinary though not constant effect, the apparition of an abnormal and excessive suggestibility, which, once determined, can react on its own cause and produce the hypnotic state, or can strengthen it.

The School of Nancy pretends, it is true, that hypnotic sleep — meaning hypnosis under the classical form of somnambulism — does not differ from ordinary sleep; that it is no more than a sleep provoked by suggestion.

But this assertion is absolutely contradicted by the facts.

In *ordinary sleep* the individual does not understand what is said to him, or, if he understands, he wakes; his tactile sensibility may be lessened, but it remains, and if he is touched roughly, pinched, or pricked, he reacts in his sleep.

How is it that in *hypnotic sleep* the subject continues to understand his hypnotizer, to answer him, and especially to obey him by executing all his suggestions, even the most absurd and extravagant? How is it that he often presents complete insensibility, to such an extent that he can be touched, pinched, pricked, etc., without appearing to feel anything? How is it that he wakes only when ordered to do so by his hypnotizer, and that, as a general rule, he has, after waking, no recollection of anything that has happened during his sleep, and even sometimes of anything that has immediately preceded it? It is true, also,— and we have many times observed this — that when once awakened the subject cannot even remember having been asleep,

and declares, in perfectly good faith, that he has victoriously resisted the processes of the hypnotizer. In order to convince him, it is necessary to put him to sleep again, and to produce, either in him or about him, some visible change which will prove to him, when he is again awakened, that he has actually been asleep.

Let us note, moreover, one prominent characteristic of hypnotic sleep which is foreign to ordinary sleep. It is that there is present sometimes, in certain subjects, the phenomenon called *rapport*. By this is meant that the subject hypnotized seems to be in relation with no one but his hypnotizer: it is his hypnotizer only that he understands, and it is to him only that he responds. All other individuals are, for the subject, as if they did not exist, at least unless they put themselves *en rapport* with the hypnotizer by touching him; but the instant the contact ceases, they cease to be *en rapport* with the subject.

The situation is, then, entirely different from that which would be observed if the subject were to sleep as the effect of his own conviction that he was going to fall into an ordinary sleep; for, in this case, he could not hear the one who suggested that he go to sleep, or else he could hear all other persons as well. He would dream spontaneously; he would snore — if he had that habit; he would, in a word, present in this state all the symptoms of his ordinary sleep. It is well authenticated that subjects in the hypnotic state are not conscious of being asleep. We have found that a large number who, while in a deep hypnotic state, were asked: "Are you asleep?" have answered us with an expression of astonishment: "Why, no; I am not asleep!"

The partizans of suggestion will endeavor to meet the question by alleging that all the differences which apparently distinguish hypnotic sleep from ordinary sleep are, in reality, the effects of suggestion. If the subject, so-called hypnotized, continues to understand his hypnotizer, to answer him, to obey him, it is because he has suggested this to himself. If, on waking, he remembers nothing of his sleep, it is because this amnesia has been suggested to him. In the same way, the phenomenon of *rapport,* if it really exists (for suggestionists would prefer on the whole to deny it rather than give an explanation even conforming to their theory) can be only the effect of previous suggestion.

Unfortunately, all the assertions are, we repeat, wholly contradicted by the facts.

The first case of authentic somnambulism constated and described by mesmerists is, it seems, that of the famous Victor Viélet, who went to sleep spontaneously under the passes made by the Marquis de Puységur, and who at the very beginning, to the great surprise of de Puységur, presented all the symptoms of hypnotic sleep.

I have more than once operated upon subjects who were wholly ignorant of hypnotism, not in the least suspecting the purpose of the processes I practised upon them (passes, contact of the hands upon the shoulder-blades, etc.), and who, moreover, have fallen immediately into a deep sleep, with anesthesia, amnesia, exclusive *rapport,* etc. On the other hand, I have very frequently operated upon subjects who were well versed in hypnotism and were very desirous of being hypnotized, but who remained completely refractory to all my attempts at hypnotization and suggestion, or

who would go only into an incomplete hypnotic sleep.

One subject conserves his sensibility intact, and does not lose it even if he is suggestioned to do so. Another subject, although in appearance also easily suggestible, continues to feel the contacts, pinches, pricks, etc., executed upon him, even if it is suggestioned to him that he will not feel them. Almost all, once awakened, have no recollection of what happened during their sleep, even though amnesia had not in any way been suggested to them. Certain others, who are told: "You do not remember anything!" have very faithful and clear recollections. Many are *en rapport* not only with the operator but also with all the assistants; some, on the other hand, communicate only with the operator or with persons in contact with him, without any suggestion intervening. It is often due to chance that the operator himself discovers this fact, one of the assistants having taken the initiative to speak to the subject, who, by his immobility and his silence, brings them to recognize, then to verify, that he has not understood.

What causes these inequalities, these differences between different individuals in the manner of reacting to hypnotic or suggestive processes and of realizing hypnosis?

It would be playing with words to invoke suggestion here, even under the form — easy to suppose but difficult to prove — of autosuggestion.

The School of Nancy would say that if a subject, in spite of his desire to be put to sleep, in spite of the willingness with which he lends himself to the attempts to hypnotize him, remains rebellious to all suggestion,

it is undoubtedly because he is suggestioned unconsciously that he will not sleep, that he will not be suggestioned. If a certain other subject, even though put to sleep, retains his sensibility, it is because he has unconsciously suggested to himself that he will remain sensitive. And so forth.

With this manner of reasoning, anything can be explained and proved, without the trouble of observing and experimenting.

Let us, however, place ourselves in the position in which the School of Nancy is fortified, and try to follow the consequences of its theory to the end. Suggestion, we claim, owes its power to the natural suggestibility of the brain, or, more properly speaking, of the human mind. It is a normal consequence of the credulity and the docility natural to the entire human race. It is a consequence of that psychological law in virtue of which all ideas tend to be affirmed and realized, unless hindered by the equal tendency of other contradictory ideas — a law which Spinoza seems first to have stated, and which has been repeated since by many authors, such as Herbart, Dugald-Stewart, and Taine, and which might be called, with the French philosopher Fouillée, *the law of idea-forces*.

However, we must not disregard the fact that this law, which renders suggestion possible, renders autosuggestion equally possible; and the latter can — must, even, in many circumstances — be in oppositior to the former.

Every human individual is, it might be said, autosuggestioned in a great many ways: by his innate or hereditary inclinations, his habits, his recollections, the

education he has received, the experiences he has had in the course of his past life; and all these autosuggestions can constitute so many countersuggestions with regard to some particular suggestion coming from another individual.

Among these permanent autosuggestions, should be included faith in the testimony of our senses and our memory, confidence in the constancy of the order of nature, at least in a broad sense, the instinct of conservation and of self-preservation, which forms the basis of all that which we call, in practise, our will and our liberty.

If a suggestion coming from the outside does not contradict, does not clash with, these fundamental autosuggestions, it has a chance of being accepted by us, of prevailing upon our belief, our consent, or even our obedience. For all suggestion of this kind we would propose the term *plausible suggestion*.

A suggestion to which might be applied the term *paradoxical suggestion* is that, for example, which would be able to make us believe it is night when it is midday; or that some one we know has been dead for a long time has come to pay us a visit; or that a candle is lighted simply by blowing upon it; or that we cannot open nor shut our eyes, fold our arms, move our legs, etc., merely because we have been told that we cannot do so. Any such suggestion cannot fail to wake in us an immediate and energetic countersuggestion resulting from our fundamental autosuggestions.

Normally, to any one who gave me a suggestion of this kind, I should respond either by laughing at him, or by demanding if he were not mocking me, or if he had

not lost his reason. But in the case of a hypnotized subject, normal countersuggestion does not apply. The fundamental autosuggestions are, as it were, inert, the subject believing the improbable, the impossible.

The problem of hypnotic suggestion lies in knowing precisely *why* this suggestion does not encounter the opposition of the habitual *reducteurs* of all paradoxical suggestion: and it is very evident that this "why" is not to be found in suggestion. All happens as if an unknown influence had momentarily made a void in the mind, so as to give free rein to the idea suggested and enable it thus to be developed without obstacle. It is this unknown influence, without which suggestion could not exist, that Durand de Gros called *hypotaxy*, and that is known more generally as *hypnotism*. Thus, we have had only to follow the doctrine of suggestion far enough in order to go beyond it and become convinced that suggestion itself presupposes another principle.

This appears more evident still if we consider the cases where the habitual *reducteurs* of paradoxical suggestion, even though awake and active, find themselves powerless to reduce it. In the practise of the School of Nancy these reductions are, so to speak, out of play: the patients are informed of the power of the suggestioner, and disposed in advance to submit to the effects; the suggestions which will be given them — knowing, as they do, that they are for the curing or relieving of their ailment — are, in their eyes, not paradoxical but plausible. It happens wholly otherwise with an operator acting upon the first persons who come to him, and who lend themselves to his action out of simple

curiosity, but with the idea well determined that he will not obtain any effect.

How may we explain the elements of suggestion, as defined by the School of Nancy, in such a case as that of "Laverdant," curiously analyzed by Durand de Gros in his *Cours de Braidisme?* [1]

The subject assisted for the first time at a séance of hypnotism; and in placing himself at the disposition of the experimenter, he did so in order to "fill a gap" and nothing more. He was not actually under the influence of any idea of suggestion; he did not expect in any way to be suggestioned; he did not know, even, precisely what the experiment would be; his whole thought was to take advantage of the occasion to get his customary short nap. An instant after gazing intently upon the object placed in his hand, he became hypnotized. Not having ceased to be fully awake, he *did not believe* possible the realization of the hypnotizer's affirmations. It was almost with indignation that he resented the latter's suggestion that he did not know one of the letters of his name. And when this fact was realized, he showed stupefaction and consternation no less than any of the assistants.

Durand de Gros believes it can be concluded that, in a like case, the subject who obeys suggestion is not the same as one who, receiving it, struggles against it with all his power.

"On the one hand," he says, "the real will of the subject, the will of which he has consciousness, remains intact, since he intends to resist the mysterious experiment, and he wills it energetically to the end. On the

[1] *Cours théorique et pratique de Braidisme,* published under the pseudonym of Dr. Philips.

other hand, that which causes an act of faith and obedience in the subject is not the subject himself, properly speaking; it is another ego than his ego."

In other words, suggestion, in facts of this kind, reveals to us a mechanism much more complicated than the simplistic doctrine which the School of Nancy builds and pulls to pieces with such assurance. There are more mysteries in suggestion than dreamed of by that School. We have shown in *Our Hidden Forces* the very important rôle played by crytopsychism in suggestion; and it does not seem to us that the partisans of suggestion, as understood by Bernheim, could doubt this.

But what conclusion can we draw from all this discussion?

First of all, the method which consists in explaining concrete facts by abstract terms, such as *suggestion* and *suggestibility,* seems to us antiscientific in the highest degree; it is an old remnant of the scholastic method, a recourse to entities, to qualities, and occult virtues.

There is a subject to whom I give, at will, hallucinations of the most impossible order, whose organs I paralyze at pleasure. What can be the cause of effects so extraordinary? It is very simple: it is all suggestion. But this suggestion, how is it explained? From whence comes its power? That is very simple also: it is a consequence of suggestibility, a natural property of the human brain.

Thus it is believed that facts are explained in muffling them in a name, just as the scholastics believed that they explained sleep produced by opium in saying that opium has a sleep-producing virtue!

According to this reasoning, it would be useless to seek the particular cause of each of the maladies from which humanity suffers; it would be sufficient to say, " It is a malady," or, upon insistence, to evoke *morbidity,* that is to say, the natural property which every human organism possesses to become diseased.

In this question, as in all others, the true scientific method consists in seeking the cause of a phenomenon in its material conditions, in its physical antecedents or concomitants. Suggestion and suggestibility are not real causes; they are simply names to designate the facts themselves of which we must seek the causes. In other words, they are the *verbal* causes, provisional, conventional, behind which are hidden the real causes, which remain to be discovered, and which, when we know them, will permit us not only to understand their effects but even to foresee them, and to control them at our will.

Inasmuch as experience shows us that all human individuals are not suggestible, or all at least are suggestible in different degrees, and also that an individual suggestible to-day in certain circumstances will not be suggestible later in apparently identical circumstances,[2] it is very necessary to admit that suggestion is not a fact subsisting in itself, an absolute fact, of which it is useless to seek the cause, and which can only itself be evoked as the cause of all the particular suggestions; but it is, on the contrary, an effect depending upon conditions still unknown, the knowledge of which is precisely the aim of scientific research.

[2] There are some subjects who might be called *intermittents.* (Charles Richet: *De quelques phénomènes de suggestion sans hypnotisme.*)

However, we are sufficiently well acquainted with the general laws of the physiological life to know that this life has, at least in part, its conditions in the organism, notably in the nervous system and the brain.

There are certain cases where psychological phenomena appear to complement one another, and it is not necessary, in order to render them intelligible, to separate them from their series. Such is, for example, a long algebraic or geometric demonstration, in which the mind seems to be concerned only with itself and to obey exclusively its own laws.

But this appears not to be the case with hypnotic suggestion. In order that the idea introduced into the subject's consciousness by means of the spoken word may produce automatically the hallucinations, amnesia, paralysis, etc., it is necessary to seek the cause of these effects outside of the mind itself, in some modification — the nature of which is still unknown — of the circulatory and nervous state of the brain centers and of all the cerebro-spinal system.

So long as this modification is not produced, if I were to say to a subject: "You cannot open your eyes; you cannot fold your arms, nor bend your knees," he would ridicule my suggestions. When, however, this modification is produced, in spite of his credulity, in spite of his efforts to resist me, he is forced to obey (as was shown in the case of Laverdant).

In this nervous and cerebral modification, in this hypotaxic state of the subject's organism, resides the true cause of the phenomena of which the suggestion of the operator is but the occasion, the determinant condition.

There is, however, no reason to suppose *a priori* that this modification, of a physical or physiological nature, can be produced only by suggestion, which is of a psychological order. Where suggestion is possible, it seems that it can be produced by a large number of different causes — as is shown in the case of the numerous and diverse processes of hypnotization; by all those causes, at least, which sufficiently disturb the customary equilibrium of the system.

On the other hand, as we have already shown, experience proves that purely physical processes — such as the prolonged fixation of the gaze upon a certain spot (experiments of Braid, Grimm, and Dr. Philips), not to mention passes — produce the state very rapidly in a large number of subjects, and prepare them for the effects of suggestion.

Therefore, it is not true that hypnotism, which is confused with the hypotaxic state, is nothing but suggestion. Quite the contrary, suggestion, in the great majority of cases, has hypnotism for a preliminary condition.

Hypnotism and suggestion are two connected but distinct facts, not necessarily existing in the same proportion. There are subjects who are suggestible in the highest degree, and in whom the hypnotic state is produced only with great difficulty and remains more or less superficial. On the other hand, there exist certain individuals who can be hypnotized with the utmost ease, and upon whom suggestion has but little influence.[3]

[3] We readily believe that the apparition of suggestibility is a characteristic of hypnotism, but only in its initial or middle phase, and that, in the measure that suggestion becomes stronger, hypnotism grows weaker and tends finally to disappear. This is only an hypoth-

It would be interesting to study all these anomalies, not at random from observations made in a clinic, but by experimental researches methodically pursued in a laboratory.

In the absence of this study, suggestion will remain, for a long time to come, a certain but enigmatical fact; and its use as an hypothesis must be accompanied by many precautions and reservations.

III

We have distinguished two different uses of the hypothesis: one theoretical, the other experimental, according to whether we make it serve to explain facts already known, or to experiment in order to discover new facts or to prove a new law.

Suggestion also can play this double rôle in the parapsychic sciences, and we must look upon it first as a theoretical hypothesis, and then as an experimental hypothesis.

It is especially, and perhaps even exclusively, with the first of these two points of view that the School of Nancy has ranged itself. Suggestion has been in its hands, above all else, a process of explanation by means of which it has tried to account for the various hypnotic phenomena and their different characteristics. In other words, it has tried to systematize these phenomena by having them all derived from a sole principle; and to accomplish this it resorted much more to reasoning than to experimentation.

esis; but it would be worth the trouble, we think, to verify it, and, in any case, it could serve as the *fil conducteur* of experimental researches.

One may be surprised at this assertion, and may contest its exactness by observing that the partizans of this School use suggestion constantly in their practise. It is by means of suggestion that they put their subjects to sleep; it is by this means that they obtain all kinds of phenomena — of a physical or physiological order as well as of a mental order; and by this means they devise treatments for all the most varied affections.

This practical use of suggestion has nothing to do with the experimental hypothesis, which is quite a different thing from a simple operative process.

Knowing that suggestion produces certain specific effects, it is quite natural for it to be employed when these effects are desired. There does not enter into that any kind of hypothesis — at least so long as the operator does not try to obtain, by means of suggestion, some effect which he does not know that it is really capable of producing.

However, for the clarity of this study, it will be helpful to look upon suggestion as an operative process before regarding it as an hypothesis, either theoretical or experimental. This preliminary consideration will have the advantage of clearing up the field for the discussion which will follow.

The first and principal use of suggestion made by the School of Nancy — especially by Dr. Liébeault, the founder of the School — had for its aim the curing or the alleviation of pain. When Dr. Liébeault asked his patients why they came to him, each of them invariably answered: "I came to be cured." Similarly, in the clinic of Bernheim it was, above all else, a question of treatment.

From this it seems that the Nancian operative technique contains two successive processes, the first serving simply to prepare and, so to speak, induce the second. It is always necessary to put the patient to sleep, or at least to influence him, in order to put him in a state in which he will be able to receive the suggestion and realize it. Then, once the way is open, the idea is impressed upon his mind; and this idea itself, by means of a mysterious process, will provoke in the organism the reactions which will result in the recovery of health.

It is evident that in this second operation, suggestion alone is used, in its more authentic form — verbal and direct. "Your fever will decrease," the patient is told. "You will no longer have excessive perspiration." "You will have a good appetite," etc.

In the first operation, suggestion can be reinforced by aids which sometimes completely disguise it. This is what is called *reinforced suggestion.*

Upon a patient who is already influenced by his reputation, the environment, etc., the operator acts not only by means of words, but still more so by means of the gaze, the slight touches upon the eyelids and temples, and even by the passes. In his own mind all this is nothing more than suggestion, indirect and tacit, whose purpose is to complete the direct suggestion — that which is made by word and consists in the enumeration of the symptoms the operator wishes to produce: "You are thinking only of sleep — your eyelids are heavy — they are about to close —they are closing already," etc.

Therefore, when it is a question of obtaining a practical result, the nature of the process employed — theo-

retically known or unknown — is of little importance; the essential thing is that it be efficacious. In order to use suggestion, it is not necessary to know what it is, after all — no more than in the case of electricity. Often, even, if one process does not succeed, it can be replaced by another; according to the popular expression, " An arrow can be made of any wood."

It is thus that Liébeault and Bernheim, having vainly tried to cure a patient of pain by means of direct suggestion, did not hesitate to take recourse to passes, attributing their success, however, to suggestion.

Similarly, the exclusive partisans of animal magnetism or of hypnotism use suggestion in many cases when they try, not to prove a certain theory, but merely to obtain a result; the important thing with them then is to succeed.

However, if the School of Nancy has employed suggestion especially for therapeutic or medical purposes, it has employed it also, although less frequently, for experimental purposes; for instance, in its controversies with the School of Paris. But this second use, as well as the first, is possible only because it gives information, in advance, by means of sufficiently repeated and varied observations, of the list of principal effects that it is capable of producing.

It is useless to have recourse to suggestion to produce in a subject a certain physical or mental modification, if it is known in advance that suggestion is incapable of provoking it. On the other hand, it will be deliberately employed if it is a question of an effect that comes within its field of action. It is, then, extremely interesting for the operator to know exactly

how far the power of suggestion extends, and where it stops; for, evidently, however extensive it may be, it must have its limits.

Suggestion undoubtedly is limited by the possibilities and the necessities resulting from natural laws; certainly it cannot perform miracles. *For instance, if I suggest to a subject that he will never die, I can make him believe absolutely in his own immortality and imagine that in the future he will be safe from death; but shall I be able to make him actually immortal?* If I suggest to a subject that he is very cold, or very warm, he will really feel, subjectively, these sensations; but it is not certain that the temperature of his body will become higher or lower in proportion, and that a thermometer put in contact with his skin will indicate forty degrees (Centigrade) or zero; with greater reason, it cannot be supposed that the temperature of the room is raised or lowered in accordance with the imaginations and beliefs of the subject.

Perhaps the question will be made clearer by distinguishing two great classes of effects of suggestion, even though in practise they are inseparably linked together. These are:

(1) The effects of a subjective order.

(2) The effects of an objective order.

Being given the nature of suggestion, such as we have defined it after the School of Nancy, for instance in a state of conviction, persuasion, absolute faith, there is nothing surprising, it seems, in that it may have subjective effects of a power in some ways illimited; but its objective effects are not equally easy to understand.

Thus, if I suggest to a subject that he feels an in-

tense cold, a cold ten degrees below zero, it seems natural that the subject would believe what I say to him, and that he would feel, or imagine he feels, a sensation of cold so intense as to cause him to shiver, his teeth to chatter, etc.[4] But there is in that only a subjective effect: that is, a belief and a sensation, or rather an hallucination involved in the belief. It is true that the chill, the chattering of teeth, etc., are objective phenomena; but are these phenomena the direct effects of suggestion? Are they not immediately linked to sensation and consequently also to the hallucinatory image, in a way that causes this to appear in the mind with or without suggestion?

It would, on the contrary, be an incontestable objective effect if the thermometer, put in contact with the subject's body, registered a noticeable lowering of the temperature, especially a lowering to ten degrees below zero. As no such effect is observed ordinarily, it would be very necessary in this case to attribute it to suggestion. But then it would be necessary to admit at the same time that suggestion develops in the human being new powers really *extraordinary* by which the customary relations of the subjective and the objective are greatly modified.

In fact, it is really this that we establish in the majority of cases of suggestive therapeutics. We do not seem to have, in the normal state, the faculty of regulating at will our different physiological functions; or, in

[4] We must note, however, that one subject who, under the effect of such a suggestion, could not avoid shivering, chattering his teeth, etc., declared all the while that he did not subjectively feel a cold sensation; this remaining in the state of a simple idea. (Charles Richet: *De quelques phénomènes de suggestion sans hypnotisme.*)

any case, this faculty remains latent and inactive in us. But when an individual is put into the hypnotic state — or, if you prefer, into the state of effective suggestibility — he then becomes capable of determining at will, upon a simple word of the hypnotizer or the suggestioner, the complete anesthesia of certain of his organs, or of his entire organism — unless this be a hyperesthesia akin to the miraculous — the paralysis of all his muscular forces or their paroxysmic exaltation, bringing into play all the vital energies, for the struggle against microbes or the reparation of tissues impaired by morbid causes, etc.

Here too we border upon mystery, or, more exactly, upon the enigma of suggestion. For one cannot help but believe that behind what is *seen* in suggestion — the word of him who suggested the idea and the faith of him who accepts it — there is also that which is *not seen:* that is to say, the unknown state of the subconsciousness and of the nervous system of the subject, perhaps even some unknown influence emanating from the operator which he himself does not doubt.

It is true, as we have remarked above, that it is not important, for the practical use of suggestion, that we know or that we ignore its real nature. If, however, it be once admitted — and a great number of facts appear to authorize this —that suggestion brings to light in human beings unsuspected powers, we cannot see why there should be imposed *a priori* a limit to that which it is possible to expect of suggestion, and why, consequently, the savants do not try to obtain by it the most improbable effects. Experiment alone can teach

us *a posteriori* that of which suggestion is or is not capable.

Undoubtedly it is for this reason that the early mesmerists suggested to their subjects to perceive things situated outside of the normal field of action of their senses, claiming thus to produce the state of second sight in them; without, however, affirming that their suggestion did anything but reveal a natural, preexistent faculty, in itself independent of suggestion.

Whatever the opinion of the different schools may be upon this particular point it does not seem to us justifiable to confine in practise the use of suggestion to a certain category of effects. Experimentation alone can reveal its true limits.

IV

It is necessary for us, meanwhile, to examine the value of suggestion as a principle of explanation for all this ensemble of phenomena which we designate as parapsychic. For, in saying that suggestion is the key to all these phenomena, the exclusive partisans of suggestion mean, in our opinion, that all of the phenomena of this order which are real must be able to be explained by suggestion, and, inversely, all those that suggestion does not explain must be considered as inexistent and apocryphal.

We wish to oppose to this assertion three objections:

First: In an order of researches so difficult and so little advanced, the pretension to explain, to theorize, to carry everything back to a unique principle, is in no way scientific.

A more urgent task imposes itself: to observe a continually increasing number of facts, in conditions of certainty and exactitude as rigorous as possible; to compare, classify, analyze, and submit them, in a word, to all the processes of the scientific method, in an endeavor to discover their laws.

It is not a paradox but a simple statement of the truth to claim that the real scientific attitude consists in being indifferent to the desire for explanation, while confining one's energies to determining the phenomena.

It is true that the hypothesis intervenes necessarily in this research; but it is then the experimental hypothesis, whose aim is not to explain the facts and *rapports* already known, but rather to discover new facts and new *rapports*. The theoretical hypothesis, on the contrary — that which has for its aim the coordination and integration of the results acquired — is placed at the end of the operations of the method, not in the course of the experiment being made but when the researches are at an end. Can we truly believe that the study of the parapsychic phenomena has reached this point, already?

Second: Any attempt to explain an ensemble of facts as numerous and as varied as those we are now discussing strikes itself against the difficulty resulting from the plurality of the inter-substitution of the causes. The exclusive partizans of suggestion reason invariably as if the same phenomenon were always produced by the same cause. "It is not true," said Stuart Mill, "that the same phenomenon is invariably produced by the same cause: the effect may come sometimes from A,

sometimes from B. There are often many independent ways in which the same phenomenon may have originated. Many causes may produce mechanical motion; many causes may produce certain species of sensations; and many others produce death. A given effect can really be produced by a certain cause, and nevertheless be perfectly capable of being produced without it."

Thus, while suggestion produces certain parapsychic phenomena — as, for example, somnambulism — it does not follow *ipso facto* that these same phenomena cannot be produced by any other cause than suggestion.

Third: It is admitted unquestionably that a principle of explanation is all the more satisfactory, all the more sure, the clearer it is, the more luminous, or, to speak without metaphor, the less of the unknown it contains. Now, the analysis of suggestion as made above, either as a fact or as an operative process, demonstrates that there exist few facts so obscure and in which the part of the unknown is so great. To explain a certain parapsychic fact by suggestion is usually to explain *obscurum per obscurum,* if not *per obscurius.*

All these objections, which appear to be very great if applied to the *theoretical* suggestion-hypothesis, would singularly lose their force were they to aim at the *experimental* suggestion-hypothesis; for, in this case, it no longer would be a question of an explanation which is given to complete and define a whole order of phenomena, but of a simple temporary interpretation of a certain particular phenomenon or a certain particular group of phenomena. Even if false, it carries its cor-

rective, for it contains in itself the project and the plan of an experimentation by which it can immediately be confirmed or disproved.

It does not seem to us that, up to the present time, suggestionists have thought — with rare exceptions — of supporting their affirmations and their deductions by proofs, and especially by experimental counterproofs. Their method consists, in general, in showing that suggestion can produce — and consequently explain — all the parapsychic phenomena. They conclude that it is suggestion which produces and explains the phenomena in every case, even where it is impossible to prove that it may be present and active. When it can be proved that suggestion is certainly absent and has not been able to act in any way, then it must be concluded, according to them, that the phenomena are in reality imaginary, illusory — in a word, unscientific.

First of all, let us consider suggestion in itself: Does it carry its own explanation?

" Yes," says the suggestionists; " for it is explained by suggestibility, which is natural to every human brain. On the one hand, every human being is made to believe what is said to him, and, on the other hand, it is sufficient for him to believe in order to be made to realize his belief, either in the field of perception or in that of action."

Thus suggestion is explained theoretically; and in order to verify the theory experimentally, the suggestionists are content to show that, by using the word to bring the credulity of a subject into play, he is effectively made to see or to do the most improbable things. This manner of reasoning and experimenting is that which

Bacon called an induction "*per enumerationem simplicem, ubi non reperitur instantia contradictoria*"— induction by simple enumeration, where they do not give themselves the trouble to seek contradictory facts.

It is true that there are people who are suggestioned with the greatest ease by the word of others. But does this signify that they are always and necessarily people of a credulous nature? Are there not also people — as in the case of Laverdant —who are in no way credulous, and upon whom, however, suggestion acts in spite of their incredulity? Inversely, are there not people who, believing in the all-power of suggestion, ardently desirous of being suggestioned, do not succeed, nevertheless, in realizing the suggestions that are made upon them?

It is these negative cases — which savants too often believe themselves able to be rid of by qualifying as *exceptional* — which are the really significant and instructive cases; for, in preventing us from stopping at the *apparent* causes, they orient our researches toward the determination of the *real* causes.

We have already shown that the hypothesis of suggestion is not sufficient to explain all the characteristics of hypnotism. It explains neither the exclusive *rapport* of the subject with the hypnotizer, nor the transmissibility of this *rapport* to an assistant placed in contact with the hypnotizer. It explains neither the spontaneous anesthesia of the subject, nor the consecutive amnesia. Nor does it explain the bringing into play of curative powers of the organism, and perhaps other still more mysterious powers. And there are many other circumstances it does not explain. These may

not be encountered in all cases, but they are observed frequently enough to demand an explanation of any hypothesis which pretends to give us "the key to all the phenomena of hypnosis."

There is no question that, with these characteristics once known, it is always possible to try to reproduce them, to imitate them, we would unhesitatingly say to simulate them, by means of suggestion. One must necessarily recognize that suggestion is quite an extraordinary principle of imitation and of simulation. For example, it can be suggested to a subject that, once asleep, he will be *en rapport* with his hypnotizer only; and in this case the *exclusive rapport* — the work of suggestion — will imitate, simulate this same *rapport* as it is produced spontaneously in other cases *quite apart from suggestion.* Similarly, it can be suggested to a subject that all his sensitiveness will be abolished when he is asleep; and in this case the total anesthesia — the work of suggestion — will imitate, simulate the same anesthesia that is produced spontaneously in other cases without suggestion. And so on. But, we say, in the same way, the purgative effects of castor-oil can be imitated, simulated in a subject by making him swallow clear water: can it be concluded that any one who takes castor-oil outside of all expressed suggestion is in reality purged only by virtue of a tacit suggestion?

It is this kind of reasoning, or rather sophism, that is the basis of all the pretended experimental demonstrations of the exclusive suggestionists.

On one hand, however great this power of imitation and simulation may be, it is not without weakness

and limitations. We have more than once imperatively assured a subject that when he was asleep he would be *en rapport* with no one but the operator; or that he would lose all tactile sensibility; or that when awakened he would have no recollection of what had happened during his sleep. Yet, in spite of our suggestions, the subject would continue to be *en rapport* with all the assistants; to feel all the contacts; to remember all that we had said or done to him.

It is these characteristics of deep somnambulism, such as the transmissibility of the *rapport* by contact or conduction, or such as the exteriorization of the sensitiveness, that suggestion alone, without recourse to fraud, will remain always powerless to imitate.

The great tactic of the pure suggestionists consists in denying all the phenomena which cannot be explained or produced by suggestion alone.

"We have never constated," they say, "the exteriorization of the sensitiveness, the transmissibility of the *rapport* by contact or conduction, clairvoyance, etc.; therefore these phenomena cannot exist. Those who believed they observed them have been duped by the fraud of the subjects or by their own illusion."

We should like to know if the suggestionists have ever tried to be placed in the conditions which would permit them to constate these phenomena. Having systematically decided never to employ in their experiments anything but suggestion, they are thus condemned never to see anything but suggestion, and it is with entire good faith that they declare that there is not, and cannot be, anything else.

It is thus that Dr. Bernheim held as valueless Dr.

Liébeault's curious work upon *Zoomagnétisme,* in which he admitted the existence of a principle analogous in its effects to suggestion, but different in its nature, and which was no other than the old animal magnetism of Mesmer, Puységur, Deleuze, du Potet, etc.

It is thus, also, that all the domain of cryptopsychism, of telepathy, of mental suggestion, and, more especially, of spiritism, is closed to the partizans of a school *which considers that the boundaries of its doctrine are those of science and of reality.*

CHAPTER IX

AN UNKNOWN FORCE

Animal Magnetism, or "Biactinism"

I

Does *the human organism really possess the property of radiating a magnetic influence capable of acting at a distance upon another human organism?*

This is a question upon which the savants cannot agree.

The problem, therefore, is an interesting one, and it presents such great importance — from the point of view of the general orientation of the psychical sciences — that it is necessary to examine it here in detail.

Mesmer seems to have been the first to affirm the existence of this radiation of the human organism, which he compared to that of the magnet, or rather he considered it as being — as is the radiation of the magnet — a particular case, a particular form of a universal energy. In any event, the usage of calling this radiation *animal magnetism,* sometimes modified to *vital magnetism,* began with Mesmer.

Perhaps a part of the disfavor which official scientists still attach to all affirmation or even to all study of human radiation comes really from this name. It is not the only case in which the words are inappropriate to the ideas. The expression *animal magnetism*

not only designates a certain ensemble of facts; it involves at the same time an hypothesis; it anticipates the explanation of these facts. Consequently, all those to whom this hypothesis is repugnant, or who consider this explanation inadmissible, will reject *in toto* the facts themselves, refusing to examine them, or declaring them *a priori* impossible, illusory, inexistent.

Is this not what happened to the king's commissioners who were charged with officially controlling the assertions of Mesmer?

We find at the present time a similar confusion, with the same regrettable consequences, regarding spiritism. This word, also, is used wrongly to designate two very different things, wholly distinct from each other: (1) a certain ensemble of facts, which we have called spiritistic or spiritoidal; (2) a doctrine proposed by a particular group of people in order to explain these facts.

To admit the existence of spiritoidal facts, at least as objects of possible study, is not by any means to affirm the truth of this doctrine. Nevertheless, those who reject the doctrine believe themselves *ipso facto* authorized to deny the facts.

Similarly, the term *animal magnetism* is wrongly used to designate, at one and the same time: (1) the facts in which a sort of action of the human organism at a distance seems to be manifested, and which we have named *magnetoidal* without pretending in any way to prejudge their nature; (2) a theory, that of Mesmer and his disciples, which is presented to us as a systematic explanation of these facts, more or less assimilated to the phenomena of physical magnetism.

Could not the *facts* of animal magnetism be ad-

mitted, at least as objects of possible study, without being obliged at the same time to profess the *doctrine* of animal magnetism, either under the form that Mesmer gave it, or under any other particular form?

Perhaps the best way to remedy this confusion would be to renounce absolutely this traditional term *animal magnetism* and to employ wholly new words, neologisms taken from the Greek or the Latin. Braid and Bernheim did this in grouping under the names *hypnotism* and *suggestion* the phenomena described by them and which they considered — rightly or wrongly — as really different from those of animal magnetism.

Unfortunately, it is very difficult to overcome usage and tradition; and, indeed, few efforts have been made in this connection. The only ones that, to our knowledge, can be cited are those of Reichenbach, calling *od* or *odyle* the supposed agent of human radiation (capable, moreover, of producing effects of the same kind outside of man and in all nature); and that of Professor Thury (of Geneva) giving this same agent the name *psychode*. But these denominations remain confined to the works of their inventors. This is true, also, of the term *ecténéique* [1] (ectenic state, ectenic force) by which this same Professor Thury designated the state in which a human being can extend the limits of his action beyond his own organism, and the force which is developed in this state.

Even though these words may have the advantage

[1] From the Greek word *extension*. An abbreviated form of the word, *ecten,* has been proposed, we believe — but without much more success — to designate the force itself, and *ectenic* to qualify all that is connected with this force.

of not involving any hypothesis as to the essential nature and the deep cause of the facts being considered, none of them has succeeded in supplanting in common usage the old name of *animal magnetism.* We have a proof of this in the title given by Baréty to his great work: *Le magnétisme animal étudié sous le nom de force neurique,* where the new name, *neuric force* dares to introduce itself only under the shelter and patronage of *animal magnetism,* in spite of all the discredit attached to it in scientific circles.

It seems very necessary, however, to break with all associations of ideas which this expression *animal magnetism* carries.

It is not doubted that the facts called animal magnetism present, at first sight, singular analogies with the facts of physical magnetism. But these analogies can be only apparent and superficial; it is very possible that a more thorough study would cause us to conclude that there is no essential resemblance between these two orders of facts. Moreover, the conception that we form of physical magnetism is itself provisional and largely hypothetical. It already has changed many times, and undoubtedly will continue to change as science progresses.

Is it rational to link thus, by giving them the same denomination, two orders of phenomena which cannot have in reality anything in common, as if it were pretended to explain each of them by one and the same principle?

We would suggest replacing, or at least adding to, the term *animal magnetism,* by a new expression. This should be free from all preconceived idea, by a

neologism taken from the Greek, alas! (but how can we do otherwise?) and which means nothing more than "human radiation" or "vital radiation."

In these conditions, the word *biactinism* is presented to our mind; for it means exactly "radiation of life," from two Greek words, βίος *life,* and ἄκτις *ray.*[2]

"Biactinism" could be used, then, to define the ensemble of facts when there is manifested in living beings, and particularly in human beings, a radiating influence, a radio-active energy, susceptible of being exercised at a distance over other animate beings, or even upon inanimate objects.

Observation and experimentation alone can enable us to know by progressive steps the different properties of this energy, the different effects of this influence. Meanwhile, however, it can be said now that they present close analogies to those of the natural radiating forces already known: heat, light, electricity, magnetism.

Until further researches are made, *biactinism* must be considered as constituting a special order of facts, to be studied in itself, and of which the *rapports* with the other orders of natural facts must not be prejudged in virtue of *a priori* conceptions, but determined experimentally, in proportion to the progress of their study.

[2] Perhaps the word *zoactinism* might be more correct; for, as has been remarked, the Greek βίος means, rather, moral and social life; organic life, an attribute common to animals and vegetables, would be rather designated by the word ζώη. But usage has already prevailed, in all modern languages, in employing the root *bio* in the second sense — as proved by the words *biology, aerobia, microbe,* etc., which incontestably refer to organic life.

II

The first question that arises regarding biactinism is, very evidently, the following:

Does biactinism exist? Is it really true that a living organism generates — in conditions which permit it to be established with certainty — a radiating force capable of acting even at a distance upon another organism?

We have indicated elsewhere [3] the reasons which necessitate an affirmative answer to this question, at the same time showing the processes and the methods by which the effects and the conditions of biactinism can be studied scientifically. We shall review these, however, in the present chapter.

Let us consider, for a moment, that the question is answered in the affirmative. What shall we understand by "radiation of an organism operating at a distance"? For biactinism, or animal magnetism, would consist in that, according to the definition we have given.

From the strictly metaphysical point of view, it can undoubtedly be claimed, with Leibnitz and the author of a recent work,[4] that the notions of radiation and of action at a distance are illusory, entirely relative to false appearances, and that, in reality, there is neither action nor radiation.

"Every time," says the author of *L'univers-organisme,* "that a body seems to act at a distance, it is because there exists, between the body which acts and the body which reacts, an intermediary agent which

[3] *Our Hidden Forces.*

[4] *L'univers-organisme,* Bardonnet. (*Revue philosophique,* 1914.)

transmits the excitation, having first undergone it itself. This intermediary, in acoustic phenomena, we know, is the atmospheric air; but it exists also in all other orders of phenomena; and it is, then, *cosmic matter.*"

Properly speaking, the force does not radiate, is not transmitted; or, as Leibnitz said, there is no really *transitive* action, no action which passes from one subject to another as a rider would jump from one horse to another because " force is the act, and the act is necessarily inherent to its agent. An act cannot go far from its agent."

Let us note that what is said here of " force " can equally be said of " motion," of " excitation," of " sensation," of " thought." Taken literally, such as expression as this: " motion is transmitted from one body to another," is nonsensical, an absurdity. The motion of a body is not separated, cannot be separated, from that body itself: it is a state of the body, it is the body itself in the state of motion. Thus the motion of a first body A cannot become the motion of a second body B; but B can be brought to move as A, and because A is already in a state of motion.

There is not, in that, a single movement passing from one subject to another, but two movements produced successively, one because of the other, in two different subjects. If it be understood otherwise, the movement then becomes a third body, a sort of invisible substance.

In the same way, it is erroneous to speak of an excitation as being transmitted. Following and because of a first excitation in the subject A, a second excitation, more or less similar, is produced in B; and so forth.

But it is not *one* excitation, abstract, impersonal, anonymous, which the subjects pass to each other in some way from hand to hand.

Similarly, also, when we say that a nerve transmits a sensation, we must no more take this expression literally than when we say that the telegraph transmits a despatch or that a letter transmits to us the thought of its author. The sensation of pricking is not an unknown something starting from the needle-point, proceeding along a nerve, entering the brain and then the consciousness of the individual. It is a series of distinct states, specifically different from one another, which follow in a certain order and of which each is, so to speak, the promoter, the excitator of the one that follows it.

All this is very true; but it is true also that in practise there is no serious disadvantage in employing the language of appearances, so long as one is not led astray by so doing. Astronomy itself, which well knows that the sun does not rotate round the earth, does not hesitate to speak, in everyday language, of the rising and the setting of the sun.

Therefore those very savants who raise objections against the radiation of a force and its action at a distance, end by declaring that "evidently, on the whole, things happen more or less as if cosmic matter does not exist and as if the force radiates at a distance." This is why, undoubtedly, led by the force of habit, they themselves employ expressions which they denounce, and speak freely of *transmitted excitation*.[5]

[5] "Our peripheric nerves end at the nerve centers, and every time they are excited they have nothing so urgent as the *transmission* of their

These expressions, precisely because they present things *en gros,* have the advantage of a brevity and a convenience that would be difficult to obtain with more precise and exact words.

Let us say, however, that the objection which we oppose here is less against the conception of biactinism or animal magnetism in particular than against all the actual conceptions of physics, or rather against the vocabulary which serves to express them.[6] It appears very doubtful to us that the great majority of physicists, when they speak of action at a distance, of force which radiates or is disseminated or transmitted from one body to another, etc., understand all these expressions in a literal sense and see in them anything but shortened forms, more or less metaphoric and in any case convenient practically, to represent realities that they know to be appreciably different from that representation.

A precedent is created when saying to a contemporary physicist that there is no action at a distance in the proper meaning of the term; for he knows very well that all action between two bodies distant from each other, whether it be a question of heat, light, or electricity, suppose an intermediary; and it is this intermediary which is designated by the name of *etheric ambient* or *cosmic ether.*

To call it *cosmic matter* is but to add one more name to all those it has received since the time of Descartes,

excitation to the center to which they are bound; this, in its turn, transmits it to the others and in particular to the 'self.'"— Bardonnet.

[6] "This conception of an animal magnetism which frees itself from the individual and radiates imitates the classical conceptions of force; but it is false here as in physics."— Bardonnet.

who appears to have had the first idea of it when he called it *subtle matter*.[7]

It would be absurd to pretend that, when certain of our contemporaries speak of heat, light, electricity, or animal magnetism as circulating and radiating forces, they really conceive each of these forces as being "a quintesssence, a fluid, an imponderable element, capable of circulating, of being discharged, and arrested" as "a changeable principle, conductible, freed, radiating, rarefied or accumulated; stored, concentrated, transformed," etc.

We should then distinguish in all description or expression of natural facts, that which is *essential* and that which is *accessory:* the true rapports of the phenomena and the more or less imperfect images by which we represent them in our minds. And we should understand that there is not an irremediable inconvenience in employing this language of images, provided we can always interpret it in the language of true rapports, when necessary to do so.

It is the same conclusion which is reached by Bardonnet when he says:

[7] It is by the movement of *subtle matter* that Descartes explains not only all the particularities of fire (light and heat) and of the magnet, but also "an infinity of effects altogether rare and marvelous," and especially those which are designated to-day under the name of psychical phenomena, "as the wounds of a dead person can be made to bleed when the murderer is approaching; to stir the imagination of those who sleep, or even also of those who are awake, and to give them thoughts which inform them of things happening far from them and make them feel the great afflictions or the great joys of an intimate friend, the bad designs of an assassin, and similar things." This curious passage from *Principes de la philosophie* shows well that Descartes had not disdained initiation in the sciences called occult, as he reveals in the first part of *Discours de la méthode.*

" The doctrine of animal magnetism is, then, false in that it affirms a magnetism, that is to say a principle which is freed and propagated outside of the individual; but true in that it affirms an *exterior action,* a *physical influence,* of the operator." Farther on he says: " The dispute among suggestionists, mesmerists, and hypnotists, can be understood. *In reality, it is the mesmerists who are right;* at least in that which they affirm a physical influence out of the ordinary. This physical influence consists not in animal magnetism but in another method of excitation."

One can well see, from this last passage, that the whole difficulty here comes from the associations of ideas inseparably attached to the traditional term " animal magnetism," even though this term essentially designates for us only a " method of excitation " which, instead of employing, as do suggestion and hypnotism, the ordinary senses, employs those of a special sensibility, the sensibility to certain excitations of etheric or cosmic matter.

The difference between our doctrine and that which we oppose is but that of a word.

It is necessary for us to recognize that a doctrine or an hypothesis, such as that of animal magnetism, can be defined only by comparison with other doctrines or hypotheses which are found, so to speak, in concurrence with it and contradict it upon certain points where reciprocally it contradicts them.

Perhaps this was not so in the time of Mesmer and Puységur, or even of Deleuze and Du Potet. But actually that which is essential, uniquely essential, in the hypothesis of animal magnetism is that by which this

hypothesis is opposed to those of suggestion and hypnotism; all the rest is accessory and negligible.

The doctrines of suggestion and of hypnotism agree in placing exclusively in the physical and psychological state of the subject the necessary and sufficient reason of all the parapsychic phenomena and in refusing to acknowledge all real and direct action of the operator. The doctrine of animal magnetism or biactinism consists, above all, in attributing to the operator, to his personality, to his own action, an importance at least equal to that of the subject in the production of a certain number of parapsychic phenomena: viz., all those which rightfully would not appear to be explicable by the sole indications of hypnotism and suggestion.

The partizans of suggestion could claim, it is true, that they recognize this action of the operator; for it is the word or the gesture of the suggestioner which is, according to them, the cause of all effects observed. But any such action is of a moral or social order: it has nothing to do with physiology, nothing to do with physics. It is, moreover indirect, in that it is created to arouse an idea in the mind of the subject, and it is the idea which is the true cause. *Suppress the intervention of the operator and create the idea in any other way whatsoever: the phenomenon will not continue, much less be produced.*

Entirely on the contrary, in the hypothesis of biactinism, the operator influences the subject by a *special* action, wholly independent of the word and the gesture, an action of a physiological and physical order, although all psychological element may not necessarily be excluded.

Evidently, this hypothesis has the disadvantage of introducing an unknown quantity in the problem: i.e., the nature, not yet fully determined, of this special action attributed to the operator. But it is not a question, at the moment, of criticizing it, of weighing it. The question is merely that of an exact conception and understanding of it. True or false, it consists in believing that certain parapsychic phenomena are a function not only of a special physical and psychological state of the *subject,* but also of a special physical and psychological state of the *operator.*

To affirm this is to affirm animal magnetism, by whatever name it may be called, and in whatever way it may be imagined in detail; to deny it is to deny animal magnetism. Nothing that is added to this fundamental postulate can, at least for the moment, be considered as essential.

III

Does this mean that it is useless to try to obtain a less vague and less abstract idea of this action *sui generis* that the operator is supposed to exert upon the subject, where it determines certain parapsychic effects?

On the contrary, the advantage of this hypothesis is that it opens to us a vast field of researches, whose aim is precisely to determine more and more the unknown which surrounds it.

But this progressive determination must be made by observation and experimentation, not by imagination and reasoning only; and the results thus obtained gradually must always remain subject to revision and correction, as all that which comes under the experimental method.

It is, then, natural and inevitable that those who admit of a biomagnetic or biactinic action because of certain facts observed by them, endeavor to represent it more or less concretely from what they know of these facts, without concealing the fact that this representation really comprises the artificial and provisional. It is thus that they are brought to seek the analogies that any such action can present with other actions or forces already known: on the one hand with the nerve force, on the other hand with the forces called radiating and circulating — heat, light, electricity, magnetism, etc.

It does not seem possible to deny the existence of the nerve force; but it is very necessary to acknowledge that its nature is thoroughly unknown to us. We know its principal effects; we know that it is the agent which transmits to the nerve centers the excitations coming from the periphery and gives birth to the sensations. It is this also which transmits to the muscles the orders of the Will, and determines the movements of the exterior organs. It is this, too, which excites and regulates the different vital functions: respiration, circulation, assimilation, and catabolism. But we do not know what constitutes it. The greater part of the time it is believed to be like galvanic electricity, as a force which circulates in its conductors between the centers or focuses where it would be accumulated and condensed; but one must appreciate that this is only a rough supposition, and that it may be very far from the reality.

Be this as it may, if this force be supposed capable, under certain conditions, of acting beyond the limits of the organism in which it is, and of working thus a sort of transfusion or of communication of sensitiveness, of



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At the time of the experiment, when this photograph was taken, one of the assistants went into an even deeper state of sleep, entirely through sympathy.

will, of vitality, between two different organisms, a conception of the biactinic force can be gained, which sums up the principal facts upon which is based the affirmation of those who believe in its reality.

This force would be, then, the nerve force radiating from one organism to another, circulating from one organism to another.

But our conception of the nerve force is itself very vague, very indeterminate, and the only means we have of making it more precise is to compare it to physical forces to which it presents certain analogies, principally electricity. Hence there is not, perhaps, great inconvenience — there may even be some advantage — in trying to conceive the biactinic force in the light of what we know of its analogies to physical forces, disregarding all speculation upon nerve energy or nerve force.

Considered from this viewpoint — which brings to mind that of the early partizans of animal magnetism — the biactinic force can be regarded, if not as a form of electricity or of magnetism, at least as an electroidal or magnetoidal force, the effects and laws of which are comparable, *mutatis mutandis,* to those of the modes of universal energy. One will then be justified in speaking to his subject of conductibility, of polarity, wholly as if it were a question of electrical or magnetic phenomena.

It goes without saying that the idea which will be gained of the biactinic force will itself undergo variations corresponding to those of the general conception of electricity and magnetism; and it is this which takes place historically. For example, from the time when

physicists compared electricity to a fluid, the mesmerists attributed equally to a fluid the effects produced by passes, the gaze, etc. At the present time it is not a question of fluid but of vibrations, undulations, etc. It is, therefore, a phraseology, or, if we may be permitted this expression, an idealogy, of the same kind, that tends more and more to be applied to biactinic phenomena. If in the future a new and wholly different conception of electricity must be imposed upon the generality of scientists, it will not fail to model to its image the conception of this particular order of phenomena.

IV

The questions we have examined in this chapter up to the present point are relative to words and ideas rather than to the things themselves. They ask us how we shall name and represent action at a distance, the radiation of one nervous system upon another nervous system, supposing any such action to be possible (and we have shown that there is not, *a priori,* any impossibility in conceiving such an action). But the fundamental question remains:

Does biactinism exist?

And this question can be answered only by facts. It is a question of proving — not by definitions and reasonings, but by observations and especially by experimentation — the reality of nervous radiations, in conditions which leave no room for doubt.

In *Our Hidden Forces* we described the facts which convinced us of this reality. We do not hesitate to say that any one earnestly bent on experimentation,

while observing the precautions indicated, possessing all the patience to conduct his researches to finality, even if his first results appears to be negative, will inevitably be convinced.

The great difficulty lies in the possibility of confusing the effects of suggestion with those of animal magnetism. This, it will be remembered, was the objection which the king's commissioners made to Mesmer and his partizans when they attributed to imagination all the phenomena they had witnessed.

However, this difficulty is not insurmountable. It may be overcome, in experimenting, by following rigorously some very simple rules.[8]

Even in the time of Mesmer certain observers — among them, Antoine-Laurent de Jussieu — had been able to constate cases of biactinic action entirely free from all suggestive or imaginative element. In a book written at that time we have found the description of a case of this kind which perhaps is worthy of being quoted here:

Toward the end of November, 1778, I invited Dr. Mesmer to dinner with me in a house where all, including myself, impatiently awaited his productions of magnetic phenomena. . . . But here is what happened after dinner. I attest it as a fact which I followed with the utmost care, and which the witnesses studied with all the distrust imaginable.

The company assembled in the drawing-room. Dr. Mesmer touched successively many persons. Some of them, especially, had extremely irritable *nerves;* but none proved sufficiently sensitive to be susceptible to animal magnetism.

[8] See *Our Hidden Forces,* Chapter VI, "New Experimental Method in Hypnology."

The tutor of the children in this house — a man of strong temperament, robust, well constituted, *not in the least credulous,* and strengthened in his incredulity by the unsuccessful attempts which he had witnessed — complained after a while of a pain in his shoulders. He offered himself to Dr. Mesmer as the subject for a last attempt, though strongly persuaded that the magnetism would not act any more upon him than it did upon those whom Mesmer had touched. To tell the truth, it must be admitted that it was not a new proof that he desired, but a new occasion to deride this practise.

This last attempt, however, turned wholly to the glory of Dr. Mesmer.

Perceiving, undoubtedly, the motive which brought this new actor upon the scene, and wishing to give him the most convincing proof of his skill, Mesmer refused to touch him but instead directed his magnetic power against the subject without contact and at a certain distance.

The experiment at once became more unusual and more interesting. The subject stood with his back toward Mesmer, who presented his finger at a distance of eight feet. As long as the finger remained fixed and motionless, pointing in the direction and held at the height of the subject's shoulders, he did not feel any effect; and the questions which Mesmer reiterated for the space of about two minutes only strengthened the subject more and more in his incredulity.

Things were at this stage when Mesmer signaled to the assistants to fix their attention more closely upon the subject of this singular experiment.

Then he moved his finger up and down, giving it at the same time a slight circulatory motion. Instantly the subject said that he felt a shivering sensation in the upper part of his back.

Dr. Mesmer suspended his operation. The subject turned around, and attributed the effect which he had felt to the action of the heat-register before which he had been standing.

The experiment was begun again, with the subject this time far away from the register. Standing firmly upon his feet, he presented his back to Mesmer. The same movements, but more energetic, more determined, on the part of Dr. Mesmer, took place; and immediately the same sensations in the subject's back, but less equivocal, more appreciable, were noted.

The subject was now thoroughly convinced of the reality of these effects, and said that he could describe them no better than by comparing them to a stream of hot water circulating in the veins of his shoulders and all the upper part of his back.

This experiment was repeated two or three times, with the same success; until the effect became so strong that the subject refused to lend himself to further experimentation. Once more, however, the experiment was performed. The master of the house seized the tutor by one arm and I by the other, and Dr. Mesmer proceeded with his passes. But the subject broke violently from our hands, protesting that the heat which he felt was unbearable. A moment afterward he exclaimed that he was covered with perspiration over the part that had been experimented upon. Placing my hand there — as did all the company — I found that his shirt actually was soaking wet at the back near the shoulders.

After a few minutes of rest, Mesmer faced the subject and presented two fingers, one of each hand, to the two lateral parts of his chest. The subject felt in these places, and even in the whole extent of his chest, a similar sensation but not quite so strong as before. Soon an uncomfortable heat rose to his face and we saw his forehead entirely covered with perspiration.

Being impressed more and more by these phenomena, the subject was very willing to lend himself to any new experiment which Mesmer wished to make upon him. He presented the index finger and thumb of each hand, the other fingers remaining folded in his palm; and Mesmer presented to him the same fingers, very close to his own but without touching them. The

subject first began to feel a slight vibration, a tickling sensation, in the palms of his hands. This tickling was followed by a numbness. Heat succeeded immediately, and his hands were covered with perspiration — not, however, as abundant as that which we had seen on his forehead, and also less than that which had been on his shoulders.

Such are the effects which I myself have witnessed, without having perceived or having been able to suspect any mechanical cause which had produced them.

His incredulity being wholly vanquished by these phenomena, and having recovered from the surprise which they had caused him, the new convert went the following morning to Dr. Mesmer. There he experienced again the same sensations. He assures me of this in a letter dated December 2, in which he says:

> My pain in the shoulder increased considerably until Mesmer directed upon me the action of his *I know not what*. I have felt a heat comparable to that of steam from boiling water; prompt and rapid twitchings in the members; slight spasms and shivering in the fingers. When he withdrew his hand, it seemed to me that a very cold air blew into mine. I have repeated this experiment more than twenty times.

The author of this account concludes with these very sensible words:

In the meantime do not let us be so skeptical as to reject the phenomena that we cannot undersand, but let us be more circumspect about the cause of a multitude of effects, the apparent marvels of which are due wholly to our ignorance.

We ourselves have observed, more than once, facts similar to those just related. A certain number of them are described in *Our Hidden Forces*. More re-

cently still, we have been able to ascertain that the receptivity of subjects, in respect to the biactinic action, is not necessarily proportioned to their suggestibility or their hypnotic sensibility.

Take, for example, the case of a boy of sixteen, who was employed in a factory. He had never seen any experiments of the kind, and was almost completely ignorant of matters of this nature. He consented, out of mere curiosity, to lend himself to an experiment of hypnotization. He reacted quickly and with much force to the process of Moutin, and to that test which we have indicated as a variation of Moutin's method.[9] Submitted to the action of the passes and the gaze, he fell into a state of torpor, or, rather, of manifest passivity. But this state was evidently very superficial, for he suddenly opened his eyes and returned to his ordinary state. His cutaneous sensibility remained intact; although he was suggested that he felt nothing, he continued to feel all contacts. Suggestions of heat and cold, even though repeated with insistence, produced no effect. In short, he appeared very little suggestible. Hypnotism (the process of Braid) gave no appreciable result. There was no amnesia on waking — if it can be called waking, from a state which had no resemblance to sleep.

However, certain signs made me suspect that the subject was particularly sensible to biactinic action. Therefore, in a second séance, after he was placed in a state of torpor, with his eyes closed, I tried to verify my conjecture. Seated in front of the subject, and talking all the while to a friend who accompanied me,

[9] Page 88.

I slid my right foot slowly over the carpet, the toe pointing toward the subject's left foot. I noticed immediately a slight movement, a sort of tremor, in his foot. Again I slid my right foot, very slowly and without noise; this time the subject's foot glided visibly toward mine. Then the gliding — which responded each time to that of my foot — became so marked that my friend's attention was attracted to it. Until then he had noticed nothing, but now he regarded with surprise this foot which was advanced by jerks over the carpet and ended by leaving the ground and raising itself in the air, as if it were linked to mine — which was raised at the same time — by an invisible thread.

When the subject was questioned, he declared that he had felt in his foot a sort of attraction which had forced him to move it.

I then placed my right hand at eight or ten centimeters from his left hand while it lay, relaxed and motionless, over the arm of the chair. After a few seconds of presentation I drew my hand slowly away from his, repeating this movement several times. I observed, first, a slight tremor of the subject's hand, which gradually left its original position, reproducing each time the movements of my hand. I then made — always at a distance — the reverse movements; his hand returned slowly to its former position over the arm of the chair. Quickly I transferred my action from the left side to the right; the subject's right hand responded to the silent appeals of my hand exactly as his left hand had done.

In brief, this subject, suggestible and hypnotizable to a very small degree only, behaved as if his nervous sys-

tem were, so far as voluntary movements are concerned, in communication with my own.

It is evident that all these experiments should be repeated in conditions which would permit of their being rendered more precise and more varied. But they do not depend always upon the desire of the experimenter, for he cannot dispose of persons as he may dispose of material objects in experiments in physics or chemistry, or even of animals in experiments in physiology.

It would be interesting, if the occasion should present itself, to find if a subject sensitive to the biactinic action of a certain operator is equally sensitive to that of all other individuals; to ascertain the circumstances which increase or diminish the efficacy of this action; to learn if it can be exercised through intermediaries, etc.

All these researches have been undertaken by us; and if we have not been able to continue them, as we should have wished to do, others undoubtedly will succeed, when scientists become thoroughly convinced that it is a question of real facts, submitted, as all other facts of nature are, to general and constant laws, and entirely amenable to the experimental method.

Up to the present time, however, those among our contemporaries who have had the courage to pursue this study have been only too rare. Outside of the school of the early mesmerists — who, however, ignore or deny the disturbing and simulating intervention of suggestion in the greater part of the parapsychic phenomena — we see few among the more recent observers, beyond Dr. Baréty, who submitted biactinism to a systematic investigation, the results of which were pub-

lished by him in 1887. But even though Dr. Pierre Janet, speaking of Dr. Baréty's book in the *Revue philosophique* (1888), commended it as a useful work in "calling attention to important phenomena which we have been too disposed to neglect," no scientist, to our knowledge, has thought it worth while to undertake the experiments, although their control was very easy; and so these "important phenomena" have continued to be neglected as before.

We must make an exception, however, of a Swedish scientist, M. Sydney Alrutz, professor at the University of Epsal, who published (1914) in his reports of the Sixth Congress of Experimental Psychology, of Göttingen, an interesting article entitled "Contribution to the Dynamism of the Nervous System," in which he gave the results of his personal researches.

The problem which he proposed to solve experimentally was the same as that which we announced at the beginning of this chapter:

Does the human organism really possess the property of radiating a magnetic influence capable of acting at a distance upon another human organism?

"It is a question, above all else, of knowing," said Professor Alrutz, "if one nervous system can exert upon another nervous system a direct influence; and if nervous systems are such that, even if isolated from each other, there can be established between them, in special conditions, any action at a distance."

To solve this problem, Professor Alrutz employed the following method — which, it will be noticed, is analogous to that we have employed.[10]

[10] Described in *Our Hidden Forces,* Chapter VI, "New Experimental Method in Hypnology."

The operator assures himself that it is impossible for the subject, placed in a light state of hypnosis, either to see anything or to know what happens about him. For this purpose a heavy cloth is thrown over the subject's head, and if judged necessary his ears are stopped up. It is understood, of course, that no verbal suggestion is made. There is then placed above the subject's bare hand and forearm a glass plate of about five millimeters thickness, supported a few inches above the skin. The experimenter now makes with his right hand, as silently as possible, slow and regular passes (about twenty passes a minute) a short distance above the glass plate and without contact. These " descending " passes are in a centrifugal direction — that is to say, they go from the articulation of the subject's elbow to the tips of his fingers.

In this experiment the following phenomena are observed:

The cutaneous sensibility is completely abolished,[11] although prior to this experiment — the subject being, however, in a state of hypnosis — his sensitiveness was a little above normal (hyperalgesia and light hyperesthesia). As if by a sort of compensation, the sensitiveness is distinctly augmented upon the parts corresponding to that experimented upon.

The same effects are produced if the plate of glass be replaced by a plate of zinc, of copper, of lead, and of other metals, or by an alloy such as brass. On the contrary, with a sheet of cardboard, or a piece of wool, these substances have the effect of an isolator, the plate acting more or less as a protector.

[11] The author omits, unfortunately, to say for how long a time.

If, now, above the skin rendered insensible by descending passes, *ascending* passes be made — that is, in the centripetal direction — whether with a glass or metal plate, the sensibility is reestablished, and its return is accompanied by an uncomfortable sensation: the subject rubs the spot with his other hand and declares, spontaneously or upon interrogation, that " it pricks," and also, although later, that it feels hot or cold.

These sensations correspond often to the excitations made during the preceding period of analgesia. For example, if during this period the anterior part of the phalanges be pricked with a needle, the subject does not feel the pricking sensation until later when his sensibility is restored.

In a general way, the *ascending passes have a positive action* upon the sensibility: they reestablish the sensibility when this has been abolished by a previous action, or augment it to the point of hyperesthesia when it was originally normal. The *descending passes,* on the contrary, *have a negative action:* they abolish the sensibility or bring it back to the normal state when it has been rendered hyperesthetic by a previous action.

Certain substances, such as glass and different metals, are good conductors of the influence emanating from the passes; certain others, such as cardboard, wool, etc., intercept its passage.

The presentation of the hand, *motionless,* above a part of the subject's body, always through a glass plate, produces, according to Professor Alrutz, different effects, depending upon whether the subject is in a state of superficial or deep hypnosis.

In superficial hypnosis, at the end of a few seconds

the subject will feel heat, pricking, he will " feel electrified "; and if it is above the closed hand that the operator is holding his extended hand, the subject stretches out his fingers, or at least shows strong tendency to do so.

In deep hypnosis, the sensibility which was abolished is awakened in the place aimed at, and reacts to different cutaneous excitations; but in this place only, especially if the time of the presentation be exactly measured.

Exploration in motricity gives results analogous to those of researches in sensibility.

If the operator directs his finger, at a few centimeters' distance, toward the motor points — for example, toward the palmar region of the forearm — it determines an excitation of these points which cause a flection in the articulation of the phalanges, precisely as if they had been faintly excited by electric currents of induction.

Finally, Professor Alrutz notes that other people than the hypnotizer can provoke the same effects if operating with the same subject, at least during the continuance of the hypnotic state; for " about twenty persons, psychologists, physiologists, physicians, physicists, etc., who have reproduced these experiments have completely succeeded and have obtained the same results."

I myself, in my personal experiments, have observed that other operators can influence my subjects in various degrees; but I have observed also that certain operators did not possess this power, and succeeded in exerting it only by conduction: that is to say, only after

being put in contact with myself. It seems that this fact has escaped the Swedish experimenter, perhaps because his attention has not been attracted in this direction.

Besides, the details of the effects produced have not, perhaps, the importance that the author attributes to them; for, really, these effects vary to a great extent with the individuality or the state of the operator. It is necessary, therefore, to avoid the postulation into so many laws of the particularities observed in these diverse experiments. It is only after long and patient researches that it will be possible to generalize with any certainty.

But what is really important — since on this point all the results obtained by the different observers and experimenters coincide — is the fact that a human organism radiated upon another organism, at a distance, and without the possible intervention of suggestion, an influence susceptible of provoking in this organism sensitive and motor reactions — and perhaps those of some other order, the modalities and the conditions of which remain to be determined by a series of later studies.

And this fact itself is nothing more nor less than the reality of biactinism, or animal magnetism.

V

It would, however, be premature to consider this fact as definitely established for science, so long as the experiments which prove it have not been verified and repeated by a very great number of researches. Until then biactinism will remain, not a fact, but an hypothe-

sis, partaking of the fate of a great many scientific truths, which, before being universally accepted as such, were first recognized by a small number of men only, having undergone a somewhat prolonged period of negation and doubt.

Yet a philosopher would undoubtedly have little trouble in demonstrating to us that in what most laymen as well as scientists call a *fact* there enters an inevitable part of interpretation and hypothesis. It is a fact, it will be said, that the earth turns round the sun, that heat expands material bodies, that the magnet attracts iron, etc. But if each of these facts be analyzed, it will be seen that it may be resolved into two very different kinds of elements: (1) phenomena directly perceived by our senses, or, to go deeper, sensations of which we are directly conscious; (2) conceptions of our mind, conceptions of time, of space, of number, and especially of causality, by the aid of which we make the synthesis of these phenomena and give an objective signification and value to our sensations.

Strictly speaking, only our sensations are facts; all the rest are interpretations, in which we believe because they have succeeded for us; having been more or less conjectural at the beginning, they have ended by becoming certainties.

The distinction between the *fact* and the *hypothesis* has, then, theoretically, nothing absolute, and it is often by an indefinite series of imperceptible transitions that the former hypothesis is finally transformed into a fact.

In any case, the partizans of biactinism may temporarily make the following conclusions:

There exist a great number of facts in which a

human organism appears *to exert upon another organism an influence where suggestion is certainly excluded and which strongly resembles a radiation at a distance. These facts would become still more numerous if researchers would take the trouble to experiment. It is these facts of* apparent *biactinism which science must not reject* a priori *with derision, but should submit to an impartial and methodical investigation.*

In this investigation the hypothesis of "vital or nervous radiation" will certainly play a considerable part, as it is impossible to experiment usefully without the aid of a directing hypothesis; but we do not claim any privilege for it, and all other hypotheses can and must be in concurrence with it. Of these adverse hypotheses, the one that is most in favor at the present time is that of *mental suggestion,* or *telepathy,* which would better be named *communication of thought.*

The English Society for Psychical Research has systematically opposed to this the hypothesis of animal magnetism, of which it is, however, only a particular form.[12]

But it is very necessary to repeat that the comparative discussion of the different hypotheses must be *experimental* and not simply *dialectic.* In other words, it will be a question of combining experiments in such way that all telepathic suggestion will be *rigorously excluded,* leaving place for biactinic action solely.

We shall return to this question in the following chapter, regarding the *rapports* of the communication of thought, or "diapsychism," with animal magnetism.

[12] See *Our Hidden Forces,* Chapter X, "The Relation of Telepathy to Human Magnetism."

CHAPTER X

THE COMMUNICATION OF THOUGHT, OR "DIAPSYCHISM"

I

When we come to designate the phenomenon to be studied in this chapter, it is difficult to find a word that is free from all objection. For want of a better term, we shall for the moment employ the expression, "communication of thought." It is called also, "transmission of thought," "thought-transference," "thought-reading," "divination or penetration of thought." But the term which the majority of our contemporaries seem to favor is "mental suggestion"— even though this has the disadvantage of implying an interpretation preconceived, and consequently hypothetical, of the phenomenon, thus comparing it without proof to ordinary suggestion.

At the risk of incurring the reproaches of all those who do not approve of neologisms, I propose to coin a word free from all connection with previous ideas: such as the word *diapsychism,* which means, literally, "the passage from soul to soul," and so will suffice to designate the transmission of a psychological state from one consciousness to another.

The Marquis de Puységur was one of the first to observe a phenomenon of this nature. Having for the first time provoked artificial somnambulism in his sub-

ject, Victor Viélet, he noticed that in that state the subject appeared to divine his thoughts even though unexpressed. "I do not have to speak," he wrote; "I think near him; he understands and answers." From that time during all the period that followed, and which may be called the period of the magnetizers or of animal magnetism, allusions and descriptions in support of this fact are encountered very frequently.

In a book too little known, *Letters to a Candid Inquirer on Animal Magnetism,* William Gregory speaks explicitly of "thought-reading" and "sympathetic clairvoyance," and enumerates the different forms, of which he gives many interesting examples. He claims that he can sometimes produce the phenomenon spontaneously, as in the case of the Swiss novelist, Zschokke, "who possessed at moments, spontaneously, the power to read in the minds of others the whole of their past history."

Diapsychism is an essentially diverse and multiform phenomenon; and in order to gain a just idea of it, it is indispensable that it be studied under all its different aspects. Almost all those who have studied it have wrongfully limited their consideration to only one of its many forms, and have been satisfied in the meantime to give a general theory. This is true, in particular, of our contemporary savants, who, not being able to consider diapsychism as a series of experiments systematically and exclusively oriented by the hypothesis of suggestion, obstinately refuse to see in it more than that one particular form of suggestion called "mental suggestion."

In reality, mental suggestion is but a particular form

of a much more general phenomenon — diapsychism. Cuvier, in his *Leçons d'anatomie,* defined animal magnetism as " any communication whatsoever established between two *nervous systems.*" We might slightly modify this to define diapsychism: " Any communication whatsoever established between two *brains.*"

II

Perhaps the form of intercerebral communication which is at the same time the most simple and the most complex is that of *sensorial sympathy.* This, under certain conditions yet unknown, reflects upon the subject in one of several ways the sensations experienced by the hypnotizer.

Dr. Pierre Janet says:

> Madame B. seems to feel the majority of sensations felt by the person who put her to sleep. She believed she herself was drinking and her throat went through the operation of swallowing when the operator drank. She always recognized exactly the substance I put in my mouth, and distinguished perfectly if I tasted salt or sugar.
>
> The phenomenon happened just the same if I was in another room. If, while I was in the other room, I pinched my arm or leg, she screamed and believed indignantly that the pinch was inflicted upon her own arm or leg.
>
> My brother, who assisted at these experiments and who exerted a singular influence over her, even so much that she thought he was I, tried something still more curious. While Madam B. was in that phase of lethargic somnambulism where she was susceptible to mental suggestion, he went into another room and burnt his arm. Madame B. screamed frightfully. She held her right arm just above the wrist, and complained of suffering intensely. I did not know at all the place where

my brother meant to burn himself; but it was just there, above the wrist.

These identical facts already had been observed by the early mesmerists. W. Gregory, in his *Letters on Animal Magnetism* shows that " communication of the sensations " can be produced by the senses of taste, smell, and touch. He says:

If the operator, or another person *en rapport* with the subject, puts into his mouth any food or drink whatsoever, the subject — in most cases — instantly goes through the pantomime of eating or drinking whatever the substance may be. If he is questioned he declares that he is eating bread, or an orange, or candy, or that he is drinking water, or wine, or milk, or beer, or syrup, or lemonade, or an infusion of absynthe, or eau-de-vie — according to the substance which the operator at that moment is tasting. When the thing tasted is bitter or disagreeable, the physiognomy of the subject shows it immediately. His eyes are closed, and as the mesmerist is behind him, he cannot see what is being tasted. I have seen and verified this fact in cases so numerous that I regard it as solidly established. . . .

If a person *en rapport* with the subject smells a rose, the subject at once begins to inhale the delicious perfume; if he smells assafoetida, the subject expresses displeasure. . . .

Whoever touches the person *en rapport* with the subject, is felt by the subject at exactly the same place. If the operator shakes the hand of any one, the subject instantly clasps an imaginary hand. If a pin-prick is inflicted upon the back of the mesmerist's hand, the subject withdraws his hand hastily, rubs the place, and complains vigorously of the pain he feels.

Permit me to say that I myself have many times observed, under absolutely satisfactory conditions of

control, that singular sympathy of the subject for the sensations of his hypnotizer, principally the tactile sensations, in the course of experiments made with my subject, Ludovig S., whether in a hypnotic condition or in the waking state.

It does not seem that this sympathy extends to the senses of sight and hearing. At least, we are not aware of the existence of any case thus far.

It is well known that certain psychologists admit, independently of the five senses — which may be called the exterior senses — the existence of a sixth sense, the *interior* sense, or *vital* sense, which informs us of the state of our organism. It is by this sense, they say, that we are conscious of our body and are able to locate our various sensations; it is by this sense that we are more or less conscious of the action of our lungs, the circulation of our blood, the beating of our heart, the digestion in our stomach, etc. The sensations of hunger and thirst, the muscular sensations, those associated with the genital sense, those which accompany different maladies, and still many others belong to this sixth sense. One can see how extensive are its domains. But it matters little whether it be considered a special sense or a simple dependence of touch, as an inner touch; for these questions of denomination and classification are of small importance. It is sufficient that the existence of this special group of sensations be recognized.

But now we ask whether the sensations of this group admit also of diapsychism — that is to say, their communication from one consciousness to another. One cannot doubt the answer.

" Sympathy," says Gregory, who means by that word *sensorial diapsychism,* " extends often to the corporal state of the operator or of another person *en rapport* with the subject. The subject will feel and describe all pain or other ill experienced by the operator; and in some cases he will even feel or perceive intuitively a diseased state of certain organs in the operator's body — such as a headache, or a pain in his side, or difficult breathing; he will assert that the brain, or the kidneys, or the liver, or the stomach, or the heart, is deranged in a certain way — and only too often he is right."

Gregory remarks that he is not speaking here of a *view* of the state of these organs, which is a phenomenon of another order — clairvoyance — but of an *intuitive perception* of the state of health or disease.

The facts of this category, of which there are many examples, do not appear to have been studied except very incidentally. They should be subjected to methodical investigation.

If it be asked by what mechanism sensorial diapsychism — the communication of sensations — is produced, it seems that we must hesitate between two different conceptions or interpretations. Those who see in suggestion the essential type of all the parapsychic facts confuse, undoubtedly, the communication of sensation with the communication of thought; or, rather, it is by the former that they are forced to explain the latter. In appearance, it may be said, it is the sensation of the hypnotizer which, by a sort of nervous repercussion, is transmitted directly to the hypnotized.

For this it would be necessary that between the

nervous systems of the operator and the subject there be a communication the possibility of which seems to us, in the actual state of our physiological knowledge, very difficult to admit. The phenomenon is in reality much more complex. This is how it may be analyzed:

First stage: The nervous system of the hypnotizer, under the influence of an exterior excitation, sends to his brain a sensation which is immediately transformed into an idea.

Second stage: That idea is transmitted by mental suggestion to the brain of the hypnotized.

Third stage: The idea thus suggested (to the unconscious or subconscious state) influences the nervous system of the hypnotized, which puts itself in the state of reproducing the first sensation.

All happens as if the subject, divining the impressions and the thoughts which took place in the mind of the operator, said: "In that moment my hypnotizer experienced a sensation of pricking, of burning, etc.; then suggested to me, or I suggested to myself, to experience an identical sensation."

From that conception *sensorial diapsychism* goes back to the basis of *intellectual diapsychism:* the communication of sensations is resolved into the communication of ideas. There remains then only the explanation of this communication between two brains; at least, if this be not admitted as a fact, even though inexplicable.

It goes without saying that the partizans of biactinism, or animal magnetism, will suggest an entirely different interpretation. According to them, the first and general fact is the reciprocal communication of

the nervous systems; the reciprocal communication of the brains being but a secondary fact, derived from the first. The subject is directly sensible to all the influences which come to him, not only from the brain but from all parts of the nervous system of the operator; and the transmission of the sensations is a phenomenon as direct as the transmission of the thoughts. It is then futile to suppose a mechanism as complicated as that of mental suggestion: in the subject as well as in the operator the brain plays but a secondary part: it receives, it does not act; the real actor is the nervous system, which, in both the operator and the subject, carries to the brain the necessary excitation.

A schematic résumé of the difference between the two conceptions would appear to be as follows:

The first is a *centrifugal* phenomenon, since the initial cause of the sensation *sympathetically* felt by the subject starts from the brain of the operator, to be then carried through the brain of the subject to his nervous system.

The second is a *centripetal* phenomenon, since, in both the operator and the subject, the point of departure of the sensation is in the nervous system and its point of arrival in the brain.

Which of these two conceptions is closer to reality?

This is impossible to determine by analyses and reasonings made in the abstract. It would be necessary, in solving the problem, to institute experiments of a precise and delicate nature: real *laboratory experiments,* which, owing to the actual state of psychical researches, are practically unrealizable because of their lack of organization. We shall return to this problem later.

Can there exist also a *communication of the sentiments,* or of the emotions?

W. Gregory says: "There is also, but perhaps in a less degree than that of the senses, a community of emotions. In cases of this kind, all mental emotion experienced by the operator, or by other persons *en rapport* with the subject, is also experienced by him. I have not yet examined this phenomenon as minutely or as completely as the others, because of the difficulty of provoking at will a strong and decided emotion. In this case the observations are ordinarily accidental. Thus I have seen some subjects smile and laugh when they reached the magnetic state; and I have seen also — what very often has been described by others — subjects painfully affected by the nervousness or distraction of the operator."

It is also to this cause that Gregory attributes the accidental phenomena which are sometimes produced in the séances where "persons who have no experience or knowledge of animal magnetism try, for amusement or for curiosity, to produce magnetic effects."

The principal objection against the existence of an emotional diapsychism is that emotion, however slight it may be, is manifested by very easily perceptible signs, and the sympathy of the subject for the operator would naturally belong in the realm of normal sympathy.

In order to witness a diapsychic phenomenon it would be necessary that the subject — either because of the removal of the operator to another room or because of the interposition of a screen — be absolutely incapable of being informed as to the emotional state of the operator; or the operator himself may be capable

of suppressing all exterior manifestations of the sentiment he experiences, or of simulating the manifestations of a contrary sentiment.

There can be conceived still a third form of diapsychism, related to the two preceding. This is *motor diapsychism,* and consists in the communication of movements from one individual to another. I do not know, however, that this form has been effectively realized in the cases that have been observed. Personally, I do not know of an example; at least, those of which I have knowledge appear very ambiguous and very difficult to interpret. Even in the case of the following experiment, which I have conducted more than once, it would be rash to draw any definite conclusions:

Some one places his hand on the table, with fingers outstretched. The one who wishes to influence it stretches his hand in the same way, facing the first hand and about three or four centimeters from it, so that the thumb is opposite the thumb of the first hand and each of the fingers pointing at the other fingers. After a few minutes the operator slowly raises a finger and lets it drop, then raises it again and drops it again. If the subject is a sensitive, his corresponding finger will rise gradually and will reproduce precisely the movements of the operator. However, as the subject, who is not blindfolded and who moreover is in the waking state, sees all that happens, it would seem that this is no more than a phenomenon of ordinary suggestion — suggestion by gesture, which is similar to suggestion by word.

Is it the same thing that happens as in that other experiment, described in the preceding chapter, where the

subject reproduced, *without seeing,* the movements of the foot or the hand of the operator? I have witnessed the phenomenon in very singular conditions.

In a drawing-room filled with guests, while the others danced and amused themselves, two people were talking together in the doorway. One of the two suspected that the other was a subject. Without letting him know his intentions, and while keeping up a lively conversation, he placed the toe of his foot directly opposite and about four or five centimeters from the toe of his companion's foot; then he slid his foot several times over the floor, to and fro. Soon the foot of the other began to slide also, at first imperceptibly, then with a rapidity increasing to the point of compromising the equilibrium of the man thus being experimented upon without his knowledge, for he was unconscious of what he was doing.

Must we see there a case of magnetic attraction or of mental suggestion? The answer remains uncertain. It would be less certain, perhaps, if the attraction had been involuntary and unconscious on the part of the operator as well as the subject; as, for example, if there were observed a motor communication of that nature produced spontaneously without their knowledge between two individuals placed in two rooms sufficiently far apart. But really such a case, were it actually observed, would show us that diapsychism is related insensibly to biactinism and to a degree where it is impossible to differentiate precisely the one from the other.

III

The most frequent form of diapsychism — that which is generally studied and referred to — is what we may call *intellectual diapsychism*.

In intellectual diapsychism it is *ideas*, or *thoughts*, which are transmitted from one individual to another, and not simply sensations, emotions, or movements; consequently, the preponderant rôle, from the physiological point of view, seems to belong not to a given nerve, or to the nervous system in general, but to the superior centers of the brain. It is this chiefly that is called "mental suggestion" and "thought-reading"; and under these two names, and principally the former, it holds an important place in the theories of contemporary psychists.

Let us remark, first of all, that these two denominations are not absolutely equivalent; for they represent two ensembles of facts sufficiently different to enable us to distinguish them.

(1) In the communication of thought, or "mental suggestion," the active pole, so to speak, is in the brain of the hypnotizer or magnetizer — the operator, in a word; and the passive pole is in that of the subject. The first, more or less voluntarily, transmits to and imposes upon the second an idea. The phenomenon in this case is entirely similar to ordinary suggestion: the sole apparent difference — which is an important one — is that in ordinary suggestion the transmission is made by normal and known means of word or gesture, whereas here it is made in ways unknown and really abnormal.

(2) In "thought-reading," on the contrary, it would seem as if the operator were exclusively engaged in thinking on his own account, without directing any action upon the subject; and that the subject himself, by an action *sui generis,* penetrates the operator's consciousness, divines its contents, and grasps his thoughts.

Certainly, cases of a mixed nature may be encountered wherein the effects proceed from the combined actions of operator and subject: the former endeavoring to project his thought, while the latter tries to attract and receive it. More often than not, however, each one of these two forms of intellectual diapsychism presents itself alone to the observation, and it would be well to consider them separately. To the first the name *mental suggestion* is especially applicable; to the second, *thought-reading* or *thought-penetration* would appear to apply more exactly.

Whereas the early mesmerists saw in this second form a sort of clairvoyance which might be called *psychological clairvoyance,* in opposition to ordinary clairvoyance although related to one physical world, it is through the persistent and progressive study of suggestion that the modern disciples of the Schools of the Salpêtrière and Nancy have been led first to suspect and then to admit the reality of the first form, which, consequently, they invariably conceive as in the light of suggestion. A proof of this is found in the following case reported by M. H. Beaunis and observed by him with Dr. Liébeault:

The subject is a young man, a good somnambulist, in good health, somewhat timid. He accompanied his cousin to the

clinic of Dr. Liébeault, who was then treating her by hypnotism for certain nervous affections.

Dr. Liébeault put the subject to sleep, saying during the comatic sleep: "When you wake, you will do the things which you will be ordered *mentally* to do by the persons present."

I then wrote on a piece of paper these words: *"Kiss your cousin."* This paper I showed to Dr. Liébeault and to the other persons present, telling them to read it with their eyes only, without pronouncing a single word or making any motion with their lips. Then I added: "When he wakes, think intensely of the act which he must execute; but don't speak and don't make any sign that may suggest the action to him."

The subject was awakened then, and we awaited the result of the experiment.

Very soon after he woke we saw him laugh and hide his face in his hands; and that continued for some time without other result.

I then asked him: "What is the matter?"

"Nothing."

"Of whom are you thinking?"

"You know," he answered.

"Then," said I, "you must do something to the one we think of. If you do not wish to do it, at least tell us of what we are thinking."

"No."

Then I said to him: "If you do not like to tell it aloud, whisper it in my ear."

On going closer to him, he whispered to me: "To kiss my cousin."

And so our first experiment in mental suggestion was a success.

The experiments reported by Dr. Ochorowicz were of a similar nature:

First Experiment

The operator, seated about four meters from the subject and out of his sight, pretending to take notes, the head bent over, thinks:

" Raise your right hand! "

Nothing happens the first minute; at the second, agitation in the right hand; at the third, the agitation increases, the brows are puckered, the right hand is raised, then dropped.

Second Experiment

" Get up and come to me! "

First minute, agitation and puckering of brows. Second minute, the subject gets up slowly, with difficulty, and comes, the arms outstretched.

Third Experiment

" Get up, go to the piano, take the box of matches, bring me one of them lighted, then return to your place! "

The subject gets up and approaches the operator.

" Go back! "

He returns to his place.

" Still farther back! "

He goes forward toward the door. He stops and goes back to the middle of the room, from where he had started. He goes to the piano.

" Lower! Lower! "

His hand goes lower.

" Take the box! "

He takes it.

" Come to me! "

He comes.

" Light one! "

He takes out a match.

" Light it! "

He lights it and gives it to me.
" Return to your place! "
He returns.

Fourth Experiment

" Go to your brother and kiss him! "

The subject gets up, advances toward the experimenter, then toward his brother. He feels for his brother's head but he does not touch it. He stops in front of him, hesitating; then he slowly approaches and kisses him warmly on the forehead.

The idea to transmit or suggest in these different examples was that of an *act* relatively complex in spite of its apparent simplicity; and that act, in sleep, consisted of a series of movements and muscular efforts. It was, in one way, a *motor* mental suggestion. That which in England is called the " willing game "— and sometimes " cumberlandism," from the name of the man who was first to conduct public exhibitions of these phenomena — is based on mental suggestion of this nature.

A subject or medium, with eyes bandaged, executes a series of acts under the influence of the will of one of the assistants, who thinks constantly and intensely of what the subject must do, analyzing in his thoughts the different movements of which the series is composed. It is true that if the experimenter holds the hand of the medium he may guide him unconsciously in many ways, and in this case the phenomenon cannot be considered one of a genuine communication of thought. But the interpretation becomes more difficult when the experiment is made without any contact between the operator and the subject.

The idea to suggest mentally can also be that of a *state* which can be a sensation or an emotion. For example, it can be suggested mentally to a subject that he is very warm, very cold, that he feels pain in a certain part of his body, that he is frightened, that he is going to laugh, to cry, etc.; but in general the state which experimenters most often try to produce in this way by mental suggestion is *sleep* — meaning magnetic or hypnotic sleep.

The most interesting and most demonstrative experiments in this field are those which were made at Le Havre in 1885 by Dr. Gibert and Dr. Pierre Janet with the famous subject Léonie. The following detailed account of them was presented by Dr. Pierre Janet to the Society of Psycho-physiology and published in the *Revue philosophique* (1886) in two successive articles, the first bearing the modest title, " Note on Some Phenomena of Somnambulism "; the next, " Second Note on Sleep Provoked at a Distance and Mental Suggestion while in the State of Somnambulism."

Léonie, or Madame B., subjected to hypnotic influence in the ordinary way, falls first into a state very near to lethargy: flaccidity of the members, which, if raised, fall back with all their weight and without any movement; complete insensibility to all excitations, except only one: the person who put her to sleep can, to the exclusion of all other persons, provoke at will a partial or entire contraction by placing his extended hand a little distance from the subject's body; the contraction ceases when he touches lightly the part affected. (This is a characteristic sign which will serve, in case

of necessity, to distinguish the person who put the subject to sleep.)

At the end of ten minutes, sometimes more, the sleep seems to become lighter, and somnambulism succeeds the lethargic state. The subject is now very sensitive to all impressions: she understands all that is said to her and answers intelligently, but she remains more strongly *en rapport* with the one who put her to sleep and who alone can wake her.

Then again lethargy replaces the somnambulistic state. And these two states succeed each other thus alternately about every fifteen minutes as long as the sleep lasts.

The process usually employed to put Léonie to sleep was the pressure of the hand, especially of the thumb. Nevertheless, " Dr. Gibert, while holding her hand one day to put her to sleep, being visibly distracted and thinking of other things, failed to obtain the desired results." Dr. Pierre Janet repeated this many times, but always with the same result, for sleep was not produced. Therefore, " to put Madame B. to sleep it was necessary to concentrate the thoughts strongly on that one act; and the more the thoughts of the operator were distracted, the more difficult the provocation of sleep."

This influence of the operator's thoughts is so efficient that it can replace all others.

" We left Léonie sitting at the end of the room," says Dr. Janet; " then, without touching her and without speaking, Dr. Gibert, standing at the other end, concentrated his thoughts on making her go to sleep. After three minutes the lethargic sleep was produced."

And the same experiment was repeated many times by Dr. Janet.

But, it may be said, could not the presence of the experimenters, their attitude, their silence, provoke in the subject the idea of sleep and consequently sleep itself?

"There were many times," says Dr. Janet, "when Dr. Gibert stood close to Léonie, in the same meditative attitude, in the same silence, but without thinking of sleep; and sleep was not produced. On the other hand, as soon as, without changing my attitude, I mentally ordered sleep, the eyes of the subject became fixed, and the lethargy began immediately." Furthermore, how can one explain that only that one of the two experimenters who has provoked the sleep can provoke during the lethargy the characteristic phenomenon of contraction?

In the preceding experiments the operator was in the same room with the subject. Now, however:

> Leaving Dr. Janet near Léonie, but without any knowledge of his intention, Dr. Gibert shut himself up in a nearby room, at a distance of six or seven meters, and there he mentally ordered her to sleep. At the end of a few moments, Dr. Janet verified the fact that the subject's eyes were closed and that she had entered the sleeping state. He did not have any influence over her, whereas she obeyed readily and entirely Dr. Gibert, who alone could cause the contraction and who himself had to wake her — manifest proof that it was he who put her to sleep.

Another experiment, still more conclusive from the standpoint of true suggestion, is the following:

Dr. Janet suddenly asked Dr. Gibert, who was in his study, to put Léonie to sleep. She was then in another house, about five hundred meters away, and she had never been to sleep at that hour of the day. He then went to Madame B. and, to his disappointment, found her wide awake. He himself put her to sleep in the usual way.

"I know very well," Léonie said to Dr. Janet, "that Dr. Gibert has wished to put me to sleep; but when I felt him, I at once put my hands in cold water. . . . *I know that he cannot put me to sleep thus.*"

The truth was that she had actually put her hands in cold water before the arrival of Dr. Janet.

What shows very well that in this case, and in all cases of this nature, the essential element is the transmission of thought — diapsychism and not suggestion — is that when the subject enters *spontaneously* into the state of somnambulism she does not obey the will of the operator, and much less does she feel his influence or receive the communication of his thought.

Can it be said, therefore, that this experiment failed, as Dr. Janet claimed? On the contrary, it seems to us that it succeeded even better than if the sleep had effectively been produced; for that which is important is not the obedience of the subject to the order given him (obedience which is merely the banal fact of ordinary suggestion), but it is the transmission of this order to the subject, in conditions where it is impossible for him to receive it by means of normal perception.

The same experiment was undertaken in somewhat different conditions.

Dr. Janet asked Dr. Gibert to put Léonie to sleep, not at that moment, but a quarter of an hour later. He then started

to go to her immediately, to watch the effects upon her and to prevent her from putting her hands in cold water; but Léonie had shut herself up in her room.

At the moment agreed upon with Dr. Gibert, Dr. Janet went up to her, and found her lying across a chair, in a most uncomfortable position, and sound asleep. Her first words, as soon as she entered into the somnambulistic state, were a protest against the surprise which had been given her: "Why does Dr. Gibert put me to sleep from his house? I did not have time to put my hands in the basin of water. I will not. . . ."

Neither Dr. Janet nor any of the assistants had the least influence over her, and none of them could provoke muscular contraction. In order to wake the subject, they were obliged to find Dr. Gibert.

The experiment of October 14 is perhaps even more astonishing.

That day Dr. Gibert was in Granville, about two kilometers from Léonie. Dr. Janet suggested that Dr. Gibert put Madame B. to sleep at any hour whatever of the day — the hour to be designated by a third person, so that he personally should not know it. He went to Léonie at about half-past four, and found that she had been sleeping soundly for a quarter of an hour.

At five o'clock, still asleep, she began to moan, to tremble, and to murmur: "Enough . . . enough . . . do not do that." She stood up, she took a few steps; then, bursting into laughter, she threw herself backward into the chair, and was instantly in deep sleep.

At five minutes past five, the same scene was repeated: the trembling, the moaning, the efforts to get up, to walk, the laughter, with these words: "You cannot . . . if a little, if only a little you are distracted, I shall wake. . . ." Then deep sleep again.

At ten minutes past five, the same actions were repeated.

When Dr. Gibert arrived at half-past five, he showed Dr. Janet a note which had been given to him by a third person, M. D., and which asked him to command Léonie mentally to perform different complicated acts every five minutes beginning with five o'clock.

This time, also, true suggestion had failed, but diapsychism — the communication of thought — had fully taken place. No example could better show the radical distinction between these two phenomena, which the one appellation *mental suggestion* tends to confuse.

However, it was quite possible to succeed with Léonie in experiments of *true* mental suggestion, provided that instead of commanding her to execute the order immediately, during the sleep, she was mentally commanded to execute an action sometime later, after she woke. Dr. Janet cites three experiments made in these conditions:

First Experiment

Dr. Gibert, without speaking a word, held his forehead near Léonie's and mentally ordered her to come between eleven in the morning and noon, and "to offer a glass of water to each of these gentlemen." He did not tell this order to any one, but merely wrote it on a piece of paper, which he put in an envelope.

At half-past eleven Léonie manifested the greatest agitation. She left the kitchen, got a drinking-glass, and, carrying it, entered the room and asked Dr. Janet if he had not called her.

At last she fell asleep, through the efforts of Dr. Gibert, who was some distance away. And in her sleep she excused herself for not having carried out the suggestion fully. ". . . I was all a-tremble when I came to ask you if I had been called . . .

it was not easy to carry the tray . . . why am I wanted to carry those glasses? . . ."

Second Experiment

Dr. Gibert and Dr. Janet at first thought of commanding the subject to pluck a rose and visit the letter-box near the entrance gate; but they then decided upon the following suggestion instead: "To-morrow at noon lock the doors of the house." The suggestion was written by Dr. Janet upon a piece of paper, which he himself carefully guarded, and it was not told to a single person.

The following day, when Dr. Janet arrived at fifteen minutes before noon, he found the house barricaded and the doors locked. It was Léonie who had locked them. On being questioned, she explained her actions thus: "I felt very tired, and I did not want you to get in and put me to sleep."

At that moment she was greatly agitated. She began to wander about the garden, and presently she plucked a rose and went to the letter-box.

Third Experiment

(In this experiment we once more are in the presence of the possible disjunction of the suggestive element from the diapsychic element in the pretended mental suggestion.)

Dr. Gibert ordered Léonie, by thought, to open an umbrella the following day at noon and walk twice round the garden.

At noon the next day she again became greatly agitated. She walked round the garden twice, but did not open the umbrella.

When put to sleep by Dr. Janet, who wished to end her increasing state of agitation, she complained that she had been "made to walk all about the garden. . . . I felt silly . . . if only the weather was like yesterday's, but to-day I should have looked perfectly ridiculous." That day the weather was beautiful, but the preceding day it had rained hard. Therefore, the

order, incompletely executed, had at least been perfectly understood.

It can be asked, apropos of these experiments, if the mechanism of sleep provoked at a distance by mental action is assimilable to that of true mental suggestion — that which consists in the transmission of an idea. In other words, is it really the *idea* of sleep, present in the mind of the operator, which is perceived, more or less consciously, by the mind of the subject, and which itself produces the sleep, in accordance with the well-known laws of suggestion; or is it an indefinable *influence,* emanating from the operator, which is felt by the subject and which produces sleep in him, without the intervention of any idea?

In this second hypothesis, the phenomenon would be allied more closely with animal magnetism than with mental suggestion; and one then could understand why it is often difficult to influence by mental suggestion certain subjects in whom sleep at a distance can be provoked with comparative ease.

In *Our Hidden Forces* [1] we have shown the necessity

[1] "*Thought-transmission really consists in having the brain of A when acting upon the brain of B create in the consciousness of B the appearance of an idea or of a series of ideas, identical in nature to those which occupy the consciousness of A.* What was sent from my physical brain to that of my subject G. P., during the hundreds of experiments with him, was not the *idea* of sleep nor the *idea* of waking up; it was purely a physical influence which produced sleeping and waking, independently of any idea."— *Our Hidden Forces,* p. 283.

"The observation of M. J. Héricourt, relative to a woman in whom he had never been able to provoke mental suggestion distinctly, but who had gone to sleep merely when he *willed* her to sleep, and who felt a painful sensation in the precordial region when he *thought* this pain."— *Revue philosophique,* 1886.

Dr. Albert Ruault, who reported other similar facts (*Revue philo-*

for distinguishing these two hypotheses. If this distinction may appear filmy, it is because in reality — as we shall try to show farther on — biactinism (animal magnetism) and diapsychism (communication of thought) are extremely closely connected with each other, or, more properly speaking, diapsychism is but a particular derivative of biactinism.

IV

Perhaps in examining the question more closely it may be doubted that the facts we are now considering — and in which ideas suggested mentally are related wholly to *acts* or *states* — are, strictly speaking, suggestions of an intellectual order, true suggestions of *ideas;* for it well seems that the *idea* of the act or state may be here only the *means* of suggestion, of which the *end* is this very act or state.

What the operator seeks to obtain is not that the subject shall *think* of the action of " getting up " or of " sleeping "; but that he shall actually get up or sleep. To obtain this result, is not his *will* the essential factor even more than his intelligence?

The real type of true mental suggestion, or at least that of purely intellectual diapsychism, would consist, therefore, in the communication of an idea, which

sophique, 1886), insisted upon the difference between phenomena of this order and true mental suggestion. Speaking of a young man, in whom he could himself provoke sleep by a simple effort of will, he said: " It was a case of mental suggestion, for I soon recognized that he was put to sleep solely by the intensity and the duration of the sensation that he felt when I made an effort of will in thinking of him. I mean, by this, that he did not sleep because I willed that he sleep, but wholly because he felt strongly that my mind was concentrated upon him."

would be realized in the mind of the subject solely as an idea, or in the state of representation, of thought, and not as an excitation tending to provoke in him, outside of his mind, a certain state or a certain act.

True mental suggestion, or intellectual diapsychism, is sometimes produced spontaneously when, for example, a certain name comes suddenly to the mind of a person — without being a result of his preceding thoughts — at the precise moment when another person thinks this name and is on the point of pronouncing it. Nearly always, however, one may question whether this is not a chance coincidence. Attempts have been made to produce the phenomenon experimentally, especially in England, in the Society for Psychical Research. In France, M. Charles Richet also has made experiments along this line.

One individual, A, thinks successively of different numbers. Another individual, B, who is placed as far as possible in a state of special receptivity, indicates the number each time, the idea of it having surged suddenly into his mind.

Better still, A takes some playing-cards, which only he can see, and concentrates his attention upon one at a time: B names successively the cards of which he thinks. A record is kept of the number of times the ideas of A and B correspond; and from the calculation of probabilities, the number of these agreements is greater than it could possibly be in the hypothesis of chance coincidences.

The experiment appears a little more complicated when it is a question of transmitting mentally the idea of a somewhat familiar *object:* a watch, key, ring, vase,

lamp, or even a house, tree, animal, etc. In experiments of this order instituted by the Society for Psychical Research of London, the transmitter A was in one room, having before his eyes a picture of the object; the receptor B was in another room, nearby, trying to draw this picture upon paper with a pencil — or at least the picture which came to his mind, and this was often found to conform, in its characteristic traits, to the picture which A was thinking of and gazing upon intensely.

The early mesmerists already had observed this form of thought-reading, without, however, sufficiently distinguishing it from the form in which the communication of ideas is made involuntarily, unconsciously, from the operator to the subject, the latter appearing rather to divine the idea, himself, without the operator's having made any effort to transmit an idea to him.

"*The sleeper,*" says W. Gregory, "*being put en rapport with any one at all, can often describe, with the greatest exactitude, the thoughts of this person.* These thoughts may be of an absent friend, or his house, or that of another, or his dining-room, his bedroom, his study, etc. All these things are perceived by the sleeper in proportion to the extent that they occupy the mind of the experimenter. He describes them very minutely and very exactly, to the point of really astonishing us."

W. Gregory remarks, moreover, that this form of thought-reading often simulates clairvoyance, with which it risks being confused, as we shall show in the following chapter.

V

Let us consider now the true *reading* or *penetration* of thought. This differs, it must be remembered, from mental suggestion, in that it is produced independently of the will of and unknown to the operator, the active rôle appearing this time to belong wholly to the subject. Because of this very circumstance the phenomenon is difficult to constate with certainty.

However, according to certain contemporary psychists, especially those who are members of societies for psychical research or inspired by their doctrines, there is in all the order of parapsychic facts no phenomenon more frequent than the penetration of thought. It mingles, according to them, with almost all the others, and renders them incomprehensible to those who do not suspect its presence, while it is sufficient to admit its latent intervention in order to have all the obscurities made clear.

We can apply here to the penetration of thought a distinction that we already have applied to suggestion: that of *fact* and of *hypothesis*. It is one thing to constate directly the penetration of thought as a fact that we observe outside of all reasoning; and quite another thing to suppose that it must have been produced on a certain occasion, because this supposition alone permits us, we think, to give a plausible solution to the enigma which is raised by some particular case.

I am obliged to confess, however, that I myself have never been able to constate the penetration of thought, thus understood, in conditions which would leave no room for doubt, even though my attention has always

been turned in this direction. With the exception of one subject, Ludovig S., who on four different occasions succeeded in enouncing aloud a name I had each time thought of silently,[2] I have never found any one who might be in a state, either to obey my suggestions not manifested by word or gesture, or to divine spontaneously my thoughts, my unexpressed intentions. But it may be that chance has served me badly, or that I lack the special aptitude which perhaps is indispensable to produce this sort of phenomenon.

A young member of my family, who would appear to be particularly gifted in this connection, has told of an experiment made by him, where it is impossible not to see an absolutely genuine case of penetration of thought.

Having finished his military service in a regiment of infantry at Bordeaux, and returned to Dijon, he had found in the wife of one of his friends a hypnotic subject of rare sensitiveness. After putting her to sleep, he suggested to her that, when she woke, she would change personality and would be identified with him as he was during his military service. "You will be Corporal B. You will have the men of your squad in front of you, and you will instruct them."

The subject, passing from sleep to a state of apparent waking, began to call the assistants in a military manner; she questioned them about the different grades, the insignia by which each is recognized, etc. But this, of course, was knowledge that any one could have, without necessarily being connected with the army.

Suddenly, however, when addressing one of the friends of her husband — mentally transformed by her into a soldier —

[2] These experiments are described in detail in *Our Hidden Forces*, Chapter XII.

the young woman demanded: "What is the name of the Colonel of your regiment?"

The hypnotist quickly spoke the name, as he knew that the man questioned did not know it.

"Be silent!" the subject said promptly. "I am not questioning you."

Therefore he, as well as the man interrogated, remained silent when she asked the next question:

"What is the name of the Captain of your regiment?"

What was the hypnotist's surprise when the subject herself spoke the name, which he thought of silently and which he was the only one in the room who knew! His surprise was even greater when the improvised Corporal added:

"You must be as stupid as *cruchade* not to know the name of your Captain!"

Cruchade is the popular name in Bordelais (the dialect spoken in the country around Bordeaux) for corn-pap, and the expression, "stupid as cruchade," is currently employed among the people of Bordeaux to express extreme stupidity. The expression is wholly unknown in Burgundy. Certainly, however, the hypnotist had often heard it; perhaps he himself had used it in speaking to men of his squad; but surely he was not thinking of it at that moment. Not only, therefore, did the subject — momentarily identified with the one who had put her to sleep — read into his actual and conscious thoughts, but she also penetrated even beyond his consciousness, to the very depths of his past remembrances.

It is in the realm of the subconscious that certain subjects are able to clarify this ensemble of latent, affective, intellectual, and active virtualities which compose the *character* of an individual, when they make of this character, in a few minutes, without preliminary indications, without apparent effort of reflection, a psy-

chological analysis such as a professional psychologist operating with all the resources known to science, and with the most minute information, would certainly be incapable of making.

" I could not doubt," wrote Dr. Vaschide, " the surprise of my friend, Dr. von Schrenk-Notzing, the well-known Munich psychologist, when Madame F. wrote his psychological portrait with a richness of exuberant details. I myself was ignorant of these details, and it was absolutely impossible for Madame F. to have known them before my consultation, or even to have thought to obtain prior information in any way whatsoever; for I had asked her to come, in a note sent by messenger. Examples of this kind are numerous."

Undoubtedly, the experimental study of lucidity, in the popular meaning of the word, of cartomancy, of chiromancy, of psychometry, and of other occult practises of this nature — a study evidently very daring and in its present form not apt to tempt savants — would nevertheless reveal to us, in the midst of much illusion and fraud, unquestionable and interesting cases of the communication of thought.

Here is a quotation from Dr. Osty which proves incontestably the reality of intellectual diapsychism and, at the same time, the falsity of the " cartomantic doctrine." Madame K., a card-reader, consulted her cards for some one of whom Dr. Osty thought. He, after cutting the pack and choosing a certain number of cards, pictured mentally the person who must serve as the object of the divination.

When she had disposed the cards, Madame K. began to speak to me of this person, very clearly and very exactly. After a

few minutes I stopped thinking of the person in question. Madame K., however, was still speaking to me when, suddenly, I regretted not having exercised this prophetic science in behalf of one of my friends whose present life was so active that he would yield far richer material for experimentation. Scarcely had this thought entered my mind when the card-reader abruptly began making revelations which exclusively concerned this second person. The lives of these two were so different that the subject soon expressed her astonishment at the odd dissociation which seemed to exist in the one individuality which she believed she was interpreting.

Since then I have observed in card-readers, as many times as I have wished, this influence of the thought of the consultant upon the direction of their lucidity.

In spiritistic séances it is not unusual to establish the fact that the responses given by the table, the planchette, or the pencil, reflect not the thoughts of the medium but those of some one of the assistants, who is wholly surprised to see thus revealed publicly what he believed to be hidden deep within his own heart. It is true that believers in the spiritistic doctrine probably would refuse to recognize, in this, diapsychism as an evident *fact,* and would consider it merely an *hypothesis,* which they have the right to oppose and to displace by some other. But if the choice must be determined by exclusively scientific reasons, the hypothesis of diapsychism, in conditions such as those we have indicated, imposes itself to the exclusion of all others.

VI

Meanwhile, we come to the facts for which diapsychism is offered to us as a more or less plausible

explanation, and which, if this interpretation were definitely adopted, would prove not only that the communication of thought is a reality, but also that it is a very frequent reality; and that it is necessary to see in diapsychism as much as, or even more than, in suggestion, the key to the greater part of the parapsychic phenomena.

First of all, there is *phreno-magnetism,* which remains a still unsolved enigma.

" In some magnetic subjects," says W. Gregory, " if we touch a given part of their head — such as, for example, the organ of *musical sound,* or of *self-esteem* — we obtain instantly a corresponding manifestation *without a word of suggestion.* It is really, in many cases, as if we were to touch the key of a pipe-organ when the bellows are full of wind, thus producing the sound instantly. If the musical sound is the organ touched, the subject soon begins to sing. If it is self-esteem, he throws his head back, is filled with an immense dignity, and declares himself superior to the rest of humanity. If the organ of the love of children be touched, the subject cradles an imaginary baby with a realistic paternal affection."

Gregory thus follows the series of effects produced by touching different parts of the cranium: benevolence, acquisitiveness, prudence, hope, etc.

" I have spoken," said he, " of only a small part of what I have often seen and often produced. It is needless to say that I have experimented only in cases where fraud was not and could not have been practised. The question is, rather: *How are these effects produced?* "

To this question he replies that in certain cases "the suggestion or the will of the operator, or the sympathy between the operator and the subject, is sufficient to explain the facts." This is to recognize the possible intervention of diapsychism in phreno-magnetism. "But," he adds, "there are other cases where this explanation is valueless," and he enumerates the proofs of this assertion.

First, the subject is often ignorant of even the name of phrenology, and does not know the situation of any organ. This does not hinder him from reacting instantly to the contact, at whatever moment it may be produced, exactly as if the will or the thought of the operator were the agent. But, it may be said, it matters not that the subject may be ignorant of what is expected, if the operator knows it.

A second and stronger argument is that when the operator, as often happens, is as ignorant of phrenology as is the subject, he is surprised and confused by the result; for, in touching a certain part, he did not know the function and consequently had no will whatever in this respect. However, there also, asserts W. Gregory, the manifestation is just as easily produced. Better still, the pressure of a chair, or a wall, upon any part of the head, even though it may be accidental, or the accidental contact of a hand or an arm, whether of the operator or some one else, will produce the same effects. Also, it often happens that when an operator, acquainted with phrenology, intends to touch a certain organ and, turning to speak to some one, touches by mistake another organ while thinking of the first, he is surprised by what he believes to be the wrong result,

until he discovers the cause. This happens in cases where the subject has no knowledge of phrenology.

It is necessary to state that although these facts have been closely studied, they are absolutely incomprehensible to us. And we cannot agree with Gregory's conclusion that in all cases where sympathy or the will — in other words, mental suggestion, or diapsychism — is not a sufficient explanation, " the results obtained can be explained only by admitting the phrenological centers and the influence of the operator upon these organs by contact." Undoubtedly, there slips into these experiments, unknown to the observers, a cause of error which it is very difficult to discover. It would be interesting, therefore, to institute new researches in an effort to solve so baffling a problem.

The same point arises regarding many other parapsychic facts. We shall cite here only the most salient.

The importance attributed by the School of the Salpêtrière to the phenomenon of *transference* is well known. This phenomenon consists in the fact that " under the influence of metals — or, better still, of the magnet — when there appear in certain subjects manifestations of hysteria — such as sensitive and sensorial anesthesia, paralysis, contractions, and arthralgia — which are limited to one side of the body, they disappear from this side and appear on the opposite side."

But the phenomenon of transference is not confined to that. Two subjects *en rapport* with each other can play a rôle analogous to that which in a single subject one side of the body plays *en rapport* with the other side. Often this transference from one side to the other, or from one subject to another, appears again

spontaneously without a new metallic application and is repeated a certain number of times in succession, as if by *consecutive oscillations*. The anesthesia, paralysis, contractions, etc., can be thus transferred not only when they exist naturally in the patient but even when they have been produced artificially by suggestion.

The School of Nancy naturally attributes these curious effects to suggestion. Those who have obtained the phenomenon, however, declare that " the conditions are such that all idea of simulation or of *suggestion* must be absolutely eliminated."

" Engaged in new researches," said Binet, " we were, in the majority of cases, incapable of foreseeing the result. We have hidden the magnet under a cloth, and the same effects were produced; we have made the magnet invisible by suggestion, and the effect has continued to be produced; we have used a magnet made of wood, and the effects have been the same; we have experimented upon *entirely new* patients, and have obtained identical results."

All these assertions effectively exclude *ordinary suggestion*. But, with the exception of the first, do they equally exclude *mental suggestion* under the form of involuntary diapsychism?

In order to answer this question satisfactorily, it would be necessary to undertake experiments in conditions that would prevent the operator, as well as the subject, from being able to form in advance any idea of the results.

It is not only with regard to *transference* that the opponents of the School of Salpêtrière might resort

profitably to the hypothesis of diapsychism; it is with regard to almost all the particularities attributed to hypnotism by the doctrines of this School. It is true that it would be necessary for them to go beyond the narrow circle of suggestion proper, where they believe themselves on firm ground, and to venture upon the quicksands of mental suggestion; but, sooner or later, they will be forced to do so. We do not believe that they can indefinitely claim, without giving precise proofs, that all observers and experimenters who do not agree with them upon a given detail of hypnotic phenomena have owed to their suggestions the effects they have related.

Although the phenomenon has been produced sometimes, often even, it does not necessarily follow that it can be produced always. In some cases these savants declare that they have scrupulously abstained from suggesting anything to their subjects; and we have no reason for doubting their word. But if they have suggested nothing voluntarily, knowingly, it is possible — if diapsychism exists — that their subjects have nevertheless divined their thought and that this thought may be manifested in the phenomena observed.

It may be, for example, the phenomenon of *neuro-muscular hyperexcitability,* which according to the School of Charcot, characterizes one of the phases of hypnotism: i. e., lethargy. The School of Nancy asserts that it has never constated this phenomenon, and it concludes, therefore, that it must be a simple effect of suggestion. However, it is very difficult to believe — so long as they have furnished no proof —

that all those who have observed it have begun by announcing it and describing it aloud in the presence of their subjects. But if diapsychism actually exists, it is possible that their thought, in the absence of their word, has been sufficient to provoke the phenomenon.

We can say as much of the *zones* and the *hypnogenic points,* and in general of the *hysterical stigmata* admitted by the School of the Salpêtrière, as facts existing in themselves, previous to observation, which is made only to reveal them, and considered by the School of Nancy as illusions, created by the suggestions of those who observe them.

If the intervention of diapsychism be admitted in all these cases, one must believe that the *idea* alone is not sufficient for the success of mental suggestion, but that it is necessary to have, in addition, the *belief* (even though in many other cases — and this is not the least of the obscurities of the question — the idea, without the belief, would appear sufficient).

Let us imagine that two observers experiment successively with the same subject, one imbued with the doctrines of the School of Salpêtrière, and the other with those of the School of Nancy. The first seeks to verify the neuro-muscular hyperexcitability, and he succeeds; the second, proceeding by hypothesis in exactly the same way, constates a negative result. The second, as well as the first, has in his mind the *idea* of the phenomenon and of its diverse particularities. But the first *believes* that the phenomenon is possible and that he will produce it; the second, on the contrary, *believes* that the phenomenon will not be produced. The subject is, therefore, capable of perceiving the difference

between these two ideas; one accompanied by belief, the other by unbelief, and this is why he reacts differently to each of them.

What would happen if the two operators were to act upon the subject at the same time, and one of them were to have a preponderating influence upon him? While one tends unconsciously to arouse the phenomenon, the other tends unconsciously to hinder it. Does the first prevail over the second? The partizan of the School of Nancy will be astonished to see the subject realize — without apparent suggestion — what he was assured could be realized only through suggestion. The partizan of the School of the Salpêtrière will be equally astonished to see that the expected effect, often obtained by him, is suddenly incapable of being produced.

Let us remark, however, that the inhibitory action of mental suggestion, even also as that of ordinary suggestion, is not necessarily confined to phenomena susceptible to be provoked by suggestion, and that consequently the suppression of a phenomenon by an inhibitory suggestion does not prove that in the absence of this suggestion the phenomenon would not be produced naturally. I could, by suggestion, suppress in a patient certain symptoms of his illness; is this a reason for pretending that these symptoms in him were only the effects of a counter-suggestion? Let us admit, for hypothesis, that signs of hysteria exist effectively; if we admit at the same time, the possibility of a diapsychic inhibition, an observer capable of exerting this inhibition unconsciously upon hysterical subjects will never constate these signs, because by his very presence

he will hinder their manifestation. Yet it cannot logically be concluded that other observers, who have constated them, have been the playthings of illusion. Perhaps certain operators may be particularly apt to influence the parapsychic phenomena thus *negatively*.

Certainly, this is only an hypothesis, but it is not devoid of truth, and it would be well worth while to control it experimentally.

It is especially in the realm of magnetoidal facts that diapsychism is called upon to explain all that which would appear to contradict the opinions of official science, as if diapsychism were not itself in positive contradiction to these opinions.

When M. de Rochas explained, under the name of *exteriorization of the sensitiveness,* the singular phenomena which he had discovered, they were at once attributed to the suggestions that he had involuntarily made to his subjects; and when this explanation appeared decidedly insufficient, it was claimed that the silent thought of the experimenter had in some way suggested to the subjects the manifestations of which they had given him testimony.

Permit me here to cite a few personal experiments.

I happened to read in a prominent Parisian periodical an article upon M. de Rochas's discovery, which explained the processes employed by him to "exteriorize the sensitiveness" of a hypnotized subject, and the results which he thus obtained. This account had aroused my curiosity, but at the same time had left me very skeptical. I decided to learn how much *reality* there was in all this. I had then at my disposal a large



EXTERIORIZATION OF THE SENSITIVENESS

After the hypnotized subject holds the glass a few moments, the operator takes it and pinches the air above the water. Every pinch thus inflicted — some distance away from the subject — is felt by her keenly in the hand she has held above the glass.

number of subjects: all young people who would lend themselves well to these experiments.

My first three attempts gave me only a negative result, although at least one of my subjects was of exceptional sensibility. It goes without saying that I began first by scrupulously imitating the operative method of M. de Rochas. Then, seeing that it did not result in any of the desired phenomena, I added verbal suggestion, thus intentionally inciting the subjects to fraud. It is necessary to believe that simulation, in the conditions in which the subjects were placed, was not easy for them; for, even thus, I obtained nothing. I was, therefore, almost convinced that M. de Rochas had either deceived himself or been deceived, that either he had been more able than I to suggest the subjects unconsciously, or that they had been more clever at simulating than my subjects.

A short time afterward, being in a meeting of young Parisian workmen, and having put one of them to sleep — Auguste M., aged sixteen or seventeen — I suddenly conceived the idea of trying once more to produce the exteriorization of the sensitiveness.

" Get me," I said, " a glass and a bottle of water."

The assistants believed that I intended to produce a state of intoxication by suggestion. At least, that is what they whispered among themselves.

The subject stood facing me, blindfolded. Having filled the glass three-quarters full of water, I put it upon the palm of his left hand, placing his right hand above the glass, a few centimeters from the water. After a few minutes I withdrew the glass and, without

speaking a word, bruskly pinched the air it contained. Instantly, to my great surprise, the subject cried: "Ouch! You are hurting me!" and quickly clasped his right hand with his left.

"I have hurt you?" I said to him. "How?"

He took between the thumb and the index finger of his left hand the skin of the back of his right hand and twisted it, exactly as I had taken and twisted the air.

I then pricked the surface of the water with a pin.

"You are pricking me now! Will you soon stop tormenting me?"

Going quickly behind him, I repeated the same operations; and the subject again protested about my pinches and pin-pricks.

Suddenly I held the glass to my lips and blew upon the water. Instantly the subject raised his hands to his eyes and awoke, exactly as if I had blown upon his eyes to wake him.

I was thenceforth convinced that the exteriorization of the sensitiveness, whatever its real nature may be, was not in every case pure illusion, and I was more than ever desirous of studying it. I asked young Auguste, therefore, to come again, with as many of his friends as he wished to bring with him, but this time to my clinic, where it would be easier for me to experiment.

He came the following day; but what was my surprise when, after placing myself in the same conditions with him as before, I could not find in him any of the expected reactions! Had I, then, dreamed when I had believed that I observed them the preceding day?

Upon the remark of one of the assistants that this lack of success was due perhaps to the fact that immediately before coming to me, Auguste M. had been the object of attempts at hypnotization on the part of his comrades, I woke him, then plunged him into a deeper sleep. I then had the satisfaction of provoking in him again all the phenomena previously observed, and this time with a more severe control, the eyes of the subject being hermetically bandaged.

Since then I have been able to constate the exteriorization of the sensitiveness, not, of course, in all subjects upon whom I have experimented, but in a sufficiently large number of them to convince me that it is a real phenomenon, of which the cause, whatever it may be, is certainly something other than ordinary suggestion. Among these subjects I could mention Gustave P., Jean M., and Ludovig S., of whom I have had frequent occasion to speak elsewhere.[3]

In the absence of ordinary suggestion, is it *mental* suggestion that causes the exteriorization of the sensitiveness?

It is possible that it intervenes, in certain cases, as a perturbant or stimulant cause; for if it exists — and its existence cannot be doubted — it is certainly capable of playing this rôle. But it does not follow that it may be taken for granted — *a priori* and without further proof than this simple possibility — that it is the sole and sufficient cause of every case observed.

Especially in my experiments with Auguste M., it could not well have been my thought which provoked

[3] Many interesting experiments with these subjects are described in *Our Hidden Forces.*

the phenomenon. Because of the failure of all of my preceding attempts, and now having a comparatively new subject, my *thought* was rather that I should not succeed in obtaining any effect. And in the second séance, because of the success I already had obtained, my thought expected the exteriorization of the sensitiveness, and solicited it intensely; yet, in spite of this, the phenomenon refused to appear to me again.

Here, therefore, is a problem which one should not be in haste to declare solved; for its solution must be sought patiently, and by the application of the only method which can enable us to discover it — the experimental method.

This is true, also, of the phenomenon of *polarity*. The majority of early mesmerists believed that the force known as magnetic, more aptly called " biactinic," is polarized — that is to say, is at the same time positive and negative, precisely as electricity and physical magnetism. For example, the right side of the human body, they believed, was positive, and the left side negative. This would entail a whole series of consequences as to the actions, isonomic and heteronomic, exerted by one individual upon another.

I have made too few researches upon this subject for my opinion — were I to risk forming one — to have any value. If I speak only of my own personal observations, I must say that I have encountered polarity in one subject only, Gustave P., in conditions which I have given in detail in *Our Hidden Forces*. To repeat them briefly:

The right hand held opposite the subject's forehead for a few minutes made him pass successively through

three different and distinctly characterized states: fascination, catalepsy, and somnambulism. The left hand, inversely, destroyed the effect of the right hand, causing the subject to pass successively from somnambulism to catalepsy, from catalepsy to the state of fascination, and from the state of fascination to the waking state. Also, the operator's right hand, directed toward the subject's hand, his elbow, his foot, his knee, etc., determined movements of attraction; the left hand produced, in the member aimed at, trembling, agitation accompanied by a tingling sensation. And this double action, positive and negative, was conducted by means of a metal wire, according as the operator held the wire in his right hand or his left hand.

Certainly, verbal suggestion, as practised by the School of Nancy, had no place in these manifestations, since the experimenter operated in the most absolute silence, after having thoroughly blindfolded the subject.

But *cannot the effects be attributed to the communication of thought?*

This hypothesis is seductive. It does not, however, take into account a certain number of circumstances which concur with it badly.

First: The operator, who had assisted previously in experiments of polarity in a circle of mesmerists with very restricted ideas on the subject, had seen four states succeed one another in subjects submitted to the actions of both hands; the state of fascination, catalepsy, somnambulism, and lethargy; and among the characteristics of the first state was total anesthesia.

If, therefore, the phenomena must be aroused and formed by his thoughts, he should find the same phases and the same characteristics. However, in spite of all his efforts, he never found that lethargy succeeded the somnambulistic state in Gustave P., nor anesthesia accompany the state of fascination.

Second: It was wholly by chance that the operator's right hand was placed near the subject's elbow, when this appeared attracted in his direction. At that moment the operator had no intention of making any experiment whatever. When, however, he tried the action of his left hand, he expected to obtain a repulsion, and was thoroughly astonished to constate trembling and tingling. The combined action of the two hands must, he then supposed, produce a null effect, one neutralizing the other; but, wholly on the contrary, he found that there was a coexistence of their effects.

Here again, we should not hasten to reach any conclusion, but should understand that the question must remain open.

And there is greater reason why we should not consider the reduction of *biactinism* (animal magnetism) to *diapsychism* as definitely established. In France the partizans of this theory are all those whom the study of true *suggestion,* carried sufficiently far, has finally induced to admit the reality of *mental suggestion,* and who believe that by retaining the *word* " suggestion " they keep also the *fact* and remain faithful to the official doctrine. In England its partizans are those whom the study of *telepathy* has convinced of the possibility of an action exerted by one individual upon the

brain of another individual, in spite of the often considerable distance which separates them.

While the partizans of animal magnetism attribute the effects produced by passes, the gaze, and also the *thought* and the *will* of the operator, to a force *sui generis* emanating from his organism and especially from his nervous system, their opponents assert that these effects are due exclusively to a mental action which has for its starting-point the brain of the operator and for its point of arrival the brain of the subject. When my hand appears to anesthetize, contract, or attract, etc., any part of the subject's body, it does not, in reality, exert any action; behind this screen is hidden the true agent, which is my thought, unconsciously divined by the subject and making him obey, wholly as if I were to give him the command aloud. I believe that his arm will be contracted under my passes, but only because of my *belief*. In order that the contraction may cease, it will be sufficient for me to make further passes upon his arm, *believing* that they will stop the contraction. This is not magnetism; it is mental suggestion or telepathy, according to the name you prefer to give it.

If this theory be admitted, one must at the same time admit that the communication of thought is a phenomenon much more frequent than is ordinarily believed, and that it is produced much more easily than one might think possible. This insidious character is due to the fact that this happens especially in the region of the subconsciousness: the *conscious effort of will* to transmit its thought to other people, or to receive the thought of others, far from aiding diapsy-

chism, paralyzes it. This explains the reason why those facts which prove it directly are relatively scarce while those which prove it indirectly are frequent.

We already have shown, apropos of polarity, the difficulties of this theory, and we should be able to make the same objections to magnetism. They can be summed up in the following:

The effects which we have observed in experimenting upon the radiating action of the human body, and especially of the human hand, are often produced (1) *in the absence of all thought and of all will on our part* — as, for example, when Gustave P.'s elbow was attracted by a hand placed accidentally in its direction; (2) *contrary to our will and our thought* — as when the left hand, instead of exercising, as we expected, a repulsive action, produced an entirely different effect.

Moreover, in supposing that magnetism may be only a form of diapsychism, it would still be necessary to explain diapsychism itself, which, as we shall see, is *scientifically* as inexplicable as magnetism.

VII

It will be objected, undoubtedly, that as *suggestion* is now an incontestable scientific truth, science must equally recognize the *communication of thought,* which, taken all in all, is but a particular form of suggestion — as indicated by the name "mental suggestion," usually applied to it. If the former is explicable by scientific laws actually known, then the latter also must be thus explicable.

To reason in this manner is to take advantage of an ambiguity.

The pretended *mental suggestion* — badly named — has nothing in common with true *suggestion,* at least if we consider its essential components. I verbally order a person to stand up, and in spite of his will to the contrary he is forced to obey me. That is true suggestion. I mentally send the same order to a person who cannot see nor hear me; he does not obey my order, but he tells those near him that at that very moment I am commanding him to stand up. There the *communication of thought* fully succeeds, but, at the same time, *suggestion* completely fails.

There are, therefore, in the so-called mental suggestion, two different phenomena:

(1) The transmission of thought or of will, which is made from one brain to another — and it is this that it is necessary to explain, if mental suggestion can be explained; in the present state of science, unfortunately, it is inexplicable.[4]

(2) Suggestion proper, which consists in the influence of an idea upon the brain which has received it (however it may have entered this brain: by hearing, sight, or in any other way).

In order to connect mental suggestion with ordinary suggestion, it would be necessary to prove that there is no real difference in the way in which the subject perceives the *word* or the *gesture* of the suggestioner

[4] We are reminded of the words of Professor Pouchet (in *Le Temps,* August 12, 1893): "To show that one brain, by a sort of gravitation, acts at a distance upon another brain, as the magnet upon a magnet, the sun upon planets, the earth upon falling bodies, is to discover an influence, a nervous vibration, diffusing itself without a material conductor! . . . But find this for us, good people, show it to us, and your name shall be greater in immortality than that of Newton. . . ."

and that in which he perceives his *unexpressed thought.* This is what the author of an ingenious study upon " the mechanism of mental hypnotic suggestion " [5] endeavored to do.

After having defined this suggestion from the idea commonly admitted: " The influence that the thought of the hypnotist exerts, in a determined sense, either upon the thought of the hypnotized, or upon the apparition in the hypnotized of somatic phenomena of hypnotic nature, *without having the thought of the hypnotist accompanied by phenomena perceptible to the hypnotized and serving him as signs or indications,*" he modifies thus the latter part of the definition, " *without having the thought of the hypnotist accompanied by exterior signs of which he had consciousness and which were perceptible to the assistants.*"

That which permits one to suppose that the influence may be accompanied by signs perceptible to the subject is, in fact, the very hypothesis which Dr. Ruault develops.

In ordinary suggestion the hypnotist manifests his thought by the aid of words; in mental suggestion he does not speak. But Dr. Ruault assures us that " *as, according to all the experimenters, it is necessary that the thought be distinct in order that the suggestion may fully succeed,*" he gives to his thought the necessary distinctness by formulating it with the aid of the word within. It is this interior word which the hypnotized receives, thanks to his sensorial hyperacuteness.

Dr. Ruault recognizes, however, that this hyperacuteness is not one of the constant characteristics of

[5] Dr. Albert Ruault, *Revue philosophique.*

somnambulism, and that physiologists who have attempted to measure the sensorial acuteness of hypnotized subjects have found, sometimes an augmentation, sometimes a diminution, in comparing it with that of the same subject in the normal state.

It does not matter, this scientist affirms, that the attentive somnambulist has a special aptitude to seize upon and understand the signs of the hypnotist, viz., " the very faint muscular sounds of the interior words, and the visible movements of the extremely weak articulation provoked by the motor images of the words." In this latter case, however, it would be necessary to suppose in the subject the exercise of the sense of sight. If his eyes are closed, and if the hypnotist turns his back to him, he must then content himself with the sounds which inevitably accompany the muscular movements necessary for interior words.

How can the facts be explained?

Dr. Ruault first disposes of all the cases where the subject is in contact, however slight this may be, with the hypnotist, in declaring that " they have already been rejected, as not being mental suggestion," and even of those cases where the hypnotist is in the presence of the subject, for " they are not considered fully proved." Now remains " the supreme argument, mental suggestion at a great distance."

But first " it is by no means demonstrated that facts of this kind may be safe from all criticism," since the author does not find them in absolute contradiction to the interpretation that he proposed; " so long as they remain isolated, exceptional, and more or less doubtful, one must be confined to registering them with the

utmost possible detail until the state of science permits the explanation to be found."

It is evident that with similar processes of dialectic one would be able to demonstrate or to refute anything that one wished. The reader has only to review all the facts that we have enumerated, in order to see that the proposed interpretation falls short for the greater part of them. It does not seem applicable even to the experiments made by Dr. Ruault. He recognizes that his two subjects "sometimes felt the influence strongly from one room to another of the same apartment," and that he had been able to put them to sleep thus, even though really they did not suspect his presence. He says:

> One of these persons felt me, sometimes very forcibly, when I willed it strongly, although I was in the street and he in the mezzanine of the Rue Cujas. One evening when, accompanied by a friend, I left the house of one of these subjects, a medical student, upon whom I had made some experiments in hypnotism, I tried, *from the staircase of the lower floor,* to suggest to him mentally complete paraplegia; and it seemed to me that my mental suggestion had reached him. I had not in any way thought of attempting the experiment when I was near him; the idea did not come to me until the very moment I put it into execution. Immediately after my attempt was made, I went up to my somnambulist to see if the suggestion had succeeded. I found him seated in an arm-chair, complaining that his legs were numb and he could not raise them.

Undoubtedly, Dr. Ruault himself was persuaded that his subject had understood, through the doors of his apartment and from one floor to another, "the very

faint muscular sounds of the interior word" which accompanied this thought, *"I will that you present the symptoms of complete paraplegia."* But it would be difficult to persuade others of this.

For those who, as the members of the Society for Psychical Research, consider the facts of mental suggestion as being of the same order as the facts of telepathy, it is not possible to explain them by the sole hyperacuteness of the ordinary instruments of sensible perception. We are here in the presence of an original phenomenon, a sort of wireless telegraphy or telephony which puts two brains into communication, in conditions still unknown. Even these comparisons, these expressions borrowed from physics and physiology, are repugnant to the partizans of the telepathic interpretation: the phenomenon, as we know it, belongs to pure psychology.

A certain thought is in the mind of one person, *A*. A thought identical to that, and certainly provoked by it, is born at the same moment in the mind of another person, *B*, even though these two persons had not been able to exchange their thoughts by ordinary means. All of this has many times been established, and all of it we must admit.

What is it that happens in the brains of the two people, and in the space which separates them?

We do not know, say the partizans of the telepathic interpretation, and furthermore we need not trouble about it. We must consider the fact of the communication of thought a primary fact, certain although inexplicable, and use it boldly as a principle of explanation for all the facts it is possible to ally with it.

Any such position appears to us to be scientifically untenable. If it is the soul, as such, which, independently of the brain and nervous system, independently of all physiological and physical mechanism, can thus make its action felt at a distance, we can easily establish the fact; but this fact, without analogy to the rest of nature, escapes all scientific explanation, all experimental research. For explanation and experimentation are possible, according to Claude Bernard, only where the phenomena are absolutely determined in their natural conditions. To attribute to thought and will the mystic property of communication from one mind to another without any physical connection between the brains where they have their natural conditions, is to place ourselves definitely beyond the realm of science.

But any such conception is no more defendable philosophically. In fact, if we regard it from the philosophical point of view, there is absolutely nothing in the nature of the soul which can justify it.

From the fact that a certain thought is in me — for instance, the principle of a reasoning — it can be conceived that another thought must follow — for instance, the conclusion of this reasoning; for there is here no interval, no space. But from the fact that a certain thought is produced in my brain, how does it follow that another thought (identical or not in nature) is produced in some other brain, separated from mine by all sorts of intermediaries? Since it is a question of space, we leave the immaterial sphere of consciousness to fall into the realm of matter and movement; the mechanical explanation of the phenomena, and their

experimental determination, become immediately possible and necessary.

It is, in fact, a postulate of the scientific method universally admitted by all modern scientists and philosophers, since Descartes, that if we wish to study scientifically any phenomenon whatsoever — physical or mental — we must endeavor to connect it with physical conditions: that is to say, to its physical antecedents or concomitants. This postulate, purely scientific, does not imply any hypothesis, any metaphysical system, materialism, monism, or other. It is possible, however, that our effort to connect *certain* phenomena with physical conditions may be condemned never to end practically; but it is experimentation which will prove this to us, and we must not suppose it *a priori,* for this would be to shut out from ourselves in advance all possibility of scientific investigation.

Therefore, we cannot stop at the mere affirmation of the communication of two minds, in the phenomenon of the transmission of thought. Willingly or unwillingly, it is necessary to admit also *the intercommunication of two brains.* But, once entering upon this path, is it possible for us not to keep on to the end: to *the intercommunication of two nervous systems* — in other words, to *animal magnetism?*

A characteristic of all the diapsychic phenomena is that they imply the possibility for a brain to radiate at a distance, not, unquestionably, the will or the thought, but an influence capable of transmitting or reproducing the will and the thought, as electric currents sent along the telegraphic wires transmit — or, rather, reproduce

— the despatch at the other end. If the brain of the operator sends nothing to the brain of the subject, and if the intermediary space contains nothing which puts them into relation with each other, this communication of two consciousnesses is a supernatural, superscientific phenomenon, which is not connected with any other in our entire experience, and of which it would be necessary to abandon all efforts to find an explanation.

But when the members of the Society for Psychical Research oppose among themselves the two hypotheses of *effluence* and *thought-transference* — that is to say, animal magnetism and telepathy — are they not blinded by an illusion produced by the words? Is it not evident that *thought-transference* is only a particular form of *effluence* — a cerebral and mental effluence, necessarily more complicated and obscure than the simple nervous and vital effluence?

There is no serious reason for believing that the power to influence at a distance appertains exclusively, in the organism, to the brain considered in its functional unity as the organ of will and thought. Undoubtedly, the brain has, in man, a preponderating and unique rôle. It is the organ of conscious life, of intellectual and moral life. However, its psychological functions (if they may be called this) have evidently for their basis and their condition the physiological properties of the elements which compose it.

Neither will nor sensations could exist if the nerve fibers did not possess the property of conducting movement, if the nerve centers did not possess that of receiving it and of reflecting it by transforming it.

These properties, however, are not peculiar to a few

elements of the brain; they are common to all the elements of the brain; *they are the general properties of the neurons.*

Therefore, if the will and the thought can be communicated from one brain to another, all the analogies not only authorize us but even oblige us to see in this phenomenon only a particular consequence of some general property of the cerebral and nervous cells antecedent, so to speak, to the will and the thought. And in what could this property consist, if not in a sort of radiation or expansion of the nervous force, which the phenomena of heat, light, and electricity render it comparatively easy for us to conceive?

The hypothesis which links diapsychism to animal magnetism appears to us, therefore, to be more favorable than the hypothesis contrary to the investigations of science, and to be more in conformity with the scientific method.

But when it is a question to know, in each particular case, whether we have to deal with a fact of animal magnetism (*nervous* biactinism) or of diapsychism (*cerebral* biactinism), we should not theorize, however ingenious and seductively easy this may be; it is experimentation alone which can lead us to the truth.

CHAPTER XI

CLAIRVOYANCE, OR "METAGNOMY"

I

UNDER the denomination of *clairvoyance* a large number of facts may be brought together. They might be different in nature, but all would be extremely obscure, not to say incomprehensible, and of an appearance even more marvelous than those which we studied in the preceding chapter and with which they have so great an affinity that it is sometimes very difficult to distinguish one from the other.

These facts, which were known long ago, especially by the early adepts in animal magnetism, are to-day attracting the world-wide attention of the savants. They have been too long denied a hearing, owing to their unscrupulous exploitation by charlatans at the expense of the credulous public.

Perhaps the name *clairvoyance* (as also the term *double sight* or *second sight*) is not very aptly chosen, to apply equally well to all the forms of the phenomenon; for it is not always a question of *vision*. In some cases it would appear to be analogous to a perception of hearing (from which we have the name *clairaudience* to designate one of its forms); in others, to that of touch.

To overcome this difficulty we should have a word that would signify, in a general way: "*Knowledge*

obtained by certain individuals, in certain particular states, which does not seem to be explicable by the exercise of our normal senses and intellectual faculties."

If I did not fear to incur once more the double reproach of barbarism and pedantism, to which every inventor of technical words drawn from the Greek exposes himself, I should propose, in order to designate the phenomenon in the most general way, the word *metagnomy* (from *beyond,* and *knowledge*). This word, therefore, signifies approximately: "*Knowledge of things situated beyond those we can normally know; supernormal knowledge.*"

The first question to arise in the study of clairvoyance, or "metagnomy," is this:

Does a supernormal knowledge of this kind really exist?

That is a question of fact, which can be answered only by enumerating the facts. But as these facts are so numerous and, in appearance at least, so diverse, so different from one another, our first question must be changed into another question:

What are the different forms of this supernormal knowledge?

II

Our normal knowledge may bear (1) upon facts or objects actually existing (*perception*); (2) upon past events (*memory*); (3) upon future events (*prevision*); or (4) upon the rapports, the general truths, independent of time, such as, for example, scientific laws (generalization, reasoning, *reason* proper).

If we apply this classification to supernormal knowl-

edge, it seems that we can, at least temporarily, well omit the last of these categories, because the facts that could be classified under this fourth heading are exceedingly rare, and especially because it is very difficult to distinguish them from normal facts of the same kind. On the one hand, mediums, even those with exceptional powers of clairvoyance, have never or seldom revealed to humanity any scientific truths of importance. On the other hand, who can say where the normal and the supernormal begin and where they end, in the intuitions of men of genius? In studying the metagnomic phenomena, therefore, we can limit ourselves to the first three kinds of knowledge: *perception, memory,* and *prevision.*

With regard to perception, it seems that a special sense — which might be called a sixth sense — would appear to be developed in certain individuals, in certain particular circumstances, in order to put them *en rapport* with the radiations or emanations of things inaccessible to our ordinary senses, and to permit the intelligence of these subjects or mediums thus to have information *sui generis,* the origin of which is entirely unknown to us.

Is there not something analogous to this in the extraordinary acuteness of the dog's sense of smell, or in its sense of locality or orientation? We are forced to believe the existence of this sense in a large number of animals, without in any way being able to understand its nature.

It is exceedingly difficult to classify the many and varied forms of metagnomic perception; for the differences between them are often imperceptible, and we are

not unaware of the strongly arbitrary and artificial divisions which we are obliged to introduce in the midst of facts really indivisible, in order to facilitate their study.

All psychological treatises teach the distinction between *perception by consciousness* (inner perception or intimate sense, having for its object the psychological life of the "*self*") and *perception by the senses* (exterior perception, having for its object the world of material things) ; in other words, *subjective* perception and *objective* perception.

Similarly, although not so precisely, we could distinguish two varieties of clairvoyant or metagnomic perception, the first being exercised especially in the inner world of consciousness, the second belonging rather to the exterior world of objects and physical events.

It is undoubtedly necessary to attribute to the former that strange faculty which certain subjects possess of being able to perceive the condition of their internal organs, with such distinctness as to enable them to describe this condition precisely. This faculty was recognized by the early mesmerists, and afterward admitted and studied by Dr. Sollier under the name of *autoscopy*. It was demonstrated in the case of a patient who, having swallowed a pin two months previously, was able, in a state of hypnosis, to follow it in all the stages of its voyage through the intestines.

The field of vision of this faculty is not necessarily limited to the organism of the one who possesses it; it can be exercised also upon the organism of another person. Many somnambulists, according to the early mesmerists, perceived the condition of the organs of

persons who were put *en rapport* with them, and experienced, by a sort of inexplicable sympathy, the same internal organic sensations. There was a co-penetration of two sensibilities and of two consciousnesses. We studied it in the preceding chapter under the name of diapsychism. It could better be said that diapsychism is a particular form of metagnomy, since it also is " a knowledge obtained by certain individuals, in certain particular states, which is not explicable by the exercise of our normal senses and intellectual faculties."

It is a fact of the same kind which must really constitute what has been called the *magnetic rapport.* The hypnotized subject, who is insensible to all other persons, is particularly sensible to the influence of his hypnotizer. When any one else speaks to him, he does not understand nor answer. He understands and answers when the hypnotizer speaks to him; and *he understands and answers equally well all other persons who are put en rapport with the hypnotizer by contact.* He perceives, then, in some way unknown to us, the contacts felt by the hypnotizer.

It is not only the inner sensations which may thus be perceived: one may perceive also phenomena of a more purely psychological or subjective nature — ideas, intellectual operations, acts of will, of taste, of habits, the disposition, innate or acquired, the temperament, the character. The medium reads the thought, the soul, of some one else, as he would read himself. Sometimes it is at the request or with the permission of the other person that he penetrates into the inner self thus opened to his gaze. But sometimes, also, it is spontaneously, and unknown to the other persons, that

his gaze penetrates them and discovers secrets hidden in the very depths of their consciousness. It is then a true *divination of thought.*

Those beings who are gifted with such powers of divination are, in the eyes of Dr. Osty, prodigies in whom " the brain has reached a higher degree of sensibility, when it becomes the reactive capable of disclosing what is in the brains of other men. They are the interpreters that nature has created between *our whole mind* and *our consciousness.* They are the mirrors before which our otherwise unconscious thoughts are seen and comprehended."

III

The objective or physical form of metagnomic perception, whose affinities with diapsychism (thought-transference) are less visible, also presents a large number of varieties.

First, let us set aside those which correspond to the phenomena we have brought together under the name of *hyloscopy,* the most common of which are the influences exercised by springs, currents of water, metals, etc., upon the *special* sensibility of pendulum- and rod-diviners.

If we consider rather the perceptions relevant to the *general* sensibility common to the entire human race, the first fact to note is that of the *exteriorization of the sensitiveness,* discovered by Colonel de Rochas, but the interpretation of which is still generally contested. Instead of perceiving upon his own body the contacts, pricks, pinches, etc., that are made, the subject feels them at various distances, or even in objects which

have been for a certain length of time in contact with him.

Related to this fact is that of *reading through the tips of the fingers.* We have analyzed in detail an example of this kind in *Our Hidden Forces.*[1] The series of experiments related there was, unfortunately, interrupted by the departure of the subject, Ludovig S., for the north of France, where he remained from 1907 until 1914. It was only in 1914 that he returned to Dijon, where the mobilization had called him, and where he remained but a very short time. During his stay, however, I managed to conduct some interesting experiments.

On December 9, 1914, Ludovig S. came to my clinic at about 6:45 in the evening, and was very quickly put to sleep by verbal suggestion. I then blindfolded him, and turned on the electric light in a room near my clinic (my secretary's office). I closed the door of this room, and left half open that leading from my clinic into a small passage which separated the two rooms. The only illumination that I had, then, was the light which came through the glass door of my secretary's office into the clinic. The subject, blindfolded, was seated in the farthest and darkest corner of the room.

I put into his hands a folded copy of a newspaper, *"l'Indépendant, de l'Auxois et du Morvan,"* the first line of the title, *l'Indépendant,* being printed in very large characters.

He passed his fingers over the title; but it seemed that his special sensibility had disappeared, or perhaps was singularly dulled during the very long interruption of our experiments, for he declared that he could "see" nothing.

I gave him then a volume bound in red morocco, which had,

[1] Chapter XI, "Apparent Transposition of the Senses."

printed in relief, in the center of its cover the arms of the second empire, and around this the words: "Concours général des départements." I urged the subject to persist, and to have confidence in himself, telling him that this time the letters were raised.

I heard him murmur the syllable "*Con*"; and then he stopped.

"That is right," I encouraged him.

"*Conseil,*" said he.

"No! Pay attention!" I commanded.

"*Conférence,*" he said.

I told him that there were two words, one following the other; and he then deciphered the second, "*général,*" syllable by syllable. Next came the inscription below: "*des départements.*" He then returned to "*Concours*" and read it at last, but not without hesitation and much effort.

The title of a novel by Frometin, *Dominique,* was then read very easily; and the subject himself recognized that there was something above the title: "*Eugène Fromentin,*" he read.

Similarly, he read upon another volume: "*L'hystérie et la neurasthénie chez le paysan.*"

Then followed: "*Sérothérapie antitétanique.*" For the last word there was hesitation upon the "*antité,*" the subject saying at many attempts, "*antitéra,*" before he read it correctly.

The newspaper was again put into his hands. This time he read without difficulty: "*l'Indépendant*"; but he went no farther, declaring that there was nothing more there. I saw then that, the paper being folded, the second line of the title, "*de l'Auxois et du Morvan,*" was under the fold. But, although printed in very small characters, he read it as easily as the rest when it was put under his fingers.

An old photograph, of somewhat large size, was then given to him; and he asked me if it was necessary for him to "see" it. When I answered in the affirmative, he told me that it

was my portrait, and I was shown in profile — which was quite correct.

A second photograph, smaller in size, and in medallion form, was given to him. Once more he asked if it was necessary for him to see it; and when I answered as before, he said: "It is you, but in another pose: turned almost full-face, and taken from the other side." This equally was true.

Proceeding always in the same direction, we find the fact of *sight through opaque bodies,* many times described by the early mesmerists, especially by W. Gregory. Certain of our contemporaries believe they explain this phenomenon by connecting it with X-rays. At least, the following despatch from New York to the *Daily Chronicle* appeared in *Le Matin,* in March, 1913:

A little girl, ten years old, named Beulah Miller, possesses, according to Dr. John Quackenbos, a member of the Academy of Medicine who examined her thoroughly, an *X-ray vision.* She can see through opaque bodies; and had no difficulty, during the experiments, in telling what the assistants had in their pockets, in reading a certain page of a closed book, and in describing objects placed in closed boxes.

Here are some details upon these facts reported by W. Gregory:

The experiments were made by Major Buckley, with persons whom he had put into a state of clairvoyance, and who could, in this state, decipher written mottoes enclosed in nutshells. The statistics upon this subject are very curious. Out of eighty-nine persons made clairvoyant in the waking state, forty-four were capable of reading in this way. In a state of hypnotic sleep,

the number of readers was raised to one hundred and forty-eight. *The written mottoes contained in four thousand eight hundred and sixty nutshells have been read; and about thirty-six thousand words understood.*

In a small number of cases they were deciphered by thought-reading, the persons who had put them in the shells being present; but in the majority of cases the words were not known to any of the assistants, and, consequently, they had to be read by direct clairvoyance. Every precaution was taken. The nuts enclosing the written mottoes had been purchased in forty different stores, and had been sealed until the moment of the reading.

The following case will give a more precise idea of this experiment:

Sir Wiltshire had carried away with him a "nest of boxes" belonging to Major Buckley, and he had placed in the innermost box a small piece of paper upon which he had written a word. A few days later he brought back the boxes, with the paper sealed inside, and asked one of Major Buckley's clairvoyants to read the word. The Major made a few passes over the boxes; and the clairvoyant said that she saw the word "Concert."

Sir Wiltshire declared that the first and last letters were right, but that the word was different.

She persisted, however, that the word was "Concert"; and then he told her that the word was "Correct."

In opening the boxes, it was found that the word actually was "Concert."

"This case," said W. Gregory, "is very remarkable; for if the clairvoyant had read the word by thought-reading, she would have read it according to

Sir Wiltshire's belief. He either had had the intention of writing 'Correct,' or else in the interval had forgotten that he had written 'Concert,' for he certainly believed that the word was 'Correct.'"

Let us go a step farther and we find ourselves in the presence of the phenomenon of *vision at a distance,* which is generally called *second sight* or *lucidity.* With this, it seems that space does not exist, and that one can perceive in an instant what is happening in places very far distant: a sort of *teleopsy,* natural even though inexplicable, a phenomenon comparable in its nature to wireless telegraphy or telephony. The books of the early mesmerists abound in descriptions of facts of this order.

We quote from an article in the *Revue philosophique* (1889) upon the observations of Dr. Dufay, of Blois, in his experiments with a young servant, who presented the phenomenon of second sight in the highest degree.

When Dr. Dufay's friend, Dr. Girault, was invited by a relative, Madame D., to witness the phenomena of clairvoyance exhibited by her young servant Marie, Dr. Dufay had asked to be permitted to arrange the program of the séance, by wrapping up many small objects, in a way that would conceal their nature, and *so that he might not be able to know one from the other himself.* These small packages were to be given to the somnambulist, and she had to discover by clairvoyance what each contained. The matter was arranged, and the day fixed.

This is Dr. Dufay's description of the séance:

I laid aside a few objects that were not in ordinary usage,

so that chance guessing might be eliminated, when there reached me from Algeria a letter from the chief of a battalion of infantry, whom I had known in the garrison at Blois. The commandant told me many episodes of his life in the desert, and spoke especially of his health, which had become very poor. He had slept in a tent during the rainy season, and that had developed in him, as in most of his comrades, violent dysentery.

I placed this letter in an old envelope, without address or postmark, and carefully sealed it. Then I put this into a second envelope, of a dark color, and sealed it as the first one.

On the appointed day I arrived at Madame D.'s a little late. Marie was already asleep; therefore she was ignorant of my presence, knowing only that I was expected. The ten or twelve persons gathered in Madame D.'s salon were astonished by the somnambulist having recognized, without mistake, the contents of several packages prepared by them. I also had prepared some small packages, but I left mine in my pocket; and, in order to break the monotony of the experiment, it occurred to me to slip my letter into the hand of one of the assistants, motioning to him to pass it to Dr. Girault. The doctor received it without knowing that it had come from me, and put it into the hands of Marie.

I did not notice whether her eyes were open or closed; but, in a case of this sort, it was of little importance.

"What is it that you have in your hand?" Dr. Girault asked the subject.

"A letter."

"To whom is it addressed?"

"To Dr. Dufay."

"By whom?"

"By a military man whom I do not know."

"Of what does this military man speak in his letter?"

"He is ill. He speaks of his illness."

"Can you tell what the illness is?"

"Oh, yes! Very easily. It is the same as that of the old man of Mesland, who is not yet cured."

"Very good . . . I understand . . . dysentery. Listen, Marie! I believe that you would give Dr. Dufay great pleasure if you were to go to see his friend, the military man, so that you might bring back with you some news of him."

"Oh, it is too far! It would be a long trip!"

"Never mind! Leave at once. We will wait for you."

(After a long silence.) "I cannot continue my journey. . . . There is water, a great deal of water."

"And you cannot cross the bridge?"

"But there is no bridge!"

"There is perhaps a boat that will take you across, as between Onzain and Chaumont."

(The Chaumont bridge over the Loire had not then been built.)

"Boats . . . yes; but this Loire frightens me . . . a real flood!"

"Go on. Take courage and embark."

(A prolonged silence, agitation, pallor of the face, a little nausea.)

"Will you soon arrive?"

"I have arrived; but I have been very tired, and I do not see any one on shore."

"Disembark, and you will find some one."

"*Voilà, voilà!* I see many people . . . nothing but women in white. But, no! On the contrary, they all have beards."

"All right! Go up to them and ask them to show you where you will find the military man."

(After a silence.) "They do not speak as we do. I have had to wait until they called a little boy with red trousers, who has been able to understand me. He has conducted me himself, and with very quick steps, because we walk in the sand."

"And the military man?"

"There he is. He has on red trousers and an officer's cap. But he looks ill, and is thin!"

"Does he tell you what caused his illness?"

"Yes; he shows me his bed — three planks upon some stakes, above damp sand."

"All right. Thank you. Tell him to go to the hospital, where he will have a better bed, and you return to Blois."

I then asked my confrère to open the letter and read it. And he was not the least satisfied among those in the salon; for the success of the séance had surpassed all his expectations.

Dr. Dufay had a new proof of the clairvoyant powers of this young somnambulist a few days later. He says:

Marie, in a state of natural somnambulism, had put her mistress's jewels out of their customary place, and had been accused of stealing them. I called at the prison in Blois, where she was detained, and, by inducing her into artificial somnambulism, awakened her memory and thus proved her innocence; but, because of judiciary formalities, she was not immediately permitted to leave the prison.

Early on the following day I was called to investigate a suicide which had taken place. A prisoner, accused of murder, had strangled himself with his necktie, by attaching one end of it to the foot of his bed, which was fastened to the floor. Lying flat on his stomach, on the floor of the cell, he had had the courage to push himself backward with his hands until the slip-knot of the tie had produced the strangulation. The body was already cold when I arrived, simultaneously with the attorney and the magistrate.

The attorney, to whom the magistrate had related the scene with the somnambulist the preceding day, wished to see Marie. I then suggested that I question this young girl about the crim-

inal who had taken justice into his own hands; and the magistrate accepted my proposition eagerly. Accordingly, I cut off a small piece of the necktie, and wrapped it in several sheets of paper, which I tied up securely.

Arriving at the women's quarters, we went to the dormitories, and asked the woman in charge to let us use her room.

I then, without speaking a single word to Marie, beckoned her to follow us. After putting her to sleep by a simple application of the hand against her forehead, I took from my pocket the package I had prepared, and put it into her hands. Instantly, she jumped out of her chair, and threw the package away from her with horror, crying angrily that she did not want "to touch that."

Now, it is well known that in prisons, suicides are kept secret as long as possible. Nothing had been said in the prison, about the suicide of the criminal, even the attendant being ignorant of it.

"What do you think this package contains?" I asked Marie, when she had calmed somewhat.

"It is something that has been used to kill a man!"

"A knife, perhaps? Or a pistol?"

"No, no! A cord . . . I see. . . . It is a necktie . . . he has hanged himself. But tell that man who is behind me to sit down, for he is trembling so much that his legs cannot support him." (It was the magistrate, who was so strongly affected by what he was witnessing that, actually, he was trembling violently.)

"Can you tell me where this has taken place?"

"Right here . . . you know very well. It is a prisoner . . ."

"And why was he in prison?"

"For having killed a man who had asked him to get into his cart."

"How did he kill him?"

"With a *gouet.*"

Gouet is the name of a sort of hatchet, with a short handle, and a broad and long blade curved at the end like the beak of a parrakeet. It is an instrument in common use in the country, especially by coopers and woodcutters. And it was, actually, a *gouet* that I had mentioned in my medico-legal report as being probably the weapon with which the murder had been committed.

Up to this point Marie's answers had told us nothing that we did not already know. But just then the magistrate drew me aside and whispered in my ear that the *gouet* had not been found.

"And what has he done with his *gouet?*" I asked the subject.

"What has he done? . . . Listen! . . . He has thrown it into a pool. . . . I see it very clearly at the bottom of the water."

And she indicated the location of this pool exactly enough to enable the authorities to go to it that same day, accompanied by the chief of police, and to find the instrument of the crime. We did not know of this result until that evening; but already the skepticism of the magistrates was greatly shaken.

To satisfy their curiosity, I asked the woman in charge of the prisoners to borrow from them some small articles that belonged intimately to them, such as a ring, an earring, etc., and tie them up into little packages, entirely disguising the nature and shape of the article. Marie told us exactly what had caused the imprisonment of each of the women to whom the objects belonged." [2]

Second sight is a phenomenon so extraordinary, which so violently shakes all admitted beliefs, that I may be pardoned if I cite many examples.

[2] In the same issue of the *Revue philosophique* appears an article by the director of the Normal School of Guéret, upon a young student of his school who presented marked phenomena of clairvoyance during periods of natural somnambulism.

Here is one that has been told to me recently, by the man who experimented, and who, at my request, has written down the incident. He is Mr. Jean B., schoolmaster in one of the principal schools of Perpignan. I shall give his version without changing anything except the proper names, of which I shall give only the initials.

In the month of August, 1892, when I was schoolmaster at Céret, a professional hypnotist gave a performance of hypnotism in a café of that village. The subject was a young boy of eighteen, Raymond S., employed in the barber-shop of Antoine R.

A few days afterward, when I went to this shop for a shave, the conversation turned upon the experiments to which young Raymond had been submitted. He then suggested that I put him to sleep. We were all alone, his employer being away on military duty for a period of thirteen days at Perpignan.

I did as the boy requested, and I had the satisfaction of succeeding — a satisfaction all the greater because it was the first time I had ever tried to put any one to sleep. Young Raymond was, however, a remarkable subject, gifted with extreme sensibility and suggestibility. I had no trouble in repeating with him all the experiments which I had seen the professional hypnotist make.

I went then very often to the barber-shop, for I was enthusiastic about these experiments.

One day it occurred to me to try the phenomenon of *second sight*. I had read articles about it, but they had left me very skeptical. It was on a Thursday, at about five o'clock in the afternoon. The owner of the shop, Antoine R., had not yet finished his period of thirteen days, having been gone only about a week; he was, therefore, still in Perpignan.

I told Raymond what I intended to try; and he agreed readily, being as curious as myself to know the result of these experiments. I at once put him to sleep, and ordered him to "see"

his employer. It must have been, then, about quarter past five. After a few moments of silence, the subject said:

"I see him."

"Where?" I asked.

"He is in a café."

"Which one?"

"In the Café de la Mairie."

"What is he doing?"

"He is drinking absinthe."

"Is he all alone?"

"No; he is with two other comrades."

"Do you know them?"

"No; I do not know them." Then, changing his mind: "Ah, yes! One of them I have seen here, for Saint-Ferréol."

Having exhausted the questions I had to ask him concerning Mr. R., I told the subject to go to his home; and he said that he saw his mother attending to household matters, his brother sitting in the kitchen, etc.— in brief, mere banalities. I did not insist further; for I did not know how I could verify his statements. I woke him then, and told him all that he had said to me. He was greatly astonished; for he remembered nothing of it.

A few minutes afterward, I put him to sleep again, and sent him once more to look for his employer.

"Do you still see Mr. R.?" I asked.

"He is no longer in the café," the subject answered.

"Where is he, then?"

"He is walking."

"Is he still with his two comrades?"

"One of them has left him."

"Which one?"

"The one who was here for Saint-Ferréol."

"Follow them as they walk. Where are they going?"

"I do not know."

"Very well. Tell me as soon as you know."

There followed a silence of about one minute. Then, suddenly, the subject exclaimed:

"They are going to have supper!"

"How do you know?"

"They are entering the *Boule d'Or.*"

I did not persist any further, but woke my subject, who appeared to be very tired.

There now remained for me to verify the exactness of the facts which he had revealed. I knew that Mr. R. would return two days later for a twenty-four-hour *permission.* I decided to wait for him at the railway-station, and to ask him, as diplomatically as I could, how he had spent the time between five and six o'clock that Thursday afternoon. And that I did. On the way, I said to him:

"Last Thursday, at about quarter past five, I saw you at Perpignan. You were in the Café de la Mairie, drinking absinthe with two of your friends."

Mr. R., looking at me, said simply: "Why did you not come over to speak to me? We should have been glad to have you with us."

"I feared that I might intrude," I answered him. "Besides, I was in a hurry; I did not have time."

"I am sorry. It would have pleased me to have you at least speak to me."

"By the way," I asked him, "who were your two friends? Has not one of them been here in Céret?"

"My comrades were F., who comes from here, but no longer lives here, and Charles M., a pastry-cook in Perpignan."

"Which of the two was here for Saint-Ferréol?"

"Oh, that was my friend Charles. I had invited him for the fête."

"Then it was he who had left you when you went for supper with F. at the *Boule d'Or?*"

At this question, Mr. R. looked at me in astonishment, exclaiming:

"How do you know? You followed me, then? A few moments ago you told me that you were in a hurry!"

I could not keep from laughing, and so was obliged to tell him how I had obtained the information.

There was no doubt of the fact that Mr. R. had no idea whatever of hypnotic phenomena, for he did not believe me.

"You are joking!" said he. "You are making fun of me!"

I tried very hard to convince him that I had learned in no other way how he had passed his time; but I could not succeed.

"Well," I then said to him, "the essential thing for me to do now is to make you believe that what I have told you is true. As for the rest, since you are incredulous, I shall make you see, one of these days. I hope, then, that you will be convinced."

"Oh, if I see it, I shall believe it," he replied; and we separated.

The following Saturday, Mr. R. returned definitely to Céret, his term of thirteen days having expired. When I went to his shop that day, he himself reminded me of my promise, and we made an appointment for Monday evening, after eight o'clock.

I was careful not to miss the appointment. At eight o'clock I arrived at the barber-shop, and found, besides himself and his employee Raymond, three other persons.

I put Raymond to sleep, and made him carry out different suggestions, to the astonishment of the assistants, who had never witnessed anything of the sort. Then I woke him.

In the meantime, Madame R. appeared in the doorway of the shop. She stood for a moment, amazed, and then, addressing her husband, without coming farther into the room, she said:

"Antoine, you know where I am going."

And without another word she left us.

Then an inspiration came to me.

"Does Raymond know where your wife is going?" I asked Mr. R. "Or what she is going to do?"

"Certainly not. He knows nothing about it, for it is a matter between my wife and myself."

"Very well," I said to him then; "if your employee tells you where your wife is going and what she intends to do, will you believe that he was able to tell me what you did at Perpignan?"

"Oh, then I shall no longer doubt you."

I put the subject to sleep immediately, and made him sit in an armchair.

"Follow Madame R.," I ordered him. "Do you see her?"

"I see her. She is going down the Rue Saint-Ferréol."

"Good! Follow her. Tell me what she does."

After an instant's silence, he said: "She has stopped."

"Where?" I asked.

"At the foot of the street."

"What is she doing?"

"She is speaking."

"With whom?"

"With a woman."

"Do you know this woman?"

"No; I do not know her."

"Do you not know, then, what her occupation is?"

"Yes. She sells wine."

"And where does she live?"

"On the left-hand side, in going down."

Then the idea came to me, since he saw the two women talking, to make him understand what they were saying.

"Very well," I said to him. "Since they are talking, listen to what they are saying, and repeat it to me."

"I cannot hear them," he replied.

"Listen!" I insisted. "You will hear."

"I hear nothing!" he repeated, this time raising his voice, and with a note of irritation.

"I *will* you to hear!" I ordered.

Immediately, the subject's face changed expression. We saw

that a violent effort of his will was being made, the veins on his forehead swelled up; then, suddenly, with his whole body tense, in a strange, jerking voice, he uttered these two words:

"*Argent . . . Espagne!*" ("Money . . . Spain!")

At that he dropped back in the chair, as if utterly exhausted.

I woke him immediately, a little frightened; and as he remained as if prostrated, I had to moisten his temples with a towel — something I had never had to do before.

In the meantime, Madame R. returned, and came into the shop. I went to her immediately, before any one had a chance to speak a word to her.

"Madame," I said, "is it true that you have just come from the foot of the Rue Saint-Ferréol, where you found a wine merchant with whom you have talked — of money . . . Spain. . . ."

Madame R. smiled, and explained to me at once:

"Yes; I have just been with Madame T. As I know that her husband must go to Spain this week, I went to ask him if he would take some Spanish coins that I have at home."

(The circulation of Spanish copper money had for some time been prohibited in the department of the Pyrénées-Orientales, which was literally flooded with it.)

Telepathy, so thoroughly and patiently studied by the English Society for Psychical Research, has certainly an affinity with all the preceding phenomena, and notably with *second sight,* from which it differs, however, in two main characteristics: (1) It is always produced spontaneously; while second sight is nearly always provoked by an experimenter. (2) It emphasizes rather the *action* of the object perceived; while second sight causes us to consider rather the *knowledge* manifested by the subject who perceives it. It seems that *in telepathy the object goes to find the seer;*

while *in second sight the seer goes to find the object.* But it can well be understood that in many cases the shade of difference between telepathy and second sight is hard to perceive.

Memory, or at least knowledge of the past, can also assume a supernormal appearance. The name *psychometry* has been given, wholly improperly, to this faculty which certain mediums possess of retracing a sometimes long series of past events, of which they have no personal knowledge. This may be done in the presence of the individuals whom the events concern in a more or less direct way; or it may be at the contact of objects having played some rôle in the events. Part of these effects may, it seems, be linked to *divination of thought,* whenever the medium can read in the memory of the individuals, where the recollection of the events is retained in a latent state. But the case would appear entirely different, and comparable rather to a sort of *second sight into space* or *temporal telepathy,* when the medium, under the sole influence of an object, or of the place in which he may be, is mentally transported into the past and takes part in events which happened long before. This was the experience of two English women who, visiting Versailles in 1901, "saw" the Petit Trianon as it was in the time of Marie-Antoinette.

The *future* appears undetermined to us, at least so far as it depends upon our will; but can it, also, be the object of a sort of immediate vision? *Can the future become the present in the mind of the medium?*

That is a formidable question, from the philosophical and moral viewpoints; for the question of our free

will and our moral responsibility are themselves involved.

One may find many examples of prevision and premonition, which are inexplicable by the normal faculties of induction and are verified by later events. It will be sufficient to cite two cases:

One is that of Dr. Geley, of Annecy, who in 1894 was a medical student at Lyon. On the 27th of June, at nine o'clock in the morning, while working in his room with a comrade, he was suddenly distracted from his work by this obsessing thought: "M. Casimir-Périer is elected President of the Republic by 451 votes." (The electoral Congress assembled at midday, and the news was not known in Lyon until that evening.)

The other case is that which Dr. Osty reports thus in his book, *Lucidity and Intuition,* as related by the seer herself:

A year ago I made this prediction to a man who came to consult me for the first time: "I see you upon the point of departing for a voyage across the seas . . . to America, probably. I see you in the steamer, sad and alone; but you will not leave until later, after many boats have left for the same destination the port where you will embark."

The gentleman answered me as follows: "I actually am on the point of leaving France for America; so I admire your clairvoyant powers. But you have told me two things that are altogether improbable. One is that I do not take the first steamer. I have my ticket in my pocket, and everything is arranged that I leave the day after to-morrow. The second is that you see me sad and alone. I shall have my wife with me; and if anything should possibly occur to keep her in France, my trip would be canceled."

Yesterday this gentleman returned to me. "Your prophecy was only too well fulfilled," he said. "The day after I came here to consult you, my wife was taken ill with pneumonia, and died a few days later. Then, left alone, I quitted France; and I was, as you said, a passenger on the steamer, sad and alone."

IV

Let us review the principal circumstances or conditions in which *clairvoyance,* or *metagnomy,* is manifested under one or the other of its different forms.

Even though it appears sometimes, abruptly and spontaneously, in the waking state, without the ordinary equilibrium of the mental and physiological faculties appearing in the least changed (especially in the case of telepathy), it seems to have some special liaison with particular states of the nervous system more or less analogous to sleep, hypnosis, ecstasy, trance, etc., or even with ordinary sleep.

Popular belief attributes a prophetic significance to certain dreams. In Cicero, for instance, there is the dream of that Arcadian who saw his friend first menaced with death, then assassinated, and reached the gates of the town in time to stop the cart in which the murderers carried the body hidden under a heap of dung.

But it is especially in the somnambulistic state, natural or provoked, that metagnomic manifestations occur most often. Very often clairvoyance is revealed during an access of natural somnambulism; and the individual in whom this faculty appears spontaneously is then brought to develop it by means of artificial somnambulistic processes.

This, we believe, was the case of the famous somnambulist Alexis, who was worth being studied with the greatest care, without the unfortunate prejudiced attitude which scientists manifest in considering all phenomena of this kind as being unworthy of their attention.

A more recent case was that observed by Dr. Terrien and presented by him in a communication made to the Society of Medicine, of Nantes, during 1914. A young girl, fourteen years old, while doing some sewing for him, went to sleep spontaneously and began to recount all the doctor's actions at that moment. He had left with the intention of visiting one patient only, and had been delayed by three other, wholly unexpected, visits. "She gave," said a witness, "the reasons for the departure from his original intention, the supplementary visits, the names of the patients, etc., without omitting the detail that a cultivator obstructed the doctor's way, and he had to stop on the road, thus delaying his return."

Often, also, it is the mesmerist or hypnotist who in some way evokes the metagnomic faculty, in giving to the sleeping subject the imperative suggestion to see a certain person or a certain object. But in order to have the idea of making a suggestion of this kind, it is evidently necessary to *know*, or at least to *believe*, that metagnomy is possible. It is for want of this knowledge or this belief that experimenters imbued with the doctrines of official science pass right by the side of this phenomenon without seeing it. Very often it exists in their subjects, in a state of latent possibility, waiting only to be called upon. Although exclusive partizans

of suggestion, they ignore one of its most remarkable powers — the genesial power of metagnomy; or else they deny it, as being inexplicable by science, forgetting that science is no more in a position to explain the curative power of suggestion, which none of them doubts for a minute.

Let us remark, moreover, that suggestive action nearly always has to be completed by that of certain objects, which can even sometimes replace it. In order to direct his clairvoyant powers upon a given person, the subject must be *en rapport* with this person by direct contact with him or with an object which has belonged to him and is, so to speak, impregnated with his personality — a piece of his hair, or of his clothing, a letter written by him, etc.

Also, the subject can, without the aid of any outside suggestion, place himself in a state of clairvoyance, either by gazing fixedly into a crystal globe (known as *crystal gazing*) ; or into a simple decanter of water — which, it is claimed, Cagliostro used; or into a " magic mirror "; or by any other process that may be desired. Is it not natural to suppose that the divining-rod and the pendulum play almost the same rôle in the development of the special metagnomy of water-diviners? And, if the lines of the hand, the cards, coffee-grounds, etc., have really any virtue, does it not consist in the property which these objects have to provoke in the medium the apparition of her natural second sight?

In a word, the apparition of clairvoyance would appear to be linked, in a way that is still mysterious to us, to certain ensembles of beliefs and practises which undoubtedly determine in their adepts a particular



Globe and Stand lent by Dee & Fukushima, Inc., N. Y.

CRYSTAL GAZING

The subject, placing herself in a state of clairvoyance by gazing fixedly into the crystal globe, brings into play remarkable powers of second sight, prophecy, etc., which normally are latent.

mental and nervous state, provocative of the metagnomic faculties.

The history of religions offers us numerous examples of clairvoyance, under all its forms — penetration of thought, second sight, telepathy, prophecy, etc.

Similarly, metagnomy is produced very frequently in the course of spiritistic séances. Facts unknown to the medium, occasionally also to the assistants, and relative sometimes to objects and events of the present, sometimes of the past, and sometimes even of the future, are revealed, by the intermediary of the table or the planchette, by means of automatic writing, or by the word of the medium in a trance. And these revelations appear to proceed from a personality distinct from all those of the participants of the séance, from a *spirit* capable of perceiving, in conditions absolutely different from those of this life, the material organization of their senses and their brain, consequently as manifesting what might be called " transcendental metagnomy."

IV

In the presence of a mass of facts so extraordinary as these, the first inclination of our intelligence is to deny or to doubt; and when it seems forced upon us to recognize the reality, at least of some among them, we immediately demand the explanation.

How are such phenomena possible?

That is the question that our intelligence asks insistently; and we are surprised, impatient, not to receive an answer; at least we are not satisfied to accept precipitately the first apparent solution that is offered to us.

But the true scientific spirit consists in being disinterested, at least temporarily, in the need for an explanation, and in being reduced voluntarily to a sole research — slow, persevering, obstinate — of the determinism of the phenomena.

In the eyes of the scientist, the most ingenious, the most intrinsically coherent, theory is, by itself, without value and without interest; it constitutes even an obstacle and a danger to science, if it merely aids the mind to represent to itself facts already known, in a way that pleases it and so, satisfying its curiosity, dispenses with all further investigation. The sole reason for existence, we do not say of theories but of hypotheses, in all experimental study, is to make possible the discovery of facts still unknown, in permitting us to institute a series of new experiments; and these hypotheses must always conserve the character, not of *explanations,* in the real sense of the word, but of simple *interpretations,* always subject to revision and to control.

In general, the explanations or interpretations which are given of the metagnomic phenomena consist in linking all the forms of clairvoyance to one among them (that which the author of the explanation or interpretation has more particularly, if not exclusively, studied), and in considering this, sometimes as a primary fact, as an incontestable law established by experimentation; sometimes as an extremely probable induction, which imposes itself by its analogy with other laws already acquired to science; and sometimes as a necessary deduction of a theory dogmatically affirmed.

This last case is that of a certain number of spiritists who, admitting the existence of spirits and their intervention in things of this world as a certain truth, attribute to spirits not only the facts of " transcendental or spiritoidal metagnomy," but all the facts of supernormal knowledge, under whatever forms and in whatever circumstances they may be produced. The clairvoyance of the subjects and mediums would come to them always from an exterior and super-terrestrial source; it would be always a revelation emanating from the *Beyond.*

More in favor with the majority of contemporary psychists is the explanation which links all the forms of metagnomy with the fact of *thought-penetration* or *mental suggestion.* This fact would appear henceforth sufficiently proved by observation and experimentation, and it is believed that it may be established as a *law,* capable of explaining completely the diversity of the particular cases.

It would be sufficient, therefore, to admit that there exists a possibility of intercommunication of minds, which would itself undoubtedly have as a necessary condition an intercommunication of brains. And thus not only psychometry would be explained, but also telepathy and vision at a distance.

Expressed in terms of a physical order, the hypothesis may be said to admit that each human brain emits special radiations, correlative to its thoughts, conscious or unconscious, of rays susceptible of being arrested in transition by another brain, and of reproducing the thoughts of the first brain. The rays are capable also,

perhaps, of making impressions of material objects and of storing them, as sound vibrations are stored in the discs of a gramophone. But there is not in this hypothesis direct metagnomic vision of material objects.

"Lucidity," said Dr. Osty, "is not a *monopsychic phenomenon.* Its production necessitates the harmonious working of two brains: the one furnishing the psychic force, the other its exceptional sensibility, reacting to the excitation received and reconstituting it into its original form of thought."

The early mesmerists admitted, on the contrary, two distinct forms of metagnomy: one *subjective,* the penetration of thought; the other *objective,* vision at a distance.

It is not only human brains which emit metagnomic radiations; all the objects of nature do so. To the "C-rays" which link *brain* to *brain* it is necessary to add the "O-rays" which link *object* to *brain,* these two being twin forms of the same energy, whose nature is still unknown to us, and which Reichenbach named *od* or *odyle.*

Thus each human brain would act as a center to which all the rays from other brains and from all points of the universe would arrive, when it would have the possibility, thanks to this universal intercommunication, of perceiving what happens in every mind and in every place. For want of the necessary conditions, this possibility remains latent. But let these conditions be realized, and metagnomy becomes apparent.

This natural mechanism is no less marvelous than that which makes possible wireless telegraphy and telephony.

What good, however, does it do for us to linger upon these views?

For all those who desire to hasten the accession of psychical studies in the domain of science, there is a more urgent task: that of collecting such a mass of authentic and concordant facts that the most opinionated skepticism cannot fail to give way before the evidence; and that of deducing the elements, from which our posterity may find perhaps, some day, the definite explanation.

CHAPTER XII

SPIRITISM AND CRYPTOPSYCHISM

I

Are there actually real facts, capable of being controlled and scientifically studied, which come under the heading of *spiritism?*

This question is answered in the negative only by those who are wholly ignorant of the matter.

The researches of such observers as Professor Thury of Geneva, the Count de Gasparin, the members of the Dialectic Society of London — among whom must be mentioned the mathematician De Morgan and the naturalist Wallace — the researches of the great physician and chemist, William Crookes, of Professor Charles Richet and Professor Flournoy, and of still many others, have definitely placed beyond all possible contestation the reality of spiritistic phenomena.

Inasmuch as the word *spiritism,* although generally employed, is nevertheless equivocal, we have proposed for this order of phenomena the name *spiritoidal,* for this has the advantage of eliminating any prejudging of the intimate nature or the causes of the phenomena.

Contrary to the prejudices which still exist, we consider that not only respect but encouragement should be given to those scientists who devote their energy to bringing a little light into this still dark and mysterious

corner of nature. Instead of deriding their enterprise, it would be better to recognize their courage and disinterestedness, for they conduct these difficult studies in the hope of making new discoveries of great importance to the widening of science and the progress of the human mind.

The scientific study of spiritism, or spiritoidal phenomena, should be conducted (1) by observing the greatest number of spiritistic facts, while taking all possible precautions to guarantee their authenticity; (2) by classifying them in series, in order to bring out the relations which may exist between them; (3) by deducing, from these relations, the formulas to express them.

In a word, we must apply to spiritistic facts that scientific method, with the necessary modifications of detail, to which the natural and physical sciences have owed their success. The real scientific spirit, we cannot too often repeat, consists in the elimination of the need for an explanation, and in limiting one's efforts to determining the phenomena. The object of the scientist is not to learn *why* certain phenomena exist, and *why* they are thus and not otherwise; it is to learn *how* it is possible for him to influence them, to provoke them, to prevent or modify them, as well as to foresee them, and ultimately to utilize them in possible applications to the needs of human activities.

This does not mean that the scientist should not try to *understand* the facts that he witnesses. On the contrary, if he would discover their determinism, if, through appropriate experimentation, he would interrogate Nature and compel her to answer, it is indis-

pensable that he use reasoning and imagination. Hence the inevitable intervention of *directing ideas* in experimental research; hence the constant use of the hypothesis, *not to explain but to interpret* the phenomena as the knowledge acquired upon certain of their rapports may enable us, as it were, to anticipate future knowledge of certain others.

In the field of spiritoidal facts the seeker finds himself brought, more or less rapidly, before two possible interpretations, both suggested by the facts themselves. These are the *spiritistic* interpretations and the *cryptopsychic* interpretation.

II

The principal characteristic of spiritoidal facts is that *they seem to imply the intervention, in things of this world, of intelligent, invisible beings who are not normally part of our world.*

Because of this appearance, it could be said that the first interpretation suggested is the *spiritistic.* This is the interpretation that was adopted by the first observers; and it is also that given by casual observers who have no scientific training, and by those who, consciously or unconsciously, consider these facts as having no possible relation to science.

The *cryptopsychic* interpretation, on the contrary, supposes doubt of the reality of the appearance presented by spiritoidal facts. It is an idea of the *second period,* a reflection provoked by the comparison of this order of facts to all the rest of our experience. The facts which we have known hitherto — astronomy, physics, chemistry, physiology — are the result of nat-

ural causes, forming, together, a closed and coherent system, belonging to a same world. And those which imply intelligences, consciousnesses, are linked, in a constant order, to that system of matter and motion wherein all reality appears to be enclosed.

It is, therefore, more in keeping with the tendencies and the general method of science to suppose, *until proof to the contrary,* that these special, spiritoidal facts, in appearance the outcome of intelligent causes, unknown and outside of nature, are in reality produced by known and intelligent causes belonging to nature, although acting in a hidden manner, as if screened from direct observation.

This is but an application of the great principle which, since Descartes, has dominated and directed all modern science: i. e., the supposition that the unknown can always be made known; that in the realm of things certain, already demonstrated and verified, the reason of things still uncertain can be sought and found.

Yet intelligent causes, absolutely natural and visible, certainly intervene in spiritoidal facts. They are the human beings in whose presence these facts are manifested. Hence, instead of attributing to spiritoidal facts the intervention of hypothetical beings — spirits of the dead, elementals, angels, demons, etc., the reality of whom we have no proof — science, if she would be faithful to her principles, must first of all connect them with the forces and faculties of the human beings — the sitters, and the mediums in particular. It is true that mediums are thoroughly unconscious of intervening actively in the production of these phenomena; for they believe that spiritistic phenomena are produced in

or through them, unknown to themselves and without their participation, through forces foreign to their consciousness, and often contrary to their own will. But is this an illusion with them?

The study of hypnoidal facts, similar to the spiritoidal although not presenting their characteristic appearance, proves that, in certain circumstances human beings may think and act and manifest aptitudes hitherto unsuspected, unknown to themselves, and without the possibility of their attributing the facts to themselves.

It is, therefore, quite natural that those who study spiritism, or spiritoidal phenomena, in a scientific way should first of all apply the cryptopsychic interpretation, and should reject it only when its application has been proved incontestably false. It must also be admitted, however, that in the majority of cases this interpretation agrees perfectly with all the particularities of the phenomenon to which it is applied.

The following, quoted from *Esprits et médiums,* by Professor Flournoy, is a typical example:

Madame Dupond, a well-bred and cultured lady from Geneva, of literary taste and philosophical and religious leanings, took up the study of spiritism at the age of forty-five. She tried automatic writing, and, at the end of eight days, was able to get the names of dead relatives and friends, who gave her messages of a philosophico-religious nature. About three days later, after having received various communications, her pencil wrote suddenly, and quite unexpectedly, the name of a young Frenchman she knew — Rodolphe X., who had recently entered a religious order in Italy. As she did not know that he was dead, she was surprised and shocked; but her hand

continued to write, confirming the sad news in the following circumstantial details:

"I am Rodolphe. I died last night at eleven o'clock, the 23rd. I had been ill for several days, and I was not able to write. I had an inflammation of the lungs, caused by a sudden change in the weather. I died without pain, and I have been thinking of you. . . . I am in space. . . . I see your parents, and I like them also. Good-by. . . . I am going to pray for you. . . . I am no longer a Catholic, I am a Christian."

After her first astonishment, Madame Dupont believed more and more in the authenticity of this message, because for almost a week she continued to receive communications from Rodolphe, making numerous allusions to their past relations. She had met Rodolphe, who was then a priest, during a stay in the South the preceding spring. He had returned from Italy, where he had spent the winter on account of his poor health, and had stopped a few days at the same hotel. Between this Genevese, a confirmed Protestant and republican, and this man from the north of France, an ardent legitimist and Catholic, in spite of the difference in their ages (he was scarcely twenty), a real moral and intellectual intimacy was formed, as a natural consequence of the analogy of their temperaments and the unity of their idealistic aspirations. Each of them had tried, without success, to convert the other to his own ideas; and when they were separated, they had continued this discourse by correspondence, even after Rodolphe had entered the religious order, pouring out their souls to each other in full confidence. At the moment of Madame Dupond's automatic writing, it was Rodolphe who owed a letter to his friend.

Do we not see there an excellent case of the apparent intervention of a "discarnated spirit"— to use the expression familiar to the partizans of the spiritistic doctrine — in the affairs of this world? Unfortu-

nately, six days after the first communication from the supposed dead man:

> . . . there reached her by post a letter from Rodolphe, who, far from being dead, was in perfect health. It shook Madame Dupond's recent spiritistic convictions so thoroughly that she was discouraged from pursuing further such disconcerting experiments.

It is necessary to read in Professor Flournoy's book the detailed and penetrating analysis to which he has submitted all the circumstances of this interesting case, and which fully justifies, we think, the conclusion he has reached: viz., that all the communications received by Madame Dupond reflected her own dispositions, conscious or not, and corresponded exactly to those which could not fail to be in her. "She alone, in other words, and not Rodolphe, was dead at that moment, and can be considered as the real source of the communications."

III

One would be inclined to generalize this conclusion, in order to extend it to all spiritoidal phenomena, by examining one after the other the many different kinds, and not stopping to explain the manifest analogies which link them to the ensemble of other parapsychic phenomena.

From the classification which we have given in *Our Hidden Forces,* the parapsychic phenomena can be divided into three great classes, which follow one after the other, in the order of their increasing complexity and difficulty:

(1) Hypnoidal phenomena.
(2) Magnetoidal phenomena.
(3) Spiritoidal phenomena.

Spiritoidal phenomena, when disregarding all hypotheses as to their origin, do not differ essentially from the others; for there can always be found, for each of them, a correspondent of the same kind in the series of hypnoidal or magnetoidal phenomena.

For example, the state of trance in a medium is entirely analogous to the state of hypnosis of a subject put in catalepsy or somnambulism; it presents almost the same physiological and psychological elements. There is between them little difference except this: The trance is produced and developed *spontaneously,* without the intervention of any visible operator, under the sole effect of the nervous and mental conditions in which the medium is placed, and among which the *belief in spirits* and the expectation of their intervention would appear to play a considerable part. The hypnotic state is produced experimentally, artificially, by a visible operator, a hypnotizer, who undoubtedly utilizes the mental and nervous dispositions of the subject; for manifestly the subject's voluntary action is the cause which unlocks the phenomenon and directs the successive developments — without its necessarily being a question of spirits here any more than in an experiment in physics or chemistry.

It is true that, in many cases, the medium does not appear to have undergone any change, either physically or mentally, and neither he himself nor any of the assistants doubts the rôle that he plays in the phenomenon. This is established by the disappearance of the

phenomenon immediately that the medium is absent, and his presence is sufficient, on the contrary, to produce it, in spite of all the variations which can have place in the *entourage*.

But any one who is at all familiar with the experimental study of hypnoidal phenomena well knows that, if these phenomena are usually manifested in a special state, analogous to sleep, there is nevertheless an infinity of degrees between this state and that of waking, and that the greater part of those that are observed in the state of hypnosis can equally be observed in a state which cannot by any apparent sign be distinguished from the waking state. In particular, it is always possible, after having put a subject to sleep, to make him open his eyes merely by suggesting to him the continuation of sleep, and to put him thus in a state which, to the uninformed onlookers, will present all the characteristics of the waking state.

Similarly, the messages obtained from supposed dead people — whether by means of the table, by automatic writing, or by any other process — singularly resemble, if we omit their spontaneity and separate them from the spiritistic atmosphere which surrounds them, the facts of dissociation of the personality, artificially provoked by such experimenters as Professor Pierre Janet, and of which we have given numerous examples in *Our Hidden Forces*.

Also, the facts of thought-reading and clairvoyance, so frequently found in the reports of spiritistic séances, have their analogies in the facts of *perceptive telepsychism*, or, as it is sometimes called, *psychometry*.

If perhaps we are still incapable of producing experi-

mentally the phenomena which compose what may be called the *physical* side of spiritism — movements of levitation, of translation, etc., produced by mediums upon material objects, apparitions of light and of form, materializations, which are observed, or believed to be observed, in certain spiritistic séances — we have nevertheless reports of phenomena of the same kind, which, although equally spontaneous, are at least produced in circumstances from which all spiritistic element is completely absent.

From this comparison between (1) spiritoidal facts and (2) hypnoidal and magnetoidal facts, a double consequence would seem to proceed:

First: All the facts which constitute spiritism may be resolved by analysis into hypnoidal and magnetoidal facts, differing from these in that they are produced spontaneously instead of being evoked by the experimenter, and also in that they appear linked to certain ideas and beliefs: viz., spiritistic ideas and beliefs, conscious or unconscious, in the individuals or the surroundings where they are observed. Spiritism appears, therefore, as a spontaneous synthesis of all, or almost all, the parapsychic facts, determined by a certain particular nervous and mental state, to which, perhaps, might be given the name *spiritogène,* first used, I believe, by Professor Flournoy in *Esprits et médiums.*

From this it is seen that science, faithful to the principle of *economy,* prefers — until proof to the contrary — to consider the spiritoidal facts as reducible to facts of the preceding orders, or at least that it is forced to recognize their reduction as far as possible. It is that which explains, and in a large measure justifies, the atti-

tude of the majority of scientists interested in this study, and their visible partiality for the cryptopsychic interpretation.

Second: Even in admitting the hypothesis of the existence of spirits and their effective participation in the genesis of the spiritoidal phenomena, it would be very necessary to assert that the whole action of these spirits consists only in arousing in certain susceptible subjects (mediums) the majority of the hypnoidal and magnetoidal phenomena (hypnotism, suggestion, dissociation of the personality, telepathy, clairvoyance, etc.) — phenomena that are constated in ordinary subjects, and produced either spontaneously or as the effect of the action of an experimenter.

It can thus be said that spirits operate in exactly the same way that human hypnotizers and magnetizers do.

Therefore, those scientists specialized in the study of the parapsychic phenomena, who do not exclude *a priori* the hypothesis of spirits but recognize that the existence of such agents, however improbable it may be, is not necessarily impossible, affirm that, from the point of view of the *method,* the study of spiritoidal phenomena must be strictly subordinated to that of the phenomena of the two preceding orders (hypnoidal and magnetoidal), and that it is only when these have been carried sufficiently far that one begins to see the way a little clearly in the phenomena of the third order — spiritoidal.

IV

It is true that there remains an unsolved problem the force of which increases in proportion to the number of

spiritoidal facts over which the cryptopsychic interpretation extends its influence. This problem might be formulated thus:

How is it that spiritistic practises — undoubtedly with the aid of the beliefs which accompany them — are sufficient to cause the appearance in a large number of persons, often with extraordinary rapidity, of an abundant production of parapsychic phenomena, varied and really marvelous, while the most able experimenters have trouble in provoking even a feeble part of these phenomena by the most efficacious of their processes?

It is not unusual, in a spiritistic séance that is even a little successful, to observe the facts of thought-reading, of clairvoyance, of the exteriorization of the motricity, of materialization, etc., assembled all together in one spontaneous synthesis, the secret of which wholly escapes us.

It is, perhaps, the realization of this enigma which, in these last few years, has brought a certain number of scientists — such as William James, Sidgwick, Frederic Myers, Hodgson, and many other members of the Society for Psychical Research of London — to look favorably upon the spiritistic interpretation. There is a very curious evolution in that; and the proof of it is shown in a book by the great English scientist, Sir Oliver Lodge, *The Survival of Man*.[1]

It is known that the Society for Psychical Research, after a long investigation of telepathy and other parapsychic phenomena, which was begun in a strictly scientific spirit and without any particular leaning toward the

[1] *The Survival of Man,* by Sir Oliver Lodge (New York: Moffat, Yard and Company).

spiritistic doctrine, has seemed to advance by degrees toward conclusions conforming to this doctrine. This is shown in the writings of its members, and especially in the important work of Frederic Myers, *Human Personality.*

But Frederic Myers and his colleagues, it might be said, were not real scientists, and their assertions had not, could not have, in the eyes of the public, that authority which now is necessary in science and in those who act as its representatives; they were philosophers and litterateurs who, it might be believed, merely skirted rather than penetrated the true scientific spirit.

Sir Oliver Lodge is purely a physicist, whose researches have been in electricity and wireless telegraphy, and his works in this special field have given him a world-wide scientific reputation.

But this physicist does not hesitate to declare his conviction that "man survives death"— a conviction founded, according to him, upon the observation of a long series of natural facts; and he considers that "in the future, the hour will come when this belief will be scientifically established."

What are these natural facts which can determine in a scientist like Sir Oliver Lodge a conviction which appears so contrary to that held by the great majority of his confrères?

First of all, the facts of thought-transmission and telepathy. His book contains numerous and significant examples, drawn often from his own experience. He says:

I am prepared to confess that the weight of testimony is

sufficient to satisfy my own mind that such things do undoubtedly occur; that the distance between England and India is no barrier to the sympathetic communication of intelligence in some way of which we are at present ignorant; that, just as a signaling key in London causes a telegraphic instrument to respond instantaneously in Teheran, so the danger or death of a distant child, or brother, or husband, may be signaled, without wire or telegraph clerk, to the heart of a human being fitted to be the recipient of such a message.

There follow certain facts of automatic writing, as, for example, those that the medium, Madame Newnham, exhibited in the waking state. Sir Oliver Lodge says:

The instructive feature about this case was that the minds apparently influencing the hand were not so much those of dead as of living people. The advantage of this was that they could be catechized afterward about their share in the transaction; and it then appeared that they either knew nothing about it or were surprised at it; for though the communications did correspond to something in their minds, it did not represent anything of which they were consciously thinking, and was only a very approximate rendering of what they might be wishing to convey.

The author concludes that this action, by which one intelligence communicates with another, does not emanate from conscious regions of the mind, but from those of the subconsciousness of dreams, whether it be the action of the living or of the dead.

"Since," says he, "the living communicant is not aware of what is being dictated, so the dead person need not be consciously operative."

But, then, can it not also well be supposed that the impression received, instead of coming, as pretended, from a dead person, emanates from a third person, or even that it had for its origin — according to Sir Oliver Lodge's own expression — a central intelligence, some *anima mundi,* to which would be connected all the intelligences that we know, and by which they would be influenced, a " sort of universal receptacle in which all thoughts and all intelligences, past and present, would be represented and conserved "?

Sir Oliver Lodge confesses, however, very loyally, the failure of an experiment from which he hoped to prove the possibility of communication between the living and the dead. Frederic Myers had sent him in January, 1891, a sealed envelope in the hope that after his death the communication contained in the envelope would be able to be given by means of a medium. Many different messages obtained by a well-known medium, Madame Verrall, and coming supposedly from Frederic Myers, led them to believe that they represented this communication. The envelope was opened in December, 1904, and " it was found that there was no resemblance between its actual contents and what was alleged by the script to be contained in it."

Even had the experiment itself succeeded, it would have proved nothing; for the success might well have been due to clairvoyance — which was probably the solution, also, of a case described by Kant in *Dreams of a Spirit Seer:*

Madame Herteville (Marteville), the widow of the Dutch

Ambassador in Stockholm, some time after the death of her husband, was called upon by Croon, a goldsmith, to pay for a silver service which her husband had purchased from him. The widow was convinced that her late husband had been much too precise and orderly not to have paid this debt, yet she was unable to find the receipt. In her sorrow, and because the amount was considerable, she requested Mr. Swedenborg to call at her house. After apologizing to him for troubling him, she said that if, as people claimed, he possessed the extraordinary gift of conversing with the souls of the departed, he would perhaps have the kindness to ask her husband about the silver service. Swedenborg was quite willing to comply with her request. Three days later this lady was serving coffee to some callers, when Swedenborg arrived and informed her, with his usual sang-froid, that he had conversed with her husband. The debt had been paid several months before his decease, and the receipt would be found in a bureau in the room upstairs. The lady replied that the bureau had been thoroughly searched, and the receipt had not been found among all the papers. Swedenborg then said that her husband had told him that if the lefthand drawer were pulled out a board would be seen, and if this were raised it would disclose a secret compartment, containing his private Dutch correspondence, as well as the receipt. Upon hearing this description, the whole company went with the lady to the room upstairs. The bureau was opened; the board was raised, disclosing the hidden compartment, the existence of which no one had ever suspected; and, to the great astonishment of all, the papers were discovered there, just as Swedenborg had described.

It may be worth while, perhaps, to cite a strange and really enigmatic fact, reported and analyzed in Sir Oliver Lodge's book under the caption of "The Marmontel Case":

On December 11, 1901 — toward the end of the first year in which Mrs. Verrall had developed the power of automatic writing — her hand wrote as follows:

> Nothing too mean, the trivial helps, gives confidence. Hence this. Frost and a candle in the dim light. Marmontel, he was reading on a sofa or in bed — there was only a candle's light. She will surely remember this. The book was lent, not his own — he talked about it.

Then there appeared a fanciful but unmistakable attempt at the name Sidgwick.

Mrs. Sidgwick, widow of a well-known member of the Society for Psychical Research, questioned by letter, replied that she knew nothing about the matter but would report if she came across the name Marmontel.

The same day that this reply was received, Mrs. Verrall felt obsessed by the desire to write. She obtained a second message:

> I wanted to write. Marmontel is right. It was a French book, a Memoir, I think. Passy may help, Souvenirs de Passy, or Fleury. Marmontel was not on the cover — the book was bound and was lent — two volumes in old-fashioned binding and print. It is not in any papers — it is an attempt to make some one remember — an incident.

In January, 1902, Mrs. Verrall happened to write to a friend of hers named Mr. Marsh, asking him to come for a week-end visit; and he replied fixing March 1st.

Mrs. Verrall then reports as follows:

On March 1st Mr. Marsh arrived, and that evening at dinner he mentioned that he had been reading Marmontel. I

asked if he had read the *Moral Tales,* and he replied that it was the *Memoirs.* I was interested in this reference to Marmontel, and asked Mr. Marsh for particulars about his reading, at the same time explaining the reasons for my curiosity. He then told me that he had got the book from the London Library, and took the first volume only to Paris with him, where he read it on the evening of February 20th, and again on February 21st. On each occasion he read by the light of a candle; on the 20th he was in bed, on the 21st lying on two chairs. The weather was cold, but there was, he said, no frost. The London Library copy is bound, as most of their books are, not in modern binding; but the name "Marmontel" was on the back of the volume. The edition has three volumes; in Paris Mr. Marsh had only one volume, but at the time of this dinner he had read the second also.

As to the words "Passy or Fleury," Mr. Marsh, on his return to London three days later, verified the fact that in the chapter of the *Memoirs* he had read on February 21st, while lying on two chairs, there was a description of the finding at Passy of a panel, connected with a story in which Fleury plays an important part.

The most remarkable thing in this case is that the fact recounted in the past in the medium's message of December 11, 1901, had not at that date taken place, as it was not produced until February 20, 1902 — two months later.

Sir Oliver Lodge is not mistaken in seeing, not a case of prevision, testifying to the remarkable parapsychic faculties of the medium, but a case of hypnotic suggestion, executed automatically under the influence of a deceased person who was desirous of giving to his colleagues of the Society for Psychical Research a proof

of survival; and he proposes to us, hesitatingly enough, it is true, the following hypothesis:

An outside or, let us say, a subliminal intelligence gets the record made by Mrs. Verrall that an unspecified man will read Marmontel on a frosty night lying on a sofa by candle light, etc., and then sets to work to try and secure that within the next two or three months some man shall do it — some one who is sufficiently a friend of Mrs. Verrall to make it reasonably likely that in subsequent conversation she may sooner or later hear of the circumstance.

A difficulty here is that one might have to admit the possibility of an anticipated vision of future events — a possibility energetically denied by certain contemporary philosophers. But there would be greater difficulty in admitting the reality of supernatural interventions such as those of so-called spirits. On the other hand, cases of "distant vision into space" are less scarce than usually supposed. Myers, in his *Human Personality,* cites a very significant fact:

Madame MacAlpine, on the shore of a lake, suddenly became chilled and cramped. At this moment she saw before her a dark cloud, in the midst of which was a tall man, who fell into the lake and disappeared. Several days later she learned that a Mr. Espy, tall and clothed identically as in her vision, had fallen into the lake and been drowned. His drowning occurred several days after Madame MacAlpine's vision; but it appeared that Mr. Espy had, some time ago, conceived the idea of committing suicide by drowning in the lake.

It is not rare, moreover, to find in the visions of certain psychometrists transpositions of time and space,

quite similar to that of the "Case of Marmontel." The following is quoted from the work of Edmond Duchâtel:

On July 31, 1909, we placed in the hands of Madame L. F., when in the state of somnambulism, a certain object belonging to a person whom we knew to be in London. This is what the psychometrist said: "I see this person in the country, and in the mountains. She is reading as she walks, but in the depths of her heart she is sorrowful. I see another lady, who would like to call her Bichette (she always calls her so), and ask her why she sighs. The lady who is called Bichette is neither tall nor strong; she is French, and is about forty years old."

We undertook to verify these statements. They were inexact at the time of the experiment, July 31, 1909. They were, however, found to be exact *thirty-five days later.* The descriptions were precisely as they occurred, even to the name of the person, which, by the way, was the means of identifying the conditions of this prophetic scene.

The author adds that Madame L. F. also made the following statement: "Many people have come back to me again to say that what I had described to them, although not exact at the time, invariably became true about two months afterward."

Sir Oliver Lodge makes use of such facts as the preceding merely to conclude by analogy — as did Frederic Myers — that *telepathy* (the action of the mind of a living individual upon another mind, without the intermediary of the organs) leads to *spiritism* (more or less an identical action from the mind of a person deceased).

Unfortunately, of all the reasonings the least demon-

strative is that by analogy which, left to itself, can only give birth to hypotheses.

It is, therefore, very difficult to see anything but the expression of an hypothesis, the proof of which remains to be made, in this passage from Sir Oliver Lodge in which he explains the motive an operator situated in the Beyond, such as Sidgwick, has in using the " scriptural mechanism " of another person:

> It may be a scientific interest surviving from the time in this life when he was a keen and active member of the S. P. R.; so that he desires above all things to convey to his friends, engaged on the same quest, some assurance, not only of his continued individual existence . . . but of his retention of a power to communicate indirectly and occasionally with them, and to produce movements even in the material world — by kind permission of an organism, or part of an organism, the temporary use or possession of which has been allowed him for that purpose.

Can one say that Sir Oliver Lodge has obtained, in conditions really satisfactory to himself, a proof that the deceased members of the Society for Psychical Research have endeavored to collaborate with their living colleagues in order to find a solution to the mystifying problem of the survival of the personality after death?

This proof certainly cannot be found in the pages where he describes and analyzes the mediumship of Mrs. Piper; although there is to be found there an important and extraordinary contribution to the study of spiritoidal phenomena. The author still hesitates, however, between many different hypotheses:

> There is no doubt that Mrs. Piper in a state of trance reaches certain sources of information. She finds knowledge of events

which have taken place a long time ago or at a distance. But the question is to know how she acquires this knowledge. Is it in going back into time and space, and in witnessing these events as they occur? Or is it by means of information received from the actors still in existence? They themselves, however, do not remember them, or else only imperfectly so. Is it through the influence of contemporaneous intelligences, absorbed as they are by other thoughts, and keeping in reserve in their brain a mass of forgotten information which they offer unconsciously to the perception of the person in a state of trance? Or is it that as long as the state of trance exists they are receptors of a sole, universal intelligence, of which all ordinary consciousnesses, past and present, are but a part?

Opinions may differ upon the point of knowing which is the least extravagant supposition. It is possible to invent a simpler hypothesis, but actually my feelings are that no explanation can be given to all the facts. We are, it seems, at the beginning of what is, in reality, a new branch of science. To pretend to forge explanations, except to try to relate the facts among them and to open a new field of experimentation, is as premature as it would have been for Galvani to explain the nature of electricity, or for Copernicus to attempt an explanation of the laws of comets and meteors.

It is especially in the last chapters of his book that Sir Oliver Lodge speaks of the supposed communications between his deceased colleagues and himself, obtained through Mrs. Thompson, Mrs. Piper, and Mrs. Grove. But these communications, nearly always confused, reveal the intimate details of a character which easily causes a conviction in the minds of those who, having known the communicators when living, believe that they recognize them by these very details. For those who simply read the accounts of them, they

remain almost incomprehensible and in any case unconvincing. Sir Oliver Lodge says:

> It is an error to believe that there exists anything sensational or particularly moving in these communications. The conversation resembles that over a telephone; it is subject to the same disagreeable interruptions, to the same periods of surprising clarity, such as a happy expression, an intonation, an unexpected detail revealing without possible error an identity — real or manufactured — as, for instance, an appropriated surname, a banal remembrance. Similarly, the parents of the communicator, if they are present, may really be moved.

This undoubtedly is true. But it is equally true that others may remain unmoved.

We shall not insist upon the ingenious theory of "cross-correspondences," whose principal characteristic is that a sole communicator, or *control,* is supposed to manifest himself through several different mediums, writing automatically, quite independent of one another, distant from one another and often strangers; they also may be kept ignorant of the nature of the correspondence sought. In many cases the messages thus obtained, isolatedly, are unintelligible and do not reveal any sense until later, when combined. Thus a full message does not exist in any living intelligence, for not until the different parts of the communication have been collected does their meaning appear.

The aim of these efforts, according to Sir Oliver Lodge, is to prove clearly that these phenomena are the work of some well-defined intelligence that is distinct from that of any of the mediums, excluding the possibility of a mutual telepathic communication between

them and establishing, as far as possible, by the substance and quality of the messages, that they really are characteristic of the particular personality from whom the communication appears to emanate, and of none other.

But has this aim been attained?

"The question," says the author, "can be definitely and conclusively settled only with time and much effort."

In spite of all these cautious reservations, Sir Oliver Lodge remains personally convinced that "as the best working hypothesis at the present time it is legitimate to grant that lucid moments of intercourse with deceased persons may in the best cases supervene." He considers, for his own part, as entirely established although formulated as an hypothesis, the reasoning which he enounces as follows: "Intelligent intercourse between minds other than those of incarnated human beings and ourselves has become possible." And he expresses his belief in this startling comparison:

> The boundary between the two states — the known and the unknown — is still substantial, but it is wearing thin in places; and like excavators engaged in boring a tunnel from opposite ends, amid the roar of water and other noises, we are beginning to hear now and again the strokes of the pickaxes of our comrades on the other side.

Will all these hopes be confirmed by later researches of science? Will the *spiritistic interpretation* of phenomena so strange and hardly believable for all those who have not observed them directly, supplant finally

the *cryptopsychic interpretation,* contrary to the opinion hitherto prevalent among the majority of scientists?

This is a secret which the future alone will reveal.

APPENDICES

NOTE I

SCIENCE AND MAGIC

(From *La Magie science naturelle,* by Carl du Prel)

BELIEF in magic is as old as humanity.

Religious and profane history, during all the centuries and among all the nations, shows us that some men distinguished themselves among their contemporaries by certain incomprehensible methods of reasoning, by the domination of nature's forces and of other men. According to the very different application of their faculties in the moral order of things, these men were called saints, prophets, magicians, sorcerers, miracle workers, etc. In a general way they might be called *magi.* Because, however, of the great number of these stories and the unquestionable testimony of many cases, we refuse to qualify them as fables. If, in our own times, we have shrunk from a belief in magic, it is owing to the progress of modern sciences, the increasing tendency of which has been to develop themselves into closed systems; and unfortunately such systems reject all facts which cannot enter into them.

Taking into consideration the universal law of causality, it is perfectly clear that the word *magic* is for the scientific researcher but the provisional denomination of certain human faculties which have not hitherto

been sounded, and that magical phenomena cannot be otherwise than based upon a natural science as yet unknown to us. It is logical, therefore, to think that, on account of its spontaneous development, modern science will eventually end in magic, and become magic itself, in so far as it will pass from the position of examining that which is visible, tangible, and weighable, to that which is invisible, intangible, and unweighable. For, the more that matter is found in a refined state — as, for instance, radiant matter — the more it will be found to possess remarkable powers. It is easy for us to be convinced of this fact, in physics as well as in psychology, for have we not hypnotism at our disposal to show us the points of contact between science and magic — in other words, between natural science as we know it and natural science that we do not know?

Progress in this direction cannot fail to be rapid, for magic is but a line of projection in science. Especially when feeling the necessity for widening their system scientists will undertake the study of magic, which possesses certain laws that are still entirely ignored. The man who limits his vision to the study of natural phenomena explained by known laws of nature obtains but a superficial progress; whereas the one who directs his energies toward the clarification of problems still obscure will enable others to reach the hidden center of things, thereby compelling the widening and transforming of existing systems of thought.

Those, therefore, who exclude magic from their investigations remain walled in a system which is but provisional and which limits the horizon of progress. For this reason it is very regrettable that science and

magic are regarded as being opposed to each other, whereas in truth they complete each other advantageously. It is by working in the two directions that one can be convinced of this; for on the one side the regularity of the magical phenomena will be recognized, while on the other will be seen the progressive magical advancement of natural science.

Without retracting anything that has been said before, and without expecting too much from those readers whose starting-point has been in natural science, it is possible to meet their doubts and skepticisms. I do not attribute to man the gift of certain magical powers as understood in the Middle Ages, when every marvel and sorcery, every magical practise — legitimate or illegitimate — was explained by the supernatural help of an angel or a demon. It is not necessary to have recourse to this solution. The possession of magical faculties is a natural endowment of man. Agrippa of Nettesheim recognized this fact long ago: *Spiritus in nobis, qui viget, illa facit.* And they have a physical basis: they are not supernatural but supersensible; and their investigation should be our principal object.

These magical faculties are latent in us; consequently, they must have manifested themselves before their discovery and scientific examination. To allay all hesitation in this direction, I have laid less stress upon practical magic — as yet a premature undertaking — than upon examples of an involuntary, natural, and spontaneous nature, which demonstrate the regularity of their production in conditions always similar. I also hope that I have established the principal bases of magic, once and for always: *Magnetism is the key to*

physical magic; mono-ideism, or the exercise of thought joined to volition, is the key to psychological magic.

The only way to reach an understanding of practical magic is to study the natural examples of magic, to observe the conditions of their manifestation, and to adapt them artificially afterward. Superstition, it is true, has unfortunately given a wrong aspect to practical magic, for it did not take into consideration the natural reality and regularity of its manifestations. But we discover their germ of truth and their natural scientific regularity when, comparing them with nature — *cum mundi codice primario, originali et autographo,* said Campanella — we recognize the concordance of the artificial product with the natural and spontaneous manifestation.

The reader's first doubts will vanish when he sees innumerable examples of natural magic being produced by experimentation, and realizes that natural science has reached a degree where magical phenomena are explained — as, for instance, clairvoyance through the Roentgen rays, telepathy through wireless telegraphy, fascination through the power of suggestion, and sorcery through the exteriorization of the sensitiveness. He will finally reach the conclusion that if modern science were in a state of perfection there would be no more room for magic; and that it is by the study of these same facts, called magical because they are contrary to our theories, that we shall be in a position to reach our goal all the sooner.

If the reader believes that our system of nature has uttered its last word, it would be better that he

should lay my book on one side; for in spite of all our discoveries and inventions, however wonderful these may be, we are, I believe, but at the beginning of science, and the more we shall dig into the secrets of nature the more marvelous we shall find her. Let us recognize that the forces hitherto unknown seldom are latent forces which are never manifested; rather are they active forces constantly manifesting themselves according to certain well determined conditions.

Apples fell from the tree long before Newton discovered the law of gravitation. Therefore it must be equally true that natural examples of magic existed long before any one believed in them. It must be recognized that phenomena in contradiction to natural laws already known are constantly produced, though they are nevertheless submitted to the law of causality because they correspond to certain unknown laws of nature.

This brief review, I hope, may reconcile medieval superstition, which was mistaken only when interpreting the explanation of the facts, with modern science, which to-day, as in former times, makes the mistake of denying *a priori* certain facts that it will be forced to accept finally, after having found the explanation in spite of itself.

NOTE II

THE RELIGIOUS PROBLEM AND THE PSYCHICAL SCIENCES

(Extract from the *Revue philosophique,* April 1, 1915)

To-day we are witnessing an attempt at the creation, or at least the organization, of a new order of sciences — the psychical sciences. Being *en rapport* with psychology on the one hand, and the historical and sociological sciences on the other, they have as their object certain more or less extraordinary and apparently marvelous and mysterious phenomena which are spontaneously produced in our midst and are visibly related to unknown, or imperfectly known, forces and faculties of man's moral and physical nature. Although in some respects they appear to be more frequent to-day, under the particular forms in which they manifest themselves, they have nevertheless always been present and have ever played an important and more or less considerable rôle in the history of humanity.

Religious life at all times and in all countries has been replete with examples. For this reason it is quite natural to ask whether the sciences which have as their object the study of these phenomena, should not be called upon to furnish, sooner or later, the indispensable elements necessary for the solution of the religious problem of the present time.

First of all, what idea must we form of these sciences which most savants refuse to consider seriously, and which have to dispute their very existence to charlatanism, superstition and incredulity?

Let us try to orientate our steps in the path obscured by a pell-mell ensemble of psychical phenomena. It would seem that we might distinguish three orders of phenomena, which are superposed one upon the other as they advance farther into the realms of mystery. Some are already known and defined by laws; others are still uncertain and contested, but at least not outside of the circle of nature; while still others appear to draw us out of this circle, upon a plane ordinarily separated from that in which our life and activities are manifested. This classification may be summarized in three names: *hypnotism, animal magnetism, spiritism.* Or, to use terms which we have proposed elsewhere, we may call them: *hypnoidal phenomena, magnetoidal phenomena, spiritoidal phenomena.*

Unfortunately, current opinion too often confounds these distinct branches of psychical sciences, and it is not infrequent to hear that *spiritism* is the study of the phenomena of hypnotism or animal magnetism. One might as well say that an astronomer is a physicist or a zoologist.

The phenomena of the first order — *hypnoidal phenomena* — comprise the following: (1) *Suggestion,* as practised by the School of Nancy, in which the action of the spoken word or of the gesture induces in certain individuals, perhaps in all, a state of credulity or docility more or less abnormal. (2) *Hypnotism,* as described by the School of the Salpêtrière: that is, a state

of torpor or of automatism provoked in certain subjects by means of special physical processes — the fixation of the gaze upon a brilliant object, pressure exerted upon a given part of the body, etc. (3) *Dissociation of consciousness* or *cryptopsychism,* so masterly described by the eminent Dr. Pierre Janet, where one sees the consciousness of an individual being projected, or two or several " selves " are coexistent or succeed each other in one and the same individual. All these phenomena, however marvelous and baffling in nature, do not compel us to suppose the existence of other causes or faculties than those we already know, and which appear possible of explanation by these very causes or faculties, in supposing only that, in certain particular conditions, they operate according to given laws which are as yet unknown, laws more or less different from those we already know.

The phenomena of the second order — *magnetoidal phenomena* — appear, on the contrary, to imply the intervention of forces still unknown, unclassified, but physical in nature and more or less analogous to the radiating forces known in physics, such as light, heat, electricity, magnetism, etc. They may be classified as *animal magnetism* on the one hand, and *telepsychism* on the other, according to whether the action of these forces is being exerted in proximity through the intermediary of the entire nervous system, or at a great distance, without intermediary, by the sole action of thought.

Although the majority of scientists admit the reality of the phenomena of the first order there are few who are willing to consider magnetoidal phenomena as real

or at least as distinct from hypnoidal phenomena. Hypnotic suggestion, it is true, may produce effects similar to those produced by magnetism; but when taken separately and closely examined they will be found to be specifically different and distinct. Thus animal magnetism can produce certain movements of attraction, repulsion, anesthesia, contraction, etc., in a blindfolded subject without the use of speech by the sole presentation of the hand from a distance. The passes, by which the mesmerist awakes or induces sleep in a subject, owe their efficacy to this same psycho-magnetic force, which appears to be *polarised,* as is electricity, and which is also capable of effecting appreciable cures.

Not only are human beings susceptible to this action, but also animals and plants. Quite recently it has been proved that certain organic matter can be preserved from putrefaction by the sole action of the passes or by the imposition of the hands. The properties of this psycho-magnetic force have also been communicated to material objects; this would explain, for example, the curative action of magnetized water.

It is especially under the form of *telepathy* and *suggestion* that the scientists of to-day have unconsciously brought back the much-disputed question of *mesmerism* and *animal magnetism.* The English and American Societies for Psychical Research have gathered a great number of authentic cases where the "image" of a person, more often when on the verge of death, has appeared to a relative or friend in spite of the enormous distances separating them. It is as if an immediate and spontaneous communication were established between them — in conditions as yet unknown, and an-

alogous to conditions in which wireless telegraphy and telephony take place.

The phenomena of the third order — *spiritoidal phenomena* — take us into a region still more obscure and mysterious. They present themselves to us with an appearance that is often illusory, always enigmatic and disturbing, implying the intervention of intelligent forces, *not supernatural but extra-natural,* which do not belong to our world in a normal way, but which seem suddenly to make an irruption on a plane of nature foreign to that in which we move and have our being.

Whatever interpretation we may give to these phenomena, however, our first duty is to make sure of their reality. Let us beware of subordinating the acceptation of these facts to any theory brought forward in explanation of them.

With the exception of certain phenomena — such as *hauntings,* which should be the object of special investigation — the spiritoidal phenomena seem always to have as their necessary condition the action or the presence of individuals called *mediums.* There are two kinds of mediums, although these may belong alternately to one or the other category: the mediums who produce effects of an intellectual nature, and those who produce effects of a physical nature. Both physical and intellectual effects are found in the ordinary table lifting or table turning: movements of rotation, nutation, translation, etc., and the words, phrases, and speeches which are dictated by these movements. These effects appear distinctly separated when considering, on the one hand, those obtained by Mrs. Piper, which are remarkable for the exactness of the information given

upon the relatives and antecedents of utter strangers who visit her; and, on the other hand, the extraordinary phenomena produced by Eusapia Palladino, who causes heavy objects to move from a distance, the production of phosphorescent lights in utter darkness, and projections from her body of various materialized forms, etc.

It must be observed, furthermore, that intellectual mediumism presents the same phenomena as those obtained by hypnotism and animal magnetism — dissociation of the personality or cryptopsychism, thought-reading, clairvoyance, etc.— though different in their character of apparent spontaneity, and by their relation to certain spiritistic practises and beliefs. But whatever interpretation may be adopted for this third order of facts, it cannot be denied that they are extremely closely related to those of the two preceding orders and that they come under the direction of similar or communal laws.

From the ensemble of these facts two hypotheses suggest themselves, the first of psychological or mental order, the second of physiological or physical order. The important thing is to know that there exist in the human soul certain faculties of perception and of supernormal action. These faculties are usually subconscious, or cryptoidal, active under conditions as yet imperfectly defined; nevertheless they are real and are active in all beings. There also exist in the human organism certain unknown forces which are, as it were, the physical agents of these faculties, and which, in the ordinary state of things, are equally cryptoidal.

Shall we go farther still? Shall we admit the exist-

ence, outside of ourselves, of one or several intelligent entities, capable of collaborating with us in the production of certain psychical phenomena mainly through the bringing into play of our faculties and supernormal forces?

How shall we conceive these entities? *Are they the souls of the dead?* Are they cosmic intelligences, or, as in the conception of the Greeks, *demons?* Are they elementals, larvæ, astral microbes as the occultists call them? Or are they that universal intelligence which humanity calls God?

The psychical sciences, which hardly dare to ask the questions, are still very far from replying to them. Are these sciences, however, capable of bringing a useful and practical solution to the religious problem? This is the point upon which we shall particularly insist.

It is necessary to distinguish, for the facility of study, two inseparable questions. One corresponds to the viewpoint of the savant or the philosopher; the other to that of the believer, or of man in general: according to whether one considers the exterior phenomenology of religions, or the intimate and profound cause of the religious sentiment.

From the first point of view there is not the slightest doubt that the sciences of religion will find in the psychical sciences a most appreciable help for the orientation and advancement of their own researches.

The history of religions abounds in strange and marvelous phenomena which the historian at first shirks from mentioning, as being incredible and impossible,

or if he must admit them, he explains them as being a result of misunderstandings and frauds — as the rational critics of the eighteenth century explained them. The knowledge of psychical phenomena, as a direct result, will have the effect of widening the conception of thaumaturgical religious facts, in showing that they may have a certain reality without attributing to them a supernatural character.

William James has said that the recent study of hypnotic phenomena has enabled scientific men to admit of the possibility of miraculous healing, so far as being considered a result of suggestion. The stigmata of hysterical patients has made it possible to accept those of St. Francis of Assisi. And stories of " possessions " are now credible since we have cases of demonomania.

Similarly, on studying closely the life and character of the men who have founded or renovated certain religious movements, it is seen that, according to William James, " the manifestations of the religious life often possess a close *rapport* with the subliminal life. The temperament of the nevropath appears in the various religious biographies. It would be difficult to enumerate the names of religious initiators without mentioning phenomena of automatism which they manifested. I do not speak of the prophets and the dervishes only. . . . I speak of those of superior mind, the creators of ideas. Saint Paul had visions, ecstasies. He was gifted with the power of glossolalia, although he attached but little importance to it. All the great reformers, the great saints, the great heretics — Saint Bernard, Fox, Wesley, Luther, Ignatius of Loyola —

had visions, voices, ecstasies, fiery revelations, etc."

Thus we can trace in the history of religions all the psychic phenomena, clothed, as it were, under a religious cloak, although preserving under this form evident analogies to phenomena of hypnotism, cryptopsychism, animal magnetism, telepathy, and spiritism.

Who cannot but be struck by the similarity between ecstasis and hypnosis? We find in both of them the same state of mono-ideism, anesthesia, transfiguration. Does not religious faith engender, as does hypnotic suggestion, visions, stigmata, seemingly miraculous cures? And does not divine inspiration, as well as diabolical possession, present singular similarities with the cryptopsychic phenomena or those of the dissociation of the personality?

William James, in speaking of the similarity of *conversion* and *hypnotic suggestions,* says that if you place under the influence of suggestion, as Professor Coe did, a subject who combines in him the following three factors: (1) a profound sensibility; (2) a tendency to automatism; (3) the capacity to submit passively to suggestion, you may be sure that you will obtain a sudden conversion.

Magnetoidal facts, also, can be traced in the history of religions. Can we not recognize them in the attitudes and gestures of certain Egyptian rites, as also in the great importance attributed by Christian liturgy to the imposition of the hands and to the breath?

In the healing of the hemorrhoidal woman, as related in the Gospels, Jesus acts and speaks not only as would a modern hypnotist, but also as would a professional magnetizer. In the words of St. Luke:

And a woman having an issue of blood twelve years, which had spent all her living upon physicians, neither could be healed of any,

Came behind him, and touched the border of his garment: and immediately her issue of blood stanched.

And Jesus said, Who touched me? When all denied, Peter and they that were with him said, Master, the multitude throng thee and press thee, and sayest thou, Who touched me?

And Jesus said, Somebody hath touched me: for I perceive that *virtue is gone out of me.*

And when the woman saw that she was not hid, she came trembling, and falling down before him, she declared unto him before all the people for what cause she had touched him, and how she was healed immediately.

And he said unto her, Daughter, be of good comfort: *thy faith hath made thee whole;* go in peace.

The cure, according to Jesus, was therefore the effect of two concurrent causes: on the one hand, the virtue emanating from him; and on the other, the faith of the patient. In other words, it was *animal magnetism* (Mesmer's doctrine) and *suggestion* (the doctrine of the School of Nancy).

Similarly, in the order of telepsychism, such facts as those of thought-penetration, prevision, distant-seeing — of which there are too many authenticated accounts to doubt their existence indefinitely — help us to understand the phenomena of prophetism, the gift of tongues, etc., of which every religion is replete with examples.

Even the singular facts observed with spiritistic mediums of physical phenomena are to be traced in the lives of certain religious personalities. Apparitions,

bilocations, levitation, and hauntings are facts which belong in common to religious sciences and to psychical sciences; and it is to be hoped that the latter may help the former to determine their real signification.

We are not yet in a position to state that the psychical sciences, in their present state, are capable of throwing much light upon the essential basis of religion. The religious idea and the religious sentiment, taken in themselves, seem to be independent of all these more or less pathological phenomena. It is, we believe, in the higher aspirations of the normal faculties of human nature that religion has its deep and perhaps indestructible roots.

Let us see, however, whether we cannot find an hypothesis by which the psychical sciences may give us some useful information regarding the origin and destiny of religion in humanity. It is in the realm of spiritoidal phenomena that this hypothesis should be sought.

In the actual state of our knowledge, those who have tried to understand these phenomena hesitate between two interpretations: (1) that which would explain them by the sole faculties of the medium who operates subconsciously; (2) that which believes they are manifestations of intelligences external to our world — in other words, the *animistic* or *cryptopsychic* interpretation and the *spiritistic* interpretation. On the one side are Drs. Pierre Janet, Flournoy, and Richet; on the other side, Frederic Myers, Sidgwick, Hodgson, and Oliver Lodge.

Up to the present time the scale has seemed to incline in favor of the first interpretation, the only one that

might *a priori* be acceptable, as it is the only one in accord with the fundamental postulates of the scientific method. But we might well suppose that in the course of time the second interpretation will be found to be the right one. Were its partisans to establish definitely and unquestionably that we are in relation with a spirit from the Beyond, really distinct from our own spirit and not the creation of our subconsciousness this would undoubtedly be an immense step forward in the solution of these problems.

There would still remain, however, many other problems to be solved.

First of all, the identity of the spirit should be established. Usually they give the names of deceased persons; but are they to be believed? May they not assume the mask of some one known to us in order to enter into relationship with us? Many facts seem to justify this hypothesis. Who would be so bold as to maintain the identity of controls giving the names of Stanton Moses, Rector, Imperator, Victor Hugo, etc.? Often, also, they take the ideas and emotions of those to whom they are supposed to communicate them.

And this is exactly the point in favor of the crypto-psychic interpretation. But our reasoning is in line with the hypothesis, where this hypothesis were abandoned as insufficient to give an account of certain particularities of the facts already observed. From this, who could fail to suppose, for the explanation of certain religious facts, that there exist several cosmic intelligences capable of interesting themselves in the lives of humans and of intervening, during certain epochs, in order to direct religious evolution? Hence the mir-

acles and the revelations, which take different forms according to their different *milieux:* Buddhist, Mohammedan, Roman Catholic, Protestant, etc. They would be, for instance, those unknown entities transforming themselves into St. Michael and Ste. Catherine with Joan of Arc; into the Holy Virgin with Bernadette, etc. One might thus reach an explanation of certain facts belonging to the history of religion. But this hypothesis would not in any way bring us nearer to true religion, to the ideal religion: that which consists in adoring God, *praying to him in spirit and in truth.*

Let us suppose it possible to prove that it is really the souls of the dead which come back to assure us of their existence. What would be the consequence of such a certainty, from the religious point of view?

Perhaps it would be the justification of the doctrine which places the origin of all religions in the worship of the dead, in what might be called primitive spiritism, that of the savages, ancestral worship as in China, etc. Perhaps it would mean, also, the restoration of such beliefs and practises in our own times. Thus religious evolution would complete its circle and come back to its starting point.

To many, in fact, spiritism forms a veritable religion. Are there not to be found in America, England, and elsewhere, spiritualistic churches which count their followers by the thousands? In France this movement seems less intense and is not so widely spread. But if a new form of religion were to appear in the midst of present-day humanity, and were to develop sufficient power and influence to compete seriously with existing

forms of religion, it would seem that this new religion would spring from the very heart of spiritism.

Modern spiritism will undoubtedly differ from the ancient in its *scientific* and *moral* character. Nevertheless it will be founded upon the belief of the survival of the dead, and upon the possibility of communicating with them by the intermediary of quasi-magical processes.

But can religion reduce itself to the sole dogma of a future life and the immortality of the soul? Is not the dogma of the existence of God more essential, solely essential, as William James puts it?

The spiritistic hypothesis offers, in itself, a means to find the very existence of God. If the spirits are in accord in teaching us, in proving to us, such an existence, it must be the revelation of God through the spirits. There is indeed something quite startling in this community of belief between the living and the dead; yet one should know what kind of God it is that the spirits reveal, and more especially what kind of proofs they bring us of the truth of their beliefs. They may come back from the Beyond, but their knowledge, which may be more extended than ours, is nevertheless just as relative as our own.

Yet, if our spirit can, in its subliminal expression, enter into communication with other spirits, can it not also feel the presence of some Greater Spirit? Can it not have, at certain moments, the intuition of a Supreme Presence, the presence of the Supreme Being, Absolute and Infinite, Source of all Truth, of all Good and Beauty? This would appear to be the thought of William James: "Although he may be beyond the

limits of the individual being who is *en rapport* with him in religious experience, ' the Greater ' is a part of his subconscious life within his own limits."

Even if we identify the phenomenon of religion with a phenomenon of telepathy between God and the soul of the believer, the religious problem remains as tantalizing as heretofore, and its solution, quite apart from science, is a matter of sentiment and of faith. Every intuition is, in essence, ineffable and incommunicable. Where the objective verification is lacking, it will remain forever impossible, according to Alfred Fouillée, to distinguish the seer from the visionary.

But whatever progress may be accomplished in the psychical sciences, and whatever may become of the various forms of religion which actuate humanity, for a long time yet and perhaps always, in the heart of man shall remain the supreme Ideal of Justice and of Sanctity. And side by side with this will be the enigmatic inscription found by the apostles of early Christian times, which perhaps neither time nor space will efface: *" To God Unknown."*

NOTE III

THE RADIATION OF THE HUMAN BRAIN

(From *La réalité du monde sensible,* by Jean Jaurès)

As the brain is enclosed in an organic envelope, solid and in appearance closed, the imagination has a tendency to picture it as being isolated from the exterior world. But, in reality it may be that what we call the brain is perpetually mixed and confounded with the world, through a subtle and constant exchange of secret activities.

We already have seen that for the man who would look from without upon the brain perceiving the light, the brain would extend, physiologically speaking, to the focus of light lost in the mysterious depths of the night. It would be, as it were, like a comet with condensed nucleus, its tail sweeping into space.

When we look at another human being, we send toward him a ray of light from our soul, heavy with anger, or soft with tenderness. Evidently, then, our cerebral activity is spread into space; it widens, yet it loses none of its precision, none of its organization. Those who imagine that our brain is entirely contained in the cranium are much mistaken.

With this point of view, all the phenomena — still obscure and imperfectly controlled — of magnetism, distant vision, and suggestion would contribute to give us a better idea of our brain.

If it be true, as has been affirmed by reliable experimenters, that the human organism is capable of developing a magnetism sufficient to lift a table from the ground, that it is especially through the exercise of the will that such phenomena are obtained, and that it is unconsciously that these persons are capable of generating a motor-force of unknown nature upon exterior objects, it would be quite true also that this cerebral energy is capable of radiating far out of its focus. It appears, too, that the " self " is capable of exerting an action upon ordinary matter without having recourse, at least consciously, to the intermediary of the organism, which would act, then, not as an active instrument but as a passive conductor.

The phenomenon of second-sight has been demonstrated without any doubt in certain hypnotic cases. Subjects can see and read through a barrier which for others remains opaque. Therefore the opacity of matter is but relative. And, as in the case of our imagination, that which most separates our brain from the surrounding world, is the opacity of our organism. When this opacity is removed it leaves our cerebral focus and the universe in immediate contact.

Thus the brain can radiate and act far beyond the limits of the human organism. It does not appear any longer as an organ shut off and enclosed in a bony cavity. We now behold, in the order of physiology even, the individual " self " widening out and, without losing its ordinary connections with a particular organism, creating for itself, outside of this organism, an indefinite sphere of action.

Specialists have not yet been able to control the trans-

mission of thought from one subject to another, without the intermediary of speech; but this fact has been attested by a great number of serious experimenters. In itself it constitutes a prodigious achievement which must be separated and distinguished absolutely from spoken suggestion; for the latter resorts to well known physiological and psychological processes.

When, however, a subject transmits, without the use of speech, an idea, a thought, an impression, or a volition to another subject, there must evidently exist a radiation of thought into space; for two brains are thus placed in immediate relation, through this very radiation. Thus the precise form of our thought is propagated through space without alteration, as are the forms of light, color, shade. In a word, our brain is, as it were, a focus of thought; and even as the sun fills all the spheres which its light occupies, and it would be futile to reduce the sun to being but a globe from which its light emanates, so the brain's sphere where the action of its thoughts may extend, is of an amplitude unknown to us.

It does not seem to me that all these phenomena are studied with a sufficiently philosophical attitude of mind, or, more exactly, metaphysical; one is occupied only with the moral and social consequences which the practise of suggestion entails; and it is certain that the problem of " free-will " is again foremost, in view of these facts.

But apart from this, these phenomena are of greater import: they attest that there exist in man certain extraordinary and unknown forces which are nil, or almost so, in his normal state, but which are manifested

in certain cases that we may call abnormal. There exists in us an " unknown self " capable of exerting a direct action upon matter, of lifting a foreign body with an energetic will, just as if it were its own body, of piercing by a look the opacity of walls, and of gathering from afar and through space the unexpressed thought of another " self."

We may ask whether we may not have here the elements of a new progress in the consciousness and the life of humanity. Why should evolution, for the actual and normal man, have reached its ultimate term?

It would suffice to incorporate in man's normal being the prodigious forces which hypnotism places at his disposal, for him to become a new being. He should acquire magnetic action upon exterior objects, the deep penetration of the look, and the immediate perception of the thoughts of others through his own thoughts, without losing possession of himself and with the continuity of memory which alone preserves one's individuality. It would mean that instead of keeping in himself two distinct personalities — his normal self and the abnormal self which hypnotism develops — he would be able to fuse these two personalities into one, thereby uniting their diverse potentialities.

Perhaps the universal and regulated practise of hypnotism, the methodical alternation of the normal and the hypnotic states, habit and heredity, will bring about this fusion of selves and so the creation of a new humanity.

Vainly will it be objected that these new powers which man must assimilate manifest themselves during

states of coma or pain, and that, thus, they are repugnant to the healthy normal being. It is exactly here that the human being is lacking: in those elements of coordination and fusion between the normal state and the new powers.

Who can say that throughout the immense evolution from amphibia to man, all progress has not been linked with periods of crises and suffering? When the first fish transformed its fins into wings to fly in the air, who knows that its respiratory organs did not suffer as a result? The unrest and anxiety which children manifest at the approach of sleep are thoroughly characteristic. The state of sleeping and that of waking are two radically different states, and the passage from one to the other constitutes in itself a veritable revolution. We are accustomed to it now, and are unconscious of it; but the little child is not accustomed to it, and suffers from it. Perhaps, even, it is afraid?

Little by little, we are able to assimilate ourselves to sleep, which is, in spite of appearance, a violent state of being, since it is the suppression of the definite personality which we govern, to be replaced by an obscure personality which governs itself, and which often feeds upon monstrous sentiments and frightful visions.

And when man shall have assimilated the potentialities of the magnetic and hypnotic states, can we not realize how, in the current of everyday life, the human organism may then become an accessory? No doubt it would remain present in his consciousness, as the nec-

essary root of his individuality; but the "ego," the "self," would be capable of moving, by direct volition, other bodies than his own.

It would no longer be, then, the exclusive soul of a particular organism, but rather the soul of all things as far as its action could extend. And if it could apply itself to the whole universe, it would then become *the soul of the world.*

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