There is a principle which is a bar against all information, which is proof against all argument, and which cannot fail to keep a man in everlasting ignorance. That principle is condemnation before investigation.

HERBERT SPENCER

CO-OPERATIVE HEALING

THE CURATIVE PROPERTIES OF HUMAN RADIATIONS

BY

L. E. EEMAN

WITH AN INTRODUCTION
AND AN APPENDIX BY

J. CECIL MABY
BSC · ARCS · FRAS · BSD

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This book describes the evolution of a technique of co-operative healing which has given progressively significant results since May, 1919.

It tells of experiments which can be repeated at will and of facts which can be controlled and measured by instruments.

It is dedicated to the research workers of London Hospitals.

L. E. Eeman.

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INTRODUCTION

"If there be any way by which we can prove that the body is made up of aggregations of electric systems, or spheres of radio-activity, we shall draw nearer to the etiology of all unhealth as well as to the means of relief. . . . If the polarity or rate of motion of any tissue be changed, unhealth or unrest of tissue must take place."

G. STARR WHITE.

Facts, hypotheses, theories and ideals are to science what the blood, arteries, veins and heart are to a living organism, and ideals and hypotheses give to science the drive and guidance without which rational progress is impossible.

L. E. Eeman, the author of this monograph on a rather novel and, by conventional standards, unorthodox form of therapy is not only guided by scientific ideals, but he also has zeal and strength to pursue them to realisation. Keen and logical, he is impatient of idle speculations. A tireless experimenter, he seeks objective demonstration and practical utility. And he writes with precision and with authority acquired in twenty-six years of professional practice.

His thesis is radiological and radiesthetic. He maintains it resolutely and effectively both against those who mistrust any idea that living organisms may either emit or detect unknown physical radiations or forces, and against those who condemn as "psychological" or "illusory" any observations or phenomena not found in standard text-books.

On the assumption that the reader is not prejudiced against theories of vitalistic physical radiations, and noting that Eeman's technique, being original, cannot as yet rest on text-book authority, this introduction and the Appendix try to correlate the phenomena observed by him firstly, to those recorded by the fast-growing school of biophysical and radiesthetic investigators, and, secondly, to the accepted facts of radiology and physiology.

Radiesthesia has developed rapidly during the last few years and is now attracting ever-increasing scientific attention in the

British Commonwealth as well as in America and Europe. The main facts stated in this book fit the established radiesthetic framework. They are objective and repeatable by any patient and skilful investigator who is prepared (*a*) to devote himself to the subject, and (*b*) to use sensitive subjects and proper methods and instruments. But he must guard against confusion by (1) unwanted psychological factors, and (2) numerous variations and complexities in physical factors which originate in the general electro-magnetic environment. Recent developments in other branches of radio-electronics have given evidence of such variations and complexities in all the many special aspects of this field, and physical workers no longer fight shy of radiological innovations in physiology. The special and novel nature of Eeman's contribution might induce the serious student to consult the bibliography at the end of this book and to familiarise himself with the general literature on psycho-physiology, radiesthesia and radionics.

"If I could live my life over again," wrote Virchow, "I would devote it to proving that germs seek their normal habitat —unhealthy tissue—rather than being the cause of unhealthy tissue." This attitude appeals to all those who, like Eeman, aim at assisting recovery by the restoration of the constitutional balance of the organism, whether merely as a "first-aid" or as the sole measure, e.g. as in "nature cure." And here, it must be emphasised that the body is, primarily, an electro-chemical machine the precise balance of whose myriad micro-cellular parts is vital to its smooth functioning. True, psychic factors play an important part in metabolism, but, as bio-physicists have recently proved, purely physical and environmental factors of a radiological and electro-magnetic kind are at least as important. They not only determine the immediate electro-chemical state of various cells and body fluids, but also cause abnormalities of function and response, just as do over-strain, insomnia, fatigue, infection, lack of exercise or improper or insufficient food. But here, let us observe that because psychiatrists can and do produce similar results by their own special methods it does not follow that *all* such results, whether morbid or curative, are due to purely psychological factors.

Eeman's chosen task is to relieve pain, organic maladjustments and functional disorders of many kinds. He uses a

particular bio-electric technique which is fully described in this book. The essence of this is, first, insistence on extreme bodily relaxation (N.B. maintaining full mental control), and second, certain polar connections between operator and subjects, one subject and another, or various specified parts of the subject's own body. Under such conditions there occurs, he maintains, a flow or oscillatory discharge of some subtle bio-physical energy —presumably of the kind universally recorded and utilised by all radiesthetic practitioners, and possibly of various specific electro-magnetic frequencies, according to its immediate sources. And these rays or fields of force, the bi-polar interrelationships of which must be correctly planned in the body circuit, are found by him (and many other independent workers) to produce well-defined physiological effects.

On detailed analysis the forces in question are found to behave in an obviously radiological and electro-magnetic manner, and can (*see* Appendix) be demonstrated instrumentally by sufficiently refined techniques. The only trouble in the past was the non-existence of suitable mechanical or electrical detectors, giving clearly demonstrable reactions. But that difficulty has, at last, been overcome; and the earlier claims of much maligned electro-medical workers of the Mesmer, von Reichenbach, Boirac, Maxwell, Abrams, Kilner, Starr White, Wigelsworth, Richards, Regnault, Boyd and Drown school of "electronists," etc., are now physically verifiable. So that advances and improvements ought to follow rapidly—probably within the ultra-short Hertzian to infra-red and ultra-violet to gamma ray spectral ranges.

Meanwhile, it was natural that the extraordinary sensitivity of living tissues (e.g. that of the normal senses of sight, taste and smell) should be used by pioneers in this field of enquiry, to whom instrumental checks are interesting but not essential. Let us remember the responses of both plants (photosynthesis by means of chlorophyll) and animals (*via* their eyes) to visible light rays; also by various photo-chemical reactions, to infra-red heat rays and the more photo-electrically active ultra-violet rays. Let us note too the marked physiological effects of high-frequency diathermic and short-wave therapy treatment (beneficial in moderation), and of gamma rays and high-velocity electric particles in X-ray and radium treatment (generally

destructive and lethal). All these well-known reactions make it abundantly clear that living organisms respond, variously, to electro-magnetic rays of almost, if not quite, all frequencies. We may instance the facts that gamma irradiation (and conceivably cosmic ray incidence) cause mutations in germ cells, and that low frequency electric oscillations give rise to the tissue reactions of short-wave therapy and to variations in muscle tonus.

Why, then, should surprise or incredulity be expressed when certain other subtle and heretofore little observed physiological reactions to another group of electric waves are put on record? Especially as the new data fit in with modern knowledge of electronics, short-wave therapy, atomic physics and electrical detection of nerve impulses, etc. They also throw a welcome light on various "borderland" mysteries, such as telepathy, clairvoyance, direction sense in birds, etc., when these are critically examined.

We strongly protest against the tendency to call psychical, metaphysical or supernormal all those subtle or ill-defined phenomena in nature that happen, at present, to lie on the fringes or outside the fully explored domain of physical science. *All* natural phenomena are physical, if they are real, only they may be "etheric" and non-material in many instances. And if a world of mind and spirit that induces "psychological" reactions in and through living creatures be insisted on, then it is clear that its forces must in some ultimate and as yet mysterious sense be *physical* forces, in that they act upon physical matter. This irrefutable point was clearly recognised by Sir Oliver Lodge, who, as a result, was as unpopular with his fellow physicists as with the "pure mentalists." And the more honour to him!

Eeman's "unknown force" acts across short air gaps and along poor electric conductors, but it does so more strongly when guided through or along copper wires, etc. So that it may very well be an electro-magnetic wave radiation of the Hertzian class, but of too low intensity or too high frequency to be normally detectable by Hertzian receivers of an ordinary type. If so, then electric currents (especially D.C. or even A.C. lacking high amplification) would not be measurable by galvanometers or microammeters, any more than would be the "brain waves" that are now detectable by the electro-encephalograph.

His observations also suggest strongly that various specific

frequencies exist in relation to different bodies and substances, creating specific organic reactions perceptible to sensitive subjects. And this is precisely what has been found by radiesthetists in general, including both field dowsers and medical analysts. Sceptics cannot dispose of these results either by putting them down to supposedly psychical "extra-sensory perception," or by using improper methods of research, or insensitive or unskilled subjects, or by making their subjects nervous and self-conscious and thus insensitive, or by introducing electro-magnetic complications in the form of unwanted wires, oscillators, magnets, etc. These same factors upset purely mechanical detectors of the hypersensitive type under like conditions. Failure in these circumstances is due to faulty technique and ignorance of the true nature of the forces and reactions in question and proves nothing but the incompetence of the experimenter.

Any reader therefore, who, despite these hints and the facts given in the Appendix, cannot avoid a rigid prepossession against radiological and radiesthetic theories—whether from extreme materialism or extreme psychism—had better put this book down right away. But I cannot refrain from pointing out that such an attitude is far more superstitious and "primitive" than that of the radiesthetist, and savours of those "enlightened" engineers who told Marconi it was impossible to span the Atlantic by radio when he had already done it, those military "experts" who informed the Wright brothers that their flying machine could be of no value in war, and the African natives who accused the white men of imprisoning little devils in their steam locomotives "to make them go." And so on throughout the history of science.

For myself, several years of friendly scientific contact with L. E. Eeman and his work (*see* Appendix for a summary of certain instrumental checks made at this laboratory) have satisfied me that whatever the causes, phenomena are, in general, as he describes them in this and his previous books.

So far as I have gone, it seems abundantly clear that Eeman is dealing mainly, if not always (since suggestion and psychiatric effects are practically impossible to eliminate entirely from a practice such as his, as he himself recognises) with perfectly reflex physiological responses by his subjects to *radiesthetic*

stimuli of some short-wave electro-magnetic kind. Such radio fields can, as has been said already, be proved to exist physically and objectively, both as to emission and reception by living organisms, in relation to the nervous system in particular. And reactions in the muscles, lungs, heart, salivary glands, the sympathetic system as a whole, and, no doubt, other glands and organs can be recorded, that do not appear to be referable "simply to suggestion" or to any other psychological trigger. Nor do such responses appear to be restricted to hysterical or psychopathic or hypersensitive subjects; though such people make good material for experiments of this sort, as the early French workers of the Salpêtrière school, for instance, demonstrated.

In short, the most receptive and reflexly reactive subject is naturally he or she *who eliminates counter-inhibitions* (so marked in "thick-skinned" or highly sceptical folk). But that in no way proves that the supposed rays, etc., do not exist, any more than inflation of a hydrogen balloon disproves the force of gravity. And the need of a receptive and sympathetic psycho-physical state for the attainment of good results is equally evident throughout the whole of medical practice. But that in no way detracts from the physical necessity of drugs and surgery. The mind can do quite as much harm as it can do good, in opposing instead of reinforcing the natural tendencies of the body to recuperation and readjustment.

I believe that Eeman is not behind the times, but ahead of them when he tells us of the striking results of a scientific and modernised variant of the ancient practice of "the laying on of hands" and of what used in the last century to be called "animal magnetism." Why was it that Old Testament prophets, Jesus, sages and holy men throughout the ages, including many still living, all practised the laying on of hands to effect unusual cures, if it was merely a matter of will-power, hypnotism or suggestion? Obviously because some kind of physical energy was thus transmitted to the sufferer. And radiesthetists are at last beginning to find out what that energy is and how it works, thanks to the latest advances in physics and mechanics. Its intensity and, perhaps, even its quality varies, however, from one person to another, according to body constitution, temperament, vitality and emotional tone—which, last, can be modified at will, as can be shown electrically.

The question arises, therefore: Assuming the reality of these radiations and their specific effects, according to frequency and intensity; is it not possible that a given "magnetic" healer should emit waves of a frequency not beneficial, but even harmful, to a particular subject? Also what about correct dosage? . . . Though the present author has a section on the apparent effects of the characteristic radiations emitted by certain drugs, thus re-opening a very wide and pregnant field, that is by no means new to radiesthetists from Abrams onwards; and though he is careful regarding appropriate body polarities in making his connections (to keep the waves "in phase"); he does not, I think, carry the matter far enough on the physical side, in terms of detailed medical therapy. His observations on "collective healing" and a kind of inoculation of one subject by another against certain diseases are, however, provocative.

Now if cures can be wrought by such gentle and more natural means, where long and drastic administration of drugs, costly electrical, radio-therapeutic treatment (with its many attendant dangers to sensitive patients), or equally costly and dangerous surgical operations have repeatedly failed, so much the better. We should, obviously, encourage such practices. For the prime necessity is to heal people and ease them of pain and functional incapacities, whether of mind or body; so that the *means* employed is a secondary consideration, and the more subtle and natural it is the more thankful we should be. In any case, there is little doubt that much medical practice fails to get to the real root of our ailments, but tends, rather, to supply mere palliatives and narcotics, calculated to hide both the pain and its basic cause, or else to administer last-minute remedies of an unduly drastic kind.

It is equally certain that nine-tenths of our complaints spring from worry, unhealthy living (including wrong diet, mental or bodily overstrain, insufficient exercise, insanitation, incompatible environment and various forms of excess) and the weather; which last, is, I am convinced, one of the mainsprings of common colds, influenza, bronchitis, rheumatic maladies, gastritis, neuritis, and even tuberculosis, asthma and cancer in subjects who have some predisposition to such things, thanks to heredity, environment or an improper mode of life. Nor can the effect of certain electrical conditions and electro-magnetic radiations, to which

many persons are clearly allergic, as radiesthesia has lately shown, be excluded. In fact, these physical irritants may tip the scale of life and death in aged and very sick persons.

The strong point about so-called "natural therapy" methods seems to be that *they aim, primarily, to restore healthy mental and bodily equilibrium*, without which no medicine in the world is likely to prove very effective. Psychiatrists have already fully appreciated the need of putting the patient in the right frame of mind, and of removing cancerous mental "complexes" and "repressions." To this Eeman adds significantly *also the right physiological condition*. Hence, apparently, the general success of his technique.

"Creative research," says Dr. L. J. Bendit, "can only be done with an open mind which is prepared to play lightly with a new idea for the purpose of finding out whether or not it is true. To start with pure negation, and to demand positive proof before even considering a theory is the surest way of preventing oneself from obtaining that proof." And that is just what so many conventional and "orthodox" scientists, including medical men, do regarding these new findings of the radiesthetic and "nature cure" schools. They dismiss the whole thing before they have ever examined it. Whereas those who have examined it sincerely and without prejudice have invariably been led to a positive and sure belief in these remarkable phenomena and in their practical value to society.

As for the confirmed sceptics, I commend to them these telling remarks of one Nichol: "There are some," he said, "who have no other reason for rejecting certain opinions than this amusing argument: If that were so, I should not be a competent man; therefore it is not the case."

Eeman is naturally averse from the superficial criticism that his results are due "solely to the well-known effects of auto-suggestion and an hysterical disposition of the subject," which decide the emotional release of certain pent-up energies and suppressed psychological complexes, thus leading to the well-known "miracles" of faith-healing, etc. And all that the author has done over many years, with subjects and patients of many diverse psycho-physical types, on the problems of relaxation, body polarities and inter-organic linkages appears to me (as to many others) to justify his objection. Yet the fact remains that

psychological and even parapsychological (e.g. telepathic) factors cannot be excluded, but must always represent powerful additional aids to the healing process—aids of which Eeman makes deliberate and methodical use. Hence, I believe, his critics are stating only a *half* truth. And it is a curious fact that directly one claims that such and such a process or reaction is largely *physical*, the common critic at once insists that it is "of course" purely psychical. Whereas if another claims, on another occasion, that a similar process or reaction is largely *psychical*, the critics immediately adopt the contrary interpretation!

The truth seems rather to lie half-way between these two extremes. Man is a mind-body, and as long as he lives, thinks, and has his being one can never wholly dissociate psychological from physiological issues. Man is also a living spirit, possessed of moral, religious, aesthetic and abstract intellectual faculties; and these render him an infinitely more complex subject of study than the highest evolved of his animal kindred, though the latter appear to simulate him at lower levels of psycho-physiological response. So that there may not be said to exist any sharp dividing line. Any apparent distinction is a difference of degree rather than of kind, so far, at least, as the higher mammals are concerned.

Even as man, as a race, differs from the beasts in terms of relative self-consciousness and in his higher (average) perceptual and motor-manipulative levels of response to environment, etc., so too, do men and women differ very markedly among themselves. It is, therefore, an error to treat men *en masse* (whether socially, morally, intellectually or medically) as though they were all turned out of a single mould. As wise doctors have observed, there can be almost as many different ailments as there are individual patients. Medicine and medical therapy must, therefore, ever remain among the most complex and teasing of subjects. Hence, too, a good deal of unavoidable internecine controversy over this or that class of diagnosis or treatment. Very frequently the contenders are not really arguing the same point. They cannot, therefore, hope to reach agreement.

If L. E. Eeman has, by his work, uncovered yet another road to a beneficial form of therapy, as I, for one, believe, then he deserves a fair and attentive hearing. That his method should hope to provide a universal panacea for all ills is, of course, out

of the question—especially in the light of the diversity of human types just mentioned. I think, however, that his work may not only provide an excellent remedy in a very wide range of medical cases, but that it will also lead, incidentally, to a great broadening of our conceptions of human physiology and psychology. For instance, having had a good deal to do with what is now called Parapsychology, i.e. "psychical research," I am particularly impressed by the angle of approach adopted by the author with regard to certain forms of so-called telepathy. And the potential value of his consulting-room practice in relation to war injuries and conditions of shock and neurosis, now so commonplace, may, I think, one day be rated high in a regenerated and advanced Medicine.

Finally, before handing over to the author, himself, who will expound the full details of his technique and its results, I would like to suggest that it may perhaps be found helpful to refer in advance to the Appendix in which I have, at Mr. Eeman's request, briefly summarised certain ideas and general observations for the benefit of the critical scientific reader.

J. Cecil Maby

Biophysical Laboratory,
Bourton-on-the-Hill, Glos.
December 1st, 1945

AUTHOR'S PREFACE

"I assert, without fear of contradiction, that whenever the scientific men of any age have denied the facts of investigators on *a priori* grounds, they have always been wrong. . . . The humble and often unknown observers have been right; the men of science who rejected their observations have been wrong."

Dr. A. Russel Wallace.

"We do not know a hundredth part of the law that governs life, and the assumption that anything which goes beyond that law, such as we know it, is above or outside it, is tantamount to the assertion that our intellects do know and comprehend the whole of the law, and is sheer arrogance on our part."

Medicine tends more and more to become an exact science. Exact science accepts reputed facts only when they fall within the law as it is known, or when they are amenable to instrumental control and quantitative measurement.

This state of affairs is admirable for it promotes accurate observation of material phenomena and clear definition of the laws that govern them. But it has three dangerous effects on scientists: first, it predisposes them to turn away almost automatically from new avenues of thought; second, it leads them to ignore if not actually to deny intangible causes and to postpone their investigation until their material effects have been isolated and measured by instruments; and third, it drives them to suspect and mistrust, if not completely to discard, the finest instrument ever made for the registration and measurement of phenomena—namely, the human organism, with its widely competent sensory apparatus, its reflexes and automatisms, its signs and symptoms, its emotions and its psyche.

The neuro-muscular system would be accepted as incomparably the most versatile, delicate and accurate instrument of registration and measurement, were it not that its readings are in part invalidated by two sets of variable and only partly controllable factors: the first comprises the mechanical, physical,

chemical and other elements that constantly affect bodily reactions, and the second, the personality, which acts in the dual capacity of unconscious promoter of reactions and fallible and suggestible observer and interpreter of them.

In spite of these defects, modern science accepts as axiomatic a multitude of facts which were first registered, noted and measured by the human system long before the scientist could even have decided what it was that needed measuring, or the inventor have devised instruments delicate enough to register, let alone measure, that IT. Such has been the case in the present investigation.

However, once the facts have been registered by that suspicious character, the neuro-muscular system, they drive the enquiring mind to attempt to control and measure them, preferably with instruments. How many boys have broken thermometers in trying to measure the temperature of the water that had scalded them? It is by this compelling quality that facts force us to accept them and to behave accordingly long before we can measure them with instruments or deduce from them the laws of nature. Every cook knew that fruit had to be carried on a plate and not under it long before Newton had deduced the law of gravitation from the painful impact of an apple on his head. "Primitive coloured" people used the bark of the cinchona tree as a specific against malaria centuries before "white science" had given up laughing at a "native superstition" and had made it respectable by "discovering" quinine.

It is this compelling quality which had induced some ladies and gentlemen to take an interest in my researches long before any of the facts had been controlled or measured by instruments! To some of these, I owe deep gratitude; they are:

J. Cecil Maby, B.Sc., A.R.C.S., F.R.A.S., etc., who, with remarkable intuition, ingenuity and perseverance, devised a multitude of delicate instruments and conclusive experiments for the control and quantitative measurement of the facts I had put before him. Without his loyal and sustaining support this book would have been but "a poor thing," though mine own.

Dr. Helena Wright, who wrote an introduction to my book *How Do You Sleep?* in 1936, a time when no instrumental support was as yet available for my theories and technique.

A pharmacologist, whose invaluable help I describe in Chapters XVII, XVIII and XIX.

L. A. G. Strong, who effectively championed the cause of a stranger in the columns of the *Observer* and on the "Air," and

Mary Cameron, who, for fifteen years, was my collaborator in my researches and in my writings, as well as the willing subject of frequently exhausting and at times dangerous experiments.

I also give thanks to:

Dr. Mark Clement whose invaluable suggestions did so much to strengthen the argument of this book, and to

Countess Nora Wydenbruck whose subtle literary mind removed some weaknesses from its form.

L. E. Eeman.

PRELIMINARY NOTES TO THE READER

In this book, I either deal with facts or make it clear that I am speculating. I describe facts in groups and, as much as possible, in the chronological order in which I observed them within each group; I outline the hypotheses I drew after each new observation and define the practices I adopted in consequence and the results these produced.

I first detected most of the facts described without the help of any instrument beyond a watch. Patients' signs, symptoms and reactions were observed by means of four senses: sight, hearing, smell and touch. The factors noted were: the patient's pulse, blood pressure, breath, temperature and temperature sense, superficial circulation, variable odour, relative muscular nervous and mental relaxation, and sleepiness, as well as his progress. That their combined evidence was a sufficient and sound basis for the working hypotheses, theories and practices that I adopted was proved when quantitative measurement by instruments was eventually made possible by J. Cecil Maby, as described by him in his scientific appendix.

Since quantitative measurements set well-defined limits to the influence of suggestion, auto or hetero, I seldom describe the precautions I took to guard against it, but I was at all times awake to its danger and invariably and adequately protected myself against it. These remarks also apply to telepathy and other abnormal means of communicating suggestion whenever there was any possibility that they might have played any part in the phenomena I was investigating.

. . . . .

I strongly support J. Cecil Maby's suggestion that the reader should refer to the appendix before embarking on the book itself, and I trust that the scientific reader will do so before reaching Chapter XV. In his appendix Maby makes it clear that patients' reactions which I relate to "specific frequencies" or "specific resonant frequencies" may be occasioned by the passing of electrons or by other causes, as well as by the specific frequencies of

particular substances. However, our knowledge on the subject is still too vague to allow of accurate definition in each individual case, and I therefore provisionally use the "omnibus" *specific frequency* to cover all the possible causes of the specific human reactions under observation. I do so on the dual assumption that the human organism can offer specific reactions only to specific agents and that since many of its reactions are known to be caused by "frequencies," such as those of light, sound and other rays, most if not all of the new reactions which I have observed, may in time be shown to be related to frequencies and "specific frequencies" whether or not resonant.

ILLUSTRATIONS

Unless otherwise stated:

(*a*) The figures used are assumed to be right-handed.

(*b*) Conclusions relative to any illustration apply equally to both sexes, but

(*c*) Only to right-handers of either sex.

Both in illustrations and in the text the capital letters H. S. R. and L. refer respectively to the Head, the base of the Spine, the Right hand and the Left.

. . . . .

The subjects are *invariably* assumed to be lying down, flat on the back and with their voluntary muscles COMPLETELY RELAXED. And here, I must draw the earnest attention of those readers who may wish to repeat any of my experiments to two points:

(a) *In the absence of complete voluntary muscular relaxation reactions may be not only obscured but frequently reversed, and thus misleading*, and

(b) *Selective sensory perception of those "ultra-high frequencies"* of which J. C. Maby writes in his introduction and appendix, *can only be achieved after sustained practice.*

I am compelled thus early to underline these two fundamental points by the fact that many "would be" investigators have ignored them both despite my persistent reiteration of them.

EXPERIMENTERS, please, remember to RELAX and to PRACTICE!

CHAPTER I

TWELVE TYPICAL CASES

When different parts of one human body, or different or similar parts of different human bodies are connected by means of electrical conductors, such as insulated copper wires, these bodies behave as though—using an electro-magnetic analogy—they were bi-polar.

They behave in this fashion along three axes: head to feet, right side to left, and back to front, and their detailed bi-polarities follow the known nervous tracts. However, for purposes of argument and experimentation, and unless otherwise mentioned, only the Head, the base of the Spine, and the Right and Left hands will be considered, and they will be referred to as H., S., R., and L., throughout this book.

This body behaviour which suggests bi-polarity is automatic in both sexes, in health and in disease, and it manifests in the absence of artificial energy and not only independently of suggestion but even against it.

Continuing the use of the electro-magnetic analogy, the polar opposition shown experimentally to exist between H. and S., and R. and L., has led to the adoption of the convention that H. and R. are positive and S. and L. negative in all born right-handers of both sexes, and the reverse in all born left-handers. However, the converse convention might have been adopted without affecting the argument of this book.

Any arrangement which connects polar opposites of one or of different bodies by means of electrical conductors is referred to as a "relaxation circuit" and any arrangement which connects polar similars as a "tension circuit."

The relaxation circuit automatically promotes relaxation of the voluntary muscles and stimulates functional activity. It fosters sleep, recovery from fatigue and disease, capacity for work and health in general. The tension circuit reverses these effects, more or less. Both circuits affect not only organic but also nervous and mental health.

Psychological and other factors may consciously or unconsciously interfere with the automatic relaxation of voluntary muscles which the relaxation circuit promotes. Since in the absence of complete voluntary muscular relaxation reactions may be not only obscured but frequently reversed and thus misleading, investigators who wish to obtain valid results should deal with all factors which might inhibit voluntary muscular relaxation before experimenting with the circuit itself. The measures required for this purpose are described in this book.

. . . . .

The above summarises some of the conclusions which have been imposed on me by an experimental investigation which began in May 1919. The field I then entered is proving increasingly interesting, and each new step I take in it seems not only to widen it but to make more and more urgent the need of competent and specialised tillers. May I tell what I believe I have so far found in this field in the hope that some of my readers may come to share my interest, check my findings, seek and find new facts and help me understand the Law which these facts must express?

. . . . .

From the awakening of my interest in those human radiations which can be transmitted by electrical conductors I was struck by a number of different phenomena that kept on reappearing in my experiments with remarkable repetition of details. Whilst some of these phenomena would appear in 99 per cent of my experiments and others in a mere fraction of 1 per cent only, these percentages seemed to remain fairly constant.

Although I was not in a position either to identify or to measure the forces at work, and none of the medical men or physicists who took an interest in my experiments could help me in my metric difficulties, I had no doubt that I was dealing with real forces, that some of these forces were of vital origin, and that with hard and persevering work I would in time evolve a safe, reliable, exact and effective technique of healing by autogenous (?) radiation fit for general use.

Some of the phenomena that faced me reappeared so frequently, so regularly, so spontaneously, in so many and such different subjects, and with such stereotyped reaffirmation of

minute details, that they seemed to shout at me ever louder and louder the one word: LAW!

Whatever some sceptics felt prompted to say after superficial observations lasting but a few minutes, however scornful or supercilious their comments, honest and sustained experimental work demonstrated beyond doubt that suggestion did not explain the facts. Granted, suggestion is unavoidably present in any consulting-room, but I could cite scores of instances any small number of which would settle the case of LAW *v.* SUGGESTION for any unprejudiced statistician. Law stands out unchallenged from the few I give below. In all of them but one the patients were placed in relaxation circuit with myself and the only suggestions given them were that they should relax their voluntary muscles, observe their sensations, and report on the latter.

(1) A woman suffering acutely from enteritis contracted in the East is placed in the relaxation circuit. She declares that she feels "absolutely nothing, but that her pains are going." In her surprise, she says: "This is ridiculous!" After half an hour her pains have gone. After a few days, she returns to a normal diet with impunity when all other methods have failed. She states with glee that she can now "eat like a pig" and her husband volunteers the statement that "she does."

(2) A young woman has given her wrist a deep cut from which capillary blood flows abundantly. Her arm, relaxed, is placed in the relaxation circuit. Almost at once the flow of blood ceases but that of serum increases. The wound closes like a mouth but opens again and allows blood to flow as soon as the circuit is reversed, unknown to the patient. It is like turning the electric light on and off!

(3) A woman in the relaxation circuit declares at first with the defiant look of the sceptic that she feels "absolutely nothing." After a while her breathing slows down and deepens and her muscles relax automatically, but she observes none of this. Later, she states, rather grudgingly, that her back might be getting slightly warmer, "but very slightly." She appears drowsy when, suddenly, her whole body begins to quiver and jerk with progressive violence. She is much surprised at all this and not a little frightened, but is unable to control her apparently meaningless movements. As I wonder at her inexhaustible supply of energy and at the complete absence of any corresponding shortness of

breath, she suddenly collapses into profound sleep. The deep smoothness of her slow breath, the peace of her expression and the utter limpness of all her voluntary muscles astound me, as these still do to this day whenever I meet such cases. Although I swing her limbs violently nothing disturbs her. After about half an hour, she wakes up, completely unaware of my rough handling of her, and, amazed, declares that she has had "the most perfect sleep that she has ever known in all her life," and feels indescribably different in her whole being, in mind, nerve and body.

(4) A young woman suffering from "petit mal," and whose fits number from three to as many as seven a day, produces thirty-one inside one hour when placed in the relaxation circuit, and none at all during the whole of the following week. At her second visit she produces seventeen attacks and none at all during the next three weeks. At the third visit she is disappointed because her total is no more than six, but she has no fits during the next six weeks. A fourth visit produces only the faintest signs of the trouble. The patient, encouraged by her improvement, ignores my injunction to visit me every two months. Six months later I hear that after being completely free until then, she has just had one bad attack preceded by a period of abnormal well-being which I had warned her to heed as a danger signal.

Let it be noted that if any suggestion was at work when she first consulted me, it was the suggestion, implied in the fact of her visit, that I might be able to stop her attacks. On the strength of it she produces thirty-one of them inside an hour and notes that as a result she has none at all during the following week. At her second visit, the suggestion, if any, must have been: "The more attacks I can produce when I am with this man the longer I shall be free afterwards. Therefore, I must have as many as possible, sixty in the hour, if I can." Result: she produces only seventeen attacks. Obviously one of these highly suggestive women, but very contrary!

(5) On her twenty-first birthday in 1915, a young woman is opening telegrams of congratulation. Amongst them she opens one from the War Office announcing that her fiancé has just been killed in France. Shock, collapse, nephritis, loss of memory which conveniently takes her back two years to a time before

she had met her fiancé. Eight whole months under bromides are needed to bring her memory back. In July 1921, she is, with us, one of a large house-party in the country. She has a sudden and grave relapse, but this time her loss of memory takes her back twelve years, to 1909. Placed in the relaxation circuit, she immediately becomes unconscious. In trance and with her eyes closed she re-enacts in speech and gesture the important events of her life in 1909. When she reaches the end of the year the circuit is broken and she awakens in 1910, only eleven years out of real time. In three days, she is placed in the circuit twelve times; on each occasion the circuit is broken when she has recovered one year, and in exactly seventy-two hours, to the minute, she has caught up twelve years. No bromides or any other drug are administered. Between treatments the events relived in trance are carefully reintegrated in conversation. After the third of these twelve treatments, it being midsummer, strawberries and cream are served for tea. Her intense mental confusion shows me that it had been unwise to break the circuit when in her mind she was at Christmas, a time when strawberries are rather expensive. Thereafter, by timely interruption of connections, the unfolding of the patient's life story is conveniently cut up into numbers that end in midsummer. Fifteen members of the house-party in rapt and reverent attention watch every scene of the unconscious drama. At the end of it, the last three days are blank in the patient's memory. It takes her *twenty-one* days consciously to recover them. It had taken her *three* days in the circuit, subconsciously, to recover twelve whole years. An unforgettable case, a most enlightening one, and one well worthy of a detailed account.

(6) A woman informs me by telephone that she is a doctor, that her husband and her sister are doctors, and that most of their friends are doctors. Although she has tried every known treatment of insomnia, she has, for years and every night, lain awake for hours before finding sleep, and in spite of all that science has done for her, she is getting worse. She has just read a book of mine and whilst she thinks the chapters on relaxation make sense, she asserts with brutal frankness that those which deal with radiation, circuits, etc., are "improbable, unreasonable, and unacceptable." She accounts for her unaccustomed departure from her natural courtesy by the wish to find

out whether scepticism such as hers would deter me from undertaking her cure? I reply: "My good woman, whether you believe in electricity or not, something will happen to you if you sit on the live rail of the Metropolitan Railway." She concurs and agrees to do as I tell her and to use the circuit, although she thinks it absurd. She sleeps perfectly after her first lesson, but states at the second that "It's all suggestion," although she may not like the implications involved. I immediately place her in the tension circuit (which she also thinks absurd) and inside half a minute she tightens up, cocks up an astonished eye, says "What are you doing to me?" and breaks the circuit. I reply: "I am doing nothing, I am just being. But as you say that there is nothing in this tension circuit of mine, it is up to you to prove your point by staying in it with me for a quarter of an hour!" She accepts my challenge, but again, inside half a minute she breaks the circuit in great disgust, defeated by the intense discomfort and restlessness it creates. I was just then wondering whether I could stand it as long as she could, for it is quite as unpleasant for one member of a pair as for the other. Curiously enough, although she *is* a good woman, she remains an unbelieving one. However, next morning she rushes into my consulting-room, one finger held aloft and shouting crescendo: "It's true, it's true, it's true!" I ask: "What's true?" She answers: "This force of yours!" I reply: "My dear woman" (I have come to like her sincerity) "of course it is, but how did you find out?" In the night, having inadvertently forgotten to close the relaxation circuit, she lies awake until she at last discovers her mistake.

She became a keen advocate of my methods, wrote an enthusiastic introduction to my next book and unavailingly did all she could to induce medical and scientific authorities to investigate my technique. I have taken every opportunity of expressing my thanks to her and do so again here.

Some readers, having got thus far, may feel inclined to exclaim: "Women, all of them! Suggestible, probably hysterical!" I would beg them to read again the six accounts just given, not lightly, but as detectives determined to track down a murderer or murderers. It is so easy to accuse either suggestion or hysteria of the foul deed, but it does not convict them, it does not explain anything, and it is only a lazy dismissal of a difficulty.

Furthermore, if hysteria is indeed responsible, and if it is in fact a disease, men are just as much subject to it and to suggestion as are women. Let us continue with men.

(7) In the Great War a man receives four shrapnel wounds in the leg. They do not heal, and several years later, in spite of every care and a pension, they remain wet open sores the size of half-crowns and surrounded by blue angry flesh. Dusting powder and bandages are always renewed twice daily. After a few minutes in the relaxation circuit the sores shrink visibly, causing intense pain to the patient. Reversal of the circuit arrests the pain, but the patient is brave and after an hour, the sores are dry, covered with a shining film, reduced to the size of a mere shilling, and the flesh around them is pink. With every treatment the sores get smaller, the flesh healthier, the scabs stronger. However, medical boards may reduce the pension in proportion to the relation between half a crown and a shilling. So the unorthodox cure is discontinued.

(8) A hard-headed business man, of the rather ruthless type, suffers from insomnia. He warns me, not without dignity, that "there are no flies" on him, from which it logically and inescapably follows that "monkey tricks will not wash." After a few minutes he proclaims with the pride of a mind proof against all attempts at deception, that he feels "nothing at all." Nevertheless, a minute later he dissolves into uncontrollable and progressively violent peals of laughter, interspersed with protestations that he feels "a b—— f—— as he has nothing to laugh about but can't stop laughing"! Eventually, with sides aching and tears rolling down his cheeks, he falls into a deep sleep. When he later wakes up stretching, it takes him quite a time to realise his position, but he gracefully acknowledges by implication that something must have "washed" as he feels "all clean" inside.

(9) A powerfully-built, hard-bitten and sceptical General suffering from acute insomnia of long standing, falls asleep after a few minutes in the relaxation circuit. On waking he yawns, stretches, and rubs his eyes, but denies that he has slept. At his next visit, when put in the relaxation circuit, he falls into an even deeper sleep than at the first. In order to prove to him that he really has slept, and without any previous training in the art of picking pockets, I relieve him of his watch without disturbing him, advance it by one hour and put it back in his pocket.

I then advance my own clock and watch by an hour. Later he wakes up with a start at the very moment when, amidst the thunder of his snores, I silently reverse the circuit. He denies that he has slept! I remind him of the time, he looks at his watch and at my clock, and he hurries away, for he is exactly an hour late for an important appointment. At the third visit he admits that he must have slept, acknowledges that he sleeps well every night and feels much better. Tactfully, he does not refer to the peculiar behaviour of my clock and his watch!

(10) A man twisted in shape by acute sciatica finds after a few minutes in the relaxation circuit that he is beginning to feel circulation and warmth in the affected parts and that his muscles are relaxing spontaneously and progressively. Suddenly, unbearable pains attack him, he turns pale, sweats profusely, and literally writhes in his agony. Moved by his screams, I break the circuit and calm returns. I inform him that experience convinces me that if he will but have the courage to face pain in the circuit until it stops of its own accord, he will be amply rewarded. He says: "All right, go on, I'll stand it."

I close the circuit again, and almost at once, agony! A quarter of an hour, possibly more, and suddenly, calm, peace, relaxation; the patient rests for a while and gradually recovers colour. His clothes are wet through with perspiration. He rises, tests his limbs in various attitudes that have been impossible for weeks, finds no pain, and leaves the room almost straight. After half a dozen treatments in the circuit, a chronic sufferer from sciatica becomes a swimming enthusiast at the age of fifty.

(11) A typical "hard as nails" soldier, an old campaigner, has been advised to consult me about his wife who suffers from insomnia and is threatened with a nervous breakdown. Although he has heard accounts of my work he will not entrust the lady to my care until he has found out at first hand "exactly what I do." He seems very intense and I wonder whether his condition might not be the cause of his wife's insomnia? After a little theory, I suggest a demonstration on himself in the relaxation circuit. Though this strikes him as absurd, he submits with modified good grace. Soon, he declares with faintly veiled scorn that he feels "absolutely nothing" and makes to get up. I persuade him to try a little longer, when suddenly, his lips start to twitch, and he breaks into progressively violent fits of sobbing interspersed with constantly reiterated exclamations that he feels such a "complete b—— f—— as he has nothing to cry about, but he can't help crying!" Altogether, a wonderful and spontaneous discharge of accumulated nervous tension. On leaving, he assures me that he has never cried before in his life. Obviously! At his third visit, I hear that his wife has for some unaccountable reason, suddenly taken to sleeping like a babe. I grant him that women *are* indeed "funny" things, and in return he concedes me the point that he and she always share a bed. He appreciates the possibility that since in radio parlance, he is no longer a "resistor," mutual radiations may now flow more freely through his and his wife's devoted R. and L. Naturally, I had not suggested to him that he should sob like a child on my couch, for I understood that He-men and gentlemen never did that kind of thing!

(12) At a public demonstration of my co-operative group technique, I begin with a little theory about the relaxation and tension circuits and right- and left-handedness. I then ask four members of the audience to volunteer to rest on my four couches in the relaxation circuit. Amongst those who come forward, a tall man, no longer young, very gentle and dignified of bearing, introduces himself as a doctor. With charming courtesy, doubly appreciated as coming from an eminent man, he assures me that although what I have explained is entirely contrary to all his experience, he is not only willing but anxious to put it to a practical test. I complete the relaxation circuit through my four subjects and for a quarter of an hour they rest in obvious peace. I then reverse the circuit unknown to them, when they all immediately display clear signs of restlessness and tension, and inside a minute the courtly gentleman violently throws away his handles and jumps off his couch, saying: "No, I can't stand that!" After shaking off the unpleasant effects of his experience, he asks me whether he might try again. I re-group my four subjects in the tension circuit, but leave them under the impression that they are in the relaxation circuit. This time, in spite of my negative suggestion, the distinguished seeker after truth, hurls his handles away inside half a minute, leaps off the couch, and says: "That's good enough for me!" Since then, he has never missed a chance of making my work known, for which I thank him once again.

Were either suggestion or hysteria part-cause of the male reactions I have described? Would any scientist name either of them as sole cause? And if not, how are we to explain the facts? Since our twelve cases are not isolated instances, but typical examples, at least some of their evidence will bear the stamp of law. Let us examine our witnesses!

CHAPTER II

ONE SUBJECT IN CIRCUIT

Since the relaxation circuit, in one form or another, was present in each of the twelve cases which I have quoted in Chapter I, and since the effects which I have described are not unusual in the circuit, however strange they may appear outside it, it is reasonable to investigate the possibility that relaxation circuit and effects may have been related and that their relationship may have been that of at least part-cause and effect.

It seems proper, therefore, to describe here and in Chapters III, IV and V how the relaxation circuit first came into being and how, through recurring series of observation, working hypothesis, experiment, theory and observation, it reached its latest though not its final form. But, I would first point out that although the statement: "All matter radiates and that which radiates must also detect" has long been axiomatic, we have hardly begun to investigate its corollary: "Man must both radiate and detect." If the electro-encephalograph has put human radiations beyond doubt by recording them, not only have we done no more with them than use them for diagnosis, but we have not even wondered how man might react to them since he must detect them?

Those human radiations which can be transmitted by metallic conductors first roused my interest in May 1919. Although their reality can be demonstrated with the help of an ordinary watch, special scientific instruments are needed to identify and measure them.

Since 1919, a great variety of experiments have conclusively proved that these radiations can be used scientifically to promote sleep and make it more recuperative, to improve bodily functions and health, and to overcome disease. Most of these experiments have been repeated many times by independent operators, but, before I describe them, I must again emphasise the importance of my remark on page 15:

In the absence of complete voluntary muscular relaxation

reactions may be not only obscured but frequently reversed and thus misleading.

In truth, I wish I could head every page of this book with the words:

"*Complete relaxation is indispensable.*" "Complete relaxation" will be defined progressively as the book proceeds.

EXPERIMENTS WITH ONE SUBJECT

For experiments with one subject the following simple apparatus hereinafter referred to as: "Eeman Sleep Circuit," is used:

Two metal handles, one of which is held in the subject's right hand (R.) and the other in his left hand (L.).

Two mats of copper gauze about one foot square, one of which rests under the head (H.) and the other under the base of the spine (S.) of the *completely relaxed* subject.

Each handle is connected with one of the mats by some ten feet of insulated copper wire, and the connection is so made that it can be broken and the handle connected with the other mat unknown to the subject. This arrangement is used as a precaution against suggestion.

No artificial energy of any kind is provided.

General Note. During every experiment the subject remains relaxed in the chosen circuit for a standard period of time. Ten minutes seems a minimum; half an hour is better and more conclusive.

Before, during, and after each test period the subject's sensations and reactions are observed and noted. Special note is taken of changes in pulse and respiration rates, blood pressure, salivation, the pitch of the voice, muscular relaxation and restfulness.

First Group of Experiments with One Subject: General Polarity

First Experiment: Relaxation Circuit.

The subject relaxes flat on the back with one copper mat under his H. and the other under his S. and holds in his L. the handle which is connected with his H. and in his R. the handle which is connected with his S., and remains under observation in this position for half an hour. (See Fig. 1.)

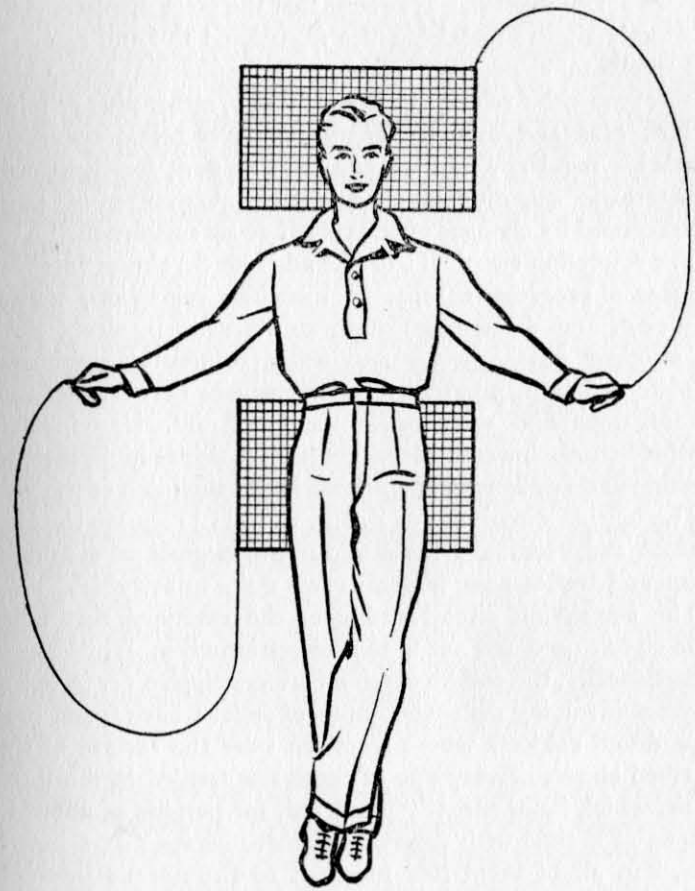

Fig. 1.—One subject in relaxation circuit, showing copper gauze mats and wire connections.

Second Experiment: Tension Circuit.

In the same position, the subject holds in his L. the handle connected with his S. and in his R. the handle connected with his H. and remains under observation for half an hour.

Third Experiment: Suggestion Circuit.

With the subject in the same position, either the relaxation or the tension circuit is completed, but it is suggested to the subject that he is in the opposite circuit to the one used.

General Observation. It is clear that the mere displacement of two exactly similar metal handles from hand to hand cannot by itself promote changes in pulse and respiration rates, blood pressure, muscular relaxation or restfulness, either plus or minus.

Such plus and minus changes do nevertheless occur with remarkable regularity and we can only account for them either by automatic quantitative or qualitative variations of energy output caused by changes of the circuit or by suggestion.

The relaxation circuit (L. to H. and R. to S.) almost invariably produces a progressive sense of muscular relaxation, warmth, well-being, and drowsiness, often culminating in sleep, slower and stronger pulse, slower and fuller respiration, with more complete deflation, progressively long pauses between deflations and inflations and with cyclic maximum inflations involving the whole trunk, lowered blood pressure if this is high, increased salivation and swallowing and a lowering of the pitch of the voice.

The tension circuit (L. to S. and R. to H.) reverses the above reactions and eventually leads to varying degrees of discomfort, tension and restlessness, in some cases quite unbearable.

The suggestion circuit produces the reactions that belong to the circuit used and not to the suggestion given.

Statistically, the results obtained are conclusive, for in twenty-five years involving many thousands of tests, I have found barely half a dozen subjects whose reactions were the reverse of those described above. Every one of these was treated in the tension circuit, which he apparently preferred, for periods of about half an hour at a time with intervals of three or four days between visits, and all of them had returned to the normal preference inside four visits. They then expressed that preference in complete ignorance of the circuit used. It may be more than a coincidence that most of these patients were being treated for disorders of the ductless glands by their doctors.

In at least 70 per cent of the cases observed the reactions on passing from circuit to circuit were marked enough for the subjects themselves to describe them accurately and to express an unhesitating preference for the relaxation circuit. In some

20 per cent of the cases, although the subjects were unable to describe their own reactions, they nevertheless expressed the normal preference for the "relaxation circuit." In some 10 per cent of the cases the subjects felt no reactions and expressed no preference, but even in those cases (as in the other 90 per cent) reactions were generally perceptible to the experimenter and were found abnormal only in the few cases just referred to.

Naturally, the changes observed on passing from circuit to circuit varied in intensity and rapidity from subject to subject, and in the same subject, from day to day, being in some cases of extreme violence. Sensitive subjects were found useful in the investigation of facts and in the confirmation of results previously obtained.

All that has been described so far would be of purely academic interest if it were not also of therapeutic value. The relaxation circuit markedly improves all the following conditions after a few applications of about half an hour each: mental, nervous, circulatory, respiratory, digestive and eliminatory disorders, to mention only a few. Headaches, high blood pressure, rheumatism, lumbago, sciatica and many other ailments have been rapidly relieved. In cases of acute insomnia of long standing the effect has at times seemed magical and more especially so with sceptical, antagonistic and self-analytical subjects.

The tension circuit produces unmistakable discomfort, and when experiments with it have deliberately been prolonged unduly, hysterical and other crises, somnambulism, etc., have frequently resulted, the undesirable reaction being speedily reversed by the simple reversal of the circuit, unknown to the subject.

Both the relaxation and the tension circuits seem to produce progressive reactions up to a maximum, after which normal conditions return. Experiments prolonged over several hours often produce cyclical returns of the reactions at fairly regular intervals.

The relaxation circuit itself may cause discomfort if maintained for too long a time, when a *short* period spent in the tension circuit promotes a return to normal conditions.

When changing from a relaxation to a tension circuit there is a time lag proportional to the time spent in the relaxation circuit and reverse reactions do not usually appear until this time has

been approximately allowed for. On the other hand, when changing from a tension to a relaxation circuit, relief, generally evidenced by a *sigh*, usually appears after a shorter time lag, and occasionally without any lag at all.

Second Group of Experiments with One Subject: Detailed Polarity

For experiments in detailed polarity the Eeman sleep circuit is varied as follows: thin copper foil discs about one inch in diameter or less, are substituted for the copper gauze mats. The subject still relaxes on the back holding the copper handles in his hands and the discs are fitted successively to different parts of his body. When fitted over his clothes they are kept in position by safety pins; when on his skin, by adhesive tape.

Only a few of the experiments performed can be described here, for there is no limit to their possible variations, and the reader will no doubt devise many new ones for himself.

First Experiment.

L. to forehead, R. to pubic region.

Second Experiment.

L. to forehead, R. to epigastrium.

Third Experiment.

L. to upper lip, R. to chin.

Fourth Experiment.

L. to epigastrium, R. to pubic region.

It will be noticed that in every experiment in the above group L. is connected with a part of the body closer to the brain on the nervous tract than is R. This disposition invariably forms a relaxation circuit whether the discs are fitted close together, near the brain or far from it, or far apart as in the first experiment.

In every case the reactions that belong to the relaxation circuit are produced: muscular relaxation, organic and metabolic efficiency, drowsiness, and in time, sleep.

What is more, whatever the position of the discs as long as L. is high and R. low on the central nervous tract, these reactions affect the *whole* of the body and not only the zone between the two discs, as I had half expected, although they may be more clearly marked in that zone.

This fact is clearly confirmed by the reversal of the circuit, making L. low and R. high, when all the tension circuit reactions soon appear. This is particularly visible with the third experiment where in addition to the usual breath and pulse variations, the jaw and facial muscles and the lips relax or tighten, salivation and swallowing become frequent and easy or disappear, according to the circuit adopted.

Fifth Experiment.

L. to right eye, R. to left eye.

Sixth Experiment.

L. to right breast, R. to left breast.

Seventh Experiment.

L. to left side of brain, R. to right side of brain.

In every experiment in the above group and bearing in mind that the left side of the brain controls the right side of the body and vice versa, L. is connected with the opposite side of the brain to that by which it is itself controlled, and vice versa. This disposition invariably forms a relaxation circuit with all the reactions that belong to this, and its reversal forms a tension circuit.

Eighth Experiment.

L. to right knee-cap, R. to right ankle.

Ninth Experiment.

L. to left elbow, R. to left wrist.

It will be noticed that in these two experiments, L. and R. are both connected to the same side of the body, but that left is high relatively to the nervous tract. This disposition forms a relaxation circuit and its reversal a tension circuit.

Tenth Experiment.

L. to lower dorsal vertebrae, R. to epigastrium.

Eleventh Experiment.

L. to lower lumbar vertebrae, R. to pubic zone.

It will be noticed that in these two experiments, L. is connected with the back of the body and R. with the front, the two connections being made at approximately the same nervous levels. This disposition forms a relaxation circuit and its reversal a tension circuit. It is to be noticed, however, that when the dorsi-frontal circuit is placed in opposition to the H. to S. or L. to R. circuits it is easily neutralised by either. In the circumstances further discussion will be confined to the last two.

As he proceeds with his experiments, an operator should not only note all his subject's reactions but he should also encourage him to describe all the variations in his symptoms. He will then observe that in addition to other effects the relaxation circuit lowers the pitch of the subject's voice whilst the tension circuit raises it (a phenomenon clearly associated with tension) and that in his answers to questions the subject in the relaxation circuit unconsciously lapses from speech to "hums and has" and eventually to mere nods, on his way to unconsciousness.

CONCLUSIONS

It is obvious that if there were no real dynamic difference between the relaxation and the tension circuits no scientific observer could explain a subject's preference for either by references to non-existent functional differences in the latter's neuro-muscular system or organs.

It is equally obvious that since the question "which of the two circuits do you prefer?" suggests that there is a difference, some suggestible subjects would not only look for a difference but would actually produce one and describe it. But the law of probabilities insists that differences thus arrived at should be evenly divided between the two circuits and that the imaginary reasons given by different subjects to account for their preferences should vary considerably.

Statisticians will agree that if 100 subjects were placed successively in the two circuits without being told which was

which and as little as ten of them repeatedly expressed a constant preference for one and the same circuit, whilst the other ninety expressed no preference, this 10 per cent repeated and constant preference would prove that the Eeman sleep circuit made manifest the action of an as yet undefined but real force latent in some men.

But, statistically, the position is much stronger than that. Not only do the great majority of subjects express a preference, not only do they agree in that preference, not only are they constant in it, not only do they, unprompted, give the same reasons for it, not only are their preferences and reasons arrived at independently and in ignorance of the circuit in force, but they correspond with facts observed by detached operators and registered by suitable instruments.

The conclusion is inescapable that in the Eeman sleep circuit forces, latent in man, are made manifest which make the nervous system behave as though there were electro-magnetic opposition between its top and bottom, its right and left sides and its front and back, and as though on all three planes or axes there were a gradient of potential between extreme polar opposites.

I show herewith (Fig. 2) some of the details of human polarities as suggested by my experiments up to date. For general purposes I found that I could:

(*a*) Ignore minor local polarities, these only requiring attention in cases of local disorders;

(*b*) Take the body *en masse* and consider:

(1) The Head and the base of the Spine;

(2) The Right and the Left hands, and

(3) The Right and the Left feet as polar opposites.

(*c*) Use only the Head, Spine and the two Hands for my experiments and actual healing work and short-circuit the two free poles at the feet by linking them by means of a length of copper wire or by making my patients cross their feet.

Having reached these conclusions I decided to call the head and the right hand and foot, positive; and the base of the spine and the left hand and foot, negative; but I might have adopted the reverse convention without affecting the argument.

The phenomena observed suggest the electrical analogy so forcibly that electro-magnetic nomenclature imposes itself, but this must not mislead us into believing that we are dealing

exclusively with electro-magnetic forces. There is ample evidence in the experiments already described that something akin to short-wave radiation is involved, for the copper gauze mats need not be in direct contact with the skin, and clothes, blankets and even fairly thick cushions do not act as insulants,

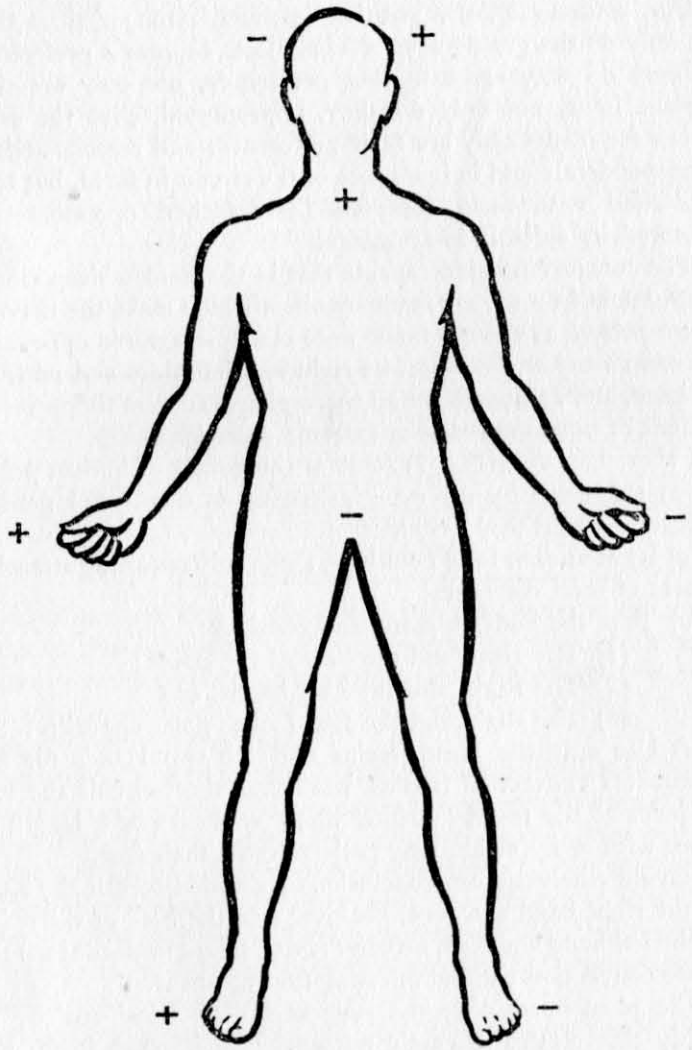

FIG. 2.—Classical diagram of human polarities.

nor do they affect the results. What is more, metallic conduction need not be continuous, for the two ends of a severed insulated copper wire resting a few inches apart on a glass-topped table will continue to conduct at least some of the as yet unidentified forces, thus suggesting phenomena akin to light, gravitation and magnetism.

The chapters that follow will therefore be based on the working hypothesis that "*conducted wireless radiations emitted by the human body can be used therapeutically provided that polar opposites are linked by electrical conductors.*"*

All the experiments described above had been repeated innumerable times in the early nineteen-twenties and the resulting conclusions abundantly and independently confirmed before the end of 1925. However, I could not at that time obtain instrumental quantitative measurements of the factors involved, and in the circumstances it was not surprising that the hospitals and other medical organisations I approached should have found it impossible not only to acknowledge the facts but even to investigate or notice them at all.

* For confirmation from electrical point of view see: Baines and Bowman *Electropathology and Therapeutics*; and G. W. Crile *A Bi-polar Theory of Living Processes*.

CHAPTER III

RIGHT- AND LEFT-HANDERS GROUPED IN CIRCUIT

It had so happened that in all my early experiments with single subjects in 1919, every person tested had been both male and right-handed. As soon as I noticed this it struck me that it was possible that all my subjects had only found the L. to H. and R. to S. circuit relaxing because they were either male or right-handed, and that females and/or left-handers might have spontaneously relaxed in the tension (L. to S. and R. to H.) instead of in the relaxation circuit (L. to H. and R. to S.). I naturally proceeded to test left-handed males and right- and left-handed females in both circuits.

Experiments soon made it clear that all males and females, whether right- or left-handed, who detected any difference between the two circuits, found that L. to H. and R. to S. constituted the "relaxation circuit." Rare exceptions were observed, but careful repetition and checking of the experiments revealed that the subjects concerned *had not been completely relaxed muscularly before the tests.*

By 1921, having tested cats and dogs as well as right- and left-handed humans of both sexes, and having found almost complete unanimity in spontaneous muscular relaxation in the L. to H. and R. to S. circuit, *I adopted the working hypothesis that all humans (and probably all vertebrates) were electro-magnetically positive at H. and R. and negative at S. and L.*

It followed from this that whenever further researches disclosed new facts, I was logically predisposed to investigate any conceivable explanation of them, rather than admit that they might be due to inherent electro-magnetic differences between males and females or right- and left-handers.

It thus happened that until September 1927 I unconsciously overlooked the obvious possibility that my subjects' spontaneous reactions of relaxation and tension would have remained exactly the same for all individuals placed in the relaxation circuit with

themselves exclusively, if some of them had been negative at H. and R. and positive at S. and L. and others the reverse.

Having blindly disregarded the possibility that there might indeed be two such electro-magnetic opposite types, I naturally failed to realise that if they really did exist, I could only bring their opposition to light by placing mixed pairs of them in one circuit.

However, having thoroughly tested every circuit in which one subject could be placed with himself, I took the next obvious step and began to investigate the effect of placing two subjects, either male or female or right- or left-handed in one and the same circuit. I was urged to do so by the expectation that whatever health-giving effects had been produced by placing one subject in the relaxation circuit by himself, these effects would be improved both quantitatively and qualitatively, with every additional subject introduced into the relaxation circuit.

It was clear that if unknown to me there were in fact electro-magnetic opposition between males and females, or right- and left-handers, and I were to pair these types at random in relaxation circuits, I should soon exhaust all possible combinations of electro-magnetic opposites amongst these four types, and probably discover new facts and laws.

EXPERIMENTS WITH TWO AND MORE SUBJECTS IN ONE CIRCUIT

My researches with two and more subjects in one circuit began in 1919. In my early experiments I was one member of every pair tested. I gladly used as my partner anyone I was fortunate enough to interest in my work and welcomed particularly any ailing person, whatever the nature of his or her complaint.

A few experiments made it clear that when unknown to either partner we connected the L. and R. of each with the H. and S. of the other respectively, not only did we obtain spontaneous and progressive muscular relaxation, better function, and ultimately sleep, but both partners generally came out of that sleep at about the same moment. Their awakening was frequently preceded by spontaneous and simultaneous stretching and generally followed by more or less prolonged cycles of stretching and yawning. (See Fig. 3.)

Although periods of unconsciousness seldom exceeded thirty minutes, both partners would generally feel more refreshed and would experience a greater sense of well-being after them than after a good night's sleep.

This was most conspicuous in various diseases when a few repetitions of the treatment not only considerably revitalised the patient, but often effected a complete and lasting cure where other

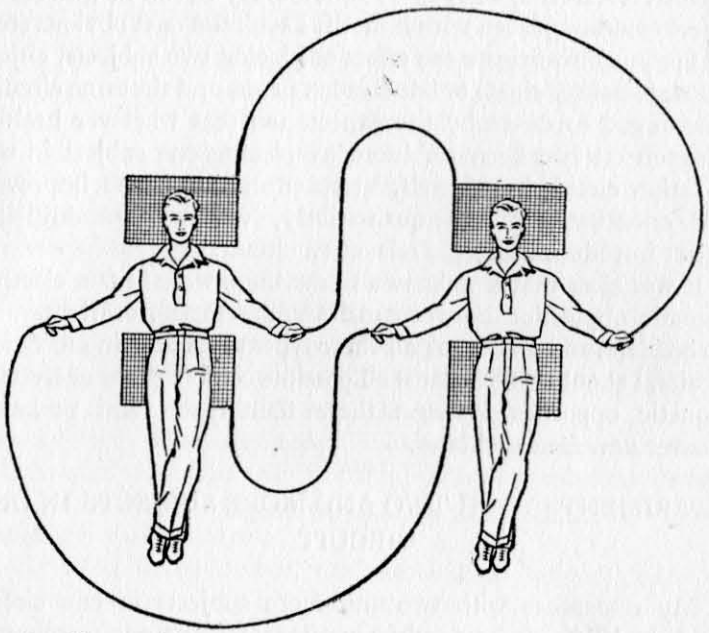

FIG. 3.—Two subjects in closed relaxation circuit. Each subject with left hand (—) to head (+) and right hand (+) to spine (—) of other subject.

methods had failed and did so without any apparent ill effect on the healthy partner. In fact, in many instances both the sick and the healthy parties seemed to benefit so clearly that they felt "as though each had got more out of the pool than they had put into it."

It was observed that these or similar results followed whether one coupled two males or two females, or one male and one female, but that they became reversed if one reversed the circuit, making

it L. to S. and R. to H. and this, not only irrespective of suggestion, but in spite of and against it.

But there were some exceptions. When they occurred not only did the relaxation circuit give neither relaxation nor sleep nor increased well-being to either member of the pair but it occasionally did actual, progressive and lasting harm, not only to the sick member, but to the healthy one as well.

I will describe only one, but a typical, instance of these rare and extreme cases of harmful effects. The patient, a lady, suffered from a mild attack of sinovitis in the right knee. Let it be noted that if any suggestion was at work in either her mind or mine it was that by getting into the relaxation circuit together we should both experience spontaneous and progressive relaxation, warmth, well-being and probably sleep. It was so in her mind because she had been strongly recommended to me by relations who had described and led her to expect these effects from my treatment; and it was so in mine because continued observation of them had naturally led me invariably to expect them.

Nevertheless, within a few minutes, far from feeling relaxed, warm and sleepy, we both felt our muscles automatically contract, and became so cold that we shivered, and so restless that we could not keep still. Instinctively, I checked the circuit, feeling that I had inadvertently established the tension circuit; but no, I had made no mistake! The patient and I, both extremely puzzled but interested, decided to persevere. At the end of the third visit we had to give up the attempt; the lady's knee had become ankilosed, I felt thoroughly ill and we both took a considerable time to get over these disastrous reactions. What is more, by the end of our experiment we had come to grate so violently upon each other that we had found it hard to remain polite, a detail which was reproduced in a few similar cases between 1921 and September 1927. I may perhaps be forgiven for having accepted at the time the obvious, easy, and I confess, lazy explanation of the phenomena, that they were due to some of these rare, violent, and mysterious antipathies that occasionally poison life.

But this lazy explanation of an antipathy obvious to both of us did not explain anything at all, and I was not only puzzled but angered at my inability to understand these cases that made my patients and myself feel so ill and irritable. Fortunately they

were so rare that, as far as I remember, I met fewer than thirty of them between 1921 and September 1927.

Not only were they rare but the unbearable reactions of both parties made them so rapidly unmistakable that after making sure that imperfect relaxation or accidental reversion of the circuit were not at fault, I made it a rule to dismiss the patient at once with the frank and humble admission that far from helping him my treatment could only do him and myself serious harm. This seemed the only reasonable and honest course to follow until I could solve this infuriating mystery.

However, in 1924, I began to suspect that the working hypothesis I had adopted in 1921 that *all humans were electro-magnetically positive at H. and R. and negative at S. and L.* would have to be amended to read: *that although the majority of humans were electro-magnetically positive at H. and R. and negative at S. and L., a minority were positive at S. and L. and negative at H. and R.* Yes, a minority. But which; males or females, right- or left-handers, or left-handed males and right-handed females or vice versa? Or odd combinations introducing factors as yet unsuspected?

Many such factors might have to be investigated. The position of the heart on the left or right side of the body, abnormalities of the central, motor- or vaso-motor nervous systems, the imposition of right-handedness on born left-handers, shock, psychological oddities, sex inversions, and many other more or less relevant ideas leapt to the mind.

Clearly, these questions could only be answered experimentally; the experiments required would have to be carefully thought out, and above all, they must eliminate the factor of suggestion. They should

Firstly: Demonstrate that there was polar opposition between the R. and L. hands of every individual.

Secondly: Prove that some individuals were positive at R. and negative at L. and others the reverse, and establish which were which.

Thirdly: Prove that some individuals were positive at H. and negative at S. and others the reverse, and establish which were which, and

Fourthly: Establish that one or more circuits were beneficial

and others detrimental to health and so give my researches a humanitarian as opposed to a purely academic interest.

As I planned my experiments I could not escape the conviction that since I proposed to use hands as conductors, any positive results beneficial to health that I might achieve would enable me to re-open the age-old problem of "healing by the laying on of hands" and to place it on a modern scientific basis. I was also struck by the possibility that negative results might perhaps be more illuminating than positive, and that both would acquire added significance if I could obtain them not only in the absence of positive but actually in the face of strong negative suggestion and more still if they were to appear spontaneously and unexpectedly.

Early in 1925, with the purpose of demonstrating to sceptics, and especially to members of the medical profession, that there was electro-magnetic opposition between all right and all left hands and that therapeutic use could be made of the fact, I devised an apparatus which I humorously called my "anti-sceptic battery." This has long since been superseded by more efficient devices, but it is still available for experiments.

It consists of a box 10 ins. by 8 ins. by 5 ins, in the vulcanite top of which are fitted six revolving pointers, numbered 1 to 6. Each pointer is connected by two insulated copper wires respectively with the right and left hands of one of the six subjects who join in experiments.

The apparatus has the appearance of a complex electric switch-board and obviously suggests "electric current" even to the layman. In fact, there is nothing electrical about it and it merely enables the operator, by revolving the pointers:

(A) To connect the left hand of any one of the six subjects with the right hand of any other subject, or if the wires are crossed, with the latter's left hand.

(B) To vary at will the electro-magnetic order of the subjects in the circuit.

(C) To cut any subject out of the circuit although he still continues to hold the ends of the wires connecting him with the apparatus, and

(D) To do any of these things unknown to any of the subjects.

My first few experiments with this apparatus soon showed:

(1) That all subjects do not produce equally clear results.

(2) That the reactions of a given subject may vary with the different subjects placed in circuit with him; and

(3) *That results are reliable only when subjects are muscularly relaxed and quiet in mind.*

Innumerable experiments are obviously possible with the "anti-sceptic battery," but I will mention only a few.

EXPERIMENTS WITH ANTI-SCEPTIC BATTERY

1st Experiment.

Six right-handed subjects of either sex sit round the "anti-sceptic battery," and, unknown to them all, the right hand of each of them is connected with the left hand of another, and thus a closed circuit is formed by the six subjects.

The appearance of the apparatus suggests an "electric battery." No other suggestion is made. Within a few minutes the participants generally report a progressive sense of warmth, muscular relaxation and well-being; their pulse becomes stronger and slower; their breathing fuller and slower; salivation and swallowing increase, the pitch of the voice is lowered and drowsiness becomes general.

After a while, the experiment is interrupted, its results are discussed and the comment is frequently made that what subjects had felt "was exactly what they would have expected from a mild electric current."

The top of the box is then removed, which shows not only that it is empty and that no electricity is being used, but that the wires merely connect the six subjects with each other. Some of them then show annoyance at having been "imposed upon" and declare that the experiment "only shows the power of suggestion," much as they resent the implied admission that they are so easily suggestible, especially if they happen to be males.

2nd Experiment.

After the first experiment, since all the subjects clearly realise that the box is *not* electrical, the suggestion of electric current no longer operates. All subjects are again connected exactly as in the first experiment and soon, to the surprise of all

and the annoyance of some, they show the same signs and reluctantly report the same symptoms as before.

What is more, after a few experiments, some sensitive subjects manage to identify their immediate neighbours in the circuit, right and left, however often these may be changed by moving the pointers of the apparatus without altering the relative positions of the subjects themselves round the "anti-sceptic battery."

3rd Experiment.

Unknown to all subjects the wires held by one subject are crossed and thus his left hand is connected with another left, and his right with another right. Soon, in the case of this subject and in that of his two immediate neighbours in the circuit, the effects previously observed are reversed; their muscles automatically tighten up and they often feel so cold that they may shiver and are so restless that they cannot keep still.

When, unknown to all subjects, the person with crossed wires is given two new neighbours in the circuit by moving the pointers of the apparatus, the new neighbours experience discomfort, and the old, relief.

4th Experiment.

Without any reference being made to the fact, so that suggestion may be excluded, one left-handed subject is introduced into the circuit, all connections being as before. Soon, in his case and in that of his immediate neighbours the same reactions are observed as had occurred with the right-hander with wires crossed.

When I first made the first three of the above experiments it again so happened that my subjects, though of both sexes, were all right-handed. I concluded from the results constantly obtained that *provided all subjects were efficiently relaxed* and their motor nervous systems thus at least partially inhibited:

(A) Quasi-electro-magnetic polar opposition between right and left hands in all individuals was an indisputable fact.

(B) That there was no difference between male and female hand polarity, and I continued to use with both males and females the convention that R. was positive and L. negative; and

(C) That whatever was being conducted between human

beings by insulated copper wires, it possessed not only the qualities of positive and negative, but in addition, some specific character or characters which enabled sensitive subjects not only to identify their neighbours in the circuit, but to detect when particular individuals entered or left it.

Having previously concluded that short-wave radiations were involved and that I was therefore dealing with some form of "wired wireless," I naturally endeavoured to account for these specific characters in terms of wave-length, frequency, velocity and amplitude.

It is possible that between the middle of 1925 and September 1927, some of my group experiments did include one or two unobserved left-handed subjects, but in the light of later observations I must assume that they did not, as I cannot remember abnormal reactions during that period, although I was beginning to suspect that right- and left-handers might be polar opposites, at any rate as far as their hands were concerned. If, however, one or two unobserved left-handers were in fact concerned in these early group experiments they must have been weak left-handers electro-magnetically, for later tests showed that both in right- and left-handedness there are many degrees, and that violent and therefore readily observed reactions only occur when a strong right- and a strong left-hander clash in the same circuit, or when two strong right- or left-handers meet in a circuit which has been either accidentally or deliberately inverted.

However, it was not until September 1927 that I managed to group in one circuit two strong electro-magnetic left-handers with two strong right-handers. I sat them round a table, left-hander facing left-hander and right-hander right-hander, and arranged the circuit so that each R. was linked with the L. next to it. Less than two minutes had elapsed before it became obvious that all four subjects found the circuit unbearable. They all unconsciously tensed up, their breathing became short and shallow, they felt cold and abominably restless and when I changed the circuit so as to link the R. and L. of right-handers with the R. and L. of left-handers respectively, an instantaneous and almost unbelievable change came over all four subjects; all together they heaved spontaneous *sighs* of relief, their muscles sagged, they slumped in their chairs and became warm, comfortable, peaceful and drowsy. Salivation and swallowing were

noticeably increased and the pitch of all four voices sank appreciably. The problem was solved, at any rate as far as hands were concerned, but to make sure, I reversed the circuit again. Almost immediately tension reappeared with all the usual accompaniments, and further reversals confirmed the first experiment. I noted that as in previous experiments the reversal of reactions was slower when passing from the relaxation to the tension circuit than vice versa and that the longer I kept my subjects in either circuit the longer I had to wait for the reversal of reactions.

When I explained to my victims what I had been doing they deliberately set out to find out how long they could stand being in the "wrong" circuit, but they could not stay in it for more than a few minutes as it made them want to scream. To recover, they were forced to spend a sufficient time in the "right" circuit. Since then their experience has been reproduced many times with more or less marked, but always significant, results, the violence of reactions depending on the subjects' degrees of right- and left-handedness and other factors that will appear later.

Clearly, not only are R. and L. polar opposites but the signs plus and minus are reversed between right- and left-handers all the way down the right and left sides of the nervous system, as experiments substituting feet for hands soon established. Could one say the same about H. and S.?

I proceeded to link myself, a strong right-hander, with a succession of left-handers, my L. and R. to their S. and H., and their L. and R. to my S. and H. respectively. Result: *in every single case*, almost instantaneous relaxation, warmth, sound function, drowsiness, peace and a tendency to sleep.

Clearly, not only are H. and S. polar opposites, but the signs plus and minus are reversed between right- and left-handers all the way down the nervous system not only for the sides of the body but for the central nervous system as a whole, and the convention that H. and R. are positive and S. and L. negative should apply only to right-handers and be reversed for left-handers.

Clearly, too, any circuit linking positives with negatives was beneficial to health, and any reversal of it harmful. How beneficial, how harmful? In what conditions of health? In what diseases? In what combinations of subjects? Within

what limits? How and why? And for how long? All these were questions that cried for their answers.

But before embarking on my next steps I remembered some of the subjects whom I had so violently upset in the past and between whom and myself such strong antipathies had arisen. I did not manage to trace them all. Years had gone by in some cases and addresses had changed, but every one of those few I managed to contact proved to be a left-hander. I tried to induce three of the latter who lived within reach to come and see me. Two came. Tests were quite convincing, but the third was, if possible, more so still, although I never again had the privilege of meeting the lady in question. Although she was not unattractive, I remembered her as the most unbearable creature I had ever met, and in her company I had needed all my self-control not to be offensive. I now have no doubt that she must be a charming lady and that nothing but the "wrong circuit" had driven us both to the verge of childish behaviour. However, be that as it may, she positively refused to come and see me and on my asking a mutual acquaintance to beg her to do so, I was informed that "she had found me such an utterly impossible person that nothing on earth would ever induce her to have anything more to do with me." So we were quits, except perhaps that she did not know why she had found me so objectionable, whereas I realised why I was so anxious to see her again and in her true light!

I must point out here that strong antipathies which may become apparent in either the relaxation or the tension circuits may be due to fundamental differences of frequency or phase of radiation and not to faulty wire connections. Against that, antipathies of long standing have been known to disappear after a few periods of rest in the relaxation circuit. Habitual faulty spatial relationship between say, a right-handed husband and his left-handed wife can, unknown to both and by itself, cause acute strain between them, and quite a few married people have been made happier by simple readjustments of their relative positions by day and by night.

For practical purposes the following was now acquired: the healer, presumably fitter, richer, or electro-magnetically of higher potential than the patient (whatever exact meaning further investigations might give to these loose words) must if both he

and the patient be either right- or left-handed, be linked with the latter L. to H. and R. to S., and if one be right- and the other left-handed, L. to S. and R. to H. This would produce beneficial results, provided, as time and innumerable experiments were to show, that both healer and patient possessed, or acquired, certain qualities or attitudes of mind, nerve and body. (See Fig. 4.)

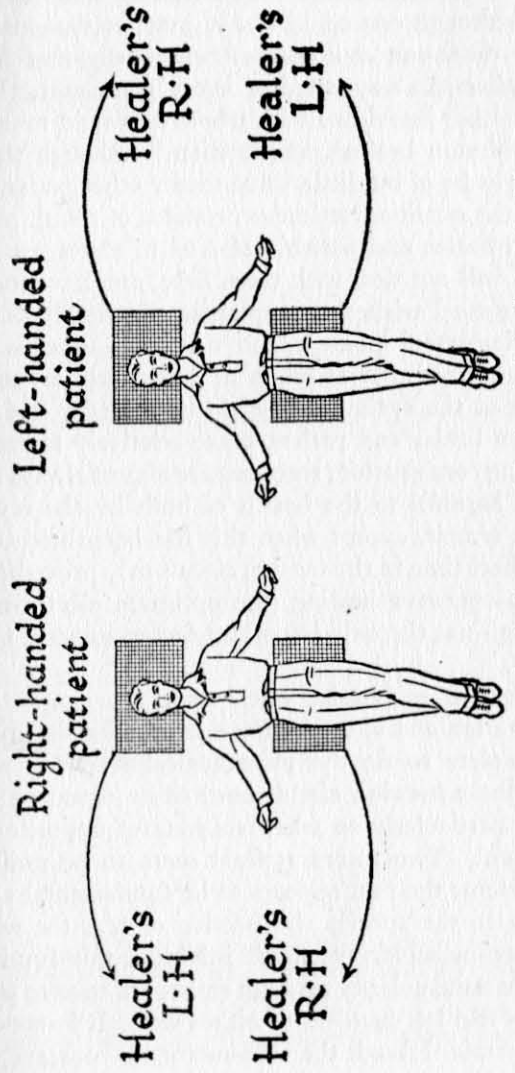

FIG. 4.—Relaxation circuit between right-handed healer and right-handed and left-handed patients.

Time and experience were further to show not only that these qualities, attitudes, or states of both healer and patient greatly influenced results, but also:

(A) That they could be acquired, developed, and consciously controlled by both healer and patient.

(B) That the development of any quality in either healer or patient made them more effective as a healing combination, and

(C) That although one could not in practice demonstrate the fact in every case, one could state theoretically that for every *individual patient* at every stage of every complaint, there was somewhere another individual with whom he would momentarily form the "optimum healing combination," although that other individual might be of but little value to any other patient.

Although the qualities, attitudes or states of mind, nerve and body, in both healer and patient referred to above are of great importance, I will not deal with them here, and have mentioned them only because I wished to emphasise as strongly as possible a still more important point which time and experience have persistently confirmed. Even when all these qualities, conditions and states are at the optimum level in both healer and patient, and even when healer and patient make relatively to each other the ideal healing combination, reactions are almost always reversed and rendered harmful to the health of both by the reversal of the relaxation circuit, except when this has been held too long, when a *very* short time in the tension circuit may prove beneficial. In fact, in co-operative healing, the optimum electro-magnetic circuit, although not the only important factor, appears to be the dominant one.

I also wish to emphasise once again the importance of muscular relaxation and to repeat the warning that in proportion as it is incomplete so do the physiological reactions normally produced by the relaxation circuit tend to be obscured or even reversed, and particularly so when subjects of opposite sex are joined in circuit. Two forces at least seem to be radiated by the human system: the first appears to be fundamental and *vital* and to belong to the species irrespective of sex, for when the voluntary neuro-muscular system is inhibited this fundamental force shows the same polarity for both sexes, but reverse polarities between right- and left-handers of either sex. It is conceivable that it may operate through the vaso-motor nervous system and

that its polarity might be reversed in those rare subjects whose heart is on the right side of the body, but I have had no opportunity of testing this.* The second force seems to be subsidiary to the first and derived from it, and to manifest only as a result of the activity of the voluntary motor-nervous system. It frequently shows reverse polarities between the sexes when it may appear to reinforce vital polarity in some subjects and to neutralise or reverse it in others, thus masking it according to the degree of conscious or unconscious voluntary muscular tension and making physiological reactions in the circuit unreliable and misleading.

*April, 1943. The above was written in 1940, and since then tests with a right-handed male, all of whose organs are "wrong sided," as shown by X-rays, have proved that human polarities in voluntary muscular relaxation in the relaxation circuit are neither caused by the vaso-motor system nor affected by the position of the heart on one or the other side of the body.

CHAPTER IV

"VALVES" IN SERIES

The problem of the correct circuit for pairs was solved! All I had to do was to enquire from a subject whether he was right- or left-handed and the rest followed automatically. I occasionally met an "ambidextrous" patient but soon convinced him that, "electro-magnetically" speaking, there was no such person. A few minutes spent alternately in each circuit showed that the so-called ambidextrous patient was electro-magnetically either right- or left-handed, and in the great majority of cases, left-handed. If born left-handed, either this anomaly had been too weak to make him resist the general bias towards right-handedness, or blind parents and teachers had coerced him into what he proudly called ambidexterity. Occasionally I met a born right-hander who had trained himself to do a few things with his left hand, but I usually found that his left-handed repertoire was limited to laboriously acquired specialities of doubtful utility.

It soon became clear that, on an average, inner conflicts, inhibitions, and neurasthenia appeared more frequently and earlier in born left-handers who had been coerced into right-handedness than in right- or left-handers who had grown up naturally. It is gratifying therefore to observe a progressive increase in the proportion of recognisable left-handers, due no doubt to greater tolerance and understanding of individualism by educationists.

It occasionally happened that I forgot to enquire whether a new patient was right- or left-handed, when I would automatically arrange the circuit for two right-handers. These slips of memory were of great evidential value when the patient in question happened to be a left-hander, for they unexpectedly provided me with negative confirmations of the law, in the undoubted absence of suggestion. This point, added to all that has gone before, is held by a few opponents not to be conclusive proof of my contentions concerning the relaxation and tension circuits, and right-

and left-handedness. These sceptics argue that I am possessed of a more forceful and vigorous personality than are the sick people who consult me and that even in the absence of the spoken word or of significant gestures, powerful telepathic suggestion passes from myself to my patient (who has anyhow adopted a submissive attitude) and is subconsciously accepted and acted upon by him. Such opponents are seldom to be convinced by any argument; they generally refuse to carry out independent experiments, and when it is pointed out to them that results remain the same when the choice of the circuit is left to blind chance, they argue that both I and my patient might perceive clairvoyantly which circuit was on, when, of course, subconscious telepathic suggestion would function easily enough! I cannot see much substance in this argument as I fail to understand why a scientist who readily accepts the possibility of telepathy and clairvoyance and, by implication, psychic radiations, should feel compelled to reject the more material radiations suggested by my experiments. I will not, however, labour the point here, as it is discussed at length in later chapters of this book under the headings of "Telepathy" and "Abnormal Physical Factors."

The explanation of the observed facts by telepathy or clairvoyance was not the only argument advanced by scientists and medical men who wished to account for their persistent refusal to investigate my results. They sometimes claimed that since I did not even trouble to connect my copper gauze mats with the skin of my patients but was satisfied with proximity and deliberately overlooked several thicknesses of clothing, my contacts were electrically so inefficient that my results must have been obtained not by electricity but by suggestion. The fact that I always spoke of "conducted" or "wired-wireless" made no impression on them; they refused to repeat or witness any of the many experiments that eliminate the possibility of suggestion and dismissed my researches as a waste of time. The few doctors and scientists who were interested and even enthusiastic, all failed in their efforts to obtain hospital tests, and I am most grateful to those amongst them who still hope that they may succeed one day.

Having dealt with the problems of right- and left-handedness and ambidexterity, and having decided to investigate telepathy separately without allowing it to interfere with purely physical

research, I continued to deal with all my patients in the circuits illustrated in Fig. 4, p. 49.

I was at the time feeling extremely fit, although not so very much earlier, on the 22nd March, 1918, after serving with the Royal Flying Corps as a Flight Commander, I had been taken to hospital suffering from the after-effects of dysentery, malaria and a nervous breakdown, which latter had been aggravated by a serious head injury. After sixteen months in hospital during which medical science had done all that it could, I had been invalided out of the Service with my papers marked "100 per cent disability, permanently unfit for any duty," a nervous wreck incapable of normal sleep. Necessity led me to invent and experiment, and, substituting long and frequent periods of rest in the relaxation circuit for the narcotics and other drugs I had been given for so many months, I rapidly achieved what appeared to be a miraculous recovery. This was so undeniable that in 1921 my last medical board put an end to my "permanent" pension, a grave financial shock, but one which, thanks to the relaxation circuit, did not affect the perfect sleep I had come to enjoy at will and at any time of the day or night.

The sceptical reader, rather than give credit for my recovery to the relaxation circuit may, despite all argument, prefer to believe as others have done before, that I must have been cured by auto-suggestion. He should realise that the idea of "co-operative healing" in a relaxation circuit being new and revolutionary, he is suggesting to himself, without a single scientific reason, that it is all "stuff and nonsense," so that he may dismiss it and preserve his mental tranquillity. The power of suggestion is indeed very great, but it has demonstrable limitations, as is shown by the fact that many neurasthenics have been cured by the relaxation circuit, in spite of their auto-suggestion that it was "stuff and nonsense!"

However, I was at the time feeling very fit and full of energy. As I felt sure that my sense of plethora was the result of my recuperation of my own radiations in the relaxation circuit, it was natural that when I compared my state with that of my patients, I first envisaged the difference between us chiefly, though not exclusively, from the point of view of electro-magnetic potential.

Having, for simplification, adopted four points of contact, R., L., H., and S., and looking upon R. and L. as conductors between two central nervous systems of different potential, I naturally established the circuit between the theoretically high-potential R. and L. (my own), and the low-potential H. and S. (the patient's), and not vice versa. I did not connect at the same time and in addition the low-potential R. and L. with the high-potential H. and S. for I was trying to help someone else by giving him an as yet undefined but real X of which I assumed that I had more than he had, and to do so until potential having disappeared, there would be nothing more that I could do for him. I should then rest alone in the relaxation circuit and "charge myself up again." The learned reader must here forgive my crude and unscientific language; since in their evolution my ideas did pass through this stage, honesty demands that I should record the fact. Also it may perhaps facilitate the evolution of the reader's own ideas if he will take with me even my most hesitating and mistaken steps, for this step was a mistake, and neither my first nor my last. But it was a valuable mistake, for although I was reasonably satisfied that I had finally solved the problem of the correct relaxation circuit between subjects of the same and of opposite "handedness," my adoption of the "one-way connection" for practical healing purposes, as opposed to research purposes, brought to light many new problems which, most probably, I would never have noticed or solved had I invariably adhered to the "two-ways connection."

Curious and incomprehensible things began to happen. However carefully I would establish the correct relaxation circuit between my L. and R. (high potential) and the patient's H. and S. (low potential) the most absurd and apparently contradictory results would occasionally follow.

When, with the intention of doing *them* good, I placed myself in the relaxation circuit with Mr. or Mrs. A., we would both tend to fall asleep, almost at once, and both feel intensely refreshed and "altogether different" on waking half an hour later. Whenever, with the same intention, I did exactly the same thing with Mr. or Mrs. B. they would feel remarkably better after the half-hour, but I would feel completely exhausted, at any rate for the first two or three visits. If by chance I did it with two of what I may term their "type" in succession, although the second still benefited, though to a lesser degree, I felt completely incap-

able of any activity and became so irresistibly sleepy that I had at once to go to bed and "sleep it off."

When I did it with Mr. or Mrs C., they would notice nothing, either good or bad, at any rate at first, but I would feel not exhaustion but strain. I would persuade them to call a second or third time and without any warning, they, who had felt nothing hitherto, would suddenly twitch jerkily, breathe violently, perspire profusely, or do other things at first rather frightening, and then equally suddenly fall asleep and eventually awaken profoundly changed for the better. Curiously, at the very moment when they unexpectedly began their abnormal doings, my own sense of strain left me just as unexpectedly, my breathing became easy, peace came to me and with it irresistible sleep, after which I too would wake up completely restored.

There seemed no doubt that I was facing "types." Whenever we met, their behaviour and mine were too "typical" and too constant to allow of any alternative explanation. After a time, how or why I did not then know, I began to recognise these "types," intuitively it seemed, and to classify them quite easily. As I had discovered experimentally that for their good and mine, I should not deal with two patients of some of these types in succession, the exhausting effect of our meetings being cumulative, I arranged my appointments accordingly.

This solved practical difficulties, but it threw very little light on the problem of types itself. As I searched patiently for its solution, every new fact, as it appeared, impressed me more and more with the similarity between the phenomena I was observing and the known fundamentals of wireless. This was but natural, for it has since been demonstrated that I had all the time been dealing with human radiations.

Here are a few of the many similarities between human radiation and wireless which I observed between the early nineteen-twenties and the present time (11th May, 1941):

The characters found in wireless "emittors" appear to belong to all men and women although they are more developed in some than in others. This can be demonstrated by blindfolding a sensitive subject relaxing with copper mats under his H. and S., and making other subjects in turn hold the handles in their R. and L. The blindfold subject is then asked to rank the other subjects in the order in which they make him breathe most

powerfully and feel hottest. His findings are then checked blindfold by the other subjects in turn and generally confirmed with striking unanimity. When these tests are repeated at intervals of a few days, they usually produce identical rankings.

The power with which we can radiate appears to be governed by our individual basic vitality, but in normal health or circumstances we only use a portion of the "kilowatts" at our disposal and only call on our full resources for special purposes or emergencies. I select two such "emergencies" because they can most easily be investigated in hospitals: fevers, and the "flushes" or "heats" experienced by women at the menopause. Any sensitive subject placed in relaxation circuit with a fever or "flush" case can not only follow the patient's condition in its rise and fall, in his own person, but can in addition, after "normal" has returned, detect the moment when the circuit is broken. Wireless stations also vary in power, some using many and others few kilowatts, but they only need their full power in emergencies as when atmospheric conditions are bad or they are being jammed.

The characters found in "receivers" and "detectors" also seem to belong to all men and women, though again in varying proportions. This can also be demonstrated by timing and measuring the reactions of successive blindfold subjects to the same proved strong "emittor." Here, almost every detail of the wireless receiving set finds its counterpart in the human organism. A certain time is required to warm up the human valves before results appear, after which "tuning" to the right wavelength appears to assume great importance.

This is shown by the subject who, although he may at first react more strongly to a proved weak than to a proved strong "emittor" ends by reversing this order after a little time spent in the relaxation circuit and thereafter agrees blindfold with the ranking established by general consensus. This subject, when out of tune, and placed in series between "emittor" and "relayor," does not himself react to "emittor," but seems to act as a good "conductor," to "relayor." "Relayor" reacts to "emittor" only and not to "conductor," since his reactions cease as soon as the circuit is broken between "emittor" and "conductor." But "conductor" himself can learn to tune in with great accuracy, for after a few sittings he may, blindfold, react more violently

than anyone else to the generally acknowledged strong "emittor" who had at first left him quite "cold."

The technique of "volume control" also appears to belong to both wireless and human radiation, and although it is generally subconscious in the latter, its conscious use can be mastered. This is demonstrated by the subject who, although he may at first be neither a "relayor" nor a "conductor," but an unconscious "resistor," suddenly reacts violently and finally, after a little experience, ends by consciously smoothing out all the violent curves in his unconscious behaviour.

In human radiation, as in wireless, the following all appear to play some part: "sending" and "receiving" apparatus; "waves," whether "wired" or "wirelessed"; "power," whether from mains or "emittor"; "valves," with four points of contact in two systems; in wireless, one system for wave and the other for power reception and conduction, and in human radiation, H. and S., and R. and L., with in each system one positive and one negative contact point. In both radiations "valves" of different "types" may be arranged in "series" or in "parallel" or in combinations of serialism and parallelism.

So far, when testing groups of subjects, I had worked in closed circuits. In these I had always used serialism, although the last human "valve" in my series had generally led back to the first, who appeared to combine the functions of "emittor" and "supply mains," instead of to an earth, as in wireless. Had I by this arrangement obtained an additive effect which had no counterpart in wireless? Only experiments could clear up this point! (See Fig. 11, p. 75 for "additive" effect.)

Day by day I was being led more and more to plan my experiments in terms of wireless. Phenomena had induced me tentatively to distinguish four main types of human valves. Judging from their characteristic behaviour, these four types were: (1) "emittors," (2) "conductors," (3) "resistors," and (4) "relayors." I realised not only that no clearly defined or pure type of any of the four existed, but also that each human valve possessed at least in embryo all the qualities of all four types, and that variations either in numbers, serial orders or combinations of types in circuit might invert, displace or interchange any or all of the characters temporarily outstanding in the valves I was testing.

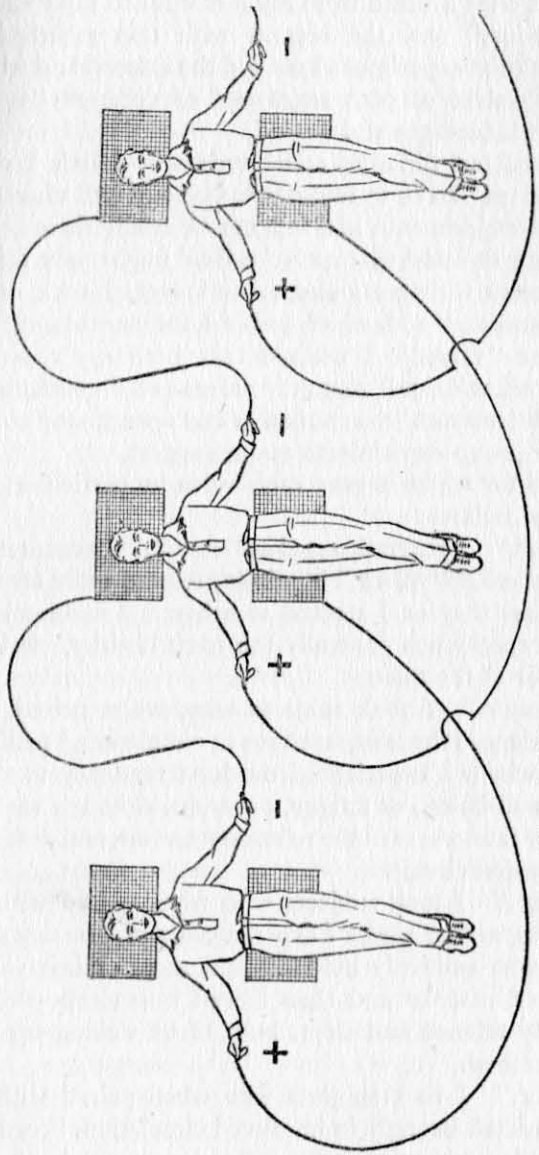

FIG. 5.—Three subjects in serial relaxation circuit, L. and R. of (1) to H. and S. of (2) and so on. (Compare this with Maby's arrangement of valves, Fig. 11, p. 75).

I embarked on two new groups of experiments in serialism, the first without a return lead from my last valve to my "emittor and supply mains," and the second with this return lead. Naturally, in order to experiment I needed the interest and willing co-operation of valves of both sexes and of different "types" and these I was indeed grateful to find.

I first worked out different serial orders in which I could arrange my "valves" so as to investigate the different characters with which my experiments had led me to credit them. (See Fig. 5.) Bearing in mind that each "valve" might only display constant characters with particular other valves, I took myself as a standard "emittor" with which I would, for control purposes, test every other "valve." I realised that both my choice of myself as "emittor" and that of others as "conductors," "resistors" and "relayors" was tentative and open to any correction which new group experiments might suggest.

The reasons for which I gave each valve its particular label were roughly as follows:

(A) "Emittor." I generally acted as "emittor" because it was found that most other "valves," blindfold, reacted more strongly to me than either they or I reacted to others. I assumed that this was so because I was generally the most healthy, vital and buoyant member of the quartet.

(B) "Conductor." I took subjects who, when paired with me alone, experienced the least reactions in circulation, breathing, etc., and with whom I experienced the least tendency to sleep, or increase of well-being, or fatigue, or strain, although we both felt rather better than worse in the relaxation circuit, and definitely worse in the tension circuit.

(C) "Resistor." I took subjects who when paired with me alone felt nothing at first whilst I experienced a progressive sense of strain, and who suddenly behaved in a more or less violent and uncontrolled manner and then lapsed into sleep whilst I just as suddenly relaxed and slept, both of us waking up later thoroughly refreshed.

(D) "Relayor." I took subjects who when paired with me alone at once reacted strongly in improved circulation, breathing, etc., and muscular relaxation, who seemed as a result of their improved functions and relaxation to improve my own, and who, jointly with me, fell asleep very rapidly, after which we should

wake up together and so invigorated that we felt we had gained from our joint repair work much more energy than we had expended on it.

Barely a quarter of the experiments I carried out on serialism with return lead from my last valve to my first produced significant results. However, these were so distinct and typical that they left no doubt as to the existence of four separate "states" or "attitudes" of mind, nerve or body to the facts of vital radiations. I deliberately here use the words "states" and "attitudes" in preference to "types" because although behaviour was clearly typical, the more I went on the more obvious it became that the behaviour of any valve was liable to change with changes either in the serial order or in the personalities of the other valves in circuit. Here is a summary of the main facts that emerged from these experiments and of the conclusions I drew from them:

(1) The importance of the correct relaxation circuit according to right- and left-handedness, irrespective of suggestion, was again brought out, as results that were clearly defined in the relaxation circuit were made chaotic by the tension circuit.

(2) When the serial order was: 1. "emittor," 2. "resistor," 3. "conductor," and 4. "relayor," nothing would happen at first, except progressive strain in "emittor." Suddenly "resistor" would become violent and uncontrolled; practically at the same moment "emittor's" strain would disappear, "conductor" might give a slight twitch such as might have been caused by a mild electrical discharge, and "relayor's" functions and relaxation would suddenly improve, after which drowsiness would become general though usually least marked in "conductor." A truly beautiful example of this type of reaction occurred when after forty-five minutes at least of complete quiescence in "resistor" with progressive strain in "emittor" both "resistor" (who had for several hours suffered from acutely painful abdominal cramp) and "emittor" spoke *absolutely together* and said respectively: "The pain is gone" and "I can't go on"; and "resistor" jerked violently and both soon fell into a deep sleep!

(3) When the serial order was : 1. "emittor," 2. "conductor," 3. "resistor," and 4. "relayor," "emittor" and "conductor" would generally feel strain and "relayor" nothing until "resistor" was suddenly overcome and became uncontrolled, which would

take about the same length of time and be followed by the same effects as in (2).

(4) When the serial order was 1. "emittor," 2. "relayor," 3. "resistor," and 4. "conductor," "emittor" and "relayor" would have the usual effect on each other, but with the addition of a perceptible sense of strain and of "braking" until "resistor" snapped; "resistor" snapped appreciably sooner and also reacted more violently, but for a shorter time, and "conductor" twitched a little more than in (2).

(5) These experiments finally demonstrated that Mrs. A. who was a "resistor" to Mr. C., could be a "conductor" for Mr. D., a "relayor" to Mr. B., and an "emittor" to Mrs. E. It seems in fact that we all, not only can be, but actually are, at one and the same time, most of these different things to different people. It appears also that in the relaxation circuit lasting and beneficial changes are effected in all participants, for with each repetition of the circuit the abnormal reactions happen sooner, last less long, are less violent and disappear sooner, and beneficial ones such as relaxation, better function and sleep, assert themselves earlier and more vigorously and last longer.

It took hundreds of experiments before law began to emerge from the facts, but that we are dealing with law and facts there is no possible doubt, as any keen observer with the required "love of the game" and well-defined "valves" will find out for himself.

I concluded (and here again may the crudity of my terminology at that time be forgiven) that we were all not only "wireless" sending and receiving sets, but that we were all at all times sending out on a multitude of wave-lengths and with more or less power, multitudes of messages; that we were all more or less in tune with other senders, and all more or less receptive, selective and self-tuning. I concluded also that some of us were running our receiving sets off the main, knew how to "switch on" and were therefore seldom short of power, whilst others ran theirs off small batteries, some of which were permanently either faulty or almost empty. It also struck me that many of us were rather careless in our choice of programmes and in our control of tuning and volume, and that all this was rather wasteful of vital energy.

As often happens, the light that had fallen on one riddle had in the process made a host of new problems stand out from the surrounding darkness.

CHAPTER V

"VALVES" IN PARALLEL

I could do only a small proportion of my experimental work in the relaxation circuit with selected human "valves" of different and well-defined types. Generally, I had to use those "valves" who could make it convenient to attend on this, that or the other afternoon or evening, but this limitation had some unexpected and fortunate results. It naturally varied considerably the types grouped into one circuit and brought to light surprising clashes between unsuspected "electro-magnetic" abnormalities or idiosyncrasies, and occasionally revealed under new aspects types that were presumed to be already well defined.

The first of these new aspects was given me by left-handers. Hundreds of experiments carried out with the utmost care had satisfied me that if I connected the R. and L. of a right-hander respectively with the H. and S. of a left-hander, and vice versa, I automatically established a relaxation circuit. I also knew that according to the relative degrees of right- and left-handedness of the members of any pair the reversal of this circuit proved progressively unbearable. I naturally assumed that all this would hold with series as with pairs. Nevertheless, the inclusion of a strong electro-magnetic left-hander in a series of right-handers or vice versa, produced an undefinable malaise which never appeared when I used either right- or left-handers exclusively. This malaise was more marked and wide-spread when the single right- or left-hander occupied a middle position in the series than when he occupied the first or the last. This phenomenon had nothing to do with the circuit itself for the reversal of the latter invariably aggravated the conditions.

There seemed to be only one possible explanation of the facts: the human body was surrounded by an "electro-magnetic" field of variable extent, strength and polarity, and the polarity of left-handers being the reverse of that of right-handers, these two could not rest in parallel and on the back without their electro-magnetic fields interfering with each other and causing

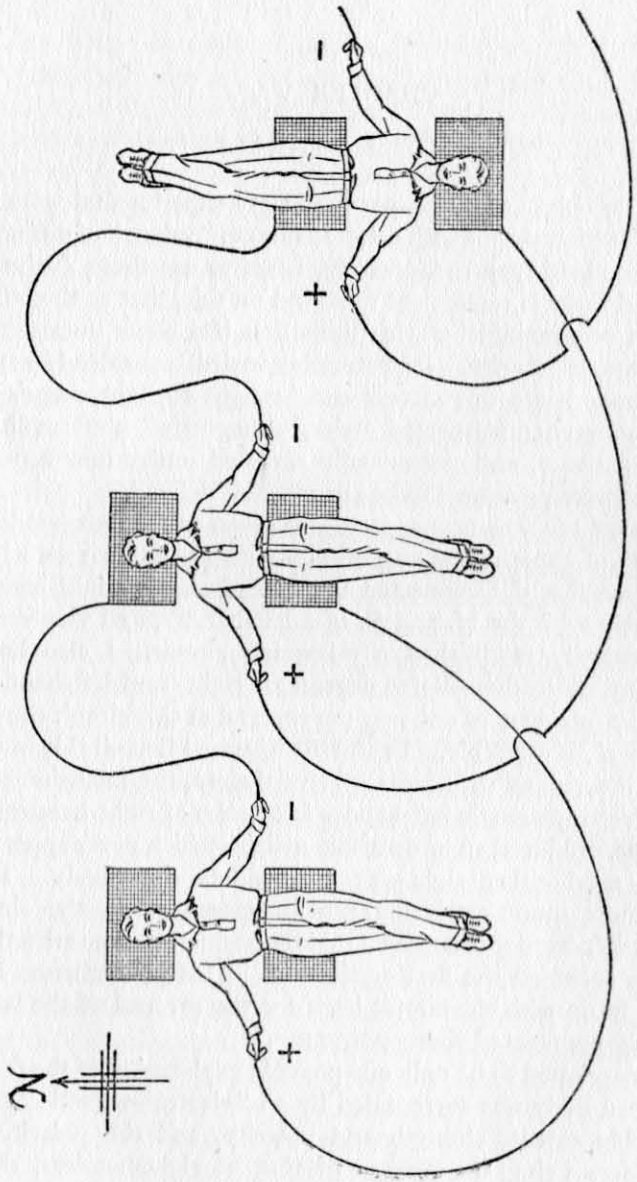

FIG. 6.—Three subjects in serial relaxation circuit, left-hander head to south.

restlessness, tension, malaise. This hypothesis would, if verified experimentally, lend support to the claims of early mystics, modern clairvoyants and Dr. Kilner that the human "aura" is not only real but visible. I tested it by reversing the position of left-handers, resting them head to south whenever, for instance, right-handers happened to be resting head to north. The malaise

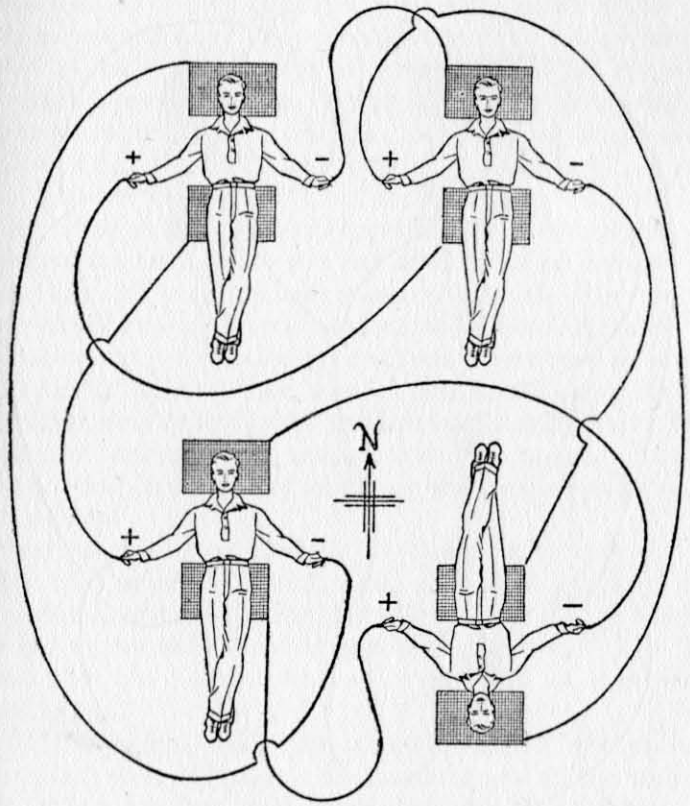

FIG. 7.—Four subjects in closed serial relaxation circuit in square, left-hander head to south.

immediately disappeared! This was checked again and again both with groups and with pairs until doubt was impossible. Did it mean that right- and left-handers whether alone or in groups, should always rest head to north and south respectively, or only that their relative positions should be head to feet when

in the circuit, irrespective of earth-magnetism, or that both factors should invariably be taken into account? (See Fig. 6.)

Although I cannot fully answer these questions here, a partial and provisionally acceptable answer was forthcoming in the shape of the second of these new aspects of old problems which I had felt sure I had solved. It had so happened that owing to the limited

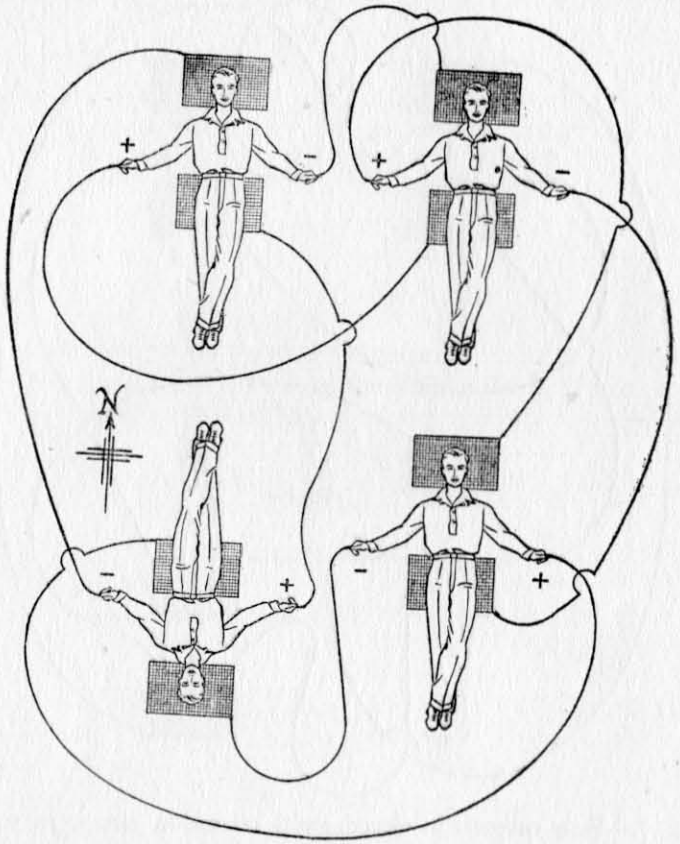

FIG. 8.—Four subjects in closed serial relaxation circuit in square, one right-hander head to south.

size of my room I had found it convenient to arrange my four couches in a square, instead of in a straight line. Using a group composed of one left- and three right-handers and guided by my last observations, I rested the right-handers head to north

and the left-hander head to south. The malaise previously observed immediately reappeared! (See Fig. 7.)

Was the electro-magnetic field or aura at work once again? I reversed the position of the left-hander and of his right-handed neighbour, making them respectively head to north and south. The malaise had gone! (See Fig. 8.)

As was my regular practice, I carefully checked this new phenomenon and found it an indisputable fact. I went further; I tried to get round the difficulty without changing the north and south positions of two of my subjects by increasing the distances between the four couches. My room was large enough to allow of a space of nine feet between the couches, but in some cases this was not sufficient for the malaise to disappear. It seemed to be strong in direct proportion to the relative degrees of electro-magnetic right- and left-handedness of my subjects, and to their ability to relax their voluntary muscles. For instance, strong right-handers, expert in relaxation, would feel the malaise worse, resent it more and in spite of their expertness and wishes, automatically contract their muscles sooner and more strongly than either weak or tense right-handers would have done. Truly a beautiful example of a vicious circle, where the virtues of relaxation and strength only reinforced the vices of faulty spatial relationships!

From all this I concluded:

(A) That when not side by side, right- and left-handers in circuit had to rest head to feet, but that subjects of same handedness had to rest either head to head or feet to feet.

(B) That the human electro-magnetic field or aura was a scientific fact.

(C) That whilst variable in extent it reached in some cases at least four feet six inches in all directions around the body.

(D) That whether earth-magnetism should be taken into account by both right- and left-handers resting alone, or not, it could be ignored in the circuit, and

(E) That if earth-magnetism did matter to subjects resting alone a group of them in copper-wire circuit constituted a self-supplying and additive electro-magnetic unit either indifferent to orientation or strong enough to override it.

Later experiments showed these four conclusions to have been correct, with the exception of the words "self-supplying"

in (E). Factors other than earth-magnetism and right- or left-handedness, with which I will deal in a later chapter headed "External Radiant Energies," and whose influence I did not then even suspect, were in time to throw additional light on the problem, but other difficulties compelled me to postpone any deeper investigation of the facts.

"Emittors," "conductors," "resistors" and "relayors," and their individual reactions which varied with every variation either in the types of "valves" employed or in their serial order, were setting me urgent questions. I wanted to understand the causes of these variations and irregularities; to eliminate strain, fatigue, jerks and all abnormal reactions of every kind, or at any rate to reduce and control them; to get at the law and to work within it in every detail; to get predictable results of high quality, independently of chance or suggestion. I knew that results of high quality were obtainable without suggestion because I had often obtained inside half an hour almost unbelievable recuperation in six subjects out of the six in series, in the face of strong negative suggestion. Yet, chance had played its part in producing these results, for the very next day when five of my former six subjects had been placed in series with a new sixth, who had himself had good results in another series, they had experienced malaise, discomfort and restlessness. Sometimes even a simple change in their serial order had been enough to upset everything. Could diet, disease, mental or nervous states, etc., either of the group or of individuals, account for this? Had barometric pressure or any other variable extraneous factor any bearing on my problem?

One point was clear. Since suggestion had nothing whatever to do with it, I had to try and eliminate chance by getting to know more and more about every other factor that could conceivably influence my results. Naturally, I tackled first that part of my technique which I could most easily alter and possibly improve: my circuit in series.

I closed the circuit, just as I had previously done in pairs, and in squares, by leading the R. and L. of the last subject in the series to the S. and H. of the first, thus passing from straight to circular serialism. (See Fig. 9.)

There was an immediate and marked improvement in my results: "emitor" felt strain less frequently, felt it less and

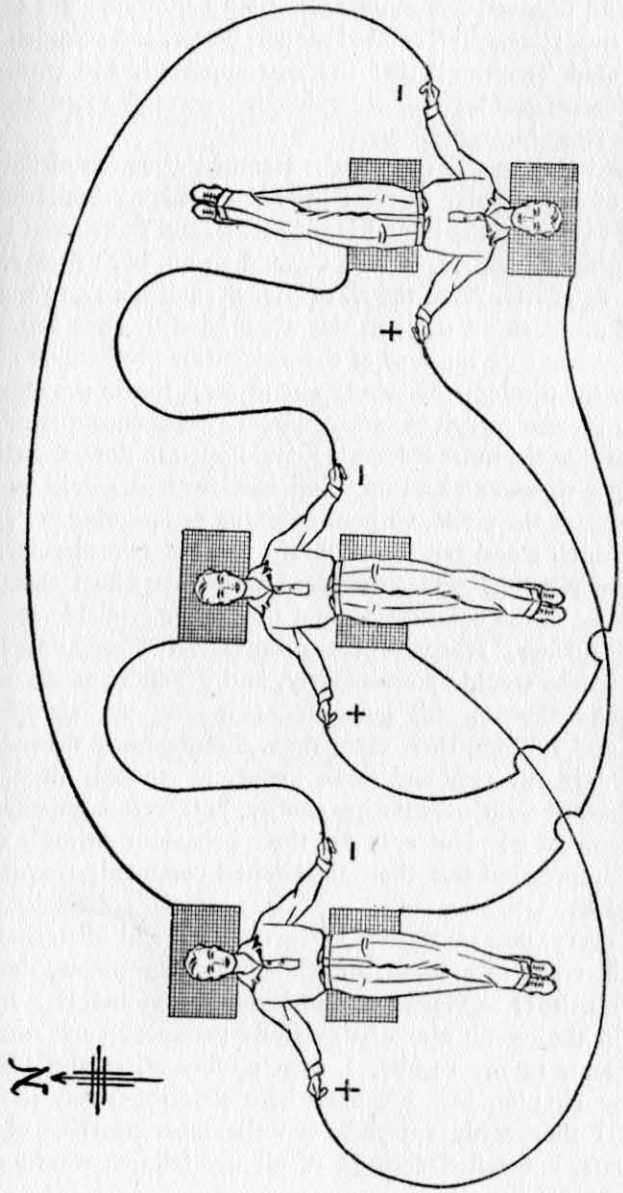

FIG. 9.—Three subjects in closed serial relaxation circuit, left-hander head to south. (Compare with Figs. 5 and 6, pp. 59 and 64.)

overcame it sooner; "resistor" did not resist either as much or as long as, and behaved less abnormally than before and did so for a shorter time; "relayor" reacted sooner, better, and so much like the supposed "emittor" that the two appeared, and probably were, interchangeable; and "conductor" seemed more clearly to benefit from his experience.

My next step was to reverse the assumed direction of flow of one-half of my circular circuit: instead of leading both the R. and L. of Mr. A. to the S. and H. of Mr. B. and the R. and L. of Mr. B. to the S. and H. of Mr. C., and so on, back to Mr. A., I led the R. of Mr. A. to the S. of Mr. B., and his L. to the H. of Mr. Z., and so on through the whole circle. (See Fig. 10.) This seemed to ease the flow of the unidentified radiations I was dealing with, through the whole circuit, and the improvements obtained in the previous arrangement were accentuated. I concluded that the more "doors" I could open to flow, the closer I would get to smooth and uniform reactions that would benefit all members of the circle, without straining or fatiguing any.

This much stood out clearly from the last two circuits; by closing the circuit I was obtaining an additive effect that had been lacking in the open series, and the power available seemed to rise in "quanta," reactions being progressively strong and vital.

Participants would spontaneously, and generally at the same moment, go through the gestures of waking up, stretching, yawning and rubbing their eyes, then, disentangling themselves from the circuit, rise and walk about, as though they had been recharged with overflowing energy, and were compelled to expend some of it. Not only did their behaviour strongly convey that impression but their unsolicited comments frequently reinforced it.

But, every now and then, irregularities and disturbances would still creep in amongst undeniable improvements, though they were neither as violent nor as long lived as before. Since changes in the circuit alone had already produced such marked improvements in my results, I went on inventing and testing more new circuits, but I cannot here describe them all for, although I thoroughly enjoyed even the most negative of my experiments, a detailed account of all my failures would only bore the reader.

As I went on with my researches it repeatedly struck me, and

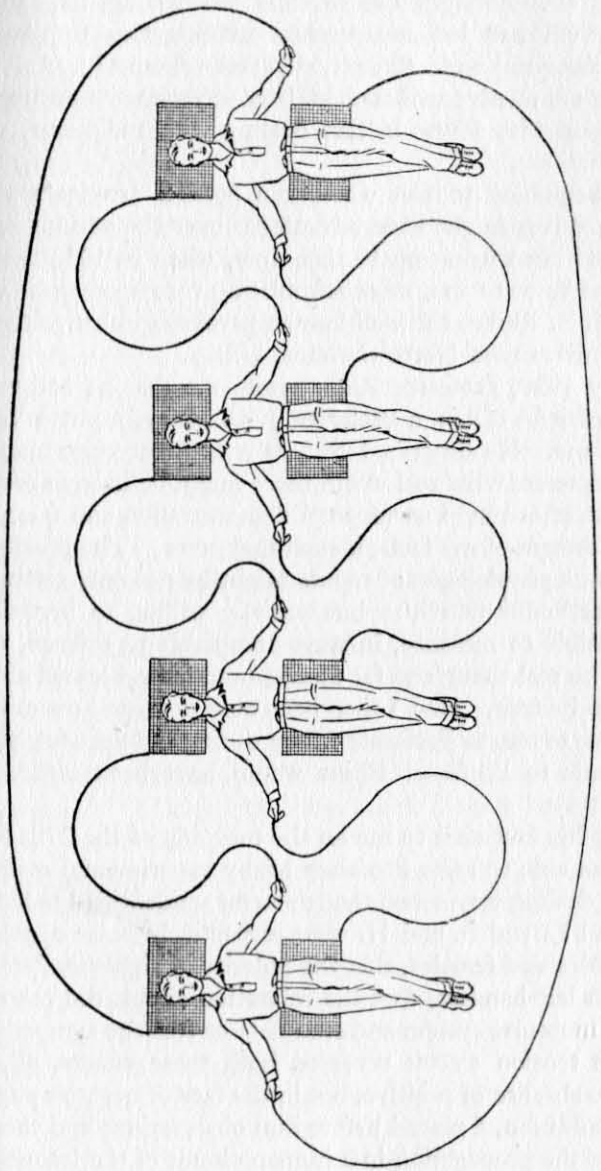

FIG. 10.—Four subjects in closed serial relaxation circuit, with half of flow reversed. (Compare with Fig. 9.)

it has often struck others, that it was significant that in two fields superficially as disconnected as wireless and healing, the experimental method had led independent investigators to develop similar techniques and almost identical circuits? As will appear, the cumulative evidence of later experiments reinforced my conviction that I was in fact dealing with radiations, vital human radiations.

I was beginning to test whether a parallel arrangement of my human valves might have advantages over the various serial orders I had been using up to that time, when in 1935 mutual interests led to a, to me, most stimulating correspondence with Professor J. B. Rhine, the well-known psychological investigator of Duke University of North Carolina, U.S.A.

In May 1936, Professor Rhine wrote me that he had asked an English friend of his, a Professor J. C. Maby, a physiologist, to call on me. He described him as a brilliant experimenter, well able to assess what real worth there might be in my observations and to afford me instrumental demonstration and quantitative measurement of my facts, if such they were. The possibility that, at last, a physiologist of repute might be not only interested in my unorthodox activities but actually willing to investigate and if possible to measure, in ways acceptable to science, what I knew to be real though so far unmeasured facts, seemed almost too good to be true. Had I then been able to guess how much I should come to owe to Professor Maby during the next few years, my gratitude to Professor Rhine would have been difficult to express.

During his first visit to me on the morning of the 27th May, 1936, I was able to offer Professor Maby experimental evidence that I was dealing with a real though so far unidentified radiation, that R. and L. and S. and H. were respectively polar opposites, in both males and females, that the polarity of right-handers was reversed in left-handers, that the relaxation circuit did relax the voluntary muscular system and stimulate or free the sympathetic, whilst the tension circuit reversed both these effects, all, not only in the absence of positive, but in the face of negative suggestion. In addition, I placed before him observations and theories concerning the propagation in a human circuit of the frequencies of substances not radio-active *per se*, observations and theories to which I will refer in Chapters XV and following. Professor

Maby left me that afternoon with the promise that during the next few months he would endeavour to provide me with instrumental demonstrations and quantitative measurements of the facts enumerated above, and that he would later investigate the further observations and theories I had put before him. This was to me an encouraging measure of a busy physiologist's interest in my work.

Within a comparatively few months he had demonstrated with the help of automatic electrical recording apparatus such as cardiographs, pneumographs, psychol-galvanic reflexometers, myographs, etc., that the phenomena I have described did in fact occur in my circuits exactly as I have described them, and that they did so independently of suggestion. However, it was to take him close on five years to disentangle, demonstrate and measure, some of the forces involved, and, at the time of writing (April 6th, 1941) he is still investigating some of the facts I describe in subsequent chapters of this book. Is it too much to hope that his example of scientific open-mindedness, and his findings, may inspire the authorities of at least one hospital to repeat his and my experiments and to use—be it only one small ward, for tests on victims of various diseases. Is it rash to believe that the first hospital to do so will be an English one?

For the time being I must ignore many of the investigations which Professor Maby carried out so successfully on my behalf between May 1936 and April 1940, and refer only to those which are strictly relevant to the sequence of the present part of my argument. A friendship, for which I shall always be grateful, soon grew between us. We began to stay with each other for short periods whenever this was mutually convenient, and we invariably parted each one faced with a list of experiments he would have to make in order to satisfy the other.

I had already tried many new circuits suggested by J. C. Maby, when, on the 16th April, 1940, he enclosed in a letter a whole series of new ideas with detailed diagrams and a request that I should investigate them.

I found them all interesting and obviously conceived by one well versed in all the diversities of wireless theory and technique, but they involved so many variations of circuit that in order to test them I had my consulting-rooms wired so that working with four subjects I could produce every

possible circuit, however complex, by merely altering a few simple connections.

I would like to reproduce every one of J. C. Maby's suggestions but space does not allow and I therefore print only one of his diagrams, together with his notes on it, his No. IV. Until I received this diagram, I had in the majority of my experiments placed my human valves in series, either straight or circular, and although I had begun tests in parallel, the possibility of combining serialism with parallelism had never occurred to me. Amongst those of Maby's diagrams which suggested such a combination, his No. IV was proved by tests to be the most satisfactory in evenness and progressiveness of reactions as well as in curative efficiency.

After a few months of careful and exhaustive trials, a process of elimination left me with these outstanding circuits: one combining serialism with parallelism: Maby's No. IV, and two in pure parallelism: Eeman's Nos. I and II. I illustrate these three circuits (Figs. 11, 12 and 13) and in each diagram I assume that the subjects are either all right- or all left-handed.

Maby's No. IV appears to be a modification of a standard detection and amplification circuit, for human application. The output of the last unit is fed back to the first (=detector) unit as shown by arrows (<<<<). An additive or amplifying (?) effect thus seems to be achieved—*a self-regenerative circuit* (?).

All hands are linked to common R. and L. terminals, thus sharing any "free" energy equally in proportion to individual resistances and replacing the external L.T. source of energy. The external H.T. is also eliminated as energy is self-contained, presumably.

I tested these three circuits against each other so many times and with so many different subjects that I cannot give details of individual experiments, but must content myself with stating the general conclusions their cumulative evidence imposed on me, satisfied that these will be confirmed by other investigators.

On the whole there is little to choose between these three circuits in healing efficiency. The differences they may show are fortuitous and due mainly to the combinations that given individuals make with each other in circuit. If, for instance, the group includes one subject who happens to be a strong "resistor" to another or others, Maby's No. IV produces disturbed and uneven reactions in some or all members of the group. As a

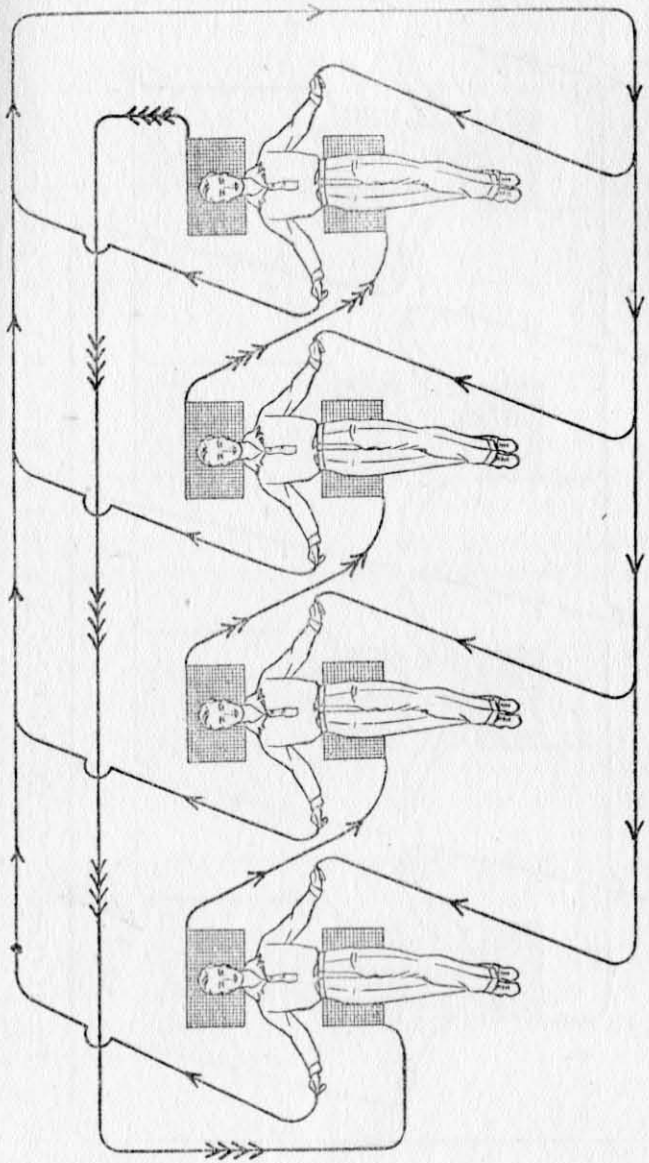

FIG. 11 (*Maby's No. 4*).—All R. to all L. in parallelism. Each H. to next S. in serialism.

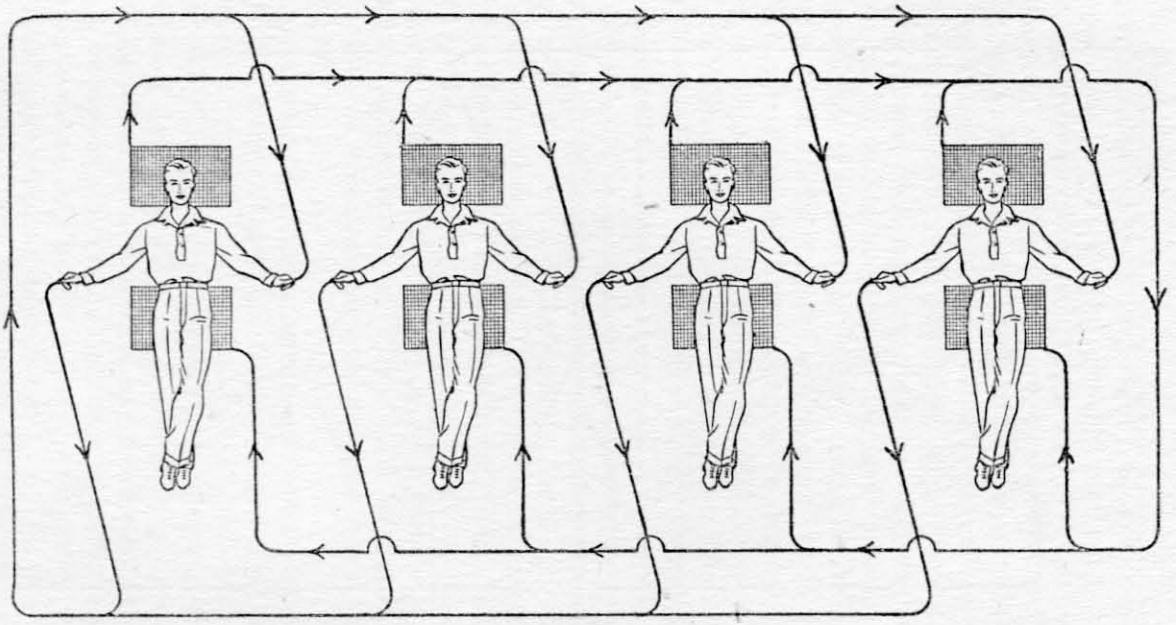

FIG. 12 (*Eeman's No.* 1.)—All H. to all S. and all R. to all L., in pure parallelism.

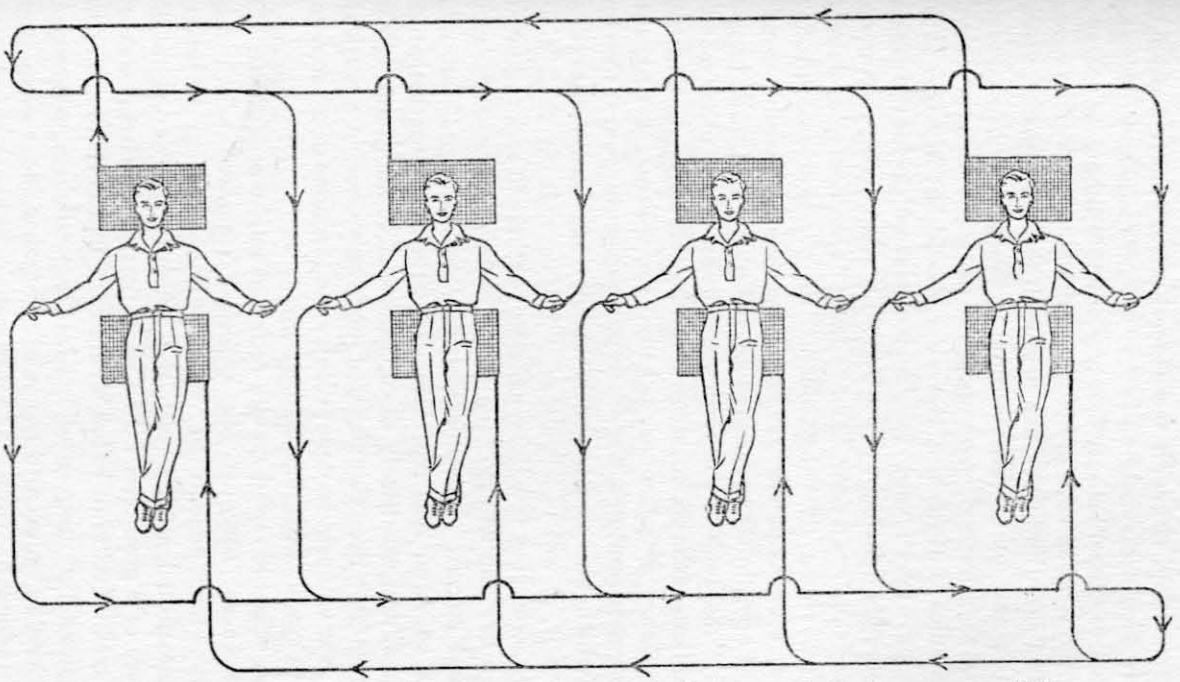

FIG. 13 (*Eeman's No.* 2).—All H. to all L. and all R. to all S., in pure parallelism.

result, they take appreciably longer to reach the stages of sleep and awakening, although the general sense of recuperation that follows does not appear to suffer. If no member of the group happens to be a "resistor" to any other member, its effects are much the same as with my Nos. I and II.

I feel sure, however, that even with the best possible electromagnetic and other relationships in the circuit, experimenters will find that in speed, smoothness and progressiveness of reactions and in efficacy of healing, the order should be: My No. II; my No. I; and Maby's No. IV, although shades will decide the ranking.

Generally speaking, the principle that seems to matter most is that of the "open door," and as many "open doors" as possible! Serialism seems to "shut doors" in a rather uncontrollable fashion, whereas parallelism leaves the greatest possible number of them open in all circumstances. With it, if Mrs. A. happens to be a "resistor" to the particular outflow of any other member or members of the group, she will not be able to interfere with the free exchange of radiations, although she will not, at first, share in it as abundantly as the others. Against this, since this outflow (which she unconsciously resists) has many other doors open to it, it will not hammer at her as violently as it did in straight series; but it will nevertheless continue to seek conduction through her and will do so with the additive force of the group in closed circuit. It will eventually "get through," but when it does so, Mrs. A.'s reactions will be gentle, progressive and sustained, and will hardly disturb the rest of the group. When her doors have been fully opened, be it only once, in a particular group, she will seldom again display the reactions of a "resistor" when in circuit with that same group.

But, whatever good results serialism might produce in ideal circumstances, there is one practical argument which must exclude it from general use. This only occurred to me when I was unexpectedly faced with the difficulty that if one of the members of a group left it, the serial part of the circuit was and remained broken until either a substitute had been found or the connections had been readjusted. In parallelism, a group of twenty can be reduced to any smaller number and a small group can be added to, without disturbance in either case. In fact, with twenty couches correctly wired, it would not matter technically whether one or twenty of them were occupied.

Between May 1919 and the end of 1941, planned experiments and occasional oversights in the making of the circuit had proved that actual contact between my conductor wires and the H., S., R. or L., or any other part of a subject's body, was unnecessary since significant reactions occurred even when we had gaps of several inches in conduction. I had explained those facts by

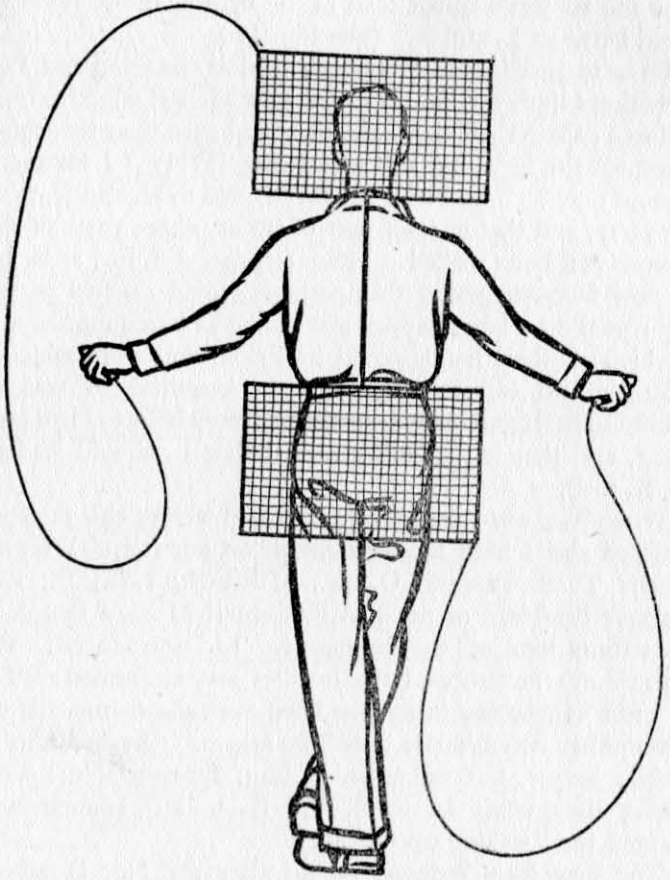

FIG. 14.—One subject, mats linked under spine.

the hypothesis that oscillations, radiations, "wired-wireless," etc., and not ordinary electrical conduction were involved.

Nevertheless, and be it said to my shame, my mind was so fixed in the notion of electrical conduction that it was not until the beginning of 1942 that it suddenly dawned on me that my

relaxation circuit might work just as well if, instead of linking L. with H. and S. with R., and thus expecting the X force which flowed between L. and R. to complete its circuit THROUGH the subject's central nervous system, I were to link L. with R. directly and place the conducting wire UNDER and parallel to the whole of the subject's spine. This would, as it were, bathe the subject's spinal cord in the field of the X force which flowed between L. and R. (See Fig. 14.)

So as to guard against suggestion, Miss Cameron and I tested the notion blind, and found that it was MORE effective to make the force pass NEAR the patient's spinal cord than through him. I accepted the facts, but still wondering "WHY," I assumed that it would now be immaterial whether L. led to H. and R. to S., or vice versa, and that at least part of twenty-three years of patient research had been wasted. Maby felt as I did, for, as he put it, the new facts suggested that patients would do just as well if they rested on a large copper mat acting as "frequencies mixer" to which all their hands could be linked and from which each patient would extract only what he required. I was much relieved to find from many tests that, as often before, I had guessed wrong, and that it was still essential that L. should lead to H. and R. to S.

When we were completely satisfied about the facts, Miss Cameron and I tried the new circuit on our friend Wing-Commander T. S. Rippon, O.B.E., M.R.C.S., L.R.C.P., R.A.F., a former President of the R.A.F. Central Medical Board, without telling him of the change we had introduced. Within two minutes he dropped the handles and exclaimed: "This is the most convincing thing you have ever shown me. If I stay in it another two minutes I shall be asleep." I asked him to try a while longer, but unknown to him, I reversed the handles, making the circuit L. to S. and R. to H. Immediately he reported the "waking up feeling."

The new facts induced me to alter my No. II relaxation circuit (see Fig. 13, page 77) by linking each H. copper mat with its respective S. mat by means of a length of copper wire. This overcame the argument against serialism that if one member of a group left it, he broke the serial part of the circuit (p. 78). I illustrate this point in Fig. 15.

All the circuits I have described so far involve four of the

poles of the human body, the Head, the base of the Spine and the Right and Left hands, either in series or in parallel, and I will now refer to one which uses the hands only, in parallel. In this circuit, one wire (positive) is connected with the Right hands

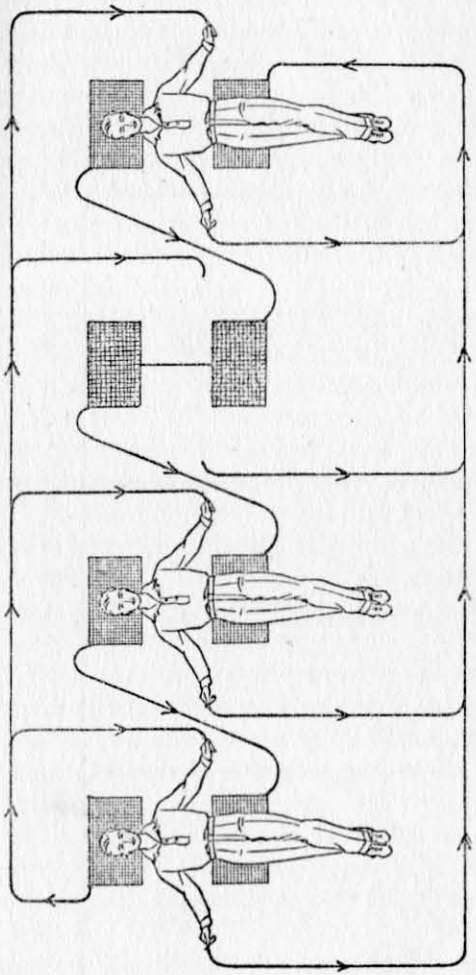

FIG. 15.—This makes clear that the removal of one subject from a circuit which combines parallelism with serialism does not break the serial part of that circuit when each H. copper mat is connected with its respective S. mat.

of all right-handers and with the Left hands of all left-handers in the circuit, and a second wire (negative) is connected with the Left hands of all right-handers and with the Right hands of all left-handers, and these two wires are then linked (see Fig. 16).

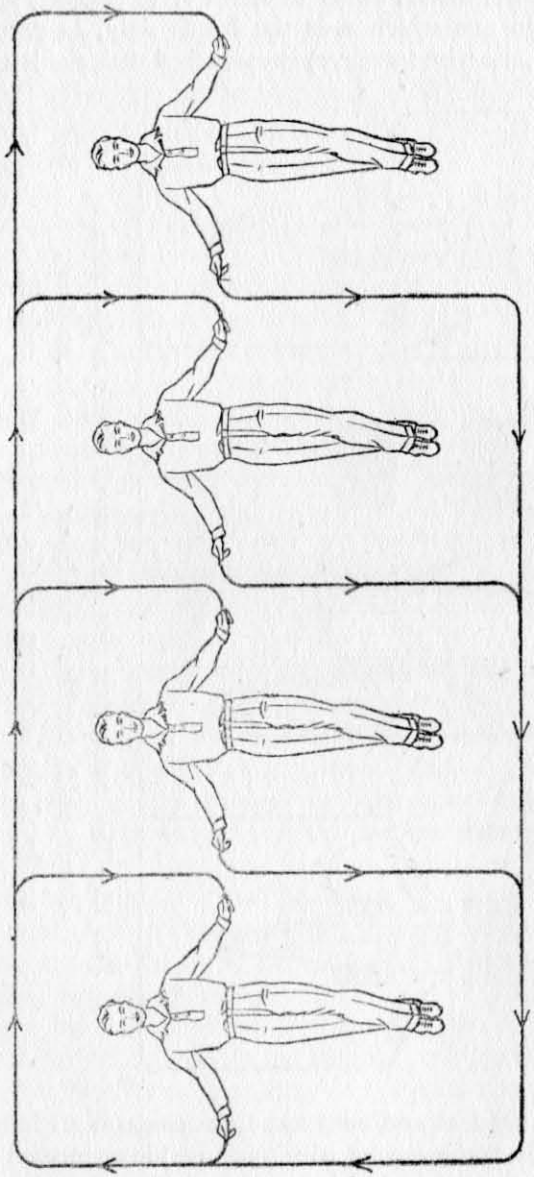

FIG. 16.—All R. to all L, in parallel.

This circuit, though not quite as effective as the best "four-poles" circuits, does nevertheless produce significant results, and experimenters may favour it for the great simplicity of its wiring, at any rate for their initial tests.

Having taken my experiments with different circuits thus far, I felt that none of the abnormal or exaggerated reactions which I still occasionally encountered could be due to faults in the circuit itself or to my arrangement of my patients in it. I may, of course, have been mistaken, but I believed that J. C. Maby and I had between us thought of and tested every conceivable disposition of "human valves" in circuit and I trust that no scientist will challenge our conclusions before he has applied to them the experimental method, preferably in the wards of a hospital.

To sum up, it is clear:

(A) That whether the relaxation or the tension circuit is in use, an "X" force is radiated by the living body, whether this force is originated by the living body or not.

(B) That this "X" force is conducted by metallic conductors between the hands of a subject and different parts of his or another subject's body.

(C) That the different reactions of subjects to different arrangements of the circuit, including relatively small gaps in conduction, suggest not only radiation, but also specific high frequency oscillations and vibrations, bi-polarity and differences of potential and

(D) That, since the copper wires I use act mainly as conductors, reactions similar to those produced with them must and do occur when the various circuits are made without them, by the direct application of hands to different parts of the body, other conditions being equal.

What is that "X" force? Is it the *vis naturae medicatrix*? What does it do? How does it operate? Is there more than one such force? If so, do any or all of them originate in the living body?

Whatever the scientific answer to all these questions may prove to be, do not my experiments suggest that science might well reconsider its opinion of the age-old teaching: "Heal the sick by the laying on of hands"?

"Hands," be it noted, and not "hand." One hand suggests one pole and a difference of potential only between healer and

patient. Two hands suggest two poles and bi-polar opposition as well as a difference of potential. The former seems to base healing on quantity and to confine it to those rare and fortunate individuals whose vital dynamism ever gushes in a volcanic overflow; the latter sees in a universal bi-polarity the quality that makes *all* men potential healers and may enable the weak but healthy to heal his sick though stronger brother.

CHAPTER VI

THE FIRST FOUR WITNESSES

Having read a few crime stories and many more of the masterpieces of experimental research, I have been struck by similarities between the methods of the great sleuth-hound and those of the wise scientific investigator.

Early in his enquiry, the good detective makes a list of those persons who either by their presence or by their proximity, at material times, appear as if they might conceivably have had a hand in the foul deed, either as the murderer himself or as a willing or unconscious accessory. He makes this list comprehensive and includes in it even the most obviously innocent persons, as he is detached enough to recognise that his intuitions are often mistaken. He sometimes finds that all the evidence shows that the murder was committed not by any one of the individuals he had suspected, but by a gang whose members are all more or less implicated. Humbling thought; towards the close of the story, he may discover that he had not even noticed the existence of the leader who actually inspires and sustains all the activities of the gang.

A procedure which has been religiously adhered to by great novelists and scientists alike is worth following. Here is my list of all those factors which, judging by their presence at material times, could, so I thought, have contributed to the results of which I have given typical examples in Chapter I. I left none of these factors out until I had satisfied myself that it could not have been even an accessory to the facts. I felt sure that my list was complete, but . . . I was mistaken.

(1) The relaxation circuit was present the whole time and in every case.

(2) I was in circuit in eleven cases out of twelve and present at the twelfth, but, having carefully trained myself in self-control and observation, I had a reasonably clear knowledge of what I was thinking, saying, feeling, and doing, whether in or out of the circuit. I was also a keen, painstaking and conscientious

observer of the conscious and unconscious reactions of others, not only to the visible and audible, but also to the hidden and silent changes in my behaviour, whether these were accidental or premeditated.

(3) The subjects were horizontal the whole time and in every case.

(4) Most subjects endeavoured to relax as requested.

(5) Whether conscious or not, the subjects were always "thinking," and reacting physiologically to their thoughts.

(6) The possibility of telepathy could not be ignored.

(7) In the twelve cases quoted the number of subjects in circuit ran from two to four, but in experiments of which they are typical, I had occasionally used as many as twenty, and most frequently, six subjects.

(8) Though fully conscious at first, the subjects were often unconscious or drowsy, or at least absent-minded and inattentive when results materialised.

(9) Abnormal physical factors, in one subject, such as infectious and other diseases, errors of diet, addiction to drugs or drink, etc., might not only affect his reactions, but also cause, and explain, abnormal and surprising reactions in other subjects in circuit with him.

(10) Suggestion was present the whole time and in every case, but implied and not expressed, except to the extent that the subjects were asked to relax their voluntary muscles and to report what they felt.

(11) The subjects, myself included, were living and not dead the whole time and in every case, with all the implications of that fact. Some of its implications would no doubt help to explain some of my results, and these in turn might perhaps throw new light on the fact of life itself.

I omitted earth-magnetism from my list because whether or not it mattered to individuals resting singly in or out of circuit, I had established experimentally that, in pair or group relaxation circuits, what mattered was the position of the subjects relatively to each other and not to the earth's magnetic fields.

I also ignored a few other factors which had been present at the material times, for the insufficient reason that as they had been present on many occasions when I had not been experimenting with the circuit and when nothing unusual had occurred, I

did not suspect them of having been even accessories before the facts. A good detective would have been more thorough!

I will now deal with the parties in my list in the order just given, but the reader will understand that although I must follow some rotation in this book, in actual fact I handled them all more or less concurrently. He will also allow me to give him any additional information I may have gathered at odd times about each character.

(1) "*The Circuit.*" The first fact that stands out from my experiments is that the circuit is always there. Although results similar to some of those recorded in our twelve cases have been observed by various investigators working without the circuit, I know of no account of a reversal of reactions at will such as is obtained by the reversal of the circuit. I must conclude that whatever forces these investigators had deliberately or accidentally released, the circuit brought these or similar forces into action, more readily, certainly and regularly, and gave one for the first time some control over them. I have not seen or heard of anything to change these conclusions, and until I do I must continue to look upon the circuit as a fundamental, reliable and controllable factor in my results. I must therefore examine all the other factors in my list in relation to it.

(2) "*Myself.*" The second fact that stands out from my experiments is that whether pairs or groups are concerned, the results obtained do not depend on the presence of any one individual in the circuit. No matter how much subjects are varied, something striking enough to cause comment generally happens in any group in circuit. In pairs, effects may sometimes be so faint that they escape the notice of all but the best observers, or sphygmographs and pneumographs. Three points are significant. The first is that when results are faint in pairs, the partners are usually found to be similar in one way or another, due to consanguinity or to the fact that they happen to be going through the same phase of an infectious disease or to any other cause which might at the critical times focus the vital activities of both partners in one single direction. One does not make salt salter nor does one stimulate it by adding more salt to it.

The second is that when, through consanguinity or other assimilating cause, neither partner shows any marked reactions,

both may show very strong reactions with a same third, but only weak ones with a same fourth person.

And the third point is that when results are faint and hardly perceptible to either subject at the time, both may nevertheless observe marked benefits in health during the days following their joint period of rest in the circuit.

I was particularly careful to introduce the twelfth case in which though present I was not included in the circuit. I did so to answer captious critics who attempt to excuse their refusals to investigate my claims by the flattering but mistaken statement that my results are due to the magnetic personality which they say I possess. This lame explanation does not explain either how the magnetically weaker brethren who advance it manage to resist my powerful magnetism and to dismiss my theories, or how my dynamic ego has for years failed to get any response from some sixty hospitals in the London district to numerous requests that they should repeat at least some of my simplest experiments, requests supported in print by more than a few Doctors of Medicine.

Further, this explanation suggests in fact that if I do indeed possess a magnetic personality it must somehow assert its powers by some magnetic means. I may therefore turn to these superficial critics and say: "Q.E.D. and thank you for your double-edged argument." They may lightly retort: "Oh, yes, but your magnetic personality is indeed so powerfully radio-active that it needs neither gestures nor words to work its nefarious will, but dominates weaker minds telepathically!" They will find the answer to this theory in the chapters dealing with "Telepathy."

(3) "*Horizontality*." Of all the problems presented by my list, that of the influence of the subject's horizontality was the easiest to settle experimentally. It was interesting from two aspects. Was it important for sleep, recuperation and healing that the body should be in the line of flow of earth-magnetism, or was horizontality of value only because it allowed of better and more complete muscular relaxation? I tested both angles of the question by sitting four subjects in comfortable chairs in circuit. I found that just as their N. and S. position did not matter in circuit, their vertical position in it was unimportant apart from the question of muscular relaxation which can obviously be more complete in the horizontal. I concluded that

if either position relatively to earth-magnetism did matter for subjects resting alone and out of the circuit, the circuit itself formed a unit which could, as a unit, occupy any position relatively to the earth's magnetic field, without this in any way affecting the results. It will perhaps help the reader to appreciate this point if he will think of the degaussing of our ships against magnetic mines in the 1939–45 war.

(4) "*Relaxation*." From the earliest days of my experiments in 1919, I have invariably requested my patients, or, if some of my critics prefer, suggested to them, that they should endeavour to relax their voluntary muscles. What is more, for a year, at least, I mistakenly included muscular relaxation amongst those things which, whether consciously or not, my subjects would always be "doing" more or less successfully whilst in the circuit.

I assumed that they would relax because having placed themselves in my hands they would naturally attempt to follow my advice. I imagined at first that they would succeed in their attempt because at the time I was not only woefully ignorant of the very A.B.C. of relaxation, but did not even suspect that it presented problems deep and complex enough to deserve years of specialised study.

My reasons for asking my patients to relax were sound and sufficient, but they were such as would have struck any superficial observer. I was expecting natural radio-active forces latent in the subjects in circuit to be released, conducted through insulated copper wires so as to circulate along lines of natural flow within the whole circuit and therein to do, or to assist in doing, nature's healing work. It seemed obvious that the continued contraction of voluntary muscles in circuit would absorb at least some of the forces latent in the subjects and would thus detract from the healing work I expected them to do. It was equally obvious, as the alternate clenching and opening of the fist would show, that the persistent contraction of voluntary muscles interfered with the circulation of the blood, the fundamental factor in all vital bodily activities, healing included. It was also indisputable that, whatever its cause, contraction of the muscles of the trunk must have a braking effect not only on circulation but also on breathing, and, consequently, on other vital functions.

Although the three reasons given above fully justified

relaxation in that they showed why it facilitates sound function, there were, as will appear later, more fundamental reasons for insisting on it. However, I did not suspect their existence at the time and to deal with them now would break the natural development of my argument.

I have stated that for a year or more I had mistakenly assumed that my patients would relax as soon as I asked them to do so. It took me a long time to realise that not one in a thousand could really relax completely, however hard he might try, and that in general, the more he tried to relax individual muscles, the more he contracted them. This failing was occasionally aggravated by mental limitations, but, in all cases, it rested fundamentally on psychological laws of which I had not then fathomed even the rudiments.

I will not here express these laws in their entirety, but only that part of them which decrees:

(A) That a large proportion of the contraction of our voluntary muscles is involuntary and unconscious.

(B) That we cannot inhibit an activity of which we are unconscious until we have either spontaneously become or been made conscious of it, and

(C) That provided we wish to relax, consciousness of any part of our previously unconscious contraction of our voluntary muscles automatically removes that contraction in proportion to our consciousness of it.

Deep though my ignorance was at the time, I was blissfully satisfied that in asking my patients to relax I was "making them DO something worth doing." A first glimmer of light came to me in 1920, when I suddenly realised that I was profoundly mistaken, not in thinking that relaxation was good, but in thinking and in allowing my patients to think, that to relax was to *DO* something.

From long before we begin to conceive and utter words, we conceive and "DO" movements. Though, to onlookers, these early movements may seem meaningless, to us, then, they are our "DOINGS." Although we do not realise it at the time, every single one of them helps to build up in us a subconscious and deep-seated association between the concept of "doing" and the involuntary and unconscious contraction of all those groups of voluntary and involuntary muscles directly or indirectly connected

with the "doing" of the particular movement consciously or subconsciously contemplated.

The result is that whether we mean this to happen and know that it is happening, or not, whenever and as long as we think of anything in terms of "doing," whether we think of it consciously or subconsciously, with or without the intention of actually "doing" it, by virtue of the said association, we unavoidably tend to promote and to maintain a state of tension, alertness and readiness for action in all the groups of muscles concerned.

Further, we are equipped with a defence mechanism which may begin to evolve from the moment of our conception and is so contrived that it compels us to react to every sensory perception, however faint, more or less consciously, violently, pleasurably, anxiously or defensively, and more or less clearly in terms of "doing," that is, in terms of unconscious muscular contraction.

Further still, we are possessed of a memory which never rests. Through its agency, whether we are conscious or not, a multitude of past "doings," feelings and emotions, some of the latter fearful and others pleasurable, but all of them more or less connected with "doing," perpetually impinge upon our ego, though at varying levels of its consciousness.

The result of all this is that we have our physical being in an ever turbulent sea of subconscious movement, every wavelet of which tends to promote and to sustain in us the state of unconscious muscular contraction I have described.

To ask a patient to relax all his voluntary muscles is, in the almost totality of cases, to ask him to think of them all in terms of subconscious "doing," and therefore it unavoidably compels him unconsciously and involuntarily to contract them all more or less. This involuntary contraction is usually marked enough to be perceptible to a keen observer and may in extreme cases amount to complete rigidity.

Clearly, perfect relaxation was good and desirable. I believed it to be consciously attainable. But I must never again ask a patient to relax until I had purged him of the subconscious association between the attempt to relax and the concept of "doing" and therefore "contracting." I must find a new approach to conscious relaxation.

CHAPTER VII

RELAXATION AND ANALYSIS

What was I looking for? A technique which would enable a patient to eliminate consciously all those unconscious contractions of his voluntary muscles which were caused by the subconscious association between the concept of "doing" and muscular contraction.

Was the conscious elimination of this unconscious association possible despite the fact that contraction itself was unconscious? I believed it to be so; but what did I know?

I had established that contraction was unconscious by the simple and oft-repeated expedient of telling a man resting on his back that I was going to lift both his legs by the ends of his trousers until I had got his feet over his head, and then asking him neither to assist nor to resist me, and to close his eyes. I would then insert my fingers into the ends of his trousers, raise both legs a few inches, then let go his left but continue to raise his right leg until I had got his right foot over his head. Ninety-nine times out of a hundred the patient would involuntarily and unconsciously continue to raise his left leg after I had let it go, and then keep his left foot over his head as long as I held his right leg in the air. He was not only unaware of his action but often denied stoutly that he was doing anything at all or felt any effort or fatigue and asserted that he was willing to *rest* in that position as long as *I* was willing to hold his *legs* up for him. Many similar expedients proved that as long as the concept of a given movement, whether utilitarian or meaningless, pleasurable or defensive, was present in the subconscious mind, all the muscles concerned in it became subconsciously more or less contracted and remained so as long as the concept remained operative. Granted, in the case described, the concept was present in both the conscious and the subconscious minds, but it was not operative in the former as the patient had asserted his conviction that he was doing nothing and that his relaxed leg was in fact resting in my absent hand.

I also knew by daily experience that neither I nor anyone else could consciously stop "doing" a thing we were doing unconsciously until we had become conscious of the fact that we were "doing" it. This fact that he was doing "it" would have to be experienced by the patient, but not necessarily through his muscle sense in the muscles concerned, for this alone almost invariably failed to inform him that he was unconsciously raising his own leg.

Not only would I have to convince the patient by experience that he was in fact the constant victim of subconscious association between the concept of "doing" and unconscious muscular contraction, but in order to wean him completely from this association, I should have to make him experimentally conscious of its real effects in every muscle in his body, yes, even in his eyelids.

Having given him this comprehensive experience of the unconscious contractions of all his groups of muscles in turn I should then have to evolve a technique which would enable the patient completely to eliminate all those contractions which he would by then have made conscious. Although I fully realised that this last step would be indispensable to complete relaxation, I could not at first even imagine how it could be taken consciously or on what the desired technique could be based. However, I went on "seeking" in the certainty of "finding," and as I sought, it struck me that perfect and conscious relaxation of all voluntary muscles would imply the complete and deliberate inhibition of motor impulses to all the muscles concerned.

Could these impulses be completely inhibited *consciously*? I felt sure that they could, but whenever I put the proposition before learned physiologists and psychologists, I was faced with the counter-proposition that "muscular-tonus" was a mark of life and could only be completely eliminated by death, paralysis, syncope and narcotics, etc., or in the deepest natural sleep or hypnosis, and that if it were ever consciously eliminated this would probably be either accompanied or followed by syncope. That it was a variable quantity both from individual to individual and in the same individual, and was therefore, theoretically, reducible to Zero, was dismissed without argument. The fact that since no one had ever been able to take "quantitative measurements" of muscular tonus and to say that it amounted to say,

10, 20 or 50 per cent of total potential contraction, it could not strictly be regarded as a scientific fact, was brushed aside with a quip, the logic of which I could not quite grasp! It seemed that this argument was valid only when flowing from the lips of "orthodox Science" to ignorant ears and lost all potency when aimed by a low-brow at a high.

When I consciously eliminated all "tonus" from my voluntary muscles in one second and the "orthodox" tested these muscles, their surprise was great. When I eliminated it from their own muscles in a few minutes, their astonishment was so intense that I could not help smiling, but as soon as I became conscious of this unconscious contraction of my risory muscles, I consciously relaxed it as well.

In fact, the conscious and *complete* elimination of "tonus" from all voluntary muscles can be achieved in a few minutes by any subject possessed of average intelligence and muscle sense (the latter can be developed by training), and I will gladly give an hour of my time to any physiologist who may doubt my statement.

But three points must be covered:

(A) The subject must be made to experience the fact that he is the unconscious victim of his subconscious association between the concept of "doing" and unconscious contraction of his voluntary muscles.

For this purpose I make the patient rest on the back, relaxed, as he thinks, and as I used to think. I then make him perform a series of movements, each one of which is devised to bring one group of muscles into play. After he has performed each movement two or three times, I inform him that I am going to get hold of the limbs or parts concerned, and do the movement for him. I ask him not to help or resist me in any way, just as I did for the lifting of the legs mentioned above, and make him close his eyes. I then begin the particular movement for him, when he unconsciously completes it for me, in the firm belief that my hands are doing all the work. His execution of the movements is at times so perfect that I cannot only put my hands in my pockets, but silently walk away, leaving him with his limbs in the air, like a friendly puppy dog. After he has spent a few minutes in this absurd position, all the while convinced that *I am working* and that *he is resting*, I ask him to open his

eyes, to look at himself, and at me, and to decide for himself who is working and who is resting. His eyes pop out of his head in astonishment as he sees me two yards away from him; my risory muscles contract in a faint smile, and his limbs collapse on the couch. I impress upon him the fact that there obviously exists in him a subconscious association between the concept of "doing" and the unconscious contraction of the voluntary muscles concerned, resulting invariably in their more or less marked and unconscious contraction. I point out to him that since this subconscious association has now become conscious it is consciously removable, provided that in addition to making him conscious of his unconscious movements.

(B) I make him conscious of the contractions of the actual groups of muscles which have produced his unconscious movements. I do this either by focusing his muscle sense on them if it is at all developed, or by making him feel them with his hands, or by making him look at them as they contract. The successful performance of this work requires the exercise of a little inventiveness on the part of the operator, but it is interesting work. It carries with it its own reward as the patient's voluntary muscles progressively relax and in a few minutes lose all "tonus," and his limbs become so limp that one can do with them all that one could do with a rag doll, much to the astonishment of the patient who, by the way, has remained conscious throughout and has suffered no syncope!

(C) The subject must be made conscious of the fact that as soon as any unconscious contraction of his voluntary muscles, due to the psychic causes described above, is made conscious, he can remove it consciously the moment he desires to do so. To impress this fact on his mind I repeat each exercise a number of times, half a dozen being ample in general.

No sooner had I adopted this "three-steps technique" than new and unexpected results began to appear both in and out of circuit. In order that the reader may appreciate their import and mutual relationships I must remind him that apart from the psychic causes of unconscious contraction just dealt with, there are purely physical ones whose action is just as unconscious and effective. Although there are many of these, my point will be made clear if I mention only one: to wit, the presence of an excess of lactic acid in voluntary muscles after exertion.

The new results observed were clearly related to each other. They reacted progressively to one another in a health-giving manner, and as a trio they clearly constituted what might be termed not a vicious but a "virtuous circle." I have already mentioned that when patients fell asleep in the circuit they usually woke up with a spontaneous and irresistible urge to stretch every muscle in their bodies. It soon transpired not only that as they became more expert at removing the psychic causes of their unconscious contractions by becoming conscious of them, the urge to stretch became progressively insistent and powerful, but that, whilst it soon vanished if in stretching they had got out of the circuit, it continued to recur at fairly regular time intervals and then gradually faded away if they had remained in the circuit. When it had disappeared completely and they remained in circuit, they frequently began a second cycle of sleep and later, a third, and so on, the cumulative effect of these cycles of sleeping and stretching being astonishingly recuperative.

It further became evident that the more they stretched, the keener became their muscle sense and their perception of the differences between the relaxation and the tension circuits, that the keener their muscle sense became, the more expert they became at removing the psychic causes of their unconscious contractions by becoming conscious of them, and that the virtuous circle they were thus building was progressively health-giving.

These new results provided me with one more reason for impressing on patients both the value of relaxation and the intricate nature of the problems it presented. They enabled me to convince them that as psychic methods were required to deal with psychic causes of unconscious contraction, so the physical method of stretching was required to deal with purely physical causes of it, such as an excess of lactic acid in the muscles. They also made clear that it was wise of Mother Nature to give us the urge to stretch on awakening, and thus to promote the return into the blood stream of lymph that had become static in relaxation.

But even more fundamental reasons were to be given me for the conscious elimination of unconscious contractions of our voluntary muscles by becoming conscious of them. However, I was at first just as much in the dark about these as I had been

about the others, and I cannot deal with them without first exploring an entirely new field.

So far, I have examined four of the eleven witnesses mentioned in Chapter VI: (1) The circuit, (2) Myself, (3) Horizontality, and (4) Relaxation, the latter partially. Of them, I can say that the circuit must be present in order to produce the results obtained, in their totality and with any measure of control; that neither I nor anyone else is indispensable, but that every additional person present in the circuit has some part in producing and in qualifying the results obtained; that horizontality only helps to improve results because it facilitates muscular relaxation; and that muscular relaxation, conscious or unconscious, though quantitatively and qualitatively a fundamental factor in the production of results, is a purely negative one. It derives its value from the removal of conscious and unconscious muscular contractions, the positive factors which inhibit basal metabolism.

In general, I concluded that, in the relaxation circuit, irrespective of the personalities resting horizontally within it, sleep, basal metabolism and recovery from fatigue and disease, progressed in direct proportion to the relaxation of unconscious muscular contractions obtained by making these conscious and to the vigour of the spontaneous stretching that resulted from this relaxation on awakening.

But, I had not finished with relaxation, or rather, it had not finished with me. In order to make unconscious muscular contraction (the positive, of which relaxation is the negative), and "the technique of making it conscious" tell us all they have to tell, I shall now examine jointly witnesses No. (4) relaxation and No. (5) the fact that whilst in the circuit, and whether conscious or unconscious, patients are always subconsciously "doing" something with mind, nerve and body.

When I attempted to relax a patient by making him conscious of his unconscious contractions, one of two things often occurred. Either (A) after I had succeeded in relaxing his muscles, they would unconsciously tighten up again within a few minutes, not as much as before, nor as generally, but still appreciably. I would then repeat the whole process of relaxation by consciousness, but again, tension would return, less marked, but more localised than before, and eventually an "island" of recurring unconscious

contraction affecting only certain groups of muscles would stand out with clear definition. Or (B) an island of unconscious contraction would emerge from the start and resist any attempt to remove it. Naturally, I could not allow impatience or fatigue to defeat me, and on occasions for over an hour I would continue to do for the patient, with his unconscious assistance, the movement I had previously made him do consciously with the particular island of muscles which was refusing to relax. Eventually, something I was waiting for would happen, and then, suddenly, the island of unconscious contraction would vanish. I will not describe here what that "something" was, but will take the reader back with me to the winter of 1918–19.

I was then in my third hospital. The after-effects of dysentery, malaria, war-flying, a head injury, disorderly action of the heart and nervous depression were upon me. Each one of these conditions had in its time received its meed of attention from different specialists whose diagnoses and prescriptions had frequently clashed. Some of these clashes had taken place in my presence, and one in particular had made a deep impression on me. Two doctors of high army rank and brilliant repute in civilian medicine were each holding one of my forearms rather tightly in one of his hands, whilst I lay in bed too weary to care whether I lived or died. They were silent and wrapt in thought. Suddenly my interest, not in myself but in a problem, became intense. I could not assume these two famous men to be blind fools easily misled by signs, yet, at the same moment, each "opened his mouth and spake" in direct contradiction of the other. The one who held my left forearm said: "Very high tension, don't you think?" and the other: "Very low tension, don't you think?" I said nothing, but I thought: "Ah, that's my left shoulder." It had been damaged in an air crash in December 1915. The two great savants changed places, and then changed over again. In the end they agreed that my tension was *low* on *both* sides; but the one who had first said that it had been high on the left looked puzzled. He was sure "it *had* been high the first time, although there was no doubt that it was low now!" Before they left the ward a few minutes later, I was satisfied that both had been right on every occasion and that the tension in my left forearm had definitely fallen, and done so in a flash. This occurrence had opened a new world to me and flooded it with light.

Whilst spending most of the previous summer at the "King's Lancashire Military Convalescent Hospital" I had instead of convalescing become more and more gravely ill. This vast hospital housed some thousands of invalid officers and was commanded by Colonel Geoffrey Ramsbottom, R.A.M.C., who, needless to say, was much overworked. Nevertheless, out of the kindness of his heart he had given me several separate hours of what should have been his rest time, and although I cannot give him alone the credit for my ultimate recovery, I feel sure that given more time he would have taken me a long way towards it. But what I can do, and do here and now, is to acknowledge that much of the work I have since done was inspired by the new points of view which his illuminating mind had opened to me, and to tender him my gratitude.

In 1918, when psycho-analysis had not yet invaded daily conversation, Colonel Ramsbottom had been one of our early exponents of the art. Whilst giving me the benefit of his skill and sympathy, he managed to convey to me an understanding of the basic principles and objects of analysis. However, there is no need for me to mention more than those fundamentals of it which are relevant to my argument.

From the earliest infancy we gather impressions and react to them, and store both impressions and reactions within the depths of our subconscious. From this fastness, and unknown to us, they influence our behaviour, for good or for ill. When their influence is harmful it shows itself superficially in abnormal or unhealthy behaviour of mind resulting in the formation of groups of associated ideas designated as complexes. Still more superficially, these complexes detrimentally affect our organic and muscular activities either by interfering with their harmonious workings or by inhibiting them more or less completely. Thus do hidden psychic factors produce physical ill-health by the intermediary of the nervous system.

It is claimed that the emergence of these hidden psychic factors from the muddy bottom of the subconscious pool to the sunlight of the consciousness above its surface enables the skilled analyst so to examine and rearrange them in the full view of the patient that thereafter they can with safety be allowed to sink once again to the depths of the subconscious pool. A successful analysis removes any danger of the readjusted psychic factors

again disorganising or inhibiting either mental or physical activities and thus producing either mental or physical disease, or both.

The best method of inducing hidden psychic factors to emerge to the surface of consciousness is the process known as "free association." In this, the patient, in a state of spontaneous or induced passivity of will, and muscular relaxation, and guided by the analyst, allows thoughts and images to take his mental stage in an uncontrolled chain of spontaneous associations. He describes these to the analyst with what sincerity and exactitude he can command, thus enabling him to define and treat complexes.

I am not concerned at the moment with what the analyst does with the material which has surfaced, nor do I question either the reality of the subconscious or the value of the emergence of hidden psychic factors from its depths. I accept both in reverence for the great minds who have gathered our present knowledge on these facts. I am only concerned with the process by which emergence is induced and with its efficiency. My question is: Can emergence be induced more quickly, certainly, specifically, and safely? For everyone will agree that analysis is a slow process, often helped or hindered by chance, however great the skill of the analyist, and one which courts both dangers and disasters.

A parable will present the problem as I see it.

An analyst and his patient stand on the edge of a deep pool, the clear waters of which become clouded as soon as their depths are disturbed, for at the bottom of the pool there is mud.

In the middle of the pool a pole, stuck in the mud, stands at an acute angle, its end a yard out of the water. Both the analyst and his patient know that only the unseen mud is preventing water pressure from forcing the pole to the surface where it would float peacefully, for all to see. If they could only learn something about this mud they would soon loosen it and so free the pole! They could, of course, grip the pole by its upper end and gradually release it by gentle to-and-fro movements, but that would bring so little mud to the surface with the pole that they could never find out for certain what had held it at its peculiar angle. They therefore decide to investigate the mud itself without touching the upper end of the pole.

In order to do so they can, of course, dive to the bottom of

the pool, but once there, they will only be able to gather information about the mud by feeling for it with their hands, for their dive will cloud the water. They therefore decide to investigate the mud from the surface of the pool and with their eyes only.

On the banks of the pool there rests a small canoe. On its bows is painted in red letters the most suggestive name ever given to such a craft: "Free Association." Stepping into it, they paddle towards the pole, but in doing so they make so many ripples on the surface of the water that their view of the bottom is but a succession of ever-changing distortions. They keep still for a while, and when all ripples have subsided, they lean over the side of the canoe to peer into the pool. But their craft is so unstable that their gentle movement makes it oscillate violently and causes a multitude of new ripples. They therefore sit perfectly still, leaning over the side of their canoe, and when the surface is at last become smooth and they can see the bottom again, they note with annoyance that the shadow of their craft obscures the very point they want to examine.

Disgusted, they grip the pole, and pull hard on it. After some resistance, it yields so suddenly that both investigators fall deep into the water. They soon surface and swim ashore, pushing the pole before them, but absent-minded, they leave the craft "Free Association" to drift. The end of the pole is covered with mud, and so are they. "Some" mud is thus available for microscopic analysis. But can they be certain that it is exactly "the" mud, "all" the mud, and "nothing but" *the* mud they want to analyse?

CHAPTER VIII

MYOGNOSIS

My parable is not intended to discredit psycho-analysis. I subscribe to analysis of the material which emerges from the subconscious pool for it is a frequently effective process, but I criticise the technique by which free association is used to induce emergence.

I realise that "mud" may connote "dirt," but must remind the reader of a beautiful definition: "Dirt is only matter out of place," and point out to him that mud is in the right place at the bottom of a pool and that there, it is not dirt but a fit subject for scientific investigation.

Let the mud at the bottom of the pool represent the sum total of subconscious memories; the end of the pole which is stuck in the mud the deeper psychic strata; the mud which momentarily adheres to it the subconscious factors which are momentarily operative; that part of the pole which stands between the surface of the mud and that of the water the nervous system which links deeper psychic strata with organs and muscles; and, that part of the pole which rises above the surface of the water the organs and muscles with their unconscious but observable inhibitions and contractions.

Here are my criticisms of the accepted use of the technique of emergence known as "free association" and my suggestions for making it safer, more rapid, specific and controllable. I believe analysts will find that my technique makes available more of the right mud in less time, and that it does so more certainly and safely than does free association, and I hope that they will allow me to share in any improvements of my method which may occur to them.

It is "mud" that we want, preferably that particular part of it which adheres momentarily to the end of the pole, and we want it on the surface so that we may there analyse it with the patient's assistance. In free association we seek not only to detach some of the adhesive mud and bring it to the surface for analysis, but

also to loosen the lower end of the pole and by the intermediary of its submerged portion to alter the attitude of its upper end. It is clear that if anything that moves the lower end of the pole also moves the upper, both being part of one integral whole, anything which moves the upper must also and similarly move the lower end of the pole. My experiments have shown that when anything is happening at the bottom of the pole, such as the conscious or unconscious thought of having one's legs raised by another person, a related thing happens coincidentally at the top of the pole, by virtue of the unconscious association between the concept of "doing" or inhibition of it, and "movement," i.e. muscular contraction. These experiments have also shown that that which happens coincidentally at the top of the pole is quite as subconscious as that which happens at the bottom of it, and that both facts must be and remain beyond the curative reach of the analyst until they have been made conscious to the patient.

But, what happens at the top of the pole takes place above the surface of the water, in the full sight of the analyst, instead of in the muddy depths of the subconscious. These visible though unconscious surface effects of an invisible psychic factor can be made to stand out readily; they can be brought to the patient's consciousness, defined and isolated, for him to see and examine, much more rapidly, specifically, and safely than can any of their hidden psychic causes. This can be done in anything from a few minutes to an hour, and throughout, the law of association remains effective and binding. It decrees that the fact of making conscious any unconscious contraction or inhibition on the mechanical plane (effect) coincidentally tends to make conscious the hidden psychic factor to which it is related (cause). They can then be jointly observed and analysed, their relationships rationally stated, and their mutual and progressive readjustment controlled step by step.

Here, a few examples of the effects of my technique for making unconscious muscular contractions, organic inhibitions and their psychic causes conscious will be helpful, and I will hereafter refer to this technique as "Myognosis."

First of all, what had happened within me on that winter morning in 1918? For a few minutes, two great specialists had each squeezed one of my forearms and then each had

contradicted the other. But both had been right! Every detail of these minutes stands crystal clear in my memory. I felt their hands loosen and tighten their grip over my forearms and then loosen and tighten it again and again. I wondered what the pompous old asses were looking for. They struck me as ridiculous and when they suddenly said together that my tension was both high and low at the same time, I nearly exploded with laughter at such a delicious contradiction. Then, a flash! "My left shoulder-blade! Yes, I have been tight in there and in the arm ever since that air crash in 1915, night and day, and did not know it!" I suddenly became conscious of all the hidden tensions, of the differences between my two arms, and wondered how on earth they had never struck me before? In my mind I went through every detail of that disastrous flight! I tested the controls and the engine; I left the ground, and just as I was facing the roof of Hounslow barracks, my engine cut right out. I could not have known then that a petrol pipe had been fitted but not bolted on. There was not much left of the machine, and as I picked myself out of the debris I knew that the left side of my head had received a heavy blow and that my left shoulder-blade had been crushed and was very painful. What I did not know, but was told later on my return from hospital to flying duty, was that concussion had obliterated my memory for everything but abusive language and that when Major Hawker, V.C. (since killed at the front) had arrived with an ambulance I had poured upon him a torrential flow of variegated curses, to which he had replied by affectionately slapping a humble second-lieutenant on his sore back, saying: "Cheer up, old boy, you ought to be damn glad to be alive!"

Three years later, in a hospital bed, in 1918, I saw and heard and felt again every detail of that 1915 crash! Even odd bits and pieces that I had never remembered before came back to me. I saw my left shoulder and arm tension being born and growing, and as I was seeing and feeling all this again, I became aware of the thumping of my heart, of my faster breathing, and of a sigh of relief that followed, and I felt my tension die. Later, I amused myself by deliberately resurrecting and killing tension again and again, just for the gorgeous knowing that I was master, of but a small part of myself maybe, but master for all that.

Much light had been given me, and that it took so long before

I made intelligent use of it outside of myself, only shows the depths of my self-centredness. But what of the two specialists? They had performed a minor miracle and had not even suspected the fact. They had shaken and twisted the upper end of the pole by steadily tightening and loosening their grips on *both* my forearms at the same time, thus making me arm-muscles conscious. They had spoken the word "tension" in terms of contradiction and thus made me aware not only of my left-arm tension but also of the muscle sense differences between my left and right arms. More important still, by "bound" and not by "free association," they had made me conscious of the then operative subconscious cause of my arm tension and of no other, and had thus induced me to rationalise it. By twisting the upper end of the pole again and again they had released some of the mud adhering to its lower end, and revealing bubbles had at once risen to the surface. By specifically designating some of the adhesive mud as "tension" they had freed the lower end of the pole and it had at once itself risen to the surface and floated there with the mud still adhering to it for everyone to see.

Whilst "bound association" was doing its good work the craft "Free Association" had drifted away unnoticed. Exactly the right mud and the precise amount of it that was operative at that moment, and thus immediately usable in analysis, had emerged. The two specialists had unconsciously escaped upsetting themselves and their patient into the water from which all three would have emerged covered in mud only remotely connected with that which was momentarily adhering to the end of the pole and causing my unconscious surface inhibition.

As the reader now sees, my parable was no parody. However, in order to show that "myognosis" is no fluky device, I will now recite three instances of it, deliberately chosen, the first two as almost duplicates of my own case, and the third as an example of its action on deep-rooted neuroses and their surface effects on organs as well as on limbs.

(1) After giving a middle-aged woman, resting on her back, a few minutes of exploratory and general myognosis, I am faced by an island of irreducible contraction of the muscles of the left shoulder. I get hold of the first two fingers of her right and left hands in my left and right hands respectively, both of us being

right-handers. I raise both her forearms to the vertical, thus flexing her elbows without lifting them off the couch, and rotate her hands in opposite directions. Whilst the soothing monotony of my movements tends to make her passive, I impress on her the fact that her left forearm resists me whilst the right does not. When her resistance gets a little less, I raise her hands just enough to lift her elbows off the couch and I oscillate her arms in opposite directions around the shoulder joints. I again impress on her the fact that her left arm resists me whilst the right does not and I continue my oscillations for several minutes making them progressively rapid and forceful. During the whole of this, her breathing remains slow and calm. Suddenly it speeds up and becomes halting and emotional. Without any prompting from me and speaking rather torrentially whilst I quietly go on oscillating her arms she exclaims: "Now, isn't that curious! I have suddenly remembered something I have never thought of since I was seven. We were living in the country. I was sent to the drawing-room to be introduced to an old lady who had called on my mother. The old lady said that I was such a pretty little girl. Then mother sent me out of the room. But I wanted to hear what the old lady would say next, so I hid behind the door and listened. I heard mother say: "The darling might have been killed when her nurse dropped her when a few months old, but thank God, it was only a terrible dislocation of her left shoulder." I can remember now how I immediately tightened my left shoulder. I suppose it's been like that ever since, don't you think?"

In that instant, I felt all resistance vanish from the left arm I was still oscillating. A few minutes later, the lady who had risen from the couch was performing with her left arm all sorts of movements which she assured me had always been painful, and to her intense amazement, she could not find any pain, whatever she did.

(2) Every detail of procedure and effects is exactly the same as in case (1) up to the spontaneous outpouring of the patient's story: "Do I mind if she tells me something she has suddenly remembered although she has not thought of it for years?" A Londoner bred and born, she had married quite young the elder son of a self-made provincial manufacturer in a large way of business. Her husband's interest in his father's factory was

forced, and only a sense of duty had induced him to take charge of the London office. This never became the centre of his life, partly because she did not want him to make it so. When his father died unexpectedly a few years after her marriage, her husband felt bound to take charge of the business and he would have moved north had it not been for her reluctance to leave London. He began to travel up and down frequently and insisted that she should accompany him north at least once a year to attend the anniversay celebrations of the firm's foundation. She did go up for a few days the first year but with ill grace. She had to open the staff dance with the work's manager, a highly capable but "uncouth Northerner," to whom she took an instantaneous dislike. He trod on her feet so consistently that she might have said that he "loitered on them," and before the first dance was half-way through she suggested that they might sit down. Unfortunately, he chose a spot near an open door where such a draught blew on her left shoulder that when she woke up the next morning she could not move it without pain. It took her weeks to get rid of the trouble, and, curiously enough, it reappeared when she went north again the following year, but this time it took even longer to cure. The third year it came on quite a while before the annual celebrations, and she soon realised that it was a seasonal and climatic affliction which it would have been folly to have aggravated by winter journeys to a damp and bleak climate. She resigned herself to her fate, and her husband wisely praised her for her fortitude in allowing him to leave her side. Within a few years she was more or less in agony from October to April. Her story did not prevent my noticing that as she spoke, her left arm, which I was still oscillating, had become as limp as the right. This pleased me without astonishing me, but she was both elated and amazed when she failed to produce her pains, whatever unusual movements she tried.

The lady realised without much help from me that she had herself produced her condition in order to justify to her husband and more still to herself, her refusal to move to the "barbarous" north and to do her full duty as a helpmate.

In both the above cases, and in most similar ones, tension and pains had reappeared in a few days, but to a much lesser extent. Repetition of "myognosis" had invariably led the patient to

complete the picture with a few finishing touches by a conscientious brush, when the last traces of pain had vanished from the canvas.

"Myognosis" of islands of apparently irreducible contraction of the "voluntary" (?) muscles which control limbs is invaluable in its psychological as well as in its physical effects; but more so still is the conscious eradication of the unconscious and "involuntary" (?) contractions of the muscles which control organs. Amongst the most obvious surface effects of subconscious psychic factors, inhibition of breath is not only the easiest to observe and handle and to make conscious to the patient, but also the one which produces the most spectacular and radical results from the psycho-analyst's point of view.

It is an axiom that every operative subconscious factor has a more or less marked subconscious effect on the muscles of the breathing apparatus. Conversely, any objective approach which makes a patient conscious of his unconscious contraction of the muscles which control breath and then consciously removes that contraction, must have a more or less marked effect on his consciousness of the subconscious psychic factor which causes the contraction. Both are as indissolubly members of one whole as were the two ends of our pole.

When "myognosis" is applied to the breathing apparatus, the effect on the operative subconscious factor is sooner or later to make more or less of it emerge into consciousness. It produces this effect whether the fact of emergence is registered immediately by the spontaneous outpouring of the patient's "story" accompanied by relief of his symptoms and signs, or whether, unexpressed at the time, it is confirmed later by an improvement in the patient's health which he may, still later, connect with a delayed but as yet unspoken emergence.

The mechanics of breathing allow of two extreme opposite forms of inflation and deflation of the lungs: pure thoracic breathing which leaves the diaphragm and abdominal wall unmoved, and abdominal breathing which leaves the thorax unmoved. In normal circumstances during wakeful hours, breathing combines the two methods in an easy, mutual and variable give and take. The general tendency is for breathing to become more thoracic and less abdominal as conditions "tense" us, and more abdominal and less thoracic as they relax us, until in the deep sleep of both

humans and animals it is predominantly, if not exclusively, abdominal.

We only need our maximum powers of inflation and deflation during and after abnormal stimulation, and it is safe to assume that there is not one person in a thousand who has consciously experienced 100 per cent exclusive thoracic expansion or deflation, or exclusive abdominal expansion or deflation. We may state that the breath inhibition which the subject subconsciously experienced when he first received the impression, the subconscious memory of which causes his present breath inhibition, must have its equivalent somewhere between the four theoretical extremes of expansion and deflation noted above. We know also that our sensory apparatus reacts perceptibly only to change of its environment and remains "silent" when its surroundings, our muscles included, are static.

It follows that the greater the number of intermediary states of the breathing mechanism between the four extremes noted above which we can make conscious, the greater will be our chances of making the subject conscious of the state most closely related to that unconsciously adopted by him when the now operative subconscious factor first impressed him. But any subconscious factor which is by definition capable of inhibiting breathing unconsciously, must, when operative, manifest this capability by setting specific limitations to both inflation and deflation in either the thorax or the abdomen or in both. If we assume, for argument's sake, that both in the thorax and in the abdomen, the limit of inhibited inflation is at 50 per cent from bottom and that of deflation at 25 per cent from bottom, the patient will unconsciously confine expansion and contraction within those limits as long as the subconscious factor in question remains operative. His breathing efficiency will then be 25 per cent of maximum per breath and his breath rate per minute will be governed by this factor coupled with his oxygen requirements.

Our primary object is to make him conscious of the unconscious contractions which limit his expansion and deflation, and since we know that these two static points at 25 and 50 per cent from bottom will, because static, hardly impress his muscle sense, we must compel him to pass consciously and repeatedly through them on his way to and from points both below and above them. I have found in practice that to ask the patient to expand and

deflate more fully, does not achieve my object, and so, after inducing him to make the attempt, I invariably tell him that he can now leave everything to me and that *I* will increase both his expansion and deflation for him. How I do this and what effect it produces will appear in the following case which I could duplicate many times over:

(3) A woman, some thirty years old, has had two serious attacks of rheumatic fever, at fourteen and seventeen years of age respectively. She has been receiving treatment for gland unbalance. Although rather fat and superficially placid, she is highly strung and neurasthenic, subject to fits of depression and, in general, afraid of life. After a preliminary and general myognosis, which includes the request to expand and deflate both thorax and abdomen more fully and to observe the muscular sensations aroused thereby, I tell the patient that she may now breathe naturally and that by applying pressure in turn to her abdominal wall and sternum with my hands, I am about to compel better deflation in each successively. I beg her not only not to resist my pressure but to assist me by yielding to it as much as possible. I explain to her that as I compel deflation in one part I shall obviously make her expand more fully in the other, so that her oxygen hunger may still be satisfied. I ask her again to observe keenly all her muscular sensations as I proceed, and point out to her that if she does all I ask I shall achieve the double object of making her expand and deflate more fully in both thorax and abdomen in succession and of making her conscious of her unconscious contractions of all muscles connected with breathing. She assures me that she understands and is anxious to co-operate with me to the best of her ability.

Standing on her right side, both of us being right-handed, I cup both my hands, and press the outside of my right into her pelvic cavity and that of my left into her solar plexus. My pressure is gentle at first, but as at the end of the expiration cycle of each successive breath I observe that thoracic expansion and abdominal deflation increase proportionately, I steadily increase my pressure until after about a dozen breaths I judge that my patient's thoracic expansion cannot increase further for the moment. I then reverse the process and apply pressure to the sternum with both hands (a soft cushion helps to make this painless) and I observe that after about a dozen breaths her

thoracic deflation and abdominal expansion have reached the maximum possible for the time being. I then return to the abdomen, for about a dozen breaths, and so on, indefinitely, hoping to get one of the two results I am looking for. This may take a few minutes or an hour, but as I proceed, two facts stand out: within two or three breaths of each change-over the patient reaches the maximum deflation previously touched and passes it, and she becomes progressively drowsy, without, however, losing consciousness. Suddenly, and without warning, she turns violently on to her right side (I do not interfere) and in her drowsy condition starts shrieking, sobbing and kicking like an uncontrollably crazy child of six. She does this with increasing violence for at least a quarter of an hour and through it all the same childish voice goes on yelling the same penetrating and agonised prayer: "God, don't punish me like this, God, don't punish me like this, God, don't punish me like this; I shall never be wicked again!" The terror in the voice is indescribable, but I still do not interfere in any way although I wonder, as I have often done in similar cases, why the police and the neighbours don't rush in to save her from murder! Then suddenly, complete calm returns, accompanied by deep sighs (just like mine in 1918), the body relaxes, perfectly limp, and the patient is somnolent for a while. The most striking fact during this period is that, in spite of the incredible exertions I have just witnessed, the patient looks just as incredibly refreshed and rested, rested in a few minutes! Then, exactly as if the emotional storm she has been through had made no impression on her whatsoever, quietly and with twinkling smiles, she tells me her story as though it might had been someone else's. Her parents are small farmers.

In the winter of 1916, her father farmed in Kent, just south of the Thames. One day he had to go away and arranged to meet his wife for supper at seven o'clock at a friend's farm, some miles away. Just as the mother was about to leave the house to keep her appointment, the child, then six years old, was naughty —as children are. The mother, whose life and understanding were both hard and limited, told the child that she hadn't time to punish her herself and would leave it to God to do so. She therefore put the child to bed, locked her in her room and left her alone in the house in pitch darkness. Darkness was not unusual and although the locked door was so, the child would

no doubt have slept fairly well had not God chosen that very night for the first German air raid with Gothas. Naturally, as bombs fell and guns barked back the child clearly recognised the Divine intent and sobbed her prayers and promises to the Lord of Hosts until the raid had ended and He who alone is good had, in His mercy, relented. When her parents had come home later, nothing on earth would have induced her to have given her mother the satisfaction of knowing that she indeed had the Almighty in her pocket. So, she had made no sound, and as she had fallen asleep she had resolved to treat the matter as one "strictly private and confidential" between the Good God and herself. She therefore had never breathed a word to a soul about it all, until she had suddenly felt that she had to tell me, although, funnily enough, I had not tried to make her do so as the psycho-analyst she had been sent to had done without success. But did I not think that the ignorance of some people on matters of education and psychology was simply abysmal and that they should be prevented by law from having children?

This case, in all its details, is typical of others. No questions asked; general, then local, myognosis; spontaneous release, complete or gradual, quiet or violent; but invariably, peace, calm, sighs and that amazing "after a good holiday" look at the end of it. Whatever agonies the drama had contained, however unspeakable it had been for years, its emotional contents had gone and it not only could, but had to be "talked out" in detached interest. And no irrelevant mud had come up to cloud the picture!

Hysteria? No, no! The reader cannot really mean that, unless of course, hysteria is only a maldistribution of nervous forces which the hysterical attack redistributes correctly, if a little violently, just as a thunderstorm corrects electro-magnetic maldistribution in our atmosphere. If so, we really must promote hysterical storms by controlled myognosis!

Yes, myognosis must be controlled and gradual. If the elimination of muscular tone is too rapid, the muscles may not send back enough blood to the heart, and although I have never yet seen this to produce syncope, I have known it to make the patient feel icy cold. When this occurs, nature spontaneously applies one of three remedies: she induces the patient either to stretch, to twitch, or to shiver, but the patient, if a lady or a

gentleman, refuses to do any of these ill-bred things. The myognostician should be on the look-out for this cold phase and for the three natural remedies just mentioned, and should beg the patient to make free use of them since they rapidly restore circulation balance.

Failing that, he can obtain the desired result by placing the patient in the "tension circuit" by himself for a few minutes, but he must then break the circuit the moment circulation and temperature are back at normal.

CHAPTER IX

EMERGENCE

It frequently happens that, when efficient myognosis has been applied to all muscles concerned with breathing, conscious relaxation of their unconscious contractions is so complete that one can dig his forefinger into the patient's abdomen without eliciting the faintest spasm of defensive contraction, reflex or other. This does not mean that there are no subconscious psychic factors left that need to emerge, but that they are either momentarily inoperative or so deeply buried that several myognoses will be needed to bring them to the surface. In practice, the patient who has progressively and consciously reduced his muscular tonus to negligible proportions during his first two or three visits, may arrive for his fourth or fifth with all or some of his trunk muscles in a state of more acute contraction than he has ever shown before. During the intervening days, association has made operative a previously latent subconscious factor, with the result that new inhibitions related to it have appeared at the upper end of the pole.

It is then that "bound" association, by careful myognosis, does indeed justify itself, but in such cases of delayed emergence the patient may intentionally or otherwise repress even the smallest bubble that may rise from his depths. The practitioner must then use all his art to help the patient to yield to his explosive urge, and he must be ready to guide any emotional outpourings which may occur when the lower end of the pole suddenly gets free of the mud and surfaces with a jerk. He should not be surprised, however, if nothing more did result than the complete relaxation of muscular contraction, accompanied by marks of relief on the patient's face, and followed by a few minutes of sleep, for, whether the pole surfaces gently or jerkily, it always ends by floating. It must then be left alone until the stream if life itself brings it back to the shores of consciousness.

Emergence is the normal result of myognosis, whether the latter promotes it violently or peacefully. These contrasting

means to an identical end raise a fundamental problem: What is it exactly which heals in psycho-analysis? The claimants to the title are various contradictory techniques which despite their mutual antagonisms all claim to be psycho-analytical, just as various religious sects do, despite their bitter doctrinal conflicts, all claim to be Christian. There is no doubt that these sects do fight and it is conceivable that some of the followers of each may be saved whilst others are damned, just as all schools of analysis have their cures and their disasters. But history shows us that some of our bitterest religious feuds have been fought upon points which Jesus had never even contemplated, and one feels more than a suspicion that in fighting about "transferences," "complexes," "fixations," etc., analysts, schismatic and others, are spilling each other's blood and their own ever more complex and diversified vocabularies upon questions of mere ritual which have little to do with the fundamental healing factors in analysis.

Uninhibited by possible accusations of blasphemy, I pursue my religious analogy and suggest that in analysis, as in confession, the only thing that really matters beyond emergence into consciousness, is that the patient and the sinner should "*re*-pent," should live again and think again from *their present point of view* those things which they had lived and thought before with such persistent and disastrous results. We deem it reasonable to believe that there shall be more rejoicing in heaven over the repentance of one sinner than over all the "virtues" of multitudes of Pharisees, those unfortunate people who, not having been analysed, remained blissfully unaware of their subconscious motives. Let us therefore accept the even more important fact that in both the sinner and the patient themselves, as well as in heaven, re-pentance, re-living and re-thinking are immediately followed by more rejoicing and relief than ever rewarded any of their past sins or inhibitions. And, let us also remember that, at any rate for Jesus, the Kingdom of Heaven was "within" and that therefore rejoicing in Heaven was the same thing as rejoicing in a patient's or sinner's heart. Rejoicing, and relief!

The fundamental soul, nerve and body healing factor in both confession and analysis is re-pentance, re-thinking, re-membering, re-living. All the rest, though indicative of remarkable dialectic skill, does not account for 1 per cent of either the admissions to Heaven after Petrine cross-examination or the returns to Health

after psycho-analytical scrutiny. It may instead account for 99 per cent of the "wailings and gnashings of teeth" that follow the "clever" but misguided deflections of emergences that would have healed the patient had he merely been encouraged to help them reach the surface and there to re-live them again and again.

Before I proceed I must again emphasise that both confession (whatever ritual it may follow) and analysis (whatever label a complex may carry) can only follow upon emergence, and urge the reader to *test* both "myognosis" and "re-living" before dismissing them as useless, for any analyst who so swept them aside would open himself to the accusation that he was being false to science in coming to conclusions without having had recourse to the "experimental method." It might also be suspected that his attitude was, unknown to him of course, affected by an "analysis-complex" itself urgently in need of deep myognosis.

The patient using the technique of "re-living" must, in order to succeed, obey four rules, and the import and object of these should be made clear to him by his guide as soon as and whenever possible.

(1) He must deliberately re-live every emergence in the *exact shape* in which it spontaneously emerges and at the very moment of emergence.

(2) He must re-live it from *his* point of view and not from that of the analyst.

(3) He must on all occasions re-live it from his *present* point of view, that is, his point of view at the exact moment of emergence, it being noted that each re-living alters the point of view, however slightly.

(4) He must re-live it again and again from each new point of view, both *forwards and backwards* through time until no perceptible emotional or functional change results from the re-living, and the point of view becomes relatively fixed, at least temporarily.

To these four rules I will add two more, although they are implicit in all that has gone before.

(5) He must, whilst re-living an emergence remain in the relaxation circuit. (I have stated at the outset that I would investigate all other factors in relation to this one.)

(6) He must whilst re-living it remain relaxed. Any return of contraction, however local or faint which he does not spontaneously observe and consciously overcome, must be pointed out to him by myognosis, assisted perhaps by words such as "You are again tightening your jaw muscles, or left thigh, or abdominal wall." But, these words, if used, must be spoken very gently and without the least trace of impatience or irritation however many times they might have to be repeated, for otherwise they would promote contraction and not relaxation.

I will now justify the first four of the six rules outlined above. Whatever technique of emergence we adopt, our main object is to induce and help the patient to resolve the conflict between his or her self, such as it is to-day and such as it was at the time when it was first impressed by the subconscious factor which causes his present inhibitions and contractions. He can only achieve this in proportion as he recognises the original impression together with his original reaction to it in all their details. He can only so recognise them if he allows them to emerge in all these details without exception, but as this emergence is by definition the one unpleasant fact that invariably rouses inhibition he can only manage to re-live them as they emerge by a deliberate decision of the mind, the logical necessity of which must be made clear to him.

Once the patient has decided to re-live his emergence in the exact shape in which it spontaneously emerges and at the very moment of emergence, he must be helped by sustained kindness to live up to his decision. Against the practice so frequently adopted, no attempt must be made to induce him to re-live the emergence from any point of view but his own at the exact moment of emergence, however erroneous, immoral or unsocial the analyst may deem this point of view. "One task at a time" is the rule, and the first task after Self B has recognised Self A is to reconcile and integrate the two. This duty is usually complex and heavy enough without, in addition, asking the burdened patient to "lift" his low or depraved present point of view to the level of the enlightened and lofty one of the analyst. This latter may, after all, be itself erroneous and open to discussion and improvement.

When B and A have been integrated, B will be free to question and assess his point of view and will generally feel spontaneously

disposed to do so. Should he, however, resist the inclination he must be encouraged and helped to follow it. Any such resistance, as also any questioning or displacement of a new point of view, cause new contractions to appear and these must immediately be dealt with by myognosis.

I cannot sufficiently emphasise the practical value of reliving each emergence both *forwards and backwards* through time, and feel sure that any keen analyst who has not yet done so instinctively will adopt this simple technique after a few experiments. Every early impression has had its time element, however short the time involved, its "before," its "during" and its "after." At the time when the first impression was being made, the "before" may have been all anxious anticipation, the "during" all terror, and the "after" all horror, but throughout all these stages the subject could only have moved through time forwards and in ignorance of what had actually lain before him. At the time of the re-emergence of this first impression he can still move forwards through it, this time with conscious or subconscious knowledge of what "came after," but he can also move backwards through it and with knowledge of what "came before." However, between his knowledge of what "came after" and that of what "came before" there is a subtle difference which has been shown in practice to have a most important bearing on emergence.

I can illustrate this subtle difference with an analogy from a not uncommon experience. Any motorist who has experienced an accident generally slows down perceptibly though perhaps unconsciously whenever he again approaches the scene of his accident. But two points are worth noting: the first is that whenever he gets near the fatal spot he slows down more when he is travelling in the same direction as at the time of the accident than when he is going in the opposite way. The second is that he does not slow down in proportion to his relative familiarity with the two approaches.

The first point is easily established by watching the speedometer of a motorist as he drives past the scene of his smash in both directions in succession, and the second by choosing as one's subject the driver of a goods van who does the same round daily in the same direction with only occasional runs the other way. Whether in the second case the driver has had an accident when

going in the more or in the less familiar direction, his slowing down will be more marked when he travels as on the fatal day. Anyone who may care to repeat my investigations will be surprised at the percentage difference between the two speeds and at the ease with which he will locate the seat of an accident about which he will know nothing except that it occurred between two places some two miles apart. Two journeys up and down the course should enable him to make his decision, and making it he will be helped by the rapid acceleration that the speedometer will show after the spot has been passed when travelling in one direction.

Inhibiting factors are either more numerous, more potent or more easily recognised by the subconscious when the subject is travelling forwards through time than when he is doing so backwards. By analogy, the subject is less likely consciously or unconsciously to inhibit the emergence of an early impression when made to travel backwards through it in time than the other way about, and the analyst will have no difficulty in locating it accurately in time although he will at first know nothing about it except that it had occurred between two dates some two months apart.

In practice, the technique of "re-living" backwards and forwards through time works roughly as follows: the patient after some general, and if required, local myognosis, lies relaxed on his back in the relaxation circuit. Let us assume that the date is the 30th June, 1940, that the patient is forty years of age and that during the preliminary consultation it has transpired that 1935 was the year during which he first began to consult psychologists. The patient now feels pretty desperate. It is noted that during his recital certain events and time-zones had caused him to display more marked muscular contractions and breath inhibitions than others, and that maximum contractions and inhibitions were associated with a "story" that had developed between August and November, 1934. The myognostician registers accurately the story and time, for use when the patient will have become completely relaxed in the circuit and shown a rhythmical, resilient and slow breath. When this moment arrives, conversation and action proceed:

MYOGNOSTICIAN: "I want you to go back to some of the events and times you have told me about and to allow their details to

pass freely before your mind's eye. I would like you to re-live these details calmly, in a detached manner, as if they had happened to somebody else, and without re-tightening any of your muscles or breathing any faster than you are doing now."

PATIENT: "I understand."

MYOGNOSTICIAN: "You *have* tightened your muscles, and you are breathing a little faster!"

PATIENT: "I am not doing it on purpose, I assure you."

MYOGNOSTICIAN (*after the required myognosis*): "That's better! You are quite relaxed again." (*M. goes back in his mind to a time just before the critical August–November* 1934 *period*). "When I ask you to re-live any given time in your mind I do not care whether you tell me about it or not. If you feel like telling me, by all means do so, but if not, well and good."

PATIENT: "I understand."

MYOGNOSTICIAN: "Can you remember where you were and what you were doing in July 1934? Having a holiday? Were you? Don't answer if you don't feel like it, I only want you to ask yourself the question. Live again the first week in July . . . then the second . . . now the third . . . the fourth . . . you are tightening your muscles again, just a little, and breathing a bit faster . . . do you mind living that fourth week of July again? . . . That's better." (All the weeks of August and September are mentally re-lived two or three times or until tension is less marked. Eventually it becomes clear that the zone of maximum inhibition extends from the 16th August to the 7th October, after which date relative calm prevails and complete peace is reached in December.) "Do you mind doing the *third* week in October again? But don't tell me anything unless you feel like it . . . you are a bit tense again, specially your tummy muscles and your chest. Now the *second* week in October. Go backwards in time . . . Tense here again." (*M. touches the tense region.*) "That's better. Now the *first* week in October."

And so on backwards, with periodical repetitions of inhibition times backwards, until the critical period is reduced to September 4th–16th, and this together with the preceding and succeeding weeks is then re-lived *forwards* through time. A further reduction of the critical zone to September 9th–11th, results, and this is re-lived backwards, day by day and then hour by hour.

I have written enough to make the technique clear, and to

show that it gives scope for skill. But what are its effects? Each successive re-living, whether forwards or backwards through time produces progressively less contraction and breath inhibition than the preceding one in the same time direction. But, "backwards" re-livings generally produce more violent and unexpected disturbances than do "forwards" because backwards travelling arouses fewer or weaker inhibitions of incipient emergences than does the forwards journey through time. This conclusion is justified even when the only evidence available is that given by the muscles and breathing apparatus of a patient who remains silent. It becomes irrefutable when in spite of frequent reminders that they are not expected to "tell," although they may if so inclined, the majority of the patients not only do tell and at times with intense emotion, but tell at least 80 per cent of what they "have" to tell *during their backwards journeys through time*! What is more, those who do not tell there and then are likely to do so spontaneously at the next sitting, in the relaxation circuit, without any muscular contraction or breath change, without a trace of emotional disturbance, not only as if "it" had happened to another person, but as if it were a matter for amused astonishment to the subject that an intelligent person, such as he, had ever allowed a relatively unimportant event or complex to play havoc with him.

What is more significant still is that many patients who do not at first "tell," although they do so later, spontaneously remark on the fact that memories come back to them mainly when they are travelling backwards through time.

When 1934 has been dealt with, 1933, 2 and 1, and so on can be handled more or less rapidly according to their muscular contraction and breath inhibition content. But every sitting must end with the backwards and then forwards re-living of the *whole* critical period with which it started, and not with the backwards journey through the shortened critical period only. I repeat: backwards and forwards, and not the reverse order, if loose ends are to be tidied up until the next sitting.

How far back in memory is this technique effective? There is evidence that it "works" right into infancy and the days before gurgles, cooings and screams turn into words. In some cases even, it has seemed possible that pre-natal memories had not only come to the surface but had manifested in expressible mental

images and in the unconscious reproduction of the movements and attitudes of the "quickening" foetus.

However effective the combination of myognosis, backwards and forwards re-living and the relaxation circuit may be, it does not constitute an analysis proper. All three are means to one end, and that end, emergence, is in turn means to the ultimate end, the integration of the patient's personality. In view of the evidence already accumulated, one may well ask again whether the mere fact of emergence does not by itself account for most of the healing which is admittedly done during analyses? Or, reversing the question, whether most of the healing efficiency of analysis is not due to the sole fact that it promotes emergence? Emergence automatically acquaints Self B with Self A; a few backwards and forwards re-livings integrate B and A who, after all, were only separated in time by B's unconscious refusal to be on speaking terms with A, or even to acknowledge his existence. But after emergences they walk together hand in hand and are one, and so accustomed to one another and each other's past experiences and doings that they can jointly re-live any one of the misdeeds, mistakes or misunderstandings that used to incapacitate either of them separately. They do so in fact without showing the least heart flutter, lung inhibition, or muscles contraction! They now function normally, even when facing their purple patches, for they can contemplate these in a detached and purely intellectual manner which hardly affects their sympathetic nervous system. If I may use a colloquialism which has often helped me to make my meaning clear to my patients: "They don't think below the neck," and they do not therefore disturb either their trunk and its organs, or their limbs and their muscles.

When myognosis and emergence have integrated the patient over the period of time which has been re-lived backwards and forwards, in what particulars has he been changed, what are his activities, and what new knowledge of the patient do these offer to the practitioner?

Before the treatment the patient was demonstrably contracting his muscles and inhibiting both deflation and inflation in both thorax and abdomen. That these negative activities were unconscious did not make them any less costly or destructive than if they had been deliberate. On the one hand, energy was being

spent in an endeavour to circulate blood through muscles and organs, and to oxygenate that blood by breathing. On the other hand it was being spent in inhibiting both circulation and breathing by unconscious muscular contraction. It is as if a man who had a shilling was spending sevenpence in the direction of function, and fivepence in the direction of inhibition. That alone is enough to make a pauper or a neurasthenic, for no industrial concern can spend twelvepence in order to get twopence-worth of work—and escape bankruptcy.

The patient now spends sevenpence on function and nothing on inhibition. He is getting sevenpence worth of work for an expenditure of sevenpence, and is left with fivepence, which can go to renewals or cash balance at bank, or to metabolism or staying power. All he has can now go to remunerative work of repair, recuperation, production and development, in other words, to physical nervous and mental health, to the three members of all human trinities, for we are all trinities of living substance, nervous energy and mental or spiritual essence. And we all need to be efficient in all three spheres if we are to be healthy trinities.

The patient's physical activities are now mainly those of vegetative life; his heart beats soundly; his lungs work rhythmically, resiliently, slowly, smoothly; his organs function efficiently and at little cost. But, as long as he is conscious, the activities of his conscious mind must be reflected in measurable variations of pulse, blood pressure and breath, to mention only three physical factors. Here, however, we observe a vast difference between his state and activities before and after treatment; before, the state of his conscious mind did admittedly tend to be reflected in his vital function, but this reflection was either distorted or inhibited by the constant though unconscious interference of the mud at the bottom of the subconscious pool. The effect of this on the outside observer who was attempting to gauge the patient's mental state from his bodily reactions was that he invariably had to face a jumble of truths and falsehoods from which it was almost impossible to draw reliable conclusions. Now, whilst we cannot say that the patient's body "speaks the truth, the whole truth and nothing but the truth" about his conscious mind, we know that it speaks no lies and quite a deal of truth, and that if we confine ourselves strictly to the observation of bodily reactions and to their severely logical interpretation, we shall become possessed

of knowledge, limited maybe, but factual and reliable, on some of those things which conscious thinking unconsciously makes the physical body do.

We can now observe the body of a patient who has been integrated, whose activities have become mainly vegetative, and who is resting in the relaxation circuit. As long as he is conscious we can, as it were, throw ideas at his conscious mind and observe his unconscious bodily reactions to conscious thought. What we shall observe will give us reliable information on the relationship between mental cause and physical effect, for we shall ourselves have selected the "typical" ideas introduced into the patient's conscious mind.

Several hundred experiments on the lines indicated produced many results which appeared unacceptable at first, but closer investigation has shown that they fit in with the universal scheme.

CHAPTER X

FUNCTION AND CONSCIOUS THOUGHT

Before we can assess the effects of conscious thought on the functions of a subject whose unconscious muscular contractions and inhibitions of vital functions have been effectively removed, we must carefully note existing circumstances.

The subject is lying flat on the back, his arms by his sides. Althouth he is fully conscious his muscular relaxation is so complete that the investigator may fling the subject's limbs about, dig a finger in his abdominal wall, pinch him quite hard, even in the closed eyelids or lips, without eliciting the faintest muscular reaction or protest. Not only is the subject conscious but his sensory perceptions are keener than normally, he sees, hears, and feels, etc., with greater ease and refinement than usually. He only uses gesture or speech when he deems it necessary to answer questions or otherwise assist in experiments, but he can at a second's notice jump off the couch and do with efficiency and speed anything that may appeal to him.

Despite this evidence not only of consciousness but of mental alertness, closed minds have at this early stage and without further ado dismissed the whole procedure with a supercilious: "Hypnotism!" Nevertheless, even the magic of a threadbare omnibus word cannot turn a super-conscious subject who is dispassionately observing and controlling himself into the automatic and senseless tool of a conjurer. It is high time that the pundits were reminded that the word "hypnotism" was coined some hundred years ago by one Dr. Braid, who, following in the footsteps of some of the early Mesmerists, had accepted the "subconscious" and discarded Mesmer's "animal magnetism" as the cause of the psychic phenomena he was observing.

Shortly after he had launched this word which connoted sleep and therefore unconsciousness, Braid observed that the field he was exploring was bounded on one side by complete unconsciousness and on the other by seeming miracles of superconsciousness, and he realised that the literal meaning of

"hypnotism" could hardly be stretched to cover its own negation. Wisely and honestly, he retracted and tried to withdraw a spurious coin from circulation. Unfortunately, like many another deceptive label, "hypnotism" still misleads both high priests and laity as to the contents of many a mysterious bottle.

No, the subject is not hypnotised; he is *abnormally* conscious, but all his voluntary muscles are consciously and completely relaxed although he can bring them instantly to the highest pitch of contraction.

In each hand he holds a copper handle. The one in his L. leads to a copper mat resting under his H., the one in his R. to a mat resting under his S. He is thus in the relaxation circuit by himself, but alternatively, he may be in a group relaxation circuit. His breathing is particularly striking; whereas it normally maintains an average of some 18 inflations per minute, it has spontaneously slowed down to an impressive extent, in one extreme case the rate having fallen to 5 enormous expansions in fifteen minutes. Although breathing does not generally slow down so markedly, it tends to get progressively slower as, with repeated periods in the relaxation circuit, the subject perfects his conscious muscular relaxation, reduces thereby his output of carbonic acid gas, *the* breath stimulant, and thus commonly lowers his breath rate to from 3 to 6 inflations per minute.

A subject in such a state of conscious relaxation offers excellent opportunities for the observation of the effect of conscious mental changes on physiological activities. His breathing is not only distinctive both in amplitude and in rhythm, but it is also constant; his heart's action to which it is related and proportional is also typical and constant, and both are to our knowledge outward and visible signs of inward and invisible mental as well as physical states. But if his physiological behaviour does change under our eyes because we give him some new "ideas," what do we know of the mechanism by which such changes are promoted? We know that the breath and heart changes which we observe as effects of mental changes are superficial compounds of many other but invisible changes, all promoted by a primary mental change and all links between it and the superficial compound we can see and measure. Individual organs, ductless glands, cells, etc., all have played their specialised parts to produce the general change, and yet when this reaches the surface all we say is "This man is

breathing faster because we have given him a stimulating thought." Of the one thing that really matters, the little inside specialists who each do one "job" and one alone, but do it supremely well, we say nothing or very little. At this point I therefore beg the reader to note that every bodily activity which we can observe externally is a compound of many hidden *specialist* activities and that medical science does not admit the possibility of general bodily activities that are not so compounded. I shall have cause to return to this later on.

Here we have our subject completely relaxed, but conscious, and thinking calmly and steadily, since the breathing of his otherwise apparently inert body is abnormally slow, calm and rhythmical. What new ideas shall we ask him to think so that we can detect their influence on an uninhibited body? To secure results of scientific value we must choose our thoughts methodically, and although the plan to which I worked is not necessarily either the best or the only one, I have found it both enlightening and curative. I decided to investigate four main groups of thoughts:

(A) *Vaso-motor thoughts.* Thoughts involving the temperature sense and the vaso-motor system.

(B) *Motor thoughts.* Thoughts involving voluntary physical activities and the motor-nervous system.

(C) *Sensory thoughts.* Thoughts involving sense-impressions and the sensory nervous system, and

(D) *Imponderabilia.* Thoughts involving ethics, philosophy, beauty, science, etc., and thus not necessarily affecting directly either the temperature sense or the motor or sensory nervous systems.

(A) *Vaso-motor thoughts.* I do not here include the "muscle sense" thoughts which I foster in a patient in order to help him relax his voluntary muscles consciously, although such thoughts have an indirect vaso-motor effect. They are now redundant since they have achieved the desired muscular relaxation by the intermediary of the motor nerves. The thoughts I refer to are designed to act especially on the vaso-motor nerves and to promote more efficient circulation both locally and generally, in organs and in muscles.

At this stage the subject can be best instructed into what is expected of him by way of questions. It should first be pointed out to him that he can generally "feel" whether his hands and

feet and other parts of his body are hot or cold. The fact that he is now being asked to become temperature conscious and not muscle-contraction-conscious, as was the case during myognosis, must also be made clear to him. He must be asked to confine himself to the registration of his sensations of heat or cold and not to feel or express resentment at either excessive heat or cold or at the absence of feeling, for this would only cause him to contract again unconsciously. He must be told that questions are being put to him only so that he may put them and answer them to himself, and that there is no need for him to express his answers since the immediate object is the development of *his* temperature sense.

The questions should cover successively every part of the body in detail; unlike thoughts of myognosis they should begin with the head and follow the known nervous tracts. They should be insistent over ailing parts of the body. They should be worded roughly as follows: "Can you feel your head? Does it feel *hot* or *cold*? Inside? The scalp, the eyes, eyeballs and eyelids, the nose, the cheeks, the lips, the mouth, the tongue, etc., do they feel hot or cold?" and so on through the whole trunk and limbs down to the finger- and toe-tips, and always the question must be HOT or COLD?

What does this form of thinking achieve for the patient; what does it teach the investigator? It makes the patient warm if and where he is cold, and cool if and where he feels too hot. It teaches him in a few sittings that with a little practice it becomes as easy to warm a cold, or cool a hot, hand consciously and deliberately as it is to move it, and that this applies to every detail of the body, even to an individual finger-tip. It explains that unpopular effect of what we mis-name self-consciousness, for it really is face-consciousness—the blush—and it shows that it is easily overcome by concentrating at once on the temperature consciousness of any other part of the body, say the left big toe.

With practice, conscious vaso-motor control becomes more and more rapid and in time almost instantaneous, and its effect not only more marked and lasting but more obviously health-giving. But two points which can be experimentally demonstrated in a matter of seconds are worth noting: effects are weaker and shorter-lived when, unknown to the patient, the relaxation circuit is broken, and reversed or chaotic when it is reversed.

There is no need to enumerate the various diseases in which conscious circulation control would promote recovery, but I may state that those who have mastered it maintain much better health and overcome fatigue more readily than do others. I may also note that some critics who had not made any experiments had nevertheless concluded that I was making my patients morbidly introspective. Positive introspection is good, only negative is bad, but introspection as such has acquired a bad name amongst the unthinking because the majority of humans tend, when ailing, to practise it negatively. One might argue with equal sense that the golfer who studies and analyses his bad strokes will go from bad to worse, and I only answer such an illogical objection here because it seems to strike so many people as a sound argument. In practice, this wicked technique has meant to me and to many friends that our feet glow within a minute of getting into a cold damp bed, that we adapt ourselves to sudden and violent changes of climate and temperature better than do other people and that we suffer less frequently and less seriously from the common colds that used to plague our winters. As for our being morbidly introspective, may the peals of our infectious laughter answer for us.

(B) *Motor thoughts.* It is common knowledge that whilst we cannot run or indulge in any other voluntary physical activity without first thinking that activity, we can think of a run without actually indulging in it. It is not so universally realised that when we think of running but do not actually run we nevertheless promote all the physiological changes that follow running, that our heart, lungs, blood vessels, etc., all echo the running thought more or less forcibly. For instance, a nightmare in which we run away from a lion may be followed by more violent heart, lung and sweat reactions than we ever experienced after a real-life run.

Whereas the physiological changes which follow an actual run are part of the repair processes that overcome fatigue and re-establish the *status quo ante*, those that follow the running dream may be promoted by the subconscious either because it realises that the mechanism which is involved in the act of running needs repair, or in the absence of such a need, because of some other subconscious reason. In both cases, work is undoubtedly done, but whilst, after an actual run, repair being necessary, the

result of stimulated metabolism must be labelled repair, after a dream run it must be labelled growth and development whenever repair is not actually necessary.

Logical as this argument happens to be, it is satisfying to find it confirmed experimentally in the relaxation circuit by uninhibited subjects. On innumerable occasions I have asked such subjects in circuit to imagine themselves running, swimming, or cycling a good distance, or doing any other strenuous physical exercise. Generally, I have observed the heart, lung, skin, blood pressure and other changes which one might have expected, but hardly ever a twitch of the voluntary muscles concerned in the action imagined. What is more, in almost every case, I saw the subjects after a few minutes' rest, get up, stretch vigorously the muscles that had worked so hard in imagination, and display intense astonishment at the sense of tone, power, vitality, energy, with which they were so obviously filled. What I saw next was, if true, so revealing and fundamental that after over twenty-five years I still never miss an opportunity of confirming it experimentally. Not only did very little happen when the subject did his imagining out of the circuit, not only did that little last but a few seconds, but a reaction which might have gone on for a quarter of an hour in the circuit, and in a manner typical of its promoting imagining, was practically stopped dead as soon as the circuit was broken, unknown to the subject.

Could one find anywhere better evidence of radiant energy turning to mechanical force, of force and of a specific and typical outlet for its expenditure, of quantity and of quality, of kilowatts and wave-lengths? I know that to some it will not be evidence before instruments say to them: "This, and so many units of it." But that is coming in a later chapter, thanks to the wonderfully ingenious and persevering work of my friend, J. C. Maby. I must here confess that for myself, I only sought instrumental measurement of my facts in order to convince those who could not believe either the evidence of their own eyes and ears or the logic of their own deductive minds. I have asked J. C. Maby to produce one more instrument for me, but brilliantly successful though he has been in the past, his natural modesty and diffidence do not allow him to be too hopeful in this matter. I need this instrument in order to define and measure the force with which an accepted idea, hoary with age, compels an orthodox mind

to deny the evidence of his own senses rather than run the risk of having to discard an ancient dogma for which there is not even negative scientific support. Truly, if faith can move mountains, dogma can smother volcanoes . . . at least, for a time . . . after which volcanoes usually displace dogmas! And lava, so we are told, is a good fertiliser. Of crops and of ideas!

(c) *Sensory thoughts.* Light, sound, smell, taste, and touch do not only stimulate the special sense organs of the body; they also cause the organism as a whole to react to them in a manner more or less distinct and beneficial or detrimental to health. When a sense organ reacts to an external stimulus that reaction is the exclusive work of a specialist in that organ; for instance, one specialist in the eye reacts to yellow and another to blue and one in the ear to A and another to C. Similarly, when in addition to the stimulation of the sense organ itself there is a more general reaction of the whole organism, this reaction itself is the work of other specialists different from the specialists in the sense organ itself.

In this connection the investigation of the physiological effects of selected sensory thoughts brings out a number of facts which are new to science and it opens a vast unexplored field to research. We know that "music hath charms to soothe the savage breast," that a sunny day spent amongst gorgeously coloured and delicately-scented flowers is a balm to soul and body, but what is the mechanism by which these results are achieved, where are the specialists who in addition to ear, eye and nose do react so beneficially to sound, light and scent? The answer: "Purely psychological, my dear fellow, purely psychological," does not satisfy, for in plain English it really means: "I don't know the first thing about it, my dear fellow, not a thing!"

In 1918, England being at war, many of our hospitals were filled with shell-shocked and nerve-shattered wrecks, and in some of our neurological institutions research on the influence of different colours on the nervous system and psyche was proceeding. For reasons which were not made clear to the patients concerned some of them were placed in yellow wards, others in blue and yet others in green, and so on. Some hours after they had settled down, experts appeared and took various physiological readings from the patients, a procedure which was repeated at frequent intervals during the following weeks. It was hoped

to discover thereby what yellow, blue, green, and other colours did to shattered nerves and minds. This unscientific method produced no results, and it was eventually abandoned.

The problem could not be allowed to rest there.

As I began my investigations, I reasoned as follows: I know that apart from the reactions of specialised sense organs to external stimuli, the organism as a whole also reacts to these and that the reactions of both the sense organs and the organism are for practical purposes instantaneous, although their effects may be cumulative. I conclude that to attach cardiographs, sphygmographs, polygraphs, pneumographs, or any other metric apparatus to a patient hours after he had first been submitted to the action of say, blue light, is to ignore both his instantaneous reactions to that stimulus and the law of diminishing nervous reactions to constant stimuli, and to pursue only the cumulative effects, if any, which these reactions may produce. Such procedure is rather like locking the stable door after the horse has bolted.

If any metric apparatus is used it must be in position before any stimulus is applied to the patient so that his instantaneous reactions to individual colours may be observed and recorded, and it must remain in position until in accordance with the law of diminishing returns they cease altogether.

I know that all the observed activities of the body are the result of single or compound specialist activities and I have no reason to think that this does not hold good with the reactions of the whole organism to sensory stimulation. I must, therefore, look for the general effect of the reactions of unknown specialists to sensory stimuli and I must be ready to detect these reactions *before* a given stimulus is applied.

I know, taking one sensory stimulant, light, for instance, that general reactions follow when the special sense organ, the eye, is stimulated. I do not know whether these general reactions remain the same when although light is active on and around the body it does not impinge on the eye itself. And I know still less whether they remain the same when only the mind is stimulated by the mental image of light, as when in the darkness of his bedroom the sleeper dreams of sunshine. No doubt, many people know many things concerning the last two points, but no one seems to be able to tell me anything about the specialists which

I suggest must account for the general reaction to sensory stimuli or their mental image.

I know that light is a vibration of the ether, that it is prismatically divisible into the seven colours of the spectrum, each with an individual frequency per second and a wave-length in m/m as given below:

	Ferquency per second.	*Wave length in m/m*
Red	450,000,000,000,000	0.00066
Orange	500,000,000,000,000	0.00060
Yellow	550,000,000,000,000	0.00055
Green	600,000,000,000,000	0.00050
Blue	650,000,000,000,000	0.00046
Indigo	700,000,000,000,000	0.00043
Violet	750,000,000,000,000	0.00040

I know that light reaches us from the sun, and asking myself who might be the specialist or specialists who react to sunlight I find that there is not a single one in the whole body who does not react to it in one manner or another at some time or another. The only specialist I can reasonably suspect of being responsible for the general body reactions to sensory stimulation seems to be the nervous system itself, and although I may be mistaken in this suspicion, I plan my experiments according to it.

For my satisfaction I first confirm the well-known fact that, other factors being equal, breathing is stimulated by visible light. I find that inflations and deflations are more numerous and fuller in light than in darkness. I also find that in men and animals whose trunk muscles are relaxed and whose expansion in light is fairly evenly distributed between thorax and abdomen, thoracic expansion is reduced and abdominal expansion relatively increased in darkness.

I anticipated that when comparing one colour of the spectrum with another, say red with violet, I should find either that the nervous system would react so as to promote a maximum expansion in the region of the upper thorax for violet and in that of the lower abdomen for red, or vice versa. That is, I expected to find that one part of the nervous tract reacted to wave-lengths

of 0.00066 m/m, another to wave-lengths of 0.00040 m/m, and intermediate parts in proportion, right through every single shade or combination of the solar spectrum. After seven years involving many thousands of experiments on men and animals I concluded at the end of 1927 that maximum expansion occurred at the top of the trunk when red light, and at the bottom of the trunk when violet light was *seen* by the relaxed patient or animal, and that reactions to other colours were located in the trunk in true relation to their position in the spectrum. I noted that these reactions did not always appear instantaneously when passing from white to any colour, but that they generally became perceptible within two or three breaths.

I expected to find that similar or proportional reactions would unconsciously appear when with his eyes closed or bandaged the relaxed subject was asked to *think* of any of the seven colours of the spectrum. They did!

I expected to find that this was of therapeutic value. It was! For instance, red and orange benefit lung; yellow and green, gastric; indigo and violet, womb cases. It also is quite frequently helpful in diagnosis: for instance, a tubercular patch in the apex of one lung may be associated with an intense and unreasoned dislike for red, because red compels full expansion of that part, which the patient unconsciously fears, although it is good for him; likewise, for indigo and violet. In either case, deliberate mental contemplation of the appropriate colour soon makes conscious and then removes an unconscious local muscular inhibition, after which a dislike for one colour may turn to a longing for it. In nervous or psychological cases dislike of a particular colour may be associated with an unconscious local muscular inhibition caused by a complex, when mental contemplation of that colour may make conscious and then remove this muscular inhibition and by "bound" association foster emergence of suppressed psychological factors.

As soon as I had established that mental contemplation of colour produced similar reactions to those caused by actual vision, I concentrated on these two aspects of the problem, finding out first the reaction to real and then to imagined sensory stimulation, and I forgot all about my early resolution to find out what would happen when neither the eye nor the mind were made directly aware of light or colour. However, buried resolutions have a

knack of eventually knocking again at the door of conscience, and in time, this one did, with results of which I will tell in later chapters.

Having found that, for light, high frequencies and short waves (violet) produced reactions at the bottom of the relaxed trunk and low frequencies and long waves (red) at the top, I expected to find that sound waves did the same. Much to my surprise, I was forced to conclude that the reverse was the case. I still wonder whether this unexpected fact can be explained by the differences between the two media through which light and sound waves propagate, ether and atmosphere, and whether, if such an explanation is ever forthcoming and if there is yet another medium beyond ether, let us say a psychic medium, the sequence of breath reactions would again be reversed in the latter: I also wondered whether the breath reactions to sound were not due to our association of short waves with the head and long waves with the diaphragm in song?

With taste, whether actually experienced or merely thought of, the location of maximum reaction is roughly as follows:

Acid . . .	Mouth and upper thorax
Sweet . . .	Thorax
Bitter . . .	Epigastrium
Salt . . .	Abdomen

In this connection, it is interesting to remember that lemon is brought on the football field at half-time to help the players' wind, that oxygen is needed for the combustion of sugar, that stomachic medicines are generally bitter, and purgatives saline.

With smell, conclusions are difficult to reach since in most cases the reaction to scent, experienced or thought, is located as would be that to the colour generally associated with the scent: e.g. rose—thorax; violet—abdomen; lily of the valley—whole trunk; however, a few experiments with subjects born blind appear to produce significant and localised breath reactions both to scent and to the thought of it, but they have been too few to justify final conclusions.

I have not the space here to write a treatise on the possible therapeutic uses of sensory stimulation, either real or imagined, but the field seems vast and its exploration by the research workers

of our hospitals on the lines I have indicated may well be worth their while.

I will give one instance, typical of others, of the efficacy of colour thought. A doctor consulted me about his son, aged twenty. At seventeen, whilst at school, the boy had contracted encephalitis lethargica. This had so affected his thoracic muscles that his breathing had become exclusively diaphragmatic. He had, as a result, developed a paunch, a hollow chest, round shoulders and a marked stoop. His thorax had not fully expanded for three years. At our first meeting I only conversed with the boy in the presence of his father, and spoke only of red flowers, red pictures, red everything. I did nothing else and never mentioned breathing. After forty-five minutes of this "red" conversation, he suddenly straightened out appreciably and took three consecutive deep and noisy thoracic breaths. After this he took a course of treatments with results for which he expressed his gratitude both verbally and in writing.

(D) *Imponderabilia.* From time immemorial, not only philosophers, moralists and artists, but ordinary men and women, have known that ethical and æsthetic behaviour was conducive to health. This law, which exceptions only confirm, finds an echo in the teaching of all good parents and in the folk-lore of all peoples. But the mechanism by which moral conduct fosters health is not self-evident!

Having found out "how" sensory stimulation fostered health by asking muscularly uninhibited subjects in the relaxation circuit to imagine various types of sensory stimuli and by observing that each individual stimulus caused one "specialist nerve" to "answer back," as it were, I adopted the same plan with ethics and æsthetics. I would observe the nature and location of the physiological reactions of subjects in the relaxation circuit to images of good or evil, of the beautiful or the ugly, either in the abstract or in the concrete. It soon became clear, as might have been expected, that the physiological reactions I was investigating were strictly related to what I may term the subject's "own personal code of life harmony." *What*, and *how much*, happened depended on the degree of abstractness of the image and the measure of its agreement with the subject's personal code; *where* it happened depended on the nature of the image itself, other things being equal. Concrete images in agreement with the personal code

produced marked physiological reactions with well-defined location, and vice versa. Whatever is in keeping with the personal code fosters general inflation and deflation, and whatever clashes with it decreases both. The extremes are full, deep and leisurely breath and its complete inhibition, with intermediate conditions of shallow, short, fast or spasmodic breathing. Pulse and blood pressure naturally keep step with the breath changes within obvious limits. Visceral freedom follows good and beautiful thoughts.

The personal code (a temporal value?) appears to dominate the universal moral code (an eternal value?) for a time, but emergence of the fact generally reverses this order in the scale of values. For instance, a Sicilian asked to imagine himself killing in fulfilment of a vendetta may during and after the first murder unconsciously show marked thoracic and abdominal expansion and deflation, whereas after the second he may show complete thoracic deflation and great abdominal contraction. What is more, the Englishman who is asked to put himself in our Sicilian's sandals may unconsciously show the same contradictory reactions to two successive and identical imaginings.

I will not here enter into a discussion of the psychological reasons for these reactions and their reversals, for many lives and books might be devoted to their study. The development of my argument only required that I should here have referred to the four main groups of thoughts I had investigated and to the physiological reactions they produced. I could have written on these at much greater length than I have done, but my object will be achieved if the reader remembers for later reference the fact that specialised physiological reactions accompany and follow conscious thought and that they differ considerably and clearly, not only in nature and amplitude, but also in *location*. I wish particularly to emphasise the last point.

CHAPTER XI

PHYSIOLOGY—RADIATION—TELEPATHY

Before I proceed with my investigation of physiological reactions to thoughts in the relaxation circuit, may I remind the reader that there is method . . . in my detective work. I am examining eleven factors, any one of which may be partly responsible for the results we observe in the relaxation circuit. I have already examined four of them:

(1) *The circuit itself*, and found it an indispensable contributor to the facts;

(2) *Myself*, and found that I was not indispensable but that when in the circuit, I contributed to the facts, much as did other subjects;

(3) *Horizontality*, and found that when present it was an accessory before the facts; and

(4) *Relaxation*, and found that it was a very influential factor in the shaping and promoting of the facts; and I have begun to examine

(5) *Physiological reactions to conscious thought.*

I have partially examined four groups of thoughts and noted the physiological reactions they promote and in particular the fact that some of these reactions are *localised*. I have suggested that in some cases at least this localisation resulted from the automatic responses of specialist nerves to vibrations of specific wave-lengths rather than from those of specialist organs.

What I had observed was sufficiently interesting to stimulate further research, and I went on experimenting with "thoughts" in the relaxation circuit. Year after year, adhering mostly to my four groups, vaso-motor, motor, sensory and imponderabilia, I varied the circuit, the subjects, the number of subjects in the circuit, the number in a given group who thought a given thought, the length of time for which they held that thought, and I noted their reactions, physical and mental, their signs and their symptoms, and the length of time for which all these reactions persisted. I made one, two, three, or more members of a group think one

thought, and made the others think another, either similar or different thought, and I observed their reactions. I made sure that no subject knew through his normal senses, what any other subject thought by conveying ideas only in writing. I made my observations in relation to types of subjects, to relaxation, to sex, to age, to right and left-handedness, to seasons, to lunar cycles, and to anything else that seemed to me, my friends, associates or critics to have any possible bearing on my problem. In everything I worked honestly, sincerely, seeking truth only, and observing to the best of my ability all the rules of the experimental method. I must have made many mistakes, both of observation and of interpretation, for as the reader has no doubt concluded, the factors contributing to the facts are not only numerous but the majority of them can never be eliminated. I could never, for instance, carry out one single experiment with only two of the factors in play, say A and B, and then from the coupling of B and C alone derive some conclusion as to the specific influence of A. I do not even remember having found it possible to deal with as few as five factors at any one time, so that whilst I was concentrating on the observation of factor D it must frequently have happened that one of the other factors in play failed at least temporarily to maintain the constant behaviour which alone could have produced the 100 per cent certainty I desired from each individual experiment. This variability of factors under observation was most marked and most unavoidable when anything from six to twelve subjects were being asked to hold one specific thought for say sixty seconds. In such circumstances even the constant repetition of a certain sentence or of a given chord by an immutable gramophone record, or of a certain colour by an inanimate and unemotional electric bulb, fails to guarantee identity of mental images in different subjects or constancy of concentration of thought throughout a whole minute of time in one subject. The inevitable variations involved in any research such as I had undertaken made vast numbers of experiments, continued through many years, the indispensable basis for statistically valid average results.

Not only did I make thousands of experiments, but hardly a day passes that I do not repeat at least some of them. Many of my experiments have in addition been repeated either by or in the presence of scientists whose qualifications and critical faculties

are not in doubt. They and I hope that at least some of these experiments will be repeated, preferably in hospitals, upon sick as well as healthy subjects, and by the most severely critical scientists who could be induced to take an interest in them. We are satisfied both that the facts I relate below, or variants of them, will be repeated *ad nauseam* and that inevitable conclusions will be drawn from them.

Before I relate these facts or suggest conclusions which appear inescapable, I will remind the reader that I am still left with seven witnesses whose examination I have either not yet completed or not even started. They are:

(5) Physiological reactions to thought.
(6) Telepathy.
(7) The value of numbers of subjects.
(8) Drowsiness, unconsciousness and sleep.
(9) Abnormal physical factors.
(10) Suggestion, and
(11) The fact that subjects are Alive.

Here we have some of those inseparable and unremovable witnesses of which I have just written. We must perforce cross-examine them in each other's presence, and remember that the conclusions we draw from their behaviour may bear on only one or on any number of them.

Here are my facts and conclusions:

(1) The nature of the physiological reaction produced by a thought is governed by the nature of the thought coupled with the subjects' psychological make-up and personal code of life harmony.

(2) The location of this reaction is independent of either make-up or code, but is affected by unconscious or conscious muscular contraction.

(3) *In the absence of muscular relaxation true reactions do not occur.* They may be obscured, suppressed, delayed, distorted, displaced, and actually reversed in order or location. No reliable conclusions can be based on reactions so obtained. This applies most particularly to sensory stimulation, actual or thought; for instance, the thought of "red" which tends to speed up the breath-rate and to localise expansion in the thorax when muscular relaxation is perfect, promotes instead violent abdominal expansion when the thorax is contracted, consciously or unconsciously.

(4) The tension circuit promotes contraction and, as a result, chaotic reactions, and no positive conclusions can be based on experiments made in it, but they afford invaluable negative confirmation of the efficacy of the relaxation circuit.

(5) The amplitude and persistence of physiological reactions to thought are greater in the relaxation circuit than out of it, irrespective of suggestion.

(6) They are greater with a number of subjects in relaxation circuit than with one only. Their increase is not strictly proportional to the number of subjects in circuit but to the latter's individual qualitative and quantitative properties.

(7) In group relaxation circuit reactions are at their weakest and least defined when the minds of the subjects are allowed to wander; at their strongest and most clearly defined when all subjects are asked to hold an identical thought; and at their most chaotic, when the subjects think antagonistic thoughts such as, for instance, when three think red and three blue. The thoughts of these colours promote maximum expansion in different locations and at dischronous breath rates, whereas the thoughts of yellow and blue combine to promote maximum expansion in the same region as does the thought of green, and they do so at a medium breath rate.

(8) When, say, three subjects hold a definite thought unknown to the other three whose minds are allowed to wander, the wanderers generally show the physiological reaction which belongs to the definite thought chosen for the first three subjects. A strong-willed subject with great powers of concentration may impose the physiological reaction appropriate to his thought on the wandering subjects, unknown to them.

(9) Subjects who unconsciously react physiologically to another's thought frequently "guess" this thought. Some do so although they have not observed their own physiological reactions and may even deny that these had occurred at all until shown an objective record of them, and some do so *because* they have observed their own physiological reactions and apparently as a result of a conscious logical process.

I will here state some conclusions which appear to me and to many others to flow from the above observations.

The differences between no circuit, the relaxation circuit and the tension circuit present us with something kinetic, dynamic,

and quantitative which passes from subject to subject by means of insulated copper wires, and is registered independently of the five senses. Telekinesis is "the" word indicated by such facts.

The "guessing" of the thought linked with specific physiological reactions of definite location, whether this "guessing" rests on a rational process following on the observation of reactions or on an intuitive faculty, presents us with something which is not only kinetic, dynamic and quantitative, but also qualitative and interpretative of emotional and mental states, of feeling. Telepathy is "the" word indicated by such facts.

The fact registered earlier in this book that a break in the circuit on a glass-topped table does not arrest all phenomena, suggests radiation, wireless, and "conducted" radiation or "wired" wireless at that. To this fact many new ones will be added as we proceed. Radiation, frequency, wave-length, amplitude, velocity, and a multitude of terms popularised by world radio are all indicated by such facts. My experiments, the terms which they suggested and all that these connoted urged me to acquaint myself with what had previously been observed and written on telepathy and other means for the acquisition of knowledge independently of the five senses.

I may, however, remind the reader that I did not need either these new experiments on physiological reactions to thought nor the facts of modern radio to justify my interest in telepathy. I had already recorded that a subject in circuit with a woman passing through the menopause could tell whether her "flushes" were "coming on" or "going off" and that one in circuit with a fever case could, from his own feelings, follow the rise and fall of the patient's temperature. I might have added at the time that the temperature of a fever patient placed in circuit with a healthy person almost *invariably* fell appreciably in a few minutes. I will add now that whilst a healthy person cannot reduce another's temperature of say 104 below a critical figure of say 102 however long he stays in circuit with him, a convalescent from the same fever as that from which the patient himself is suffering will lower the patient's temperature below the 102 mark of former resistance, just as convalescent serum might do (1926–7).

That is, the weak but immune achieve results beyond the power of the strong but not immune subjects. Here we have the suggestion of quantity in the healthy and quality in the weak

subject, of telekinesis and telepathy, of volume and wave-length, of amplitude and tuning in, of "working off the main" and of "getting a selected station"! Is not this alone enough to kindle an interest in telepathy? Let us therefore ascertain what is known about it both in its spontaneous and in its experimental forms.

The term "telepathy," like many others in common use by the students of super-normal human faculties or states, covers fields of experience which differ widely in extent with almost every observer. I will, therefore, quote here the definition of telepathy given by F. W. H. Myers: "The communication of impressions of any kind from one mind to another, independently of the recognised channels of sense." And I may point out that if, as I believe, survival of physical death is a fact, communication between discarnate and incarnate minds would come under the definition propounded by the master who coined the word "telepathy."

Before the end of 1925 the many unsought and unexpected telepathic phenomena I had witnessed in the relaxation circuit had induced me both to formulate a working hypothesis of telepathy and to plan experiments to confirm or disprove it.

The fact that telepathic phenomena were fostered by the relaxation circuit suggested the hypothesis that at least one of the telepathic techniques, if there were more than one, involved radiation and vibration, and/or that the relaxation circuit developed the "receptive faculty" of my subjects, whatever that might be shown to be. I therefore decided to investigate induced, as opposed to spontaneous, telepathy, and to make all my experiments in the relaxation circuit and on the hypothesis that radiation and vibration were involved.

I had found it necessary to distinguish clearly between telepathy as Myers had defined it, and clairvoyance, clairaudience and other supernormal means of cognition. If an idea or an image were only thought by one mind, its apprehension by another clearly involved telepathy alone; on the other hand, if images were either visible or audible to the first mind and only then apprehended by the second, telepathy, clairvoyance or clairaudience might either jointly or separately explain the phenomenon. In all such cases strict criteria would have to be applied in order to define both the part played by telepathy and

its *modus operandi*. What telepathy, clairvoyance and clairaudience I had observed, had led me to conclude that in telepathy "symbolism" of idea, sound, feeling, emotion, pain, etc., frequently played an important if not a dominant part in the mechanism of transmission, symbolism which had to be *interpreted* by the percipient sensitive; whereas in clairvoyance and clairaudience the image of the visual or auditory reality being itself the object of transmission, no interpretation of that image was necessary and its *description* by the percipient usually sufficed. Thus, if radiation and vibration were involved, in telepathy we should have the perception of a radiation of thought, and in clairvoyance and clairaudience the perception of a radiation of what we call objective reality. But here, it is worth while pointing out that in normal sight and hearing, by which we believe that we perceive objective reality, science tells us that we only perceive the "radiation" of objective reality, which we then proceed to explain and interpret to ourselves as a beautiful rose or a horrible scream.

These were early conclusions, hypotheses and plans, and before proceeding with methodical experimentation, I read profusely and studiously of two groups of literature: the accounts given by respected men of science of their work in induced telepathy and the records published in different languages by societies of international repute, records in which were given in detail the best authenticated cases of spontaneous telepathy, together with the evidence of their authenticity.

My reading confirmed my previous conclusions that telepathy, whether spontaneous or induced, was a reality and that the capacity for "sending" and "receiving," although unevenly developed amongst men, was probably latent in all. In addition, my reading crystallised for me three points to which anyone embarking upon experiments in induced telepathy can never attach too much importance.

In a large proportion of the most striking and enlightening cases of spontaneous telepathy officially recorded, these three factors were so conspicuously present that I concluded that my experiments in induced telepathy would succeed in proportion as I managed to secure their presence or that of adequate substitutes for them.

The first of these factors is a state of raised emotionalism in

the sender which appears to release his radiating power (corresponding to watts in electricity?) and turns a latent faculty to radiate into an actual and powerful radiation. This factor appears to operate when the sender is facing sudden danger, shock, death and similar facts or their imagined possibilities. Its importance seems to rest not in the raised emotionalism but in the liberation of latent force, and it struck me that whilst it was difficult to produce adequate emotionalism during cold-blooded experiments and thus to induce the sender to radiate a "shock-image," it might be possible to increase the radiating power behind an image by making say, a hundred people instead of one, think and radiate that image together.

The second factor is a state of lowered objective attentiveness in the receiver, such as may be found in sleep, a siesta, a brown study, an exhausting illness, etc. This I could obtain automatically in the relaxation circuit, and with the advantage that I could have at my disposal, not one, but many receivers, with a proportionate increase in the probabilities of getting a "broadcast picked up."

The third factor is a state of affinity between sender and receiver, an affinity which may rest not only on a physical fact such as that of blood relationship, but on any aesthetic, intellectual, scientific, philosophical, etc., as well as emotional linkage. It should be noted that displeasurable emotional links, such as hate, may favour telepathy just as much as pleasurable ones, such as love; for instance, a sender, induced by a sudden danger of death to radiate his shock-image may be just as readily "got" by his mortal enemy as by his beloved, provided of course that these are equal sensitives, equally inattentive and equally likely to hold the sender on their subconscious threshold, and thereby not only to "tune in" but also to "listen in" to him.

All the above are early notes, some dating back to 1925, and they will be amplified, developed and confirmed as experiments proceed, but taking them now for what they were worth then, I will outline here the yardstick by which I proposed to assess the value and significance of my results. In most of the experiments in induced telepathy of which I had read, the writer, generally a man of science of repute, or one of his associates, had been the sender, and had used as receiver a well-known sensitive with receptive faculties developed far beyond the average. Anyone

who has read widely the accounts of such experiments which refer to failures as well as to successes (and none are worth reading unless they do) will agree that when no limit had been placed on the choice of mental images to be transmitted, induced telepathy had in the past succeeded in less than 10 per cent of the attempts recorded. We may assume therefore that one sender, trained in experimentation and working with one sensitive, might expect one success in ten images radiated. I proposed working with one hundred or more senders and with four or more receivers, but I would take my receivers at random from amongst the unknown audience of a large hall and these would obviously only seldom be trained sensitives.

My hundred senders would attempt to radiate only one image, presumably in the wave-length appropriate to its field, be this æsthetic, philosophical, erotic, motor-nervous, or any other. An increase in the number of senders could only increase the power of radiation without having any influence on the "tuning in" capacity of the receivers, who would either be "in" or "out of tune," more or less capable of consciously "tuning in," and/or more or less unconsciously "self-tuning." To make my meaning clear in terms of radio: a hundred stations bawling out the same programme on the same wave-length would not help Mrs. Smith to "get" that programme if her set did not happen to be on that wave-length and she did not know how to tune in to it. Statistically, large numbers of senders on one wave-length could only increase the percentage of successful receptions by widening the field of radiation and increasing the power behind it.

As we know, all radio stations can broadcast, and the best sets can receive, on any of many wave-lengths. In practice, however, international conventions confine each station to one wave-length, and the majority of sets do only receive on a limited number of wave-bands. If it were the law that humans could each broadcast and receive only on one wave-length; if from birth or by education a single wave-length were a fixed individual character and individuals were thus confined to broadcasting and receiving on one immutable basis, I should obviously increase my successes in induced telepathy by having a million senders sending one message on a million wave-lengths, for one of them might by chance broadcast on one of the four fixed wave-lengths used by

my four receivers. But the supposition that the limitations imposed on radio stations by international conventions could be imposed on men either by nature or by education is shown to be absurd by the simple fact that good sensitives apprehend with equal ease the contents of the most diverse consciousnesses. If, however, such confinement of each individual to one wave-length were nevertheless the law, the chances of our having observed even one single case of spontaneous telepathy would be millions of millions to one against, for ether vibrations to which man is known to react do not number 2,000 millions (roughly the number of men on earth) but myriads of millions. Excluding all kinds of ray therapy (and we know the wave-lengths they use are innumerable), light alone involves an enormous range of individually distinctive wave-lengths, leaving the infra-red and ultra-violet bands out of account.

Individuals could not be confined to one characteristic wave-length, but each should in theory, and at one and the same time, function on a multitude of them, both as sender and as receiver. The many wave-lengths on which individuals would at a given time send subconsciously, would be governed by the type of shock-image held by their consciousness at that time and by the brain centres, groups of nerves, organs and muscles involved in that image as specialists. If this working hypothesis should bear any relation to law and facts it would follow that all the world over, in all men, possibly even in all vertebrates and in all animals, all the way down the scale of life, all specialist glands, all brains, all nerves, all organs, all muscles, would each function on a particular short-wave-band, sending to and receiving from their counterparts in all living things messages of life or death. All brains, all nerves, all organs, all limbs and all cells, *could*, in fact, be in tune with all their counterparts. But, of course, this would not compel any one individual to "listen in" to any of the innumerable messages detected by his nerves, organs and muscles, his myriad receiving sets, even if he knew how to "tune-in," or to integrate all these messages into one whole image, as does the teleprinter when it receives a photograph radiated across the Atlantic. Equally obviously, universal refusal to listen-in consciously would not be tantamount to inability to send or to receive subconsciously, and both these could operate unceasingly, night and day, though be it unconsciously; and all the time,

consequences would follow, universally, inevitably, but unobserved, until the end of time.

If this were true, it would follow that many other hypotheses, theories or assumptions, might also be true, though we, rational members of a society reared on modern science, know them to be absurd and superstitious! For instance, the silent mind might be mightier than the sword, or the spoken word, or even the pen; radiations of mass love might "jam" mass hate propaganda; mass prayer might release spiritual forces that would make the hands that drove all tanks drive ploughs instead! However, it is not rational to indulge in such speculations in a book which pretends to deal with a scientific investigation, and this Utopian digression must now cease!

Before I describe some of those of my experiments in induced telepathy which were founded on the working hypothesis that some, if not all, telepathy made use of radiation, I want to make my position clear. I did not embark on these experiments because I believed that all telepathy involved ether radiation, for I did in fact believe, and still do believe, that some telepathy has no need whatever of ether radiation. Early in my investigation I reached the conviction, on evidence which I then deemed sufficient, that some telepathy is not bound by the law of the inverse square of the distance, as are light, gravitation and radiation. This apparent freedom from the inverse square law suggested any or all of the following: a fourth or fifth dimension; a medium in which velocity of displacement would be comparatively as much faster than that of light as this is faster than that of sound; a law of the cube; the superfluity of any medium at all above a given plane of being, etc., though my mind reeled at such infinities.

I also want to point out that I was not alone in the early nineteen-twenties in assuming that at least some telepathy rested on ether radiations; I was instead in distinguished company. It was at that time that the Psychical Research Societies of various countries induced their respective broadcasting systems to carry out mass experiments in telepathy. The procedure adopted was roughly as follows: ten different persons, eminent in science, philosophy, psychology, or art, stood in turn at the microphone and each concentrated on one mental image for, say, one minute. At the same times, thousands of listeners deliberately attended

to their mental receptions and, as instructed, attentively wrote down their perceptions at the end of each minute. The professors thought, in cold blood, of things such as the Queen of Hearts, some literary masterpiece, some great character in fiction, a bottle of champagne, some famous painting, a great battle, an historical date; the listeners "listened" attentively to silence; and to keep the proceedings well above board, each professor guaranteed that no relation or friend of his would send in replies which he might conceivably have obtained by collusion.

These last three points made certain:

(*a*) That there could be no shock-image, or release of radiating power,

(*b*) That there could be no objective inattentiveness, relaxation, or receptiveness, and

(*c*) That there could only be affinity between sender and receiver by pure chance, the odds against being enormous.

Let us assume that, in all experimenting countries together, 100,000 people had sent in replies (actually many more appear to have done so) and that each gave ten replies. That means a million replies! The experiments were never repeated! Why? Because not one single correct guess in a million had been received by any of the broadcasting systems concerned. This did not show that telepathy did not use ether radiation; it merely demonstrated that point (*a*) had made any efficient radiation at all most unlikely, that point (*b*) had made sure that even if anything had by chance been radiated no receiving set would have been "turned on," and that point (*c*) had made it likely that even if all the sets had by chance been "on" not more than a small fraction of one out of 100,000 could have been "tuned in."

I grant that the failure of this international experiment is only a partial vindication of the law, and a negative one at that; but negative confirmation of a law assumes great importance when it can be shown that by the full observance of that law *positive results can be obtained, by any careful experimenter.* And here I will underline that in the field of experimental telepathy, as in many others, full observance of the law includes the perfect and sustained relaxation of all subjects.

CHAPTER XII

GROUP EXPERIMENTAL TELEPATHY

Having adopted the working hypothesis that at least some telepathy involved radiation and vibration and having noted that three specific factors were frequently present in cases of spontaneous telepathy, I worked out the details of my experimental method for induced telepathy as follows:

(1) Recognising the difficulty of releasing radiating power by shock-images in cold blood, I proposed obtaining it by getting as many senders as possible to concentrate on one image at the same time. I trusted that I would find in numbers an effective substitute for the raised emotionalism of the one sender in spontaneous telepathy.

(2) I proposed using at least four receivers, and knowing from experience that the relaxation circuit automatically produced the state of objective inattentiveness so frequently noted in the receiver in spontaneous telepathy, I proposed not only using this circuit for my four or more receivers, in all my experiments, but also asking these receivers to reinforce their automatic reactions to the circuit by deliberately cultivating the required mental attitude.

(3) I proposed increasing the chances of having affinities between the many senders in my audience and my receivers, not only by having at least four receivers in the relaxation circuit, but by asking them to volunteer from amongst groups of relations or friends in my audiences, so that each receiver might have at least one potential affinity amongst the senders in the hall. Further, since experience had shown that the mere fact of their being joined in the relaxation circuit tended to establish or to bring out affinities between my receivers by means of what appeared to be mutual and automatic self-tuning, I anticipated that if one of the receivers in circuit who happened to be in tune with one of the senders in the hall should pick up his affinity's broadcast, the other receivers in circuit with him might unconsciously and automatically self-tune in to his wave-lengths and

thus also pick up the affinity's broadcast or, at any rate, snatches of it.

(4) I proposed using the relaxation circuit, not only because it automatically induced in the receivers the required state of objective inattentiveness, but also because as I was basing my experiments on the working hypothesis that ether radiations were involved in some telepathy, I was bound to look upon the lengths of copper wire I used in my circuit as potential aerials. As long as I had thought of these wires merely as conductors of radiations between polar opposites in human bodies, two considerations had induced me to keep them as short as possible. The first was that excessive length of wire might cause unnecessary resistances and thus weaken the physiological reactions of my subjects. The second was expense. Research is notoriously unremunerative and my steadily diminishing capital compelled economy. However, as soon as I realised that I was dealing with potential aerials I found myself thinking in terms of greater lengths of wire.

(5) In order to answer in advance the criticism I had so often seen levelled at experimenters in telepathy that their so-called telepathy only succeeded because of unintentional whispering, I proposed to convey in print only and in silence the images on which my senders were to concentrate. I would use different printed sheets, each describing so many numbered mental images, and cards drawn at random would decide the number of the image to be broadcast.

(6) Having discovered by experiment the physiological reactions of individuals to their own vaso-motor, motor and sensory thoughts, and where these reactions were located in the body, I proposed using these thoughts on my printed sheets in the hope that my receivers would be made to show to the images thought by senders the same reactions which they would have shown had they thought these images themselves.

(7) I proposed asking each sender to hold each image for one minute, and as he held that image, to observe and note the breath reactions of one selected receiver and their location in his body.

(8) I proposed asking each receiver to observe and note his own breath reactions and their location and his spontaneous mental images during the critical minute. Thereafter I would give receivers two or three minutes in which to put their observations into final spoken or written form.

(9) I proposed rating as proof of telepathy any correct reaction, or any report, spoken or written, which gave only an intrepretation or paraphrase of the image thought by the senders and as possibly or probably symptomatic of clairvoyance any report which included either the actual wording of the image or its distinctive number as printed on my sheets.

(10) Assuming that different minds must at all times be broadcasting different images, and noting that nevertheless only selected minds receive only selected images, I hoped to throw some light on the "how" of this fact by making some of my senders, at odd times and unknown to themselves and to others, think not only different images from, but opposite images to, those thought by other senders. I proposed achieving this by giving part of the audience pink sheets on which would be printed twenty-five numbered images, and the rest of the audience blue sheets on which would also be printed twenty-five numbered images, identical with those printed on the pink sheets, with four or five exceptions, when the thoughts on the two forms would be opposites. I could, of course, vary the sheets at will, give the blue ones to only a few or to many senders, and in other ways allow chance to play its part and produce its enlightening pieces of negative evidence. And, as will be seen, chance did not fail me.

I reproduce herewith on consecutive pages (154–5) one of my pink sheets and its blue counterpart. I have chosen this particular pair for reproduction because it allowed the goddess of chance to provide me with some of the most illuminating incidents with which she could ever have favoured anyone engaged in experimental telepathy.

These two sheets contain each twenty-five mental images and it will be noticed that these twenty-five images are the same in both sheets with the exception of numbers 7, 11, 12 and 17. These four are not only different sensory images, but they are opposites, in the sense that when thought consciously and deliberately by a completely relaxed subject they promote maximum breath expansion at opposite ends of the trunk of the subject who thinks them, i.e.:

No. 7. Red, upper thorax; Violet, lower abdomen.
No. 11. Low note, lower abdomen; Red, upper thorax.
No. 12. High note, upper thorax; Low note, lower abdomen.
No. 17 Salt, lower abdomen; Red rose scent, upper thorax.

Whether my working hypothesis and my technique of "Group Experimental Telepathy" were or not well conceived, the one thing that really mattered was: would they produce significant facts? Would they enable one or more minds amongst my receivers to apprehend any of the contents of any other mind amongst my senders without the intervention of any of the known normal senses? They did! And they do, and in almost every case, as any experimenter will find out for himself if he will but obey the rules of the game: many "senders," sending one "programme"; at least four "receivers" in the "relaxation circuit," with a sufficient length of "aerial" efficiently disposed, and with potential "affinities" amongst the "senders."

No sooner had I made my preparations than I received a surprise even before I could start on my first telepathy tests. I was resting my receivers in the relaxation circuit so as to make their relaxation deep enough for sending experiments. I had feared that the lengthened wires which I had provided might have acted as a resistance to the wired radiations passing from subject to subject and thus have made their physiological reactions slower and weaker. To my amazement, with lengthened wires subjects reacted sooner and more vigorously, and although I could at first hardly believe my eyes, the facts were easy to check, and soon, doubt had become impossible. Not only did numbers of subjects increase physiological reactions, but with a given number of subjects there was a further increase in these reactions when passing from twenty-five feet of wire laid haphazard to one hundred and fifty feet carefully arranged.

Experts on conduction assured me that my fears that long wires might reduce reactions were absurd, for assuming that I was dealing with "wired wireless" the resistance of one hundred feet length of the gauge of wire I was using could only cause negligible loss of power. Evidently the additional length of wire was tapping an unknown source of power since its introduction in the circuit had led to the production of additional work. Here again, radiation was clearly involved, but radiation of what? And, the human nervous system could detect and utilise whatever was being radiated, whether or not any available scientific instrument could detect and measure it! I ought to have realised there and then that chance had just given me a hint of something of great significance and to have set hot foot on the

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TELEPATHY, B.1.

PINK SHEET

1. You are enjoying a fast run on a sunny beach.
2. You are swimming in very cold sea-water.
3. After a vigorous swim you are rubbing your body very hard and making it tingle.
4. You are sun-bathing and fall into a very deep sleep.
5. After a wonderful sleep in the sun you wake up, yawn, rub your eyes and stretch with tremendous vigour and enjoyment.
6. You are cycling strenuously up a long hill on a hot day.
7. You are looking at and enjoying red flowers in vivid sunlight.
8. You are looking at and enjoying a vast expanse of snow in sunlight.
9. You are in complete darkness in a railway tunnel.
10. You are looking at and enjoying the vivid green of a meadow in strong sunlight.
11. You are listening to a choir of baritones.
12. You are listening to a boys' choir and enjoying their shrill voices.
13. You are listening to a military band.
14. You are eating a very peppery savoury.
15. You are chewing, tasting, and swallowing some lemon.
16. You are sipping a large tumbler of hot milk.
17. You are eating a very salted anchovy.
18. You are inhaling and enjoying the scent of a bunch of lilies of the valley.
19. You are inhaling and enjoying the scent of a bunch of violets.
20. You are taking in a strong odour of garlic.
21. You are recovering from pneumonia and your chest is at last opening in big spontaneous sighs.
22. You are recovering from sciatica in your left leg and it is now stretching vigorously and glowing.
23. You are sweating profusely in the steam room of a Turkish bath in order to get rid of bad rheumatism in your left shoulder.
24. You are suffering from acute indigestion.
25. You have a violent cold in the head and your nose is blocked.

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TELEPATHY, B.1.

BLUE SHEET

1. You are enjoying a fast run on a sunny beach.
2. You are swimming in very cold sea-water.
3. After a vigorous swim you are rubbing your body very hard and making it tingle.
4. You are sun-bathing and fall into a very deep sleep.
5. After a wonderful sleep in the sun you wake up, yawn, rub your eyes and stretch with tremendous vigour and enjoyment.
6. You are cycling strenuously up a long hill on a hot day.
7. You are looking at and enjoying violet flowers in vivid sunlight.
8. You are looking at and enjoying a vast expanse of snow in sunlight.
9. You are in complete darkness in a railway tunnel.
10. You are looking at and enjoying the vivid green of a meadow in strong sunlight.
11. You are looking at vivid red neon lights.
12. You are listening to a choir of baritones.
13. You are listening to a military band.
14. You are eating a very peppery savoury.
15. You are chewing, tasting, and swallowing some lemon.
16. You are sipping a large tumbler of hot milk.
17. You are inhaling and enjoying the scent of a red rose.
18. You are inhaling and enjoying the scent of a bunch of lilies of the valley.
19. You are inhaling and enjoying the scent of a bunch of violets.
20. You are taking in a strong odour of garlic.
21. You are recovering from pneumonia and your chest is at last opening in big spontaneous sighs.
22. You are recovering from sciatica in your left leg and it is now stretching vigorously and glowing.
23. You are sweating profusely in the steam room of a Turkish bath in order to get rid of bad rheumatism in your left shoulder.
24. You are suffering from acute indigestion.
25. You have a violent cold in the head and your nose is blocked.

track of that something, but, to my shame be it said, I just went on with my telepathy and did nothing at the time even to acknowledge this gift from the gods. Much later, and rather against my will, I was practically forced by J. C. Maby to take up again the thread I had so stupidly neglected. He assured me that searching in his own field he had found instrumental evidence of a type of radiation the action of which on the neuro-muscular system should have become evident to me. He was right; it had not escaped my notice, but as the reader will see later on, I had failed to react in the appropriately intelligent manner.

I proceeded with experimental telepathy and was soon rewarded with a plethora of facts. I will first enumerate these facts, and after some comments on them, I will deal with a few concrete and typical examples, and finally outline my general conclusions.

First, a few facts. When the senders in the audience think images involving vaso-motor, motor or sensory activities, not only do their own neuro-muscular systems and organs show reactions which are appropriate both in nature and in location, but so do those of the receivers in the relaxation circuit.

For instance, when the senders concentrate on image No. 1 on my sheets: "You are enjoying a fast run on a sunny beach," the receivers' breathing visibly speeds up and they report a sense of stimulated circulation and warmth.

With No. 4: "You are sun-bathing and fall into a very deep sleep," most receivers' breathing is deepened and they report warmth and drowsiness and some fall asleep.

With No. 7 (pink sheet alone in use): "You are looking at and enjoying red flowers in vivid sunlight," the receivers' breathing accelerates and maximum expansion is clearly thoracic.

With Nos. 11: "You are listening to a choir of baritones," and 17 "You are eating a very salted anchovy" (pink sheet alone in use), the receivers' breathing decelerates and maximum expansion is clearly abdominal.

With No. 7 (both sheets in use)—pink sheet: "You are looking at and enjoying red flowers in vivid sunlight," and blue sheet: "You are looking at and enjoying violet flowers in vivid sunlight," the receivers' breathing clearly shows, in some cases acceleration and maximum thoracic expansion, in others, deceleration and maximum abdominal expansion, but in the *majority*

(and I underline majority) both thoracic and abdominal expansions are affected, their different rates producing alternatively coincident expansion of both regions and expansion of one and deflation of the other, with resultant discomfort and restlessness in the subject.

With No. 23: "You are sweating profusely in the steam room of a Turkish bath in order to get rid of bad rheumatism in your left shoulder," and with similar images connected with localised ailments, many receivers produce muscular twitches or spasms in the limb or part affected and not in the supposedly healthy opposite limb or parts.

The changes of breath rate and location, and the twitches or spasms just reported are generally clearly visible to and noted by groups of senders who specialise in the observation of one receiver. On occasions, the reactions produced are of extreme violence and on an average at least 75 per cent of the receivers produce reactions clearly related to the images broadcast by the senders.

Interesting and enlightening as are the physical reactions of receivers as observed by senders, the receivers' mental reactions as described by themselves are still more significant and suggestive. These mental reactions appear to vary in degrees of efficiency, and some of them seem sufficiently well defined to suggest either three means of reception or three types of receivers.

Some receivers neither show nor register any physical or mental reactions at all, but I have nevertheless been led to count them as receivers, and for two reasons. The first is that I have found more than once that a subject I had come to classify as utterly negative and useless as a receiver would at a new sitting with new senders, unexpectedly produce a brilliant flash of accurate telepathy. This suggests either luck in tuning-in or an affinity amongst the new senders, or some other undefined and favourable condition. The second reason is that these apparently physically and mentally negative receivers are so rare (certainly less than 10 per cent) that one must conclude that the capacity for telepathic reception is a universal human faculty and explain individual failures by circumstances unfavourable either to good radiation or to good reception. If this estimation of the facts is correct, these receivers cannot be attached to any type proper until they have actually classified themselves by the unconscious use of a typical mode of reception.

The first type of receivers show breath reactions unmistakable both as to rate and location, and/or localised muscular twitches or spasms, both clearly related to the mental image broadcast by the senders, but they do not consciously register their own physical reactions. They often deny that reactions clearly observed by witnesses and recorded by instruments had ever taken place at all, and assert that reactions both unseen by observers and unrecorded by instruments had not only occurred but been very marked. For instance, a receiver whose abdominal expansion had been exceptionally violent during the critical minute, whilst his thorax had remained deflated throughout might assert vehemently that the exact opposite had been the case.

It would be easy to dismiss the problem presented by such cases by saying that they were persons entirely devoid of any muscle sense, but this would not explain the apparently gratuitous invention by them of non-existent reactions. It seems more logical to assume that their local neuro-muscular groups had independently received and reacted to exclusively neuro-muscular radiations on specific wave-lengths, whilst their minds, psyches, brains or solar plexuses had also independently received and reacted to exclusively mental, psychic or nervous radiations on other specific wave-lengths. This view appears to be confirmed by the fact that such behaviour by receivers is most frequent when the senders are broadcasting opposite images such as those of red and violet. The facts can then be satisfactorily explained by assuming in a receiver a psychic affinity with one or more of the senders broadcasting red, and a neuro-muscular one with one or more of the senders broadcasting violet, coupled with an idiosyncratic disposition in the receiver to concentrate more readily on psychic than on neuro-muscular introspection.

The second type of receivers show breath reactions unmistakable both as to rate and location, and/or localised muscular twitches or spasms, both clearly related to the mental image broadcast by the senders, and they not only register and describe their own physical reactions accurately, but *interpret* these in terms that clearly establish the relationship between the image broadcast and their own vaso-motor, motor, and/or sensory reactions. Their interpretation, however, is nearly always inaccurate. Never, except by pure chance, does it amount to

an exact description of the actual image broadcast. It always is and remains a simple interpretation of their registered physiological or neuro-muscular reactions, based on what their memory tells them is the particular activity they have generally found associated with these reactions. For instance, if the image broadcast happens to be No. I: "You are enjoying a fast run on a sunny beach," and they register faster and deeper breathing, stimulation of circulation, and greater warmth and twitches of the leg muscles, they will accurately describe these signs and symptoms which will, where possible, be confirmed by observers and instruments, but, if they happen to have done a good deal of cycling, they will describe not a fast run on a sunny beach but image No. 6: "You are cycling strenuously up a long hill on a sunny day." Therefore, when a receiver happens not only to register and to describe accurately his true physical reactions but also to give an almost perfect transcription of the image broadcast, it is advisable, before classing him as a physiological, neuro-muscular AND psychic telepath, to ask him whether say, his chief physical recreation in the past has not been running or cycling. If he answers in the affirmative it is safer to assume coincidence and to class him as a physiological and/or neuro-muscular, and not as a psychic, telepath until he has proved himself such by further tests.

The third type may or may not show unmistakable physiological and neuro-muscular reactions, although he generally does; when he shows these reactions he may or may not register and describe them accurately, although he generally does; but instead of *interpreting* the image broadcast, *he accurately describes it*. Yet, his description of that image is never a literal transcription of the printed word nor does he "get" the number attached to the image on my sheets. In other words, he functions as a telepath and not a clairvoyant; he may be a physiological, a neuro-muscular, AND a psychic telepath, and although he may in addition be a clairvoyant he unconsciously "prefers" or finds it easier or more natural to receive and register the radiations of psychic, neuro-muscular and physiological realities than those of strictly objective realities. It is worth noting that in thousands of experiments spread over many years and over varied techniques, I have never yet observed one single case of indisputable clairvoyance even by a professed clairvoyant when telepathy was

available as an alternative means of acquiring knowledge independently of the known normal senses. This does not lead me to deny clairvoyance, but to believe that whilst a gifted clairvoyant could clairvoyantly perceive say the written contents of an envelope held by a subject who knew nothing about it, he would instead unconsciously "prefer" to "read" the subject's mind if the latter knew what the envelope contained.

The reader himself may by now have distinguished three types of receivers or three modes of reception in that form of telepathy which appears to make use of radiation. Tentatively, this distinction may be made on two bases: either (1) We can distinguish receivers:

(A) Who receive by means of neuro-muscular and/or physiological detectors but do not consciously register their reception and cannot therefore either describe or interpret it.

(B) Who receive by means of neuro-muscular and/or physiological detectors but consciously register their reception and *interpret* it by a logical process of the conscious mind, and

(C) Who, whether they do or not receive by means of neuro-muscular and/or physiological detectors, do receive by means of psychic detectors and are thus able to *describe* the mental image broadcast as well as their own physical reactions to it, if any.

Or (2) We can overlook degrees of consciousness in receivers as a basis of distinction and recognise only their apparent instruments of detection and say that receivers detect:

(A) Neuro-muscularly, or

(B) Physiologically, and/or neuro-muscularly, or

(C) Psychically, and/or physiologically, and/or neuro-muscularly:

The (A's) feasibly using the motor and sensory nervous systems, the (B's) the vaso-motor and sympathetic systems, and the (C's) either a special brain centre or centres, or the whole nervous system coincidentally and in conjunction with a co-ordinating faculty capable of integrating myriads of simultaneous receptions into one conprehensible image. This conception may appear but is not far-fetched for it exactly duplicates our technique of subconscious co-ordination and integration of normal sensory perceptions.

In addition to the above three techniques of reception or types of receivers which seem to depend on radiation and therefore

to be subject to the law of the inverse squares, it appears to me that there is a fourth mode of telepathy which is not subject to this law and from the use of which I see no reason to exclude any of the types of receivers described above. When this fourth mode of telepathy is in use, distance does not appear to have any detrimental effect on selectivity, definition or any other quality of reception. Were this negative observation the only one suggested by the facts, one could readily accept this fourth mode as one more manifestation of ether or other radiation involving higher frequencies and shorter wave-lengths than any now used by world radio, and perhaps greater velocities than those normal to ether propagation. However (and I am not alone in having made this observation and would not record it here had I not found support for it in independent writings), whilst experimenting in distance telepathy I have been struck by the fact that for short distances (say under 90 feet) the majority of subjects appear to be bound by the law of the inverse square and to become less efficient as the distance increases within the above stated limit, and that beyond it they may cease to function altogether. But, if by a rare achievement of abnormal physical relaxation or detachment form normal consciousness they manage to function beyond the apparent limit of inverse square law operation, they seem suddenly to rise to a much higher level of telepathic efficiency than that which they had reached within the limit. What is more, once they manage to function beyond that limit, further increases of distance do not seem to impair reception, whatever extremes are reached.

Rare individuals appear to achieve complete freedom from the nverse square law and to use this fourth mode of telepathy with ease and accuracy, whatever the distance involved, be it a few inches or hundreds of miles, but I have only known them to do this when in a trance or semi-trance condition. One very gifted trance-clairvoyant with whom I have made a number of investigations seldom found any difficulty in discoursing at length on any subject that happened to occupy my mind. With her I hardly have time to open a sentence before she pours out torrentially the remainder of my conscious chain of thought, however abstruse or specialised my problems might be, and this, as witnesses can confirm, in spite of the fact that on coming out of her trance she not only does not remember a word of her dissertations,

but openly admits that she is incompetent to deal with the questions on which she has but recently expressed herself fluently.

Here we are touching upon problems outside of our immediate field and raising not only the questions of the temporary detachment of an electro-magnetic or etheric (?) ego from its bodily mechanism, and of its power whilst so detached to contact another and similar but not necessarily so detached ego, but also of the ability of a detached ego to continue functioning independently of its bodily mechanism when the latter has itself ceased to function: the question of the survival of physical death. Beyond asserting a belief in survival which I acquired only after carefully sifting evidence which I had not at first even deemed worthy of investigation, I will merely observe that "detachment" of the ego from the consciousness of its mechanical instrument, the physical body, appears to be a pre-requisite of the fourth and most efficient mode of telepathic reception. I will later offer experimental reasons for the assumption that it is also a pre-requisite of the highest form of telepathic sending. In this connection it is interesting to note that amongst others, Professor J. B. Rhine, that matter-of-fact experimental scientist, in his world-known book *Extra-Sensory Perception*, gives pride of place amongst those faculties which he deems conducive to efficient telepathy (receiving and sending) to what he terms: "The capacity-to-escape-material-conditions." I trust that I am not unreasonably stretching his meaning by pointing out that to credit man with such a capacity ultimately amounts to the recognition that there is involved in him a relatively non-material X, for matter strictly speaking cannot detach itself from itself. I suggest that in the fourth and highest mode of telepathic reception it is not man's neuro-muscular or physiological or psychic systems which operate, but this non-material or "other-material" and detachable X which functions outside of time and thus does not and cannot use ether radiation such as we understand it.

CHAPTER XIII

FOUR TYPICAL CASES OF TELEPATHY

Experience shows that not every individual is capable of holding the same mental image steadily before his mind's eye for a whole minute. It seems reasonable to assume that those who find sustained concentration beyond their powers are also weak broadcasters, incapable of jamming the more persistent radiations of strong, vivid and well-controlled imaginations. Weak "private stations" emitting constantly-changing programmes on unstable wave-lengths do not interfere seriously with powerful national broadcasting systems.

However, inability to concentrate is not the only reason why Mrs. Smith might for a while dwell on image No. 2: "You are swimming in very cold sea water," and Mr. Jones on No. 1: "You are enjoying a fast run on a sunny beach," whilst every other sender in the audience concentrated on No. 4: "You are sun-bathing and fall into a very deep sleep," as requested by the lecturer. No. 2 would tend to make the receivers tense up, breathe faster and probably shiver; No. 1 would make them breathe faster and possibly twitch in the legs; and No. 4 would make them breathe slowly and deeply and possibly fall asleep, and they would interpret these images according to their physical reactions to them.

Human nature being what it is, one of the senders, strong-minded Mrs. Smith, may, on seeing No. 4 on the board, convey to her henpecked husband by emphatic gestures that no matter what the lecturer wants them to think, she AND he are going to concentrate on No. 2. This will make it possible for their docile daughter Mary, who is one of the four receivers, to show by her reactions and responses that Mrs. Smith really has a superior mind, just in case anybody had not realised the fact. If then, whilst the three other receivers breathe slowly, Mary Smith should breathe fast, shiver, and declare that she feels she has fallen into an icy pond and is drowning, Mrs. Smith would most certainly shoot up and announce unblushingly that this was

exactly what she had "willed" her daughter to feel. Casting a defiant eye round the audience she would then point out that this clearly demonstrated her superior powers. To this, the lecturer might wish to retort: (A) That her thinking No. 2 instead of No. 4 as requested, showed her to be a non-co-operative, conceited, and domineering female; (B) That even if she had thought exactly what her daughter had received, this would only have shown affinity between mother and daughter, a very common phenomenon, both in superior minds and congenital idiots; (C) That her word, unsupported by conclusive circumstantial evidence, was not scientific proof, and (D) That he would be grateful if she absented herself from his courses in future.

It has, however, happened more than once that senders in the audience have genuinely mistaken the number of the image on which they were asked to concentrate, and that there was available at the same time intrinsic evidence both of what they had thought and of their honesty. As the reader will judge from the following account of one such case, chance is at times a most enlightening and convincing witness.

The hall was broader than it was deep and the forty senders were dispersed in small groups scattered over a wide front. None of my four receivers had ever before taken part in my group telepathy experiments or known anything about them previous to the explanations which I had just given. Four of the senders had assisted me before and knew the routine. It so happened that my numbered cards could not be found and I was therefore reduced to conveying to the audience the numbers of the images on which they were to concentrate by silently raising so many fingers so many times. We had done three experiments on images upon which the pink and blue forms had agreed and my four receivers, including Miss K—— had reacted and responded to them in a significant and appropriate manner.

Without advising the senders of my intention, I then decided to demonstrate to them the effect produced on the receivers when the senders concentrated on opposite images, and I chose for my purpose image No. 7. To signify this number to the audience I raised my right hand: four fingers and thumb, making five, and my left hand showing forefinger and thumb, making seven, and one-half of my senders concentrated on red and the other on violet, unknown to one another. All four receivers

showed the appropriate conflicts between the thoracic and abdominal breath rates which I had expected and which the individual groups of senders had each detected in the individual receivers under their special supervision. I then gave the four receivers the usual two minutes in which to prepare their accounts of their physical reactions and their interpretations of the latter. As indicated earlier on, I was accustomed to failures on their part to observe any reactions at all, and to faulty as well as to correct interpretations of reactions observed, but with red and violet, I had never so far known of a receiver who had observed in himself physical reactions outside of the trunk and respiratory mechanism. My first three receivers noticed their reactions and interpreted them significantly and I was very satisfied indeed with the way the demonstration was progressing.

When I came to Miss K—— she reported the correct thoracic and abdominal breath-rate conflict, but she added: "And strong twitching in my thighs." Inwardly, I was furious, and thought, "There! some darn fool has thought something or other about legs and spoilt my whole demonstration," but, as suavely as I could, I said: "Are you sure?" to which Miss K—— at once retorted "Yes, as if I had been cycling!" At that moment, a woman, well to my left in the hall shot up and shouted: "She has got it!" "Got what?" said I. "Cycling!" said she. With what patience I could command I replied: "But my good lady, we have been concentrating on red and violet, not on cycling," and I put up my hands again showing five fingers and two thumbs to which she immediately retorted: "Ah, but from where I am sitting I could not see your left thumb, and I thought it was No. 6!" Her obvious confusion and surprise convinced both the audience and myself of her genuineness, and when we looked at No. 6 on my forms, we found "You are cycling strenuously up a long hill on a hot day!"

I immediately realised the marvellous significance of this accidental demonstration. Miss K—— had not only received at the same time three different but typical broadcasts, the first two of which had been sent by some twenty stations each and the third by only one, but she had *interpreted* all three correctly. This was magnificent, but how had the one got through to her? One station against forty, and no jamming? Were the three critical factors of spontaneous telepathy present all together?

Could I have had such luck? Miss K—— was relaxed and in the correct mental state and I had over a hundred feet of wire. That gave me "receptivity"! But what about "affinity" and "raised emotionalism"?

I begged the lady who had stood up in such confusion to tell us exactly what she had thought. She told us: "My sister and I . . ." Of course, thought the audience and I, they are sisters, and that gave me "affinity." "My sister and I," she went on, "had bought bicycles out of our savings. One hot Sunday, we cycled miles out into the country, and after some hours, very tired and thirsty, we arrived at an isolated farm. We decided to go in and ask for a drink of milk, cycled into the yard, propped our bicyles against a wall, and walked into the farmhouse. We were drinking our cold refreshing milk, when we heard a frightful clattering noise of crashing cycles, and dashed out into the yard. One of the farm horses had taken a dislike to our bicycles and had kicked one of them to smithereens. You can imagine what a shock it was to two young girls, miles from anywhere, only one bicycle and the other all smashed up. My! . . ." And, there was "raised emotionalism"! The goddess of chance was clearly on my side! She had in one move shown us the three critical factors at work, demonstrated that we can receive several broadcasts at the same time on different wave-lengths, and that different centres and neuro-muscular groups can be coincidentally involved in different receptions, whatever the co-ordinating and integrating psyche might itself be receiving at the time in addition to fulfilling its functions as interpreter of the messages detected and forwarded to it by its organs and limbs.

I often found it difficult to gather large numbers of interested people for my demonstrations, despite free invitations sent out in hundreds, and on the particular occasion which I will now describe, I had only mustered nine senders and four receivers, and the only person in the room who had ever before taken part in my group experiments was my assistant, Miss Cameron. My first few tests had been only partly successful, two of my receivers having failed to register even their most evident and correct physiological reactions, whilst the other two had been rather above the average in their interpretations of what they had felt. The card just drawn was No. 23: "You are sweating profusely in the steam-room of a Turkish bath in order to get rid of bad

rheumatism in your left shoulder," an image calculated to promote in the receivers vaso-motor and temperature sense reactions and left-shoulder twitches in addition to breath changes. It so happened that I had forgotten to mention in my opening remarks that whenever the words on my pink or blue sheets referred to either the left or the right side of the body, left-handers amongst the senders were expected to read and think the *opposite* side, and as No. 23 came up I rued my forgetfulness. My senders concentrated on the required mental image and though few of the nine could have had experience of a Turkish bath, there were appropriate and obvious breath changes in all four receivers and three of them showed the left arm twitches for which I was looking.

I cross-examined first the two non-registering subjects, and, as before, they had not noticed any of their reactions. I next came to the first observant subject, a man, the one subject whose left arm had not twitched. Without hesitation, he reported his breath changes correctly, and . . . twitches in his *right* shoulder! On my enquiring whether by any chance he was left-handed, he agreed that this was so and wondered what had made me ask. Fortunately, all my nine senders were right-handed, otherwise my left-handed receiver might have twitched in both arms, in which case the real truth might have passed unnoticed, as we should all wrongly have assumed that his left arm had twitched for right-handed senders and his right for left. His interpretation was lovely! "He was either in the desert or the bush, sweating profusely, especially in the head, and there was some trouble in his right shoulder which he felt he had strained." He had never taken a Turkish bath, but he imagined it might be very much like what he had experienced, and he had travelled widely in warm climates! My second observant subject, a lady, reported her breath change and her left shoulder twitches and said that she felt "hot and clammy, just as a patient must do when going under an anæsthetic before an operation," and that "her left shoulder felt strained just as it generally did when she had practised the violin for too long a time." She was an operation theatre nurse, had never taken a Turkish bath, and playing the violin was her chief relaxation!

Here we have two beautiful illustrations of the integrating psyche *interpreting* organic, vaso-motor, neuro-muscular, and

sensory reactions registered separately by individual neuro-muscular groups and nervous centres, and not examples of a detecting psyche merely *describing* integral images perceived directly by itself. Moreover, the psyche's interpretations clearly refer to the subject's past experiences.

But, more illuminating still, we have the transposition of a left-handed image, conceived by right-handers exclusively, into an unconscious right-handed reaction by a left-hander. Were this incident unique of its kind, one might think of it as a million-to-one chance, but such inversions have been noted too often, though not in every case observed, to have been mere coincidences. Clearly, what is being radiated by right-handed senders is not the mental concept of right- or left-handedness but the vibrations produced in their positive or negative neuro-muscular groups by mental images consciously contemplated. To pursue the simile, the "sending" psyche is not wirelessing direct to the "receiving" psyche; rather it is "telephoning" by nervous impulses specific messages to its own neuro-muscular groups, and it is these who wireless to the receiver's neuro-muscular groups whose detections are finally interpreted by the receiver's psyche.

In the two examples I have just given, any clairvoyant faculty latent in my receivers had had free play, for a clairvoyant might have "seen" the numbers displayed and the corresponding printed words on my sheets. However, the results obtained showed clearly that interpretative telepathy and not descriptive clairvoyance had been at work.

In the third example chosen, all possibilities of clairvoyance are carefully excluded, mental images being "thought" and not put down in print. I was experimenting with one subject, a lady who had shown spasmodic but at times remarkable gifts of mental telepathy. For days on end she would be useless, and then, without warning, she would suddenly enter a mood of obvious trance-like oblivion when for a few moments her mind-reading would be quite "uncanny," only to relapse almost at once into wakeful incompetence. Her extreme "plus" and "minus" states had suggested to me that her special "receptive" condition allowed free play to an unknown telepathic "tuning-in" capacity. In order to eliminate clairvoyance from our experiments, I memorised ten proverbs which I would fire at my subject mentally when next I found her in one of her "plus" moods.

She could have known nothing about my proverbs by ordinary means, for all I had told her was that I would think proverbs, and yet, when the time came, she "got" the first three correctly without a second's hesitation. They were: "A rolling stone gathers no moss"; "A stitch in time saves nine"; and "Like father, like son." Remarkable though this was, it did not surprise me unduly, so accustomed had I become to her short-lived flashes of brilliance. Her fourth guess, though erroneous, appeared to me more enlightening than all her successes put together. I had thought: "All is not gold that glitters," and she had said at once: "Look after the pennies and the pounds will look after themselves." Noting the gold in gold, and the gold in the pounds, I wondered whether even when the image thought was beyond and outside of organic, vaso-motor, neuro-muscular and sensory radiations and referred to ideas, symbols, or pure concepts, there might not still be several detecting nerve centres, each picking up one element of the picture "teleprinted" and leaving it to the psyche to do its integrating and interpretative work. I realised then that in thinking of the falling stone, my psyche might, in imagination, have rolled me down the mountain-side with the stone and might thus have made my several neuro-muscular groups vibrate as they might have done had I in fact been rolling down a mountain-side; that it might have made me sew several imaginary stitches; that it might have called up pictures of myself doing a certain thing just as my father had done it; and that it might have made my optic centres react just as they might have done at the sight of glittering gold!

In each case, my psyche might have so informed and actuated several of my subservient nervous centres, making them vibrate and thus radiate myriads of minute messages which corresponding subservient centres in my receptive subject might have detected and her psyche integrated and interpreted. Would not my psyche in doing so have acted on my nervous system exactly as it always did whenever I dreamt I was doing anything? Would not this hypothesis merely assume an extension of activities which we knew to be real and factual, though mental and nervous? Whatever science might in time establish to be true, the conviction was growing in me that that form of telepathy which appeared to use ether radiation must involve in each human being innumerable nervous "senders" and "receivers," all more or less efficient,

and one over-seeing, integrating and interpretative psyche. And it struck me more and more forcibly that this psyche was one, mobile, unattached, and that I could not see the least reason either for attaching or confining it to my brain or to any one other part of my physical body, or for not doing so if at any time I should feel so disposed. "IT" was not my body, or any one part of it, and although my body might not be able to get on without IT, IT might conceivably get on quite well when detached from my body and away from it, far away, for long or short periods of time, perhaps for good, perhaps outside of time. And IT could do this without losing any of ITS powers and faculties! Perhaps IT might even acquire new ones? Perhaps merely having to be linked to the body meant for IT an actual loss or inhibition of powers? Perhaps that was why deep relaxation (relative loss of consciousness of the body), absent-mindedness (relative loss of consciousness of the mind), and trance (relative loss of consciousness of both mind and body) gave us glimmers of functions and powers which we seemed unable to exercise when in the full consciousness of both mind and body? Perhaps, when detached from body consciousness in sleep or otherwise relieved of its limitations, the psyche would find amongst ITS released faculties that of "sending" telepathically over long distances either by the "ether-radiation" or by the "timeless" method, if there were such a thing? Perhaps the timeless method might involve an actual displacement over these distances of a psyche freed from the bonds of time, contradictory as the conception of spatial displacement apart from time might appear? The spatial displacement might only be apparent and the psyche, freed from time and coincidentally from space, might of its own free will re-enter both at a given moment in time and at a given point in space?

If such powers were indeed open to a psyche detached by sleep from its restricting body, and if nevertheless IT either did not exercise them or did so without leaving any mark of ITS activities on conscious memory after awakening, how could I, whilst conscious, induce IT to avail Itself of these powers and to print permanent records of ITS doings in my conscious memory?

More difficult still; how could I plan my experiments so that if significant facts did emerge they would have evidential value?

There are on record so many cases of spontaneous long-distance telepathy in which the receiver had described the image he had detected to reliable witnesses before its realisation hundreds of miles away could have become known to them by ordinary means; but in experimental telepathy over great distances, difficulties which could be overcome with ease by wealthy and powerful learned organisations, such as our universities or larger schools, are almost insuperable to an individual of small means working more or less alone. It would be relatively simple, for instance, for two of our universities or schools, to test a number of students as receivers in the relaxation circuit, and to train the best amongst these, systematically and over fairly long periods. These learned institutions could then arrange, turn about, to have in one city, say, twenty senders capable of sustained concentration, and in the other, say, six proved receivers. To increase the chances of success as much as possible, both senders and receivers should be in the relaxation circuit; each research group should be well acquainted with the other, which would tend to establish affinities amongst them, and each would know well the Hall in which the other would be resting. All tests would be planned and controlled by specialists trained in the experimental method and no one could gainsay either the results they might achieve or the conclusions they might formulate.

However, all my endeavours to enlist the participation of orthodox science in my experiments failed, and I had perforce to continue them alone.

I knew that I could, like many other normal people, tell my Self before sleep to wake me up, at say six o'clock, so that I might catch the seven-twenty-five, and that it would duly wake me up at six and not at five-forty-five or six-fifteen. I also knew that I could tell IT to make me do during sleep or immediately on waking some absurd and useless thing which I had never done before and would probably never do again and that I would suddenly find myself out of bed and having done this thing, sleep-walking fashion. I concluded from these facts that my Self seemed to work on as my body slept, although I could seldom remember any of ITS doings, and that I could not only influence some of ITS activities but actually direct them into deliberately and consciously chosen channels. I assumed that if distance telepathy were in fact one of the faculties of the psyche unfettered

during sleep, I might, with the sustained practice of auto-suggestion before sleep, hope to induce my psyche to exercise that faculty, and to leave on my waking consciousness at least some traces of ITS doings. This seemed a sound working hypothesis on which to base experiments, and in the early nineteen-twenties I began the practice of giving myself before falling asleep some human objective whose consciousness I hoped to impress with a particular image during their and my sleep. For months nothing happened, but my perseverance was eventually rewarded when some friends began to tell me that they had "had a funny dream about me" on the very night on which they had been my objectives. Most of them demurred when I told them of my plan, either because they thought it dangerous or "queer" to dabble in such things, or because they feared I might aim at dominating them. I tried to persuade the few who did not harbour such silly notions that if they wished to help me, they were to tell, not me, but a third party, exactly what they had dreamt, as soon as possible after the event, leaving it to me to tell them later when and what I had planned to broadcast, for by this method only could we obtain valid evidence. It is sad to observe how much the fear of being thought "queer" deters people from telling even their best friends about anything out of the common in their own make up, but this fact was much in my way. Repeated failures too held many back in this fascinating field just as they do in others, and yet, fearless perseverance is indispensable to all those who would go exploring. Still, I had some successes, none at first that could have been called "100 per cent certainties," but sufficient coincidences in time and similarities of images to convince me that experimental distance telepathy in sleep offers much more than vague probabilities to the seeker. I must state however that not once yet have I remembered on waking the least detail of any contact I had planned, even when later evidence made it clear that some communication had in fact been established. Nevertheless, I do not deny the possibility of such memories, for I have read too many veridical accounts of them, well authenticated by reliable witnesses, to doubt their reality. It has never yet happened to me, that is all.

But, two or three things did happen which for me at any rate placed experimental distance telepathy during sleep entirely

beyond doubt, and as on so many other occasions, chance alone had brought some of them about. I will here describe one of them but must ask the reader first to peruse again the account of case No. 4, which he will find on p. 20 of this book.

Miss D. W., the young woman who had suffered from "petit mal", was a maid who had been sent to me by her mistress on the recommendation of a friend, but the lady and I had never met. D. W. had failed to report to her my warning that an abnormal sense of well-being should be taken as a danger signal and that on its appearance the girl was again to be sent to me without delay. One morning, the second post brought me at my consulting-rooms a letter from the mistress in which she told me that D. W., who had looked wonderfully well and happy and had had no attacks worth mentioning for months past, and had recently appeared even happier than usual, had had, two evenings earlier, a sudden and terrible fit which had left her unconscious. The doctor had been called, but he had not been able to rouse the patient. From what her friend had told her, the lady thought that I might be of assistance. Could I do or suggest anything?

It was then close on noon on the girl's third day of unconsciousness, but it so happened that urgent work made it impossible for me to leave London for a couple of days. I decided, however, to try experimental distance telepathy that night and arranged my work so that I might get to bed early and, I hoped, before D. W. could recover consciousness in the normal course of events. The patient was 125 miles away from London, at Newark, a place I had never visited; but against that, I felt sure of "affinity" and easy "self-tuning in" by both of us during sleep. After lunch, I wrote to the mistress that at 9 p.m. precisely that night I would endeavour to give D. W. an "absent treatment," but I did not post my letter until after 6 p.m., early enough to give it a London postmark before 9 p.m. on the critical night, but also late enough to make sure that it could not reach its destination by the first morning post. I hoped that if anything really significant should happen to D. W. round about 9 p.m. her mistress might be impressed by the fact and write and tell me of it before my letter could reach her. Held up by work, I only just got home in time to have a light supper at 7.30 p.m. and was in bed by 8.30 p.m. I immediately ordered my "Self" to go to D. W. at Newark during my sleep and visualised IT getting to the unknown

sick-room and there laying hands on D. W., and I had fallen into a deep self-induced sleep in the relaxation circuit well before 9 p.m.

The next day, the afternoon mail brought me a letter, posted in Newark before midnight the day before, in which the mistress told me that at about 9 p.m. D. W. had suddenly started to speak in her sleep and that for about half an hour she had kept on repeating: "Oh, Mr. Eeman, don't take your hand off my head, please keep your hand on my head," or words to that effect, and had then awakened perfectly normal!

I was very pleased. This, I felt had been good experimental work, carefully planned, and the result was good evidence. Still, a medical friend, who, though sceptical on principle about everything and particularly so about my work, nevertheless sent me patients because "I couldn't do them any harm," as he used to say with a twinkle, thought otherwise. He explained that D. W. might have been waking up at the very time, by coincidence, and that as I had succeeded in impressing her mind with the conviction that I was curing her, it was only natural that on coming round she should first think and speak of me, even for a whole half-hour! As was well-known, "petit mal" was very amenable to suggestion; and another alternative: there might have been telepathy between myself and D. W.'s mistress.

The reader will draw his own conclusions, but whether he does or does not accept as veridical my accounts of typical cases of four variants of telepathy, and whether he does or does not adopt my views, I beg him to believe that I have outlined and illustrated a technique of experimental telepathy which he may use with every hope of obtaining significant results, given time and perseverance. When he does, he will find it easy to bear lightheartedly the humorous quips of his friends and to possess his soul in patience until they shall have experimented in their turn. In this, he will be sustained by the knowledge that he will have the last laugh!

CHAPTER XIV

NUMBERS AND SLEEP IN CIRCUIT

I have now completed the examination of two more of my eleven witnesses:

(5) Physiological reactions to conscious thought, and

(6) Telepathy.

As a result, I note:

(A) That every thought, conscious or subconscious, is accompanied and followed in the body of the subject who thinks it by specialised physiological reactions which may differ considerably in nature and amplitude.

(B) That some of the physiological reactions of that subject to his own thoughts are clearly localised in his body.

(C) That some of these reactions are caused by specialist nerve groups or cells, each one of which promotes, detects and answers radiations of a particular wave-length and frequency, and those only.

(D) That reactions similar in nature, amplitude and location to those observed in the bodies of subjects who consciously think given thoughts, occur coincidentally in the bodies of nearby subjects who do not consciously think these same given thoughts.

(E) That some of these nearby subjects interpret their own secondary reactions in such a manner as to leave no doubt of the reality of communication between one mind and another independently of the known normal senses, i.e. telepathy ***via*** individual nerve groups or cells.

(F) That no known case of either spontaneous or induced telepathy sets any limit to telepathy-range between the living.

(G) That whether, in addition to telepathy by ether radiation between subsidiary nerve groups or cells, there is or not telepathy by radiation between psyches themselves, I have been unable to gather any conclusive evidence on the point.

(H) That whether, in addition to telepathy by radiation, there is or not "time-spaceless" telepathy, I have no evidence on the point, beyond that which, being personal to myself, lacks

the support of independent witnesses and thus falls short of the requirements of the experimental method. My belief in the probability of "time-spaceless" telepathy rests partly on inconclusive observations on the apparent evasion of the inverse square law by some subjects at some times, observations which are tentatively supported by other seekers, and partly on what are only intuitive promptings, compelling though these may appear to me.

(1) That telepathy by radiation may only occur *after* the image thought by the sender has, by means of nervous impulses, promoted local reactions in *his* own subsidiary nerve groups or cells, organs and muscles. It seems that it is the *physical* activities of the latter which emit the vibrations and radiations which are detected and taken up by their counterparts in receivers' bodies, and that the receivers themselves then integrate and interpret in terms of symbols and mental images the various impressions they have received.

If this hypothesis (for I dare not advance it as a conclusion) is sound, we can say:

(1) That thought liberates, directly or indirectly, radiations which, although they do not impinge on our known normal senses, are nevertheless real and material.

(2) That these forces can and do impinge on what we must call "extra" or "unknown" but have no reason to call "supernormal" senses.

(3) That, as in so many cases, we can only argue for or against the real and material nature of these forces from the observation of their undeniable physical effects.

(4) That whilst we, who live amongst the wonders of modern science, readily explain some of these in terms of material radiations, our ancestors, when they observed physical effects the causes of which did not impinge on their known normal senses, very logically assumed real though imperceptible causal forces and, as was *their* preference, classified these forces as "spiritual," intelligent and purposeful.

(5) That our ancestors' application of the term "spiritual" to these forces is scientifically as permissible as is *our* preference for the term "material," and that both terms may be correct at the same time and the implicit contradiction between them be apparent only.

Scientifically, we have no positive grounds whatever for denying spiritual causes and forces or for divorcing them from material forces and effects. Our acquired preference for the term "material" seems to rest on the fashion which, for the moment, makes modern science teach that intelligence is progressively emerging from eternal matter, and condemn as a superstitious anachronism the proposition that matter might instead be evolving progressively from Eternal Intelligence, and doing so according to a rational plan. However, there are signs that the fashion is changing.

I am now left with five witnesses to examine:

(7) The value of numbers of subjects.

(8) Drowsiness, unconsciousness and sleep.

(9) Abnormal physical factors.

(10) Suggestion, and

(11) The fact that subjects are living.

Concerning (7) "The value of numbers of subjects," I must implement my previous conclusions that reactions do not increase in strict proportion to the number of patients in the relaxation circuit but in proportion to the qualitative and quantitative properties which each one of them brings into the circuit. It is the different types both of patients and of complaints taken in conjunction with their companion types and complaints in the circuit, and not the mere number of heads, that promote the most beneficial reactions. We must also bear in mind that whilst the inclusion in the circuit of a subject who had but recently overcome say, scarlet fever, would be helpful to one who had not yet done so, it might, because of another quality or pooling of qualities, have a different, though still a beneficial, effect on a case of say, another febrile complaint. However, though both numbers and variety appear desirable, little is to be gained by increasing indefinitely the number of patients in one circuit. In practice, because of the difficulties involved in the handling of unwieldy numbers, I should prefer two separate circuits of say twenty patients to one of forty, and would then shuffle the two groups at subsequent meetings.

Concerning (8) "Drowsiness, unconsciousness and sleep," I will first remind the reader that apart from fatigue, unconsciousness may have many causes such as narcotics, anæsthetics,

seizures, injury, fainting, etc.; that its value in terms of recuperation is largely governed by its cause; that it varies in depth and duration, and that it may be general or local only. In addition to the above well-established facts, the reader may be willing to credit the following experiences, having shared at least some of them: a long night of deep sleep ending in marked well-being, and an equally long night of apparently equally deep sleep ending in marked exhaustion; a sleepless night ending in mental and physical incapacity, and an equally sleepless one ending in mental and physical alertness; a conscious rest of an hour doing enormous good and one of several hours yielding nothing; a conscious rest of an hour doing no good at all, and then suddenly, one minute of deep unconsciousness which seems to perform miracles; and weeks of insomnia followed without apparent reason by weeks of inability to keep awake, or the reverse, and with contradictory results in terms of recuperation. Clearly, recuperation and unconsciousness are not always synonymous, and although perfect recuperation is not normally obtainable without sleep, a valuable measure of it is attainable in conscious relaxation.

Not only does the relaxation circuit tend to promote sleep, but those who have experienced the type of sleep it produces are almost unanimous in declaring that it is superior to normal sleep, as it gives more recuperation than does the latter, and does so in less time. Many subjects even assert that the difference in the well-being produced is unbelievable and use extravagant terms to describe their sensations. Those who do not fall asleep in the circuit often express their astonishment at feeling, after a short half-hour, "as if they had had a long sleep."

Even if the relaxation circuit did no more than promote super-normal sleep, even if it had not played its part in many remarkable cures where other methods had failed, it would deserve investigation. But in addition to its soporific and healing properties it has produced certain entirely unexpected facts which may throw light on the nature of sleep and perhaps, through it, on that of life itself.

These facts naturally fall into three classes:

(1) Facts which impress only those subjects in the relaxation circuit who actually fall asleep, and on which therefore only those subjects can give evidence.

(2) Facts which when one or more subjects in the relaxation

circuit fall asleep impress only those subjects in the circuit who remain awake, and on which therefore only the latter can give evidence, and

(3) Facts which when one or more subjects in the relaxation circuit fall asleep may impress either these subjects, or those who remain awake, or both, but which can be observed by trained onlookers outside of the circuit and on which therefore the last also can give evidence.

I admit that the unsupported testimony of one witness as to what happened to him either during or after a short or a long period of sleep is not, strictly speaking, evidence at all; but against that, when hundreds of individual witnesses of hundreds of periods of sleep do, unknown to one another, give spontaneous testimonies which not only reinforce one another but are on occasions identical, even as to the choice of words, then we have evidence which any court of law would accept as valid.

I will relate first the testimony of those subjects who fall asleep in the circuit, but remain asleep for periods of from a few seconds to a few minutes only and will ask the reader when he assesses this evidence, to remember his own impressions when, very tired, he had suddenly lost consciousness at a play, a concert, a religious service, a party, etc. On waking, had he never felt so much the better for his sleep that he could hardly believe that he had only dozed off for a minute or two, this, despite the evidence of his friends and the testimony of his watch? This type of evidence is often given by subjects who fall asleep in the circuit, when there is available independent proof both that they had slept and that they had done so for a very short time only. But their testimony is made the more striking by two facts: the first is the intensity of their astonishment at the degree of change effected in them in so short a time, coupled with their assertion that they have never known anything like it outside of the circuit, and the second is the large proportion of those subjects who, having apparently slept for about a minute stoutly deny that they have lost consciousness even for a second, although onlookers are ready to swear that they have not only slept, but actually snored loudly several times. One might dismiss such instances, even in numbers, as meaningless and uninteresting, if many of the subjects who fall asleep for a minute in the circuit, did not frequently give proof of the fact that they had NOT lost

consciousness by saying: "Oh, I knew that I was not asleep, although my body was. I heard so and so whisper that I was asleep because he heard me snore, but I heard myself snore too and it made me laugh inwardly and decide that I would tell you all about it when my body woke up again." This kind of statement and similar ones are frequent occurrences, and subjects generally follow them by describing the nature and limitations of their unconsciousness. Some lose their "whole bodies" or only parts of them, some claim only a muscular sense of what remains conscious, some a "visual" perception of it although their eyelids were closed, some the consciousness of one or two senses only, and others only an intellectual or spiritual awareness of the persistence of the self unaccompanied by anything even remotely connected with the consciousness of the body or its sensory apparatus. Is "*self*-consciousness" possible when there is indubitable external evidence that the body really is asleep, senseless and feelingless? Granted, already in the days of Braid, Elliotson, Esdaile, and others, a century ago, major operations had been performed under hypnosis, showing the depths of local or general physical unconsciousness which could be reached without anæsthetics; but could such depths be plumbed either over the whole body or only parts of it whilst the full awareness of personality and individuality remained unimpaired? Could complete physical unconsciousness not only leave self-consciousness unaffected but actually enhance it? To that question my own experiences in the relaxation circuit and that of others prompt us to answer with an unhesitating "Yes." And we would add that the circuit after first depriving us of the whole or part of our normal awareness of our physical bodies whilst maintaining our consciousness of our individualities, has at times provided us with a new, entirely "different" and yet patently reliable body sense. Beyond stating that the chief characteristic of this sense is a vivid apprehension of inner warmth, glow and energy, it would be idle to attempt to describe it to those who had not yet experienced it, although anyone who has actually lived through the phenomenon immediately recognises its description by others as veridical. Those who have touched this "subconscious body-sense" invariably delight in comparing notes and in finding that what they had been inclined to mistrust at first as sensory aberrations could be duplicated in detail by

many other observers. To suggest hallucination is arrogant and self-complacent, and no man of science who has not experimented will go beyond agnosticism when those who have are unanimous in their descriptions of a, to them, undeniable reality. And, after all, when explorers enthuse on the beauties they have shared, they are not disturbed by the incredulity of the stay-at-home, but merely say: "You ought to go and see for yourself!"

The evidence given by those subjects who fall asleep in the circuit whether for short or for long periods; the manner in which they give it, and the remarkable similarity generally found between their independent statements, all combine to build a very strong case for the relaxation circuit as a sleep-inducing agent. It not only promotes sleep, but sleep of abnormally high value in terms of recuperation and healing, and when it fails to produce unconsciousness, recuperation and healing nevertheless follow and are of an order generally associated only with high-quality sleep. It utilises energies and induces metabolism in excess of those utilised and induced by normal sleep, and the cumulative evidence of those who have experienced it would by itself put this matter beyond doubt, even if it were not confirmed and reinforced by that of the subjects who remain awake in the circuit. These agree that they can tell from their own symptoms when another subject in circuit with them loses consciousness and when he awakens; some can even distinguish degrees in the depth of sleep in another subject; they do so from their own feelings alone, and they agree as to the moment when the deepening occurs and as to the fact that it appears to operate in "waves," or "steps."

I must here remind the reader that some subjects when in the relaxation circuit with either a fever or a menopause case, can tell by their own sense of rising or falling temperature when their companion's temperature rises or falls; that as long as the patient's temperature remains high, they continue to register a marked sense of internal glow and enhanced metabolism from which they clearly benefit, and that this sense vanishes and is often followed by one of cold and shivering when either the circuit is broken or the fever or menopause flush abate in another subject. When one subject in the circuit becomes unconscious, as long as he remains unconscious—and when he awakens—sensations comparable to those just described are experienced by those members

of the circuit who remain awake. Frequently they are prompted by the surprising nature of their own symptoms to describe these at length and to ask for an explanation of them. Soon, however, they recognise the coincidence between the onset of unconsciousness in one of their fellows and that of their own symptoms, and when these recur, curiosity often prompts them to look around the couches to find out who has fallen asleep. Later, many of them observe that as the glow develops in themselves which they have come to accept as an effect of the unconsciousness of another, they in turn begin to feel sleepy. They frequently state at the end of a period in circuit that they had only managed to keep awake by a sustained effort of will because they wished to observe developments both in themselves and in others.

But healthy scientific curiosity is not the only reason which keeps subjects awake in the circuit, and many fear what might happen to them if they "did let themselves go." They shrink from hypnotism, mesmerism, hysteria, even insanity, etc., but with experience, reassurance comes to them as they realise that the sleep of another makes the circuit more recuperative both for the sleeper and for themselves. In time they give up the pointless fight against natural forces and willingly surrender to the sleep-provoking circuit. They then recognise that the best results are obtained by all concerned when all without exception have overcome their fears and not only accept but welcome unconsciousness whenever it spontaneously comes to them. Especially sensitive subjects manage to differentiate between the glows produced within themselves by the fevers, the menopause flushes and the sleep of others, and those who enjoy this high degree of "selectivity" agree that whilst it is difficult to define what distinguishes their reactions from one another, these are nevertheless reliable guides as to what is happening in others.

The evidence on sleep in the relaxation circuit and on its effects, given both by those who sleep and by those who keep awake, is further reinforced by onlookers outside of the circuit. They note that at the moment when consciousness is lost by one subject his body generally shows a perceptible change in muscular relaxation, in breath rate and in peripheral circulation, that these changes are rather abrupt than gradual and that they are frequently followed by series of mild muscular twitches. These observations

are not new, but what is new is the fact that comparative phenomena accompany and follow in other bodies those just observed in the first. This confirms and puts beyond doubt my earlier statement that in addition to promoting sleep the relaxation circuit utilises energies and induces metabolism in excess of those utilised and induced by normal isolated sleep. The energies involved are clearly conductible by copper wires and they are equally clearly sleep-inducing, for when after their radiation by the unconscious subject they reach the conscious ones, the latter experience progressive sleepiness.

Sleep is work, and not mere rest; work of repair, recuperation, metabolism. It is also, like any other work, impossible in the absence of the energies required for its performance; it becomes possible only when a sufficient and sustained supply of these energies is made available, and its performance begins irresistibly when the supply of these energies is abundant enough to overwhelm a subject's unconscious resistance to unconsciousness, be this due to muscular tension, to nervous irritability, to mental anxiety or to any other cause. Thereafter one more subject in the circuit sleeps and releases yet more energies which, added to those already liberated, accumulate in a progressively powerful sleep-inducing stream which soon carries the remaining subjects in the circuit into unconsciousness. When the last sleep-resister is overcome, the resulting release of sleep-inducing energies does not merely remain constant but appears to grow steadily, to promote progressive manifestations of functional efficiency in all the unconscious subjects in circuit, in each according to his needs, and periodically to deepen the sleep of all. Later, the needs of all subjects having apparently been satisfied, they wake up, yawn, stretch, and rub their eyes, practically together, and, as detached observers often notice, without any outside sound or suggestion having had anything whatever to do with their simultaneous awakenings. Like communicating vases, the subjects seem to reach all together the same level of fullness, the same maximum charge of vital energy, and then, ready for the work of conscious life and aware of an irresistible inner dynamism they seek an outlet for some at least of their plethora. Failing objective work on which they could expend their new energy they frequently feel compelled to stretch and yawn, literally, for hours on end.

Yes, the relaxation circuit appears to release "energies" and to do so in "waves," "steps," "packets!" Yes, the subjects in circuit appear to react spontaneously to these "packets"; to do so more or less together and as if controlled jointly by a single influence, external to themselves and yet clearly acting within themselves; to do so in a similar manner, at first in the direction of muscular relaxation and sleep, when although all voluntary muscles relax, flexor muscles do so most patently; and to reverse this manner, later spontaneously, and again more or less together, but this time in the direction of muscular contraction and awakening, when although all voluntary muscles appear to contract in turn, extensor muscles do so predominantly in endless stretches and yawns. Yes, energies are released! But are they? Is "released" the right word? If it is, were these energies latent in the subjects in circuit before they were "released" or are we to look for their source outside of the circuit and the subjects within it? If so, are not the subjects themselves, as well as the copper wires of the circuit, acting as aerials as well as conductors, and "trapping" outside "energies" as well as human vibrations and radiations? Yes, perhaps "trapped" would be a better word than "released," and closer to the facts? Whatever the case might be, my witness No. 8, "Drowsiness, unconsciousness and sleep," has raised once again a problem of which I have already noted many hints, and made me suspect, not for the first time, that my list of eleven witnesses was incomplete.

Perhaps I ought, if only tentatively, to add at least one other and call him: "External radiant energies," failing a more accurate name. There seems to be no doubt that some such person is about, and was about when the murder was committed! He might in fact be the actual leader of the "gang"? I must examine him! But not now; No. 9, whom I have called "Abnormal physical factors" for short, must come first.

INTRODUCTORY NOTE TO CHAPTERS XV TO XIX

The subject matter of Chapters XV to XIX may appear to verge on the incredible, and indeed, the effects of drugs in circuit on the human organism are not only astonishing, but they open up an entirely new field in the treatment of disease.

After the script of the present work had been completed, a medical research worker, who perused it with great interest, discovered that my own work on the effects of drugs in circuit had been anticipated by experiments carried out over fifty years ago by an eminent French investigator on magnetism, H. Durville. In a treatise published in 1895 and entitled "Traité expérimental de Magnétisme," Durville made the following statement (Vol. II, p. 209): "Just as magnetic action, so can medicinal action be transmitted through space by means of a conductor wire. I have succeeded in transmitting in this way the medicinal effects of a certain number of substances, but not of all those I tested. This transmission is undoubtedly effected in accordance with certain laws, but these I have so far failed to elucidate. However, when fully demonstrated, this assertion may well serve as a basis for one of the most astonishing innovations in the art of healing. Furthermore, it may be possible to reinforce the medicinal effects in question as one steps up the flow of an electric current, by means of coils, and thus to make these effects perceptible to the least sensitive amongst us."

CHAPTER XV

ABNORMAL PHYSICAL FACTORS

For simplicity, I have named my ninth witness: No. 9. "Abnormal physical factors," but since I am about to cross-examine him, I repeat here what I wrote about him earlier. "Abnormal physical factors in one subject, such as infectious or other diseases, errors of diet, addiction to drugs or drink, etc., might not only affect his reactions in the circuit, but might also cause, and explain, abnormal and surprising reactions in other subjects in circuit with him." And I admit here and now, that it has cost me more time, patience and perseverance, more courage, and also more heart-aches, to extract some truth from this fellow than it has done to get quite a considerable amount of it from many of my other witnesses put together. If after seventeen years he has not given away more than a tithe of the secrets he holds it is not that he is a particularly elusive or reserved character, but rather, partly, that he has such an enormous amount of important information to divulge that it would need many detectives to take down and corroborate the whole of his evidence, and partly, that from the moment when he first agreed to "come clean" the Police dismissed his revelations as unbelievable and refused even to interview him. Yet, had they but realised that he was able and willing to reveal the truth on fundamental matters, the whole Force would have been hot on his tracks. When I repeated his first confessions to a few officers they dismissed the whole thing as a joke and called me a fool for having allowed a petty criminal to stuff me with ridiculous tales. To justify their tolerant smiles they pointed out that for many of the crimes of which my witness had boasted, I had myself given them his alibi, and that I could hardly expect the Police to prosecute a man whose innocence I had myself established!

It was in 1927 that I first observed the facts with which I will now deal. Since then, working as an unorthodox seeker, I have periodically attempted to induce Doctors of Medicine to repeat, be it only a few of my experiments in their hospital wards. I

have indeed managed by demonstrations of new, important and significant effects, to obtain the support of a few doctors, but they and I have failed to get any response from the hospitals whose investigations alone would carry weight with the scientific world.

However, some of the experiments I describe on pp. 286–7 are so simple, so inexpensive, and at the same time so conclusive, that one of these days, in some hospital, somewhere, perhaps even in England, some curious young doctors will be enterprising enough to repeat a dozen of my tests. For this they will require one short hour, and I wager that at the end of that short hour some of them will decide to specialise in the investigation of the phenomena they will have observed.

I will first tabulate a few of the facts previously noted and checked:

(A) Both the onset and the end of menopause flushes, of attacks of fever, and of periods of sleep, in one subject in the relaxation circuit, are registered and signalled by other subjects in circuit with him or her, these subjects being guided only by their own symptoms.

(B) As long as any of the above conditions last in the one subject, the others register "glows" varying both in kind and in intensity.

(C) The temperature of a patient suffering from an infectious fever falls when he is placed in circuit with a healthy, though not immune, subject, whilst the latter registers "glow."

(D) This temperature falls lower if a convalescent though still weak subject joins the patient and the fit person in the circuit, much as it does when "convalescent serum" is used.

(E) Consanguinity and other assimilating factors tend to reduce the mutual actions and reactions of subjects in circuit.

It will be generally agreed not only that the facts referred to above are physical, but that their causes are themselves physical, although it would be impossible to exclude completely psychic factors from their respective causal chains. It will also be agreed that taking the wakeful activity of the healthy as our "norm" we are justified in qualifying the factors involved as abnormal, and that therefore witness No. 9 was rightly named: "Abnormal physical factors."

From the above facts (A) to (E) taken as a whole and coupled with previous observations, I concluded:

(1) That abnormal physical factors present and active in one subject in the relaxation circuit affect not only his reactions, but also those of other subjects in circuit with him.

(2) That both actions and reactions involve not only vibrations and radiations of specific wave-lengths and frequencies, but also specialist agents and reagents "in tune" with these wave-lengths and frequencies.

(3) That whilst the subject in whom an abnormal physical factor is present and active reacts to that factor, other subjects in circuit with him may react either to that abnormal physical factor itself or to the first subject's reaction to it, or to both, together or successively.

(4) That the reactions of other subjects either to the abnormal physical factor active in one subject, or to his reactions to that factor, or to the two combined, must elicit new "rebound" reactions not only from the one subject, but from all his companions in circuit; that all these reactions must in turn produce "re-rebound" reactions, and so on, indefinitely, and with a tendency to mutual "damping-out," assimilation and ultimate quiescence in a "past-reacting" state. I felt that this state, though evidence of curative activities, should not be taken as evidence of a "cure" but as an indication that the combination of subjects in circuit, such as it was, had done all the curative work of which it was capable, and that it could do no more, until either a new subject had been added to it or a new abnormal physical factor had been added to one of the existing subjects.

The "past-reacting" or "no-reaction" state is generally reached by all groups in the relaxation circuit in anything between half an hour and one hour, and it is generally reached at approximately the same time by all subjects in each group. Naturally, there are exceptions, but they are rare. Generally also, when this state is reached, whatever the nature of the abnormal physical factor involved, the subjects feel spontaneously inclined to break the circuit, and when asked to remain in it for experimental purposes, only do so reluctantly. When they do, discomfort usually follows which can only be overcome either by prolonged self-control, or by a few minutes of the tension circuit.

When, after the circuit has been broken, some hours are allowed to pass before the same combination of subjects again assembles in circuit with the one abnormal-physical-factor patient, mutual reactions similar to those previously observed reappear, but these are weaker and shorter-lived than before. Eventually, after either hours or days, the particular combination of subjects ceases to produce any reaction indicative of the presence of the abnormal physical factor to which it had so forcefully reacted before. The problem arises: have the abnormal reactions alone disappeared, or has the abnormal factor itself done so as well? Have we eliminated symptoms only, an achievement which often masquerades as a cure, or have we removed a cause and truly cured a patient; or, another possibility, have we enabled him to come to terms with his abnormal physical guest by "training" him to produce the required damping vibrations? That is, have we "inoculated" or otherwise immunised him?

Two main questions had to be answered experimentally: (1) When an abnormal physical factor is active in one subject, do the other subjects in circuit with him react to that physical factor itself, to the one subject's reactions to it, or to both; and (2) when reactions to an abnormal physical factor cease, has their cause been removed? I felt that since vibrations and radiations (probably of high velocity of propagation) appeared to be involved, all subjects, including the host of the abnormal physical factor, would first react practically together to the factor itself and do so the very moment the circuit was completed; that these first reactions of the different subjects would not be identical, and that only after they had developed would the subjects mutually react to one another's reactions to the physical factor. I visualised the subjects in circuit as the irregularly-shaped banks of a small pond which "receive" first the ripples made by a stone dropped in the pond, then send these ripples rebounding according to their own irregularities, and only thereafter "receive" the waves that have echoed from the opposite shores. I also felt that when all reactions ceased, one could assume, in some cases, that their cause itself had been destroyed; in some others, that its activities had ceased; and in some others yet, that resistance or indifference to its action had been developed in the patient.

It was clear that much experimental work was required and that it could only be done with the help of a number of patients possessed of abnormal physical factors. What would have been a relatively simple problem for a group of hospital research workers always supplied with a variety of patients, proved a

painfully slow process for one working alone. I found it difficult to get infectious cases, most of them being already under treatment and isolated in hospitals whose doors were closed to me. True, I did secure a few every now and then, and with their help I made slow but sure progress. I found it less hard to obtain alcoholics and drug addicts, for these are generally left at liberty. I will now quote a few instances of the kind of effects produced when a normal person, neither immunised against a particular infection nor inured to a particular drug or to alcohol, is placed in the relaxation circuit with the victim of either a toxæmia, a drug or alcohol. These instances are typical and can all be repeated experimentally, obviously with both qualitative and quantitative variations.

(1) I placed myself in the relaxation circuit on five consecutive days with a case of toxæmia. The first circuit produced a marked improvement in the patient, the second gave less, the third less still, and the fourth and fifth produced nothing beyond a sense of relaxation and rest in either the patient or myself. Was the patient cured? NO. She had rapidly improved up to a point, but there she had stopped. At the end of the fifth day, and unknown to the patient, I got myself inoculated against her condition. I suffered mild discomfort and febrile disturbances for three days and in the evening of the third I again placed myself in circuit with the patient. Well within the first minute she exclaimed with rather frightened astonishment: "What are you doing to me? You are burning me!" For over half an hour the patient remained very flushed and the "burning" feeling continued. Throughout I felt a rather pleasant glow similar to that I had experienced when in circuit with fever cases, and certainly suffered no harm. The patient reported a greater improvement than she had experienced from any previous circuit! After a further three periods in the circuit nothing more was happening! Was the patient cured? NO, for her progressive arthritic condition of many years standing had caused mechanical damage that nothing could have offset; but YES, in the sense that from that day the condition remained static for a long period.

(2) After three successful circuits with an infectious fever case, the no-reaction state is reached. Again, inoculation of the normal subject brings back significant reactions, but within three

circuits the no-reaction state is reached once again. Was the patient cured? YES, for there was no return of fever. Was the cause removed, or had the patient been taught to produce suitable anti-vibrations or anti-bodies? I answer this last question with another: How is this double question answered when sera or vaccines administered in the ordinary manner have not only defeated an infectious fever but immunised a patient?

The above two cases need no comment from me. But they, and similar ones have called forth remarks like the following: "It proves nothing! It is a pure coincidence; the patient was getting well anyhow." When coincidences happen practically every time, they are still coincidences, for two facts do actually coincide, but not by chance; by LAW!

(3) An ether addict, the first I had ever met, almost overwhelms me with the potency of her ethereal breath! I make her lie down and she relaxes with the greatest ease, as might have been expected. With the idea of helping her, but very much in the dark as to what may happen, I place myself in the relaxation circuit with her. Almost at once I begin to feel sick, weak and mentally disturbed, but maintain the circuit out of sheer fascinated curiosity. The patient appears quite well, but her breathing is rather strong. Suddenly, she leaps off the couch, rushes to a deep arm-chair, collapses in it and for several minutes she takes enormous panting breaths which shake her whole trunk at the rate of at least twenty-four to the minute. Just before she had jumped up I had begun to ask myself whether devotion to science demanded that I should die in order to make a drug addict breathe deeply, and when she broke the circuit, though relieved, I remained quite limp for a few minutes. And there we were, each aware of the other's peculiar behaviour, but much too preoccupied with our own salvation to care much about the other's purgatory. Before she left, the lady made her opinion of me as clear as an ether-fuddled brain could have done. Her dulled eyes had vaguely seen copper wires and copper gauze mats, and the next post brought me an angry letter from her husband. Quite obviously, "it was criminal to pass powerful electric currents through the delicate nervous system of a sensitive and highly-strung woman, and I was very fortunate not to find myself in court for manslaughter!" No apology was offered for passing

ether frequencies through the nervous system of an unsuspecting investigator! And to think that all the time I had not even had a sixpenny electric battery at my consulting-rooms! Is not life unjust? But very, very stimulating and enlightening.

After this case, I treated drug addicts and alcoholics with great respect, and I broke the circuit for a while as soon as my own reactions became too strong. In time I found that the more subjects I had together in the circuit the less I had to fear and guard against, both for the "abnormal factor" subject and for the others. What had meant shattering breath for one and collapse for the other, meant only mild narcosis for the many, followed by speedy return to normal and well-being for all.

(4) The introduction of a drunkard into a circuit of people accustomed to one another and to what they feel when in circuit together, leads them to report a narcotic effect which leaves no trace after awakening. The drunkard himself seems to benefit and to escape at least some of the hang-over effects which experience has taught him to expect after drinking bouts.

Before the end of 1927, having repeatedly checked my facts with the greatest care, I was convinced that when an "abnormal physical factor" was present and active in one of a number of subjects in a relaxation circuit, the other subjects reacted in a manner similar to that in which they would have reacted had this factor been present and active within themselves. Every experiment I have made since then has reinforced that conviction.

The facts were of fundamental importance, and, if confirmed by hospital tests, they might revolutionise medicine and lead to a new conception of vital and morbid processes; but I realised that I had barely glimpsed the edge of a vast jungle of facts and that it would be better not to attempt to penetrate this wilderness alone. I felt that I must interest doctors and physicists in what I had observed and induce them to organise an expedition into the unknown at which I had only guessed. And, naturally, I was anxious to join the party, even if only as a humble scout.

The rather sad story of what happened then must be told some day and I might just as well tell it now. I had made friends with a few doctors by showing them some of the facts already enumerated in this book. But they were of diverse minds and

what seemed to one to be both true and fundamental, struck another as false, if not preposterous, and in any event, unimportant. Between them they had accepted practically the whole of my facts, although each one had rejected at least a proportion of them. When I asked a few of them to consider my "abnormal physical factor" hypothesis, they made it clear that they thought it absurd and myself "queer" for entertaining it. Thereafter we could only discuss the weather whenever we met, for one cannot argue with a cerebral automatism any more than with a knee jerk; one merely notes their presence. However, these rebuffs taught me some wisdom, and made me realise that I would only frighten off my few medical supporters by making them bite off more than they were ready to chew, swallow or digest. I would be patient, and if it were to take me twenty years, I would in time build up such a logical case that no objective scientist could dismiss it without a clinical test.

And so, I had to explore alone. Whilst I knew that some "abnormal physical factors" in one subject promoted appropriate reactions in other subjects in circuit with him, I found it impossible to ascertain whether all or most abnormal factors would do so, and if not, which were which, for whereas thousands of tests could be made in a month in one hospital, I was lucky if I managed to join in one circuit one infectious fever patient with a convalescent from the same fever once in one year. I could not choose my subjects, but had to take them as and when they came, and to group them with others, more or less at random. For all this, I had to rely on the goodwill and co-operation of people who frequently did not even understand what I was expecting to find out with their help, and naturally, progress was slow and difficult.

I knew that abnormal factors, such as the germs of diseases, drugs, poisons, sera, vaccines, alcohol, etc., could be found in sealed tubes or bottles, in pathological laboratories, in pharmacies, or in public-houses respectively: but I had yet to hear that pathologists reacted to the bugs in their test tubes, or that pharmacists cured their own headaches by sitting near their bottles, or that publicans were ever made "happy" by the mere proximity of their flagons of cheer! These abnormal physical factors in sealed containers were not spontaneously radio-active, although each did possess its own specific (or atomic) resonant frequency.

Not being radio-active, they could not, unassisted, radiate their own frequencies, and it seemed unlikely that the copper wire I used in my circuits, could by itself explain the fact that these frequencies were nevertheless propagated from the body of the subject in whom the abnormal factor was active to those of his companions in circuit. Nor could this copper wire account for the further fact that the reactions of the "companion bodies" were themselves specific.

I therefore formulated the working hypothesis that either the subject in whom the abnormal factor was active or those in circuit with him, or both, radiated the equivalent of a "carrier" wave and that this, whether it originated in these human bodies or outside of them (see Chapter XX) impinged on the abnormal factor, took on its specific frequency and then propagated this frequency through the whole circuit. There, nerves, organs, muscles, germs or cells, etc., of similar frequency—and *only* these—would appropriately react to the abnormal factor. It seemed evident that if this working hypothesis, or one similar to it, were approximately correct, it would make no difference to my results whether the abnormal factor were located in any one of the bodies in circuit or were placed in series in any one of the lengths of copper wire which connected these bodies with each other.

Unfortunately this hypothesis of a human carrier wave was so unorthodox that none of the medical men to whom I mentioned it would give it a moment's consideration. However, I was irresistibly impelled to follow it up and was encouraged to do so by the fact that it could be tested in a few minutes and at the cost of about one penny. I borrowed two hairpins, put them in my pocket together with a five-grains tablet of sodium salicylate and my lengths of copper wire, and called on a patient who was then running a high temperature. On arrival, I dissolved the tablet in a tumbler full of water and fitted my two hairpins on the rim of the tumbler as shown in Fig. 17.

After taking the patient's temperature I connected my L. with her H. and my R. with her S. and remained in circuit with her until a few minutes after we had reached the "no-reaction" state. Her temperature had fallen from 103.5 to 102, and I knew from past experience that once the "no-reaction" state had been reached a further fall could only be obtained by the addition of either a new subject to the circuit or a new abnormal factor to one of the

subjects already in circuit. I tried a third way: I cut the copper wire that linked my L. with my patient's H. and fastened each one of the loose wire ends to one of my hairpins and thus completed the relaxation circuit *through* the solution of sodium salicylate. Within a few seconds clear and specific reactions reappeared in both the patient and myself and when we again reached the no-reaction state her temperature was barely over 100. Less than an hour had elapsed since I had first completed the relaxation circuit.

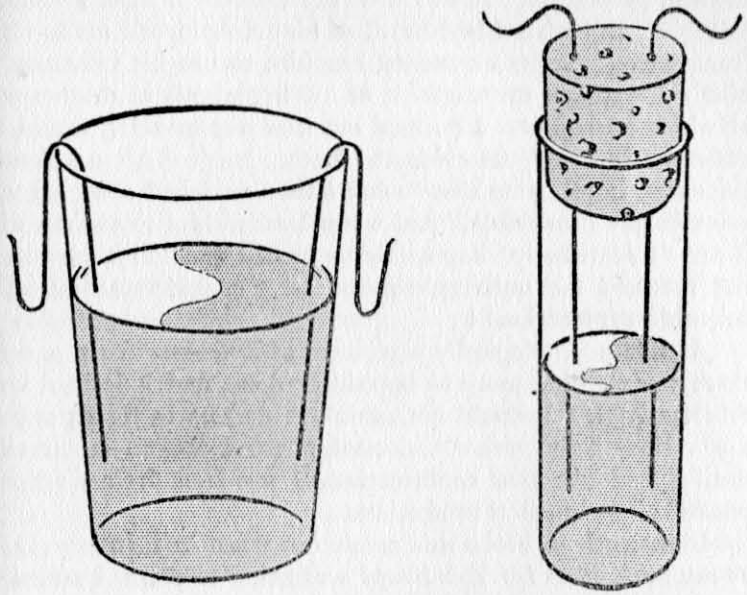

FIG. 17.—Tumbler and test tube fitted with improvised electrodes.

Although I had expected this very result, this one hour had comforted me a great deal, but I naturally wondered whether my observations had been sufficiently careful and accurate and whether phenomena had truly occurred as I believed they had. Further, if they had, was the conduction of specific frequencies their only possible explanation? Coincidence, suggestion, telepathy and even clairvoyance all had to be reckoned with. I will merely state here that before many months had elapsed I had made many and varied "contra" experiments, both with sick and with normal subjects, with and without their knowledge,

and with different drugs and other substances, and that these further tests had left no room for doubt. I do not here describe them, for in the next few chapters I will relate in detail a series of simpler and, if possible, more conclusive experiments, which anyone interested in the problem may repeat as often as he likes with the certainty of obtaining significant results.

So sure was I of my facts that despite the many rebuffs I had already received, I decided to mention once again the subject of "abnormal physical factors in circuit" to members of the medical profession. It was then my fortune to meet a leading specialist, and what I had heard of him emboldened me to state frankly my convictions and to beg him to use his influence to obtain for me an investigation of my hypothesis in the hospital at which he taught. I pointed out that one morning would be sufficient to bring out evidential facts. He had not a second's hesitation in asserting that "what I thought I had observed was scientifically impossible," and when I asked him to explain why it was "scientifically" impossible he replied that "I had obviously not received the training required for the understanding of a scientific explanation"!

As this psychologically significant attitude was fairly general there was nothing more to be said or done, and I decided very reluctantly that I would not again ask doctors to repeat any of my various tests with "abnormal physical factors in circuit" until I had obtained confirmation of my facts from scientists outside of the medical profession.

Impatiently I broke this resolution when in February 1936, as my book *How Do You Sleep?* was going to press, I added to it a last chapter which I headed: "An Appeal to Doctors and Physicists." In this I described a number of simple experiments which I begged doctors to make in fever hospitals and which by the grouping of infectious fever patients in circuit both with immune and non-immune subjects would demonstrate the radio-activity of "abnormal physical factors in circuit." I sent copies of this book to the principal medical officers of sixty hospitals in London and district, together with invitations to witness demonstrations I was giving in a public hall I had specially hired for the purpose. Not one single doctor acknowledged the receipt of either the book or the invitation.

In an introduction to the *How Do You Sleep?* manuscript, I

referred to Mesmer and to his researches in human radiations and pointed out that although he was a "fully qualified Doctor of Medicine," colleagues, no more or less qualified than he, had opprobriously rejected his theories without investigation. Before sending the MS. to the printers, I was discussing it with a lady doctor who had spared no effort to obtain medical tests for facts she had herself experienced. She had failed, just as I had done, and we were both deploring the automatic and supercilious manner in which our pleadings were regularly swept aside, when I suggested to her that in view of the difficulty of getting the orthodox medical mind even to look at my facts it might be better to ask other scientists to investigate them. As luck would have it, she was just then in touch with a "first-rate" scientist. "Would I lend her my MS. for a few days? She would get him to read it, and, he, no doubt, would see the possibilities of my work, and his opinion and advice would be useful." I naturally leapt at such a heaven-sent opportunity, and two days later my friend returned my MS. together with the scientist's comments. "Hardly time for the experimental method," thought I, as I opened his letter. It read: "The stuff you sent me is pathetic and dangerous in its ignorance combined with its unscientific yet tendentious make-up. . . . Para. 3, says: 'A fully qualified doctor of medicine, Mesmer practised in Vienna from 1765 to 1778.' The poor lay reader will imagine that a 'fully qualified doctor' means someone who knows something. The present-day doctors know precious little but a damned sight more than Mesmer; merely sales talk in fact, this 'fully qualified' stuff. The whole damned thing is full of pseudo-scientific jargon of 'force,' 'magnetism,' 'electricity,' used by one who knows the words only, and I am not prepared nor have I the time to teach the young how to suck eggs. It would take him at least three years of very hard study to get some rational notions about the words he is using to-day."

By 1940, *How Do You Sleep?* having been well received by the Press, had sold over 5,000 copies and as our newspapers were full of tales of inactivity in our London hospitals due to the evacuation of most of their patients to the country, I sent sixty more copies of the book to hospitals in London and district. To it I added the offer of the free use of my circuit apparatus for experimental purposes and I enclosed stamped and addressed

envelopes for the principal medical officers' replies. I received one very courteous answer from one of the leading London hospitals, but unfortunately this was to the effect that pressure of work had put the research I had suggested out of the question.

Nevertheless, I still believe that one of these days I will get "these tests" made in some hospital, somewhere, even if I have to go as far as the U.S.A. or the U.S.S.R. for the purpose.

CHAPTER XVI

MABY INVESTIGATES

When, on the introduction of Professor J. B. Rhine, J. C. Maby had called on me on the morning of the 27th May, 1936, he had promised that he would endeavour to give me instrumental demonstration and quantitative measurements of some of the facts I had put before him. He had also warned me that I might have to wait two or three years or more before his own programme of research would allow him to investigate scientifically my hypothesis of the "abnormal physical factor in the relaxation circuit."

After Maby had left me that afternoon I could hardly get over my amazement at the fact that when I had outlined my hypothesis and described some of the experiments on which it rested he had not immediately pooh-poohed the whole thing. That was a distinctly novel experience and I felt that it was worth waiting a long time to have my observations checked by one so open-minded. When, a few months later, he gave me the promised instrumental demonstrations and measurements, I reminded him of the "abnormal factor" hypothesis, but he told me that he still had so much important research work to complete that he could not hope to tackle my problem for at least another two years. He made it easier for me to be patient by suggesting that when he would reach a certain stage in his investigations they would probably link up with my own. Then, the observation of similar or identical phenomena from two different points of view would give additional significance to our findings.

As time went on Maby and I occasionally stayed with each other for a few days, and we thus kept abreast of one another's progress. Towards the middle of 1939 he was getting near that stage of his work at which it would link up with mine, but the war intervened and gave him new and urgent duties, and thus it was that the first of the tests we had planned could not be made until I spent with him the week-end of April 26th to 28th, 1940. We had some difference of opinion concerning the first group of

tests we should make in his laboratory. We agreed that he would put me "in series" with different drugs, all of which would be unknown to me, and that he would write down his observations on my visible reactions and my descriptions of my symptoms whilst in series with any drug, and that at a later date we would reverse these respective positions. However, whilst I contended that the radiations emitted by my body would provide the "carrier wave" required to propagate the specific frequencies of the drugs in circuit with me, Maby argued that whether I was right or wrong, the introduction of artificial energy to the circuit would tend to "boost up" my reactions, and that if these were not marked enough for registration with this additional energy they would not be so without it. Although I argued that the reactions promoted by the artificial energy itself might be strong enough to mask those occasioned by the drugs, I agreed to do as he suggested, on the understanding that at a later date we should do tests with the human body itself as the only provider of the "carrier wave," the very conditions under which I had so far done all my experiments.

For a description of what resulted I cannot do better than quote from a long letter which Maby wrote on the 4th May, 1940, to a physicist colleague, who had been associated with his researches for many years.

Biophysical Laboratory,
Bourton-on-the-Hill,
Glos.
May 4th, 1940.

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(1) Conduction of Specific Effects of Drugs Through Wires.

I should like, later, when things are more certain and some of these effects have been checked on other subjects, to write up a special paper with Eeman, stating the remarkable results of our experiments together last week-end, when he got every specimen virtually right in terms of its specific physiological effects. But to do so would be premature at present, in case—however improbable this may appear—he was acting *telepathically*, in part at least. He will be very cross with me for mentioning that possibility, but the fact remains that it must be guarded against as the first criticism of the psychical research folk. Nor will doctors swallow such strange results without a tough fight. So that we must be absolutely certain before putting anything on

public record. . . . On the other hand, telepathy is seldom so sure as this.

Well, what we did was to arrange an electric chair in which the patient sat on one (copper gauze) electrode, while the other was under a thin (partly conductive) pad behind his head. These were *positive* to head and *negative* to base of spine (or hands and feet as well) in the approved manner, and connected to the two H.T. secondaries of an induction coil at several thousand volts tension. The interposed resistances were, however, so high that only a *very* mild sensation of faradisation resulted—scarcely perceptible. The drug or other substance to be conveyed to the patient was then included in one output lead, in series, as an aqueous solution. Eeman was the "patient," and he had no means of knowing what I was administering to him electrically. (See qualifying remarks below.)

In these circumstances he not only picked the positive-to-head arrangement as being most soothing and beneficial, but also made remarkably detailed statements on his sensations and bodily reactions; including blood pressure and circulation, respiration, muscle tone, salivation, gastric and other gland action, neuritic pains, etc. And all these *in every instance* were suitable to the nature of the medicine —though the latter had only been administered in the form of electric oscillations and radiation. In some instances he even suggested the correct element or compound, such as "iodine" or "a narcotic." (Actually there were chloroform and alcohol in the latter specimen used.) But the trouble here is that, though the specimens smelt very little and were a long way off, it is conceivable that hypersensitivity was (even unconsciously) at work, guiding him. And speaking for myself and my wife, we do not yet manage to obtain the detailed sensations that he did, even when we know the answers! But as I get *some* specific distinctions along the same lines as Eeman when sufficiently receptive or in need of the tonic, and have had one or two very marked (and *unexpected*) physiological reactions to longish doses of this sort, I shall give him the benefit of the doubt pending check experiments—especially as he is experienced at this sort of thing beyond most people and, perhaps, supersensitive.

Still, I think it is essential to treat actual complaints of long standing by such methods, watching for real improvements before coming to any conclusions. Meanwhile, my own experiences, which I cannot list here, tend to confirm Eeman's. So I hope that all may turn out all right. One also has to remember that much of the "Electronist" or pathometric technique and the work of the short-wave therapy people (in which you are now interested) is on similar lines. So that it all really stands or falls together. And we have a great opening if things go well.

P.S. I have got the upstairs room all fixed up now as a special laboratory for this stuff, and have made further arrangements since

o

Eeman was here, such as a magnetic gadget to show the general phase of field at any time and a permanent arrangement for electric treatment in terms of these h.f. radiations.

I will make a few comments on this letter.

(1) I was not "cross" with Maby for mentioning telepathy as a possible explanation of the facts, for it was one of the factors one had to take into account at all times. As experiments which I described earlier suggest, one can never exclude telepathy, for it appears to be a continuous process between human minds, though one variable both in efficiency and degrees of consciousness. But that it was not the governing agent in our tests is proved by one of the blind tests which I describe later on, and in which telepathy was proved inoperative when put in accidental conflict with the specific frequency of a particular drug. Before it can be given credit for the results described by Maby, it must be shown that the reaction produced is in all details that which the operator "thinks" the drug ought to produce, even when he is mistaken either as to the properties of the drug or as to the actual drug in circuit. When this test is applied, telepathy is shown to play no part worth mentioning.

(2) I would underline Maby's remark: "On the other hand, telepathy is seldom as sure as this." It seems that "telepathy" and "abnormal factor radiation" both need "interpretation" for their elucidation, unlike "clairvoyance" of an objective reality which only requires "description." That my results were more "sure" than those of average telepathy appears to me to be due to the fact that a complex mental image may involve several nerve centres, organs and muscle groups of different frequencies whose many radiations must be integrated and interpreted by the percipient, whereas the specific frequency of a single drug may only cause a single nerve centre of the same specific frequency to react. After this only, can the general physiological effects of that single reaction develop progressively in the subject in circuit, and be observed and "interpreted" by him.

(3) Eeman "picked the positive-to-head arrangement as being most soothing and beneficial." This was an unconscious and unexpected but all the more welcome confirmation of my earlier findings on body bi-polarity on which the relaxation circuit is based, as described earlier in this book.

(4) I underline Maby's "*in every instance.*" The tests made exceeded a dozen and I must leave it to a senior wrangler to work out the odds against such 100 per cent results being obtained by "chance" and in such circumstances.

(5) The possibility that hyperacuity of my sense of smell may have enabled me even unconsciously to "guess" at a drug in my vicinity cannot be excluded, but I must point out that the drug actually in circuit with me was near the induction coil, several feet away from me, whereas there were many other test-tubes on a shelf just behind me, most imperfectly sealed. At least some of these must have bombarded my hyperacute nose with "contra" suggestions.

(6) I emphasise Maby's bracket "(and *unexpected*)." Clearly, as with telepathy, so with suggestion, auto- or hetero-, and I must point out here that hetero-suggestion always involves the possibility of telepathy. In the relaxation circuit telepathy and suggestion are powerless when in opposition to an abnormal factor, although they may well reinforce its action when worded to do so.

(7) "Still, I think it is essential to treat for actual complaints of long standing . . . before coming to any conclusions." All I have written so far supports these sentiments; but how could I get these treatments, and in what hospitals? That was, and remains, my great problem!

(8) That after so short a time Maby should have felt able to write: "My own experiences, which I cannot list here, tend to confirm Eeman's," is impressive and will be given added significance by his comments in his later tests.

(9) Not only are the "Electronic" and "Short-wave therapy" theories and techniques on "the same lines" as my experiments, not only do all such theories and techniques stand or fall together, but the specific action of drugs in the living body which has never been explained on any other lines to anybody's satisfaction, but which orthodoxy nevertheless accepts as axiomatic, *can* be explained on these lines!

(10) In Maby's P.S., I note "electric treatment" as evidence on our difference on the use of artificial energy. My belief that it is not essential rests on hundreds of successful experiments made without it. Maby had used electrical apparatus of many kinds for many years and naturally preferred to test my theories on his customary lines. However, clinical tests may well show

that, if it is not indispensable to significant results, measured artificial energy may nevertheless make them more reliable and may thus afford us a sound basis for dosage.

(11) I also note from his P.S. that he was satisfied that we were dealing with high-frequency radiations.

I thank Maby for his strictly scientific care in the gathering of facts. This severe habit, from which I have hardly ever known him to depart, was to me a guarantee that he had been scientifically convinced by our experiments, or he would hardly "have got the upstairs room all fixed up as a special laboratory for this stuff." Here at last was a scientist, an experimental physiologist and physicist, who had not only been willing to test my "abnormal factor" hypothesis but who had found my facts solid and significant, who would repeat my tests with other subjects and devise "contra" experiments on any objection that might be raised; and who in all his work would be actuated by one motive only: the love of truth. With his support, I could resume my attempts to interest doctors in my experiments, and I invited a number of them to attend a demonstration which I had planned for the afternoon of the 10th July, 1940. Few could accept a war-time invitation, but those who did come were both genuinely interested and open-minded. They were: Doctors G. Calver, G. Kelham, H. Munro, H. Parsons, A. R. Redfern, T. S. Rippon, E. A. Wharton, and H. Wright. This demonstration was also witnessed by a few distinguished non-medical men, amongst whom were L. A. G. Strong, the author and critic, P. Metman, a distinguished psychologist, and R. Miller, a lecturer on dietetics.

A second demonstration given on the 24th July, 1940, was again attended by Doctors G. Calver, G. Kelham, H. Munro, T. S. Rippon and H. Wright, and they were joined by Dr. and Mrs. L. J. Bendit, Mr. and Mrs. Metman, and Miss Joan Fry, amongst others. I had planned further demonstrations for the autumn and winter evenings of 1940, but unfortunately German air raids made such meetings "difficult" and my A.R.P. duties took much of the time I should rather have devoted to more constructive though no more absorbing work!

For each of those two demonstrations I had four subjects in the "relaxation circuit in parallel" (see Fig. 13, p. 77), and drugs were placed "in series" in the lead which connected all left hands

with all heads. None of the four subjects could have had any normally acquired knowledge either of the nature of the drugs that were being tested or of the doses involved. Subjects were changed about, some of the doctors acting alternately as subjects and observers; the drugs or substances tested were each kept in circuit for two minutes, during which the onlookers observed the breath, circulation and other reactions of the four subjects, and only after the latter had described their own symptoms did I disclose the name of the drug tested. Some of the reactions observed were so similar to those which would have obtained had the drugs been administered internally, that some of those doctors, who were not at first prepared to accept my hypothesis of the conduction of high-frequency radiations by wires, urged that I must have been suggesting the correct reactions to the four subjects by telepathy. I then asked one of the doctors present to place in the circuit drugs chosen by himself, unknown to me, and with myself as one of the subjects. When he did so, results as appropriate as the previous ones were obtained. It was then objected that Dr. G. Kelham, who was placing the drugs in circuit, knew what these were, and might himself, unintentionally, promote the appropriate reactions telepathically. Dr. Kelham then took up samples at random, and "blind," from amongst drugs he had himself provided: the onlookers and the subjects observed the reactions these produced and then only did Dr. Kelham ascertain which drug he had placed in the circuit. All the reactions observed in circumstances which excluded both telepathy and suggestion, were again similar to those occasioned by internal medication. This left "wire conduction of H.F. radiations" as the only reasonable explanation of the facts.

Five points should be noted:

(1) None of the subjects had ever before either taken part in or witnessed my tests.

(2) No artificial energy was used.

(3) The reactions were all obtained inside TWO minutes, that is, much more rapidly than internal medication could have produced most of them.

(4) They were as marked as those which would have been caused by the internal administration to one patient of one adult dose of the drug as defined by British Pharmacopea, yet my doses were all less than one-tenth of one adult dose, they were

administered by conduction, and for TWO minutes only, and they were shared by FOUR subjects.

(5) Had these drugs been administered for curative and not for experimental purposes, the circuit would have been broken and the treatment interrupted as soon as the physician had satisfied himself that he had obtained the desired result. Doses would have been measured in terms of time and not of weight; they would have been graded and spaced according to ascertained results; overdoses would have been unlikely and the patient's system would not have been called upon to eliminate insoluble, unmeasurable and harmful residues.

For the sake of scientific accuracy, I must mention that one gentleman who would normally have rejected the very notion of either "telepathy" or "clairvoyance," did suggest that I might have done my "stunts" by seeing "clairvoyantly" what drugs Dr. Kelham, himself "blind," was putting in the circuit, and suggesting the appropriate reactions "telepathically" to the four subjects. I am afraid that the "telepathy-cum-clairvoyance" explanation is even less convincing than the "pure telepathy" hypothesis. I am always amazed at the facility with which people who never tire of proclaiming my abysmal ignorance in matters scientific, medical and psychological, credit me with compensatory super-normal gifts which my natural modesty compels me to disclaim! In this case, I must humbly point out that before we can prefer a complicated "super-normal" explanation to a simple material one, it would have to be established not only that I was able to see clairvoyantly which test-tube was being used behind my back by a man who did not himself see it, and then instruct my subjects telepathically as to how they should react and what they should feel, but also that by merely reading clairvoyantly the name of a drug on a bottle, I should either intuitively acquire complete knowledge of the action of that drug, although I had never even heard its name before and knew next to no pharmacology, or clairvoyantly consult the appropriate books of reference. The reader will, I hope, forgive this digression, remembering that it is my duty to "deal faithfully" with every objection which orthodox "science" may raise against my hypotheses.

Owing to the air raids I could not gather my friends for demonstrations in the evenings, so I spent some of the less

noisy night watches writing many of the pages of this book in a London Wardens' Post. I found this occupation at least as soothing in "disturbing" circumstances as the reader may find the perusal of this book itself, and more than once, under the stars and parachute flares, amongst the din of explosions and the glare of vast fires, amongst the suffering and the cries, the courage and the humour, the loathing of the insane "now" and the longing for the world that must be, I found in the thought of my work the faith, detachment and peace that make all noise inaudible. I knew that my facts were "fact," that it was only a question of "time and patience," that "truth always won in the end," and that what I was sowing "would one day bear fruit," good fruit! And as I "felt it in my bones" that I would not be blotted out in this war, just as I had done in the last, I always carried my MS. with me on duty, so as to give it the adequate protection of my proximity! Truly, queer thoughts happen on one in the nights of a dying age, just before the dawn, the dawn of a new. But, I did need a simple demonstration that anyone could test for himself and no one could gainsay.

The relaxation circuit in parallel was an admirable means for the demonstration both of the conduction of H.F. radiations and of the efficacy of the specific atomic frequency of one substance radiated to many subjects in one circuit; but, it was needlessly complicated when only the demonstration of conduction itself was aimed at. For that purpose, only one subject in the relaxation circuit was required, with the drug to be tested placed in series between any one of his polar opposites, such as his R. and S., his H. and S., his L. and H., or his L. and R. The latter was the circuit I had already used to my satisfaction in hundreds of experiments, and which I had wanted Maby to test when I had stayed with him, and when he had in fact used the H. and S. circuit, and added to it the artificial energy which I thought superfluous.

Reduced to its simplest form, this circuit only requires: one subject, two copper handles, two six-feet lengths of copper wire, a dozen test-tubes, or small glasses or bottles, each fitted with two electrodes (hairpins will do), twelve different drugs each held in one of the twelve test-tubes, and, of course, a little patience and interest. The subject relaxes on the back, holding one of the handles in each hand. A friend, who is to act as observer and

note-keeper, places the twelve test-tubes on a table a few feet behind the subject's head, and out of his sight. He also connects the two loose ends of the copper wires, thus completing the relaxation circuit for the subject, who, after a few minutes, feels relaxed, warm and comfortable, and breathes regularly and slowly. When the subject's behaviour has been stable for a while and has thus provided a "control," the observing friend takes one of the test-tubes at random and blind and, without disclosing its contents to the subject, he places it "in series" between the two copper wires, thereby closing again the relaxation circuit through the drug to be tested. The drug remains in series for not less than two minutes, during which the subject describes his symptoms, and these are noted by the observer together with any reactions he may have detected.

This technique is so simple? "Why think about it? Why not try?" as John Hunter said to Jenner. If one doctor would give only one morning to it in his hospital, he would observe that the specific resonant frequencies of drugs, vaccines, sera and other substances can be radiated and conducted and that they produce significant reactions in patients. In order to answer the objection of telepathy he could then send me say half a dozen test-tubes, unlabelled, and ask me to test them. From my report, he could then decide whether or not I had, blind and without suggestion, reacted appropriately to the radiations of his drugs.

However, the day eventually came when I was given the opportunity I longed for, but, unfortunately, not by a doctor.

CHAPTER XVII

THE SEVENTY-ONE BLIND TESTS

From September 1940 to June 1941 London was seldom without her night air raid. Many of my own town patients had gone to the country, hardly any could travel up from the provinces, and I divided my time between a few remaining London patients, experiments, writing, and A.R.P. duties. At the end of June, as it seemed that we might enjoy a summer lull, I applied for some leave of absence from A.R.P. so that I might go back to Maby for our proposed experiments without artificial energy, but unfortunately important war work prevented him from having me to stay with him before the last week-end in September. As things turned out, this delay was a blessing in disguise.

In August 1941, a young pharmacologist consulted me. He was, or so I felt, the very man whose interest and help I needed. During our first two meetings, we covered a good deal of ground experimentally, and the third time he came I placed him in circuit with ten different drugs in succession without giving him any hint of what they were. Two minutes per drug, two copper handles, one in each hand, two bits of copper wire, two electrodes in each test-tube! During the first two minutes, frankly puzzled, he observed and described many new and unexpected sensations. When time was up I asked him: "Was that what you would have expected from this?" and showed him the label on my test-tube. He replied: "Exactly." Nine times I asked him that question and nine times he expressed his progressive amazement. I was more thrilled than I could describe. At his first attempt, 90 per cent success! Would I get a hundred? No. I didn't. For the last drug, he was dead wrong in everything: his words, his quiet expression, his restful almost sleepy eyes, his peaceful breath, everything! I was very disappointed and asked him if he was quite certain that he had felt all that he had described, and he assured me he was. Resigned to that 90 per cent when the hundred had seemed so near, I said: "Well, anyhow, that

was not what you would have expected from this?" and he replied: "It was, exactly! But you see, I am one of these people who have what is known as a cafeine tolerance." He then told me that the "cafeine test" had been more convincing and enlightening to him than the other nine put together; that before it, he had been inclined to credit me with abnormal powers of telepathic suggestion, but that when his reactions had proved *diametrically opposed* to my expectations, he had realised instantly that H.F. radiations and not telepathic suggestion offered the only reasonable explanation of the facts. And this, in the absence of all artificial energy! That meant that he would have to think anew all he had ever thought in relation to drugs and their action! Would I mind if he took some time digesting these remarkable new FACTS?" Mind? Mind? And there he was, talking about "digesting" food which other people had not even consented to have put on their plates, let alone chew or swallow! It is curious how great gifts often pass unnoticed . . . by the giver . . . and sometimes, of course, by the receiver too. But I did value and shall always remember what I had received that day: real interest from a specialist.

Before my patient left me, on the 23rd of August, I asked him if he would do me the favour of sending me say, half a dozen different drugs, labelled A, B, C, and so on, so that I could have no idea of their nature. He kindly promised to do so. A few days later there arrived a large parcel containing twenty-eight different bottles and one hundred cigarettes! Quite apart from the drugs, the bottles were hard enough to get in war-time; but the cigarettes . . .! The latter I immediately identified as of an excellent brand without having to put them in circuit! A letter accompanied these precious goods, and after reading it I knew that any offer to pay for them would have been an insult. This was indeed collaboration such as only Dr. Helena Wright, J. C. Maby, and my assistant, Miss Mary Cameron, had given me so far. The twenty-eight bottles were labelled "A" to "Z" and "Alpha" and "Beta," a code of which our chemist shared the key only with a friend of his. Illustrating his keen experimental sense, he had included amongst them some drugs of which he himself did not know the effects. He had done so without telling me which were which, and had decided that he would only look up these drugs in his reference books AFTER

I had sent him my reports on them. He had thus answered in advance the objection of telepathy.

In his letter, he expressed the wish that Miss Cameron and I, who were going to test the drugs, might extend our periods in series with the samples, beyond the customary two minutes which I had so far generally found sufficient to get appropriate and significant reactions. His reason was that he had sent me some drugs which should produce primary but might also produce secondary effects, and he wanted to give the latter time to appear. He also requested that we should not delay the tests as he was not certain of the stability of some of his samples in aqueous solutions. Whilst I was anxious to meet his requirements, I did not fully comply with these two suggestions, firstly because I had found that with some drugs, even two minutes in circuit was more than a subject could bear, and secondly, because some of my own samples in aqueous solution which I had deliberately left exposed to the air for two years and more were still producing reactions apparently as significant and appropriate as when I had first uncorked them; a point to which I shall have occasion to return. We therefore planned to take five minutes as our standard period, on the understanding that any objectionable drug would be taken out of the circuit as soon as the subject found his reactions unbearable; that the observer would call "time" when the five minutes had elapsed, and that the subject would then decide whether he wished to extend the particular test, either because he found it interesting, pleasurable, or beneficial, or because it appeared insufficiently developed.

There was no need for me to point out to Miss Cameron the risks she was running by "taking" twenty-eight different drugs "blind" and in unknown doses, since more than one of our earlier experiments had "upset" her for days. It was not the meagre reward she was receiving which inspired her, but she "would not miss the thrill of these tests for anything in the world, whatever the risks."

I had realised that once the hypothesis of "the conduction of the specific frequencies of substances in the relaxation circuit" had become generally recognised, each individual medicine would have to be tested by itself, thousands of times, with healthy and ailing adults and children of both sexes, before final and reliable conclusions could be drawn, a laborious process which would

require the close co-operation of many hospitals working for many years and in many climates, but my object was merely to accumulate evidence in favour of the hypothesis itself. Three main reasons induced me to discard the idea that Miss Cameron and I might each test one drug a day for twenty-eight consecutive days and to adopt instead the plan of dividing the twenty-eight drugs into four groups of seven, each group being tested on one day by one of us and on the next by the other, and all drugs being chosen at random out of each group on all occasions. The first reason was that we had to allow a fairly long time for the "control" period which should precede each test period; the second was that if I had tested drug "A" and Miss Cameron had then done so at once, my reactions would have suggested similar ones to her, whereas the testing of these drugs at intervals of several days might have introduced misleading atmospheric personal and/or other variations; and the third, that by making the chance order of testing say—F, B, E, D, A, C, G, for Miss Cameron, and G, F, C, B, A, E, D, for myself, and assuming that some of the drugs might produce similar and others dissimilar effects, we might find that in the first case B reinforced the effect of F, and thus became unbearable after one minute, whereas in the second it neutralised that of C and thus proved pleasurable and remained so for ten minutes or more. *This would undoubtedly produce contradictory reactions which might at first sight weaken the argument, but which on close examination of chance sequences, would strengthen it beyond discussion.* This was exactly what happened in practice, but when I first settled on my plan I could only hope and believe that it would yield the most enlightening and convincing results.

This then is the routine which we followed with each group of seven drugs. Miss Cameron and I, both trained in observation and knowing one another and our respective moods and states particularly well, acted on successive days alternately as subject and observer. The subject relaxed lying on the back, holding one copper handle in each hand, with the two copper wires linked and completing a relaxation circuit, and he remained so until he and the observer agreed that he had become functionally stable. According to circumstances, this preliminary period lasted anything from ten minutes to half an hour. As soon as stability was established, the first drug, taken at random, was

placed in circuit with the subject, the observer wrote down both his own and the subject's comments, noting the time when these were made, and throughout, unless otherwise stated, spoke only the words: "time," or "five minutes," when the subject, if able replied either: "break" or "continue." As soon as a drug was removed from the circuit this was closed again by linking the two copper wires, so that the subject was never out of the "control" relaxation circuit for more than a second or two. The next drug was inserted as soon as comments ceased, so that a few seconds at the most elapsed between the last perceptible and recorded reaction to one drug, or its removal, and the action of the next. As the first subject was to be the observer on the second day, he was not allowed to see the notes taken on the first day or to know how he had himself reacted to any one drug, in case he might as observer remember the reaction he had offered to say, letter F, and unconsciously suggest a similar reaction telepathically to the second subject. As soon as the two tests of a group of seven drugs were completed, records were tabulated and copies sent to our pharmacologist friend who, within a few days, sent back the key to the seven drugs tested, together with his comments on the reactions registered. On receipt of the key from him, Miss Cameron entered each drug and its dose on the appropriate record.

Objective men and women (and whoever ceases to be objective abandons for the time being his claim to be a scientist, and thereafter runs the risk of seeing even his most objective assertions discounted as biased and unreliable) will agree that Miss Cameron, our chemist, and I, had by our method eliminated hetero-suggestion, telepathic or other, from the list of possible causes of significant results. This left only: (*a*) auto-suggestion, (*b*) conduction of H.F. radiations in the circuit, (*c*) coincidence, or (*d*) "suggestion-plus-telepathy-plus-clairvoyance." May I dismiss the latter, for the scientist who will not admit conduction of H.F. radiations cannot champion "S-plus-T-plus-C" without accepting the possibility of H.F. radiation by implication. Granted, suggestion by itself, outo- or hetero-, would account for insignificant and inappropriate results, but not for even as little as 10 per cent correct reactions.

Coincidence will be dismissed as an insufficient explanation of the facts by any statistician who will have taken the trouble to

read only a few of the records which follow. And, may I here again remind the reader that each one of these records refers to *one* "blind" test, of *one* "drug," by *one* subject. Each record gives:

(A) The date on which the test was made.

(B) The serial number of the test.

(C) The key letter of the drug tested.

(D) The serial number of the comparative test by another subject.

(E) The name of the subject.

(F) The name of the observer.

(G) The time (in minutes and seconds) at which comments were made by either subject or observer.

(H) The subject's comments.

(I) The observer's comments, and

(J) The drug and dose tested as disclosed by our chemist *after* completion of the tests of each group of seven drugs.

In circumstances that will appear later, our pharmacologist added four "blind" tubes to his original 28, so that in this series of tests we handled in all 32 substances "blind." Of these, 25 were each tested "blind" by two subjects, and 7 by three subjects, making a total of 71 tests, each with at least one comparable test. I must leave it to pharmacologists and statisticians to assess the total significance of our 71 records, but whilst I must not sit as judge in my own case, I may fairly do three things: the first is to report our pharmacologist's comments on our individual results; the second is to draw the reader's attention to significant details in our records which might otherwise escape notice; and the third is to suggest to intending assessors a method of analysis of our records which will give a statistical basis to their evaluation.

(1) Let the arbiters be three at least.

(2) Let them adopt the convention that there are only 100 distinct, mental and physical, objective and subjective, reactions which a human being can offer to all known substances, whether ingested or injected. My medical friends agree that there are many more, but I am satisfied with as little as 100.

With a maximum of 100 possible reactions as a basis of evaluation, whether a subject tests 100 different drugs "blind" in the circuit in succession, or one drug 100 times running, his chances of "guessing" the right reaction in any one test will be

99 to 1 against. It follows that every 100 per cent correct guess should earn him 100 marks, every 25 per cent correct guess 25, and every 5 per cent correct guess 5 marks respectively. One hundred marks, whether earned by one 100 per cent correct guess or by four 25 per cent correct guesses would be his "chance expectation" in 100 guesses, and 71 good marks would be his chance expectation in our series of 71 tests.

(3) Let the arbiters then read our 71 records so as to satisfy themselves, as a preliminary, that the reactions shown are truly distinctive.

(4) Let the arbiters then analyse each individual report:

(*a*) By itself,

(*b*) In relation to its comparable report by another subject, and

(*c*) In relation to the reports preceding it in its group of tests, and with an eye for "hang-over" effects from preceding drugs.

(5) Bearing in mind that the reactions of the body to ingestion are not invariably the same as its reactions to injection, and allowing that there may be differences between reactions to ingestion and/or injection and reactions to mere radiation of specific frequencies, let the arbiters allot good marks to reactions which are:

(*a*) Similar to the mental or physical effects produced by the drug when ingested and/or injected, and

(*b*) Different from ingestion and/or injection effects, *but* similar to the effects shown in comparable reports, i.e. new effects produced by a new method of administration, i.e. the propagation of specific frequencies through electrical conductors in the absence of artificial energy.

(6) When they have marked the 71 reports, let the arbiters average their marks and note by how much their total exceeds the chance expectation figure of 71, but let an expert statistician assess the significance of that number.

Working on the statistical basis just outlined, arbiters might say, for instance: "Considering the great diversity shown by these 71 reports, we allot to record No. 68, 25 marks for similarity to known physical effects by ingestion, 15 marks for similarity to known mental effects by injection, and to No. 68 and to its two comparable records, 10 marks each for similarity to each other

in additional new effects, dissimilar though these new effects are from known ingestion and injection effects."

I give below the records of the 71 "Blind" tests.

FIRST GROUP OF SEVEN DRUGS: "BLIND" REFERENCE LETTERS A TO G.

FIRST TEST OF FIRST GROUP OF SEVEN DRUGS, SEPTEMBER 9TH, 1941.

Subject: Miss Mary Cameron.
Observer: L. E. Eeman.
Chance order of Miss Cameron's seven tests: 1 G, 2 C, 3 E, 4 A, 5 F, 6 B, 7 D.

Test No. 1. *Key letter G.* *Compare with Test No.* 13.

Time in mins.	*Mary Cameron's comments.*	*L. E. Eeman's observations.*
0.00	Tube in circuit.	
1.30		Rising breath. Progressively larger and fuller expansions.
2.30	I think stimulating. Low abdominal breathing. Arm muscles tensing up as if for effort.	Frowning.
3.00	Beginning in legs.	
3.30	Life in toes. Rather light feeling.	Big sighs.
4.00	Light feeling. Might be able to fly. My body and nothing inside it. Arms and legs hollow. Exhilarating.	Many big sighs.
4.30	Something to do with laughing gas. Glass legs in shop windows with light in them. That is how my legs feel.	Laughs. Laughs profusely and stretches.
5.00	*Break* circuit.	
5.30	After having my inside taken out of me, I feel cold.	

"*G*" *was* 1 fluid ounce of solution containing 1 × 1 grain tablet of THYROID.

On this our pharmacologist wrote: "Particularly successful. Thyroid stimulates metabolism, etc."

I may add that this test appears to show an overdose effect.

Test No 2. *Key letter C.* *Compare with Test No.* 11.

6.00	Tube in circuit.	
6.30		Two small rapid intakes of breath.
9.00		Salivation above normal.
10.30		Breathing steady so far but for remark above. Not one big expansion so far.
11.00	*Break* circuit.	
	After.—Breathing mostly from solar plexus. At first I had feeling of being made smaller. Shrinking but not withering me. I seemed to have dense white vapour around me and it was this enveloping vapour which made me feel smaller. Not disturbing. *I was quite detached throughout.*	Stretches a few times.

"*C*" *was* 1 fluid ounce of DISTILLED WATER.

On this our pharmacologist wrote: "Very good indeed."

I may point out that whereas Miss Cameron had made many apt comments whilst Thyroid was being administered to her, she did not speak one word "during" distilled water. Her comments "after" distilled water are consistent with the gradual fading off of thyroid effects, and they end: "I was quite *detached* throughout." Miss Cameron, Maby and I did 71 tests altogether in this series. Is it not significant that an expression such as this last should occur only once in 71 records, and that once, "after" distilled water?

Test No 3. *Key letter E.* *Compare with Test No.* 10.

13.00	Tube in circuit.	
14.30		Breathing moderate at first, now seems more powerful.
15.30	This is making me swell. Hands and feet. Everything. What a funny thing I must look, all swelling. I want to	Laughs.

	scratch. I must be a size. Have I gone red in the face? My mouth drying; sticking together in it.	Laughs quite wildly.
18.00	Frightfully funny!	Laughs every now and then.
18.15	*Break* circuit.	By now calm again. Laughs retrospectively. Stretches well.
19.00		Peaceful. Salivation returns.

"*E*" *was* 1 fluid ounce of solution containing 1 × 5 mli. tablet of BENZEDRINE.

Our pharmacologist wrote: "This seems to be quite in keeping with the stimulating, almost intoxicating effect of Benzedrine—the Truth drug."

Test No. 4. *Key letter A. Compare with Test No.* 14.

20.00	Tube in circuit.	
21.00		Breathing normal and even over whole trunk.
22.00	Surface chill feeling beginning with spine. Then arms and hands and legs and feet. Small spasms of shivering inside the skin. Flesh creepy feeling.	Face rather disturbed.
23.00	Yes! Not pleasant. Astringent feeling. Not at all pleasant.	
24.00	Fear. Cringing.	
25.00	*Break* circuit.	
	After.—It is very unpleasant. Tightening of all the muscles and everything.	Disturbed breathing, rather of hissing type. Tightening of hands. Obvious distress. Hissing continues.
27.00		Stretch, gradual return to normal relaxation.
27.30	That was an awful one!	Contractions and stretches alternate. Good yawning. Return to normal after about five minutes.

"*A*" *was* 1 fluid ounce of solution containing $\frac{1}{8}$ grain DIAMORPHINE HYDROCHLORIDE

Our friend wrote: "Quite good. Seems to have missed most of the narcotic effect, but felt the depression of the respiratory centres."

Test No. 5. *Key letter F. Compare with Test No.* 8.

30.00	Tube in circuit.	
31.00		Abdominal breathing, normal.
33.00		Face peaceful.
33.30		Breathing deepens, sleep-like. Seems in deep sleep. Mild snore, laughs at idea.
34.30	I am as heavy as lead. It is beautiful!	Makes grunt of pleasure. As sample appears so pleasant I continue beyond five minutes. Face beams bliss and content.
38.00	(Very faint) I have not lost consciousness!	Breathing wonderfully smooth and even throughout.
40.00	*Break* circuit *After.*—That was a sleeping drug, I should think. It was pleasant while it lasted. My head is hot, but no headache. Extraordinarily nice.	Violent stretching.

"*F*" *was* 1 fluid ounce of solution containing 1 × 7½ grain tablet of M.B. 693.

Our friend wrote: "Rather remarkable, this one. The effect is right as far as it goes, but it seems to carry none of the detrimental qualities of the sulphas."

May I draw the reader's attention to Miss Cameron's remark after M.B. 693: "That was a sleeping drug, I should think," and suggest that this may represent, partly at least, a hang-over narcotic effect, the lack of which had been noted by our pharmacologist in the preceding record: No. 4. Diamorphine Hydrochloride?

Test No. 6. *Key letter B. Compare with Test No.* 9.

41.00	Tube in circuit.	
42.00		Peaceful abdominal breathing. Expression peaceful.

43.00		Breathing fuller. Slightly irregular.
44.00	Cold shivers.	Expression less peaceful. Slight twitches in arms.
45.00	Not pleasant drug-sleep like last one. Tensing my neck.	Jaw tightens.
46.00	*Break* circuit.	
48.00	Much happier feeling of returning looseness.	Violent stretch.

"*B*" *was* 1 fluid ounce of solution containing $\frac{1}{100}$ grain HYOSCINE HYDROBROMIDE.

Our friend wrote: "Hyoscine is much used as a hypnotic in mania and cerebral excitement. It paralyses peripheral nerve endings."

May I draw attention to the last few words in this record: "Tensing my neck. Jaw tightens. Break circuit. Much happier feeling of returning looseness. Violent stretch," and to the marked contrast they show within two minutes of breaking circuit?

Test No. 7. *Key letter D. Compare with Test No.* 12.

50.00	Tube in circuit.	
52.00		There have been a few slight hand twitches. Breathing steady and quiet. Face rather sleepy.
53.30		Sleepy breath. Slight twitches appear as in sleep.
55.00		As M.C. appears asleep I continue. Twitches every now and then, but none violent, in face, arms and hands,legs and feet.
56.00		A sleepy noise.
57.30		Twitching on and off but more strongly as in deeper sleep.
60.00	(Break circuit without reference to subject.)	Deep sleepy breathing continues. Snores. Appears definitely asleep but I don't know whether due to drug in circuit, or to effect of circuit itself, or to fatigue caused by length of tests, or to "hang-over" effect of earlier drugs?
65.00	I have been unconscious two or three times. Please don't jar me. I have been cold inside two or three times. (Repeats) I am not fully back.	I woke subject by calling her several times.
68.00	I can only feel down to the knees. My head feels like lead.	
69.00		Violent stretch. Normal returns.

"*D*" *was* 1 fluid ounce of solution containing 20 minims liquid EXTRACT OF ERGOT.

Our friend wrote: "Ergot stimulates plain muscle throughout the body. Causes prolonged constriction of peripheral arterioles and is apt to raise blood pressure, etc."

SECOND TEST OF FIRST GROUP OF SEVEN DRUGS, SEPTEMBER 10TH, 1941.

Subject: L. E. Eeman.
Observer: Miss Mary Cameron.
Chance order of L. E. Eeman's seven tests: 8 F, 9 B, 10 E, 11 C, 12 D, 13 G, 14 A.

Test No. 8. *Key letter F. Compare with Test No.* 5.

Time in mins.	*L. E. Eeman's comments.*	*Mary Cameron's observations.*
0.00	Tube in circuit.	
0.30	Increase of blood pressure; strengthening of pulse.	
1.00	Strong pressure in head.	
1.30	Increased circulation, warmth.	
2.00	Tingling in hands and feet.	
2.30	Circulation increased generally. Still marked pressure in head.	
3.00	Breathing abdominal.	
3.30	Strong pressure in head continues.	
4.00	Peripheral circulation very marked.	

4.30	Pressure in head very violent.	More colour in cheeks. Strained expression around eyes and forehead.
5.00	Sense of blood pressure marked all over.	
5.45	No flagging of pressure.	
6.15	Right through general sense of inflation and plethora.	
7.00	*Break* circuit.	
9.00	Pressure continues and gradually fades though still much above normal. Sense of muscular relaxation. increases.	

"*F*" *was* 1 fluid ounce of solution containing 1 × 7½ grain of M.B. 693.

Our friend wrote: "A good reaction."

Test No. 9. *Key letter B. Compare with Test No.* 6.

10.00	Tube in circuit.	
11.00	Sense of peripheral circulation appreciably reduced.	
11.30	Rather a waking-up feeling after previous test (8).	
12.00	Circulation and pressure still very strong, but surface cooler.	Eyes wide open.
13.00	Breathing rather tenser than (8). Rather more restricted.	Speaking voice husky.
13.45	General tightening quite marked. Difficult to open chest—open with difficulty.	Colour fading.
14.00	Becoming unpleasant—don't want to go on beyond 5 minutes—speech difficult.	
14.30	Tensions restriction and dryness of throat.	Feeling in myself he had great tension. When free great relief and much stretching.
15.00	Effects rather fading.	
	Break circuit.	
16.00	Marked release of breathing. Muscular relaxation. Feel much easier.	Colour returning after stretches.

"*B*" *was* 1 fluid ounce of solution containing $\frac{1}{16}$ grain HYOSCINE HYDROBROMIDE.

Our friend wrote: "This reaction shows the after-effects common to Hyoscine treatment or to an overdose."

May I comment on this: an overdose effect is produced in five minutes and fades off within a minute of breaking circuit!

May I also draw attention to Miss Cameron's observation: "Feeling in myself *he* had great tension." Observers and spectators frequently report that they sense in their own bodies what is taking place in the bodies of subjects in circuit with drugs, and this, whether they are or not watching these subjects. I refer the reader to Chapters XI, XII, and XIII on telepathy.

Test No. 10. *Key letter E. Compare with Test No.* 3.

17.00	Tube in circuit.	
19.00		He has not spoken. Eyes open but seems drowsy.
20.00	Progressive warmth and drowsiness. Progressively sinking more in bed. Rather warmer and	
20.30	feel somewhat like sleep. Strong blood pressure. Very drowsy. Circulation quite	
21.00	strong, hands and feet, and all round. Sense of fullness and plethora.	
21.45	No muscular contraction.	Voice pitched very low.
22.00	*Break* circuit.	Looks very calm and comfortable as if in an unconscious state.
23.00	Did not want to break.	
24.00	Breathing as if in deep sleep.	
25.00	After cooling rapidly, feel I have had a good sleep.	Stretched vigorously.

"*E*" *was* 1 fluid ounce of solution containing 1 × 5 mli. tablet of BENZEDRINE.

Our friend wrote: "A good reaction."

Test No. 11. *Key letter C. Compare with Test No.* 2.

26.00	Tube in circuit.	
27.30	General sense of acceleration.	
28.00	Jaw tightens. Gripping of muscles.	

28.10	Jaw tightens more.	Wide awake. Rather tense expression.
28.45	Adapting myself effect seems to fade.	Colour not so pronounced.
29.15	Relaxing more—calmer.	
30.00	Much calmer.	
30.45	Circulation strong throughout. Breathing mainly abdominal and calm throughout.	
30.58	Jaw-tightening returns.	
31.00	*Break* circuit.	Colour returning almost at once.
32.30	Feel calmer still and drowsier after break—rather sleepy.	Eyes closing.
33.30	Could easily sleep—cooler than during (10).	

"*C*" *was* 1 fluid ounce of DISTILLED WATER.

Our friend wrote: "This shows a carry over from No. 10 gradually reduced to normality."

May I underline my last comment. "Cooler than during No. 10."

Test No. 12. *Key letter D. Compare with Test No.* 7.

35.00	Tube in circuit.	
36.30		Eyes closed. Breathing shallow.
38.00		Looks as if in deep sleep.
38.15	Felt as though gone off to sleep. Twitching in arms and hands and legs once or twice.	Breathing stronger.
39.00	Peripheral circulation increase.	
39.15	Skin feels cool and hot at same time.	
39.30	Face itching on and off.	
40.00	Go on a little longer.	Quite good colour.
41.00	Muscular relaxation very good. Rather sense of phethora and violent stretching—more than at other times.	
42.00	*Break* circuit. *After.*—Throughout my inclination was not to speak, but drowse. However, after three minutes, but having lost the sense of time, I made myself report and continued to do so by an effort of will.	

"*D*" *was* 1 fluid ounce of solution containing 20 minims liquid EXTRACT OF ERGOT.

Our friend wrote: "The violent stretching seems to be the only pointer here."

Test No. 13. *Key letter G. Compare with Test No.* 1.

44.00	Tube in circuit.	
45.15	Very strong pulsations.	Quite good colour.
45.45	Great penetrative power of circulation.	
46.00	Slow breathing.	
46.15	More of whole trunk than before.	
47.00	Effect as if sample had solvent effect.	
48.00	Breaking down congestion. Latin tag: "Solve et coagula"	
48.15	comes to mind with emphasis on "*Solve.*"	
49.00	Also idea of emulsifying fats.	
49.15	*Break* circuit.	No sign of stretching, but eyes wide open.

"*G*" *was* 1 fluid ounce of solution containing 1 × 1 grain tablet of THYROID.

Our friend wrote: "A good reaction."

Test No. 14. *Key letter A. Compare with Test No.* 4.

50.00	Tube in circuit.	
51.10	Progressive tension.	Eyes half closed.
51.30	Sense of vaso-motor contraction.	
51.45	Restriction of trunk expansion in breathing.	
52.00	Tension increasing—expansion more difficult.	
52.10	Forced to take breath.	Eyes wide awake.
52.30		Some twitching in hands.

52.45	Tendency to twitch. Restriction and contraction
53.15	increase again and more twitching.
53.45	Jaw tightens.
54.00	Muscles generally on the alert.
54.10	Marked in hands and arms.
54.30	Sensation as if ready to box.
54.45	Thought of sparring has come up several times.
55.00	General physical alertness. On tiptoe feeling.
55.30	Throat rather dry.
56.00	*Break* circuit. Stretch.

"*A*" *was* 1 fluid ounce of solution containing $\frac{1}{8}$ grain DIAMORPHINE HYDROCHLORIDE.

Our friend wrote: "This is either a 'carry over' from 13 or you have had the normal physiological *after* effects of Morphine. Perhaps a little of both." "After" effects in six minutes!

This ends Miss Cameron's and my "blind" tests of the First Group of Seven Drugs. In his general comments on this group, our pharmacologist wrote: "I think the results are very good indeed, particularly when I remember that you have worked "blind" and that there are factors over which there is no check, such as personal idiosyncrasy. The Ergot is the only one which has shown doubtful results."

May I suggest that it is significant that Miss Cameron and I should each in seven tests show our only "doubtful" results for the same drug? She had said nothing and I had said nothing significant. This does not prove that Ergot had caused no reaction in either of us, but merely that neither of us had "perceived" anything reminiscent of either ingestion or injection effects.

SECOND GROUP OF SEVEN DRUGS: "BLIND" REFERENCE LETTERS H TO N.

FIRST TEST OF SECOND GROUP OF SEVEN DRUGS, SEPTEMBER 22ND, 1941.
Subject: L. E. Eeman.
Observer: Miss Mary Cameron.
Chance order of L. E. Eeman's seven tests: 15 K, 16 H, 17 N, 18 L, 19 J, 20 M, 21 I.

Test No. 15. *Key letter K. Compare with Test No.* 28.

Time in mins.	*L. E. Eeman's comments.*	*Mary Cameron's observations.*
0.00	Tube in circuit.	
0.15	Pulse faster, blood pressure higher. Circulation increased.	Colour normal.
1.00	General. Hands tingle.	
1.15	Feet tingle.	
1.30	Lips feel full.	
2.00	Hotter in face.	Redder in face
2.30	Pulse slightly slower but very strong.	
3.00	Generally strong sense of circulation affecting whole body.	
4.00	Breathing apparently not stimulated in proportion to heart strength.	Eyes open.
4.05	No sense of muscular contraction.	Redder colour maintained.
4.45	No narcotic effect.	
5.00	Pressure remains strong.	
6.00	Sense of fullness.	
6.05	*Break* circuit	
7.00	Shortly after breaking; slight drowsiness, warmth and circulation continue, but breathing fuller and freer, especially abdominally.	

"*K*" *was* 1 fluid ounce of solution containing 1 tablet of THYROID AND PITUITARY, i.e. 1 grain of Thyroid Whole Gland plus 1 grain Pituitary W.G.

Our friend wrote: "Good."

Test No 16. *Key letter H. Compare with Test No.* 26.

8.00	Tube in circuit.	
8.15	Early stimulation of abdominal expansion.	Large sigh.
9.15	Abdominal expansion spreads to chest.	
9.30	Breathing general and full.	Tummy rumbling
10.10	Breathing less full and slower.	
10.30	Circulation strong throughout, but less peripheral than for (15).	

11.05	Now more peripheral (perhaps due to observation).	
12.00	Abdominal warmth.	
12.05	Lips and face feel full and warm.	Eyes open. Colour normal.
12.30	Strong surface pulse in lips.	
12.45	Lips even fuller.	
13.00	Have had several abdominal rumbles. No narcotic effect.	
14.00	No muscular contraction. Not disturbing.	
14.30	*Break* circuit.	Large sigh.
15.00	Soon after break, apparent increase in peripheral circulation.	
15.30	Tingling in hands and feet. Lower abdominal rumblings. Feel warm.	

"*H*" *was* 1 fluid ounce of solution containing 20 minims of solution of STRYCHNINE HYDROCHLORIDE.

Our friend wrote: "Good."

Test No. 17. *Key letter N. Compare with Test No.* 27.

17.00	Tube in circuit.	
17.45	Circulation strong.	Eyes open.
18.30	Vague mind wandering feeling.	Very calm look.
19.00	Have had few skin itches.	
19.30	Face rather burning.	
19.45	Mind wanders on and off. Eyes blink progressively, then close as if sleep was coming.	Eyes closed.
20.10		Still calm look.
21.00	Circulation very strong.	
21.10	Pressure strong.	
21.30	Fullness and plethora.	Voice getting lower.
21.45	Very restful. Could easily go to sleep	
22.00	if sense of blood pressure and pulse were not so strong. Marked surface warmth.	
23.30	I continue because enjoying plethora and warmth.	Voice very low.
24.00	*Break* circuit.	

24.30	Circulation continues strong, but sense of congestion in head increased.	
25.30	Circulation still strong.	

"*N*" *was* 1 fluid ounce of Infusion of BUCHU.

Our friend wrote: "A carry over from 16?"

Test No. 18. *Key letter L. Compare with Test No.* 23.

27.00	Tube in circuit.	
28.00	Sense of congestion diminishes almost at once in neck, face and head.	
29.00	Fullness in throat and legs. More frequent salivation and swallow.	Eyes wide open. Colour normal.
29.30	Mouth appreciably wetter.	
30.00	Clear my throat.	Voice normal.
30.10	Thoracic ease and warmth, sense of respiratory well-being,	
30.30	though breathing remains quiet.	
30.45	Clear throat again.	
31.10	No muscular contraction.	
31.20	No narcotic effect.	
31.45	General warmth.	No stretching or movement of body.
31.50	Circulation pleasant throughout.	
32.20	*Break* circuit.	
33.00	*After* break, circulation continues, also general warmth.	
34.00	General feeling; chest and throat have benefited. Neck feels plethoric.	

"*L*" *was* 1 fluid ounce of solution containing:

1 MULTIGLAND TABLET: Corpus Luteum $\frac{1}{4}$ grain.
Ovarian Whole Gland $\frac{1}{2}$ grain.
Pituitary Whole Gland $\frac{1}{8}$ grain.
Thyroid Whole Gland $\frac{1}{4}$ grain.

Our friend wrote: "Very good."

Test No. 19. *Key letter J. Compare with Test No.* 25.

35.00	Tube in circuit.	
35.30	Breathing faster and stronger.	
35.45	Irresistible big expansion.	Big sigh.
36.00	Great throbbing in head and neck.	Looks wide awake.
36.30	Hands tighten up.	
36.45	Muscles feel more alive.	
37.00	Breathing strong, want to stretch.	
37.35	Strong stretching.	Seems to be filled with terrific strength.
37.50	Breathing continues strong.	
38.00	Being energised. Feel more tone in voice.	
38.30	Circulation strong but rather thumping; possibly after stretch.	
39.00	Abdominal circulation strong, breathing quieter.	
39.30	Twinge of pressure pain in right elbow joint. Muscular system more restful but sense of blood pressure still quite strong.	
40.00	Twinge of pressure pain in left forearm.	
40.05	Suspicion of twinge in left hand.	
41.00	Pressure in neck and jaw muscles. Circulation continues very strong.	
42.00	*Break* circuit.	
43.00	*After* break slight drowsiness. Breathing much fuller. Sigh; sleepy.	

"*J*" *was* 1 fluid ounce of solution containing 5 minims DILUTE HYDROCYANIC ACID.

Our friend wrote: "Very good."

Test No. 20. *Key letter M. Compare with Test No.* 22.

45.00	Tube in circuit.	
45.30	Faint twinges reappear in left arm and hand.	Looks like sleep.

46.00	Still feel could sleep.	Voice dropping.
47.30	My voice feels low. Feel like snoring.	Looks as if in deep sleep. Breathing a little noisy.
47.30	Have not lost consciousness. Stretch now after feeling peaceful rest.	Big sigh.
48.30	Blood pressure again stronger in neck and head.	
48.45	Increased salivation.	Very shallow breathing.
49.00		Getting deeper.
49.30	Not lost consciousness but wandering quite a good deal.	
	Again pain twinges in left hand.	Looks very calm.
50.00		When I said five minutes was up, he said:
	I feel as if I had been under for ten minutes.	
51.00	*Break* circuit. Terrific stretch.	
52.00	This has been good rest.	

"*M*" *was* 1 fluid ounce of INFUSION OF VALERIAN.

Our friend wrote: "Interesting result."

I note that recurring pain twinges may be "hang-over" from 19.

Test No. 21. *Key letter I. Compare with Test No.* 24.

53.00	Tube in circuit.	
53.15	Circulation quite strong though not violent.	
54.00	Have lost sleepy feeling.	Eyes open.
54.45	Circulation strengthens.	
55.00	More peripheral.	Voice slower.
55.45	Quieter and sleepier spell.	
56.00	Abdominal rumble.	
56.10	Twinge of pain, appendix and inguinal region.	Voice halting.
56.30	Pressure in head increases.	
56.40	Unpleasant. Even in skull bones.	
57.00	Another short drowsy spell.	Eyes closed.
57.10	Successive drowsy spells.	
57.15	Breathing abdominal and deeper.	

57.30	Sleepy again.	
59.00	Less sleepy—pressure in skull bones strong again. Painful pressure in jaw and teeth.	Eyes open for a little, but looks tense.
60.00	*Break* circuit.	Stretched.

"*I*" *was* 1 fluid ounce of solution containing 1 grain of ATROPINE SULPHATE.

Our friend wrote: "Good, but mixed."

SECOND TEST OF SECOND GROUP OF SEVEN DRUGS, SEPTEMBER 23RD, 1941.

Subject: Miss Mary Cameron.
Observer: L. E. Eeman.
Chance order of Miss Cameron's seven tests: 22 M, 23 L, 24 I, 25 J, 26 H, 27 N, 28K.

Test No. 22. *Key letter M. Compare with Test No.* 20.

Time in mins.	*Mary Cameron's comments.*	*L. E. Eeman's observations.*
0.00	Tube in circuit.	
1.00		Silent, quiet, breathing gentle.
1.30	I feel a sort of glow creeping all over me.	Face flushing.
2.30	Sense of fullness all over.	Breathing fuller. Salivation and swallowing.
3.00		Breathing much deeper.
3.15	Feels like beginning of anæsthetic. You want to go over, want it to happen quickly.	
4.00	Terrific pressure in my head. *Break* circuit.	Breathing violent, almost crying. Very emotional. Too much for her. I break circuit before time.
		Gradually calming down, but disturbance has been very marked. Groaning, moaning. Big breaths for readjustment. Salivation, shaking and stretching.
7.30	God, that was terrific!	Breathing still very violent. Still readjusting breath. Yawning; shivers; yawning; shaking.

8.30	That was terrific. (Spoken more calmly.)	
9.00		Yawning, stretching, breath still hissing at times. Not yet normal.

"*M*" *was* 1 fluid ounce of INFUSION OF VALERIAN.

Our friend wrote: "Rather remarkable. Not quite the expected. Mental interference perhaps."

May I note that mental interference is always a danger, however carefully one guards against it. Suggestion, auto- and telepathic-hetero are possible agents, and so are temporary indisposition, idiosyncrasy and allergy.

Test No. 23. *Key letter L. Compare with Test No.* 18.

15.00	Tube in circuit.	
15.30		Face peaceful almost at once. Breathing also.
16.00		Breathing a little fuller, abdominal. Still peaceful.
17.00		Large sighing breath.
17.15	This is nice and peaceful.	Looks and sounds peaceful.
18.00		Another big sigh.
18.15		Smiles broadly and expands.
18.30	Sort of clensing feeling. Nice purifying effect it has.	Clears her throat.
19.00	More like a nice fine day; air is nice; everything in the world is right. I want to fill myself with good things of life. Exhilarating.	Big sighs. Looks free and happy. Smiles contentedly.
20.00		Stretches. No break. Clears throat several times.
21.30	All parts of body, not separate exactly, but all sort of being cleaned. Very pleasant, really.	Looks awake but peaceful.
22.30	*Break* circuit.	After break, looks peaceful and contemplative.
25.00	My head burning. Big rush of blood. Result of exhilaration I expect. I feel a bit tired now.	Looks sleepy.

"*L*" *was* 1 fluid ounce of solution containing:

1 MULTIGLAND TABLET: Corpus Luteum $\frac{1}{4}$ grain.
Ovarian Whole Gland $\frac{1}{2}$ grain.
Pituitary Whole Gland $\frac{1}{8}$ grain.
Thyroid Whole Gland $\frac{1}{4}$ grain.

Our friend wrote: "Very good."

Test No. 24. *Key letter I. Compare with Test No.* 21.

30.00	Tube in circuit.	
30.30		Blinks; closes eyes; slow peaceful breath. (May be hang-over from 23.)
32.00		Still very peaceful.
32.30		Mild twitches. Frowns a few times.
33.00	Pressure in head—	Solar plexus spasms. Frowns
33.30	tightening	hard. Expression as if unpleasant.
34.00	Tightening all in the head. In the middle of it. Shrinking. Feel I can't breathe. Tied up feeling. Between the eyes.	Face disturbed; trunk spasms (mild).
34.30	My shoulders now. I am all tensing up. My knees now.	
35.00	*Break* circuit. Head, knees, hips, shoulders, everything. Oh, it hurts.	Relief.
		Groans
36.30		Stretches. Rubs forehead as if to disperse.
38.00		Stretches. Very limp.
38.30	That was not pleasant at all. For (22) I could have slept, it might have been pleasant in the end, but this is still unpleasant.	

"*I*" *was* 1 fluid ounce of solution containing 1 grain of ATROPINE SULPHATE.

Our friend wrote: "Good, even if not finished."

Test No. 25. *Key letter J. Compare with Test No.* 19.

40.00	Tube in circuit.	
40.30		Peaceful. Breathing slow. Rumbles.

41.00	Pleasant glow all over the body. Rather as if coming from outside; standing in front of fire.	Breathing fuller.
41.30	Loosening-up feeling. Very pleasant.	Salivation and swallow. Smiles. Breathing good. Sounds of well-being.
42.30	Making a lot of saliva.	Stretches. Obvious comfort. Yawns. Licks lips several times. Swallows a good deal.
43.30	I feel I am looking for tension but can't find any. It has completely untensed me. Even my eyes don't point at one thing. Loose. Easy. Nice.	
44.30		Peaceful. Colour has been good throughout.
45.00	My tongue feels as if it wants to come out! I have gone batty! . . . Goopy! This is most peculiar. I feel I am in waves. I shall foam at the mouth in a minute. Do I look silly? How very strange. Tongue wants to hang out all the time!	Roars with laughter. Laughs. Wriggles and stretches. And laughs. Tongue out. Wriggles.
48.30	*Break* circuit.	
49.30	Tongue still out.	Wriggles less. Calms down completely. Looks contemplative. Minor wriggles every now and then.
50.00	I feel all right. Just looking on what is happening. A sort of see-saw movement with my hips. I am glad my tongue wants to go back again. Would be awful if it wanted to hang out all the time! (Said laughingly.)	Still wriggles a bit. Big yawn.

"*J*" *was* 1 fluid ounce of solution containing 5 minims dilute HYDROCYANIC ACID.

Our friend wrote: "Most interesting."

Test No. 26. *Key letter H. Compare with Test No.* 16.

52.00	Tube in circuit.	
53.00		Has looked very peaceful from start, as if going into deep sleep. Quiet breath.
54.00		Moves head slightly. Faintly disturbed expression.
54.30		Looks puzzled. Slight frown.
55.00		Frown more marked.
55.15	Seems to be something tightening in abdomen and throat. Stops my breathing. Tightening head.	
55.30	Throat seems tense now.	
56.00		Frown as if very unpleasant.
57.00	Very unpleasant. *Break* circuit.	
57.30	That was not pleasant at all. Seems to have affected same spot between eyes. (See 24.) Drawing everything up to it in my head.	
58.30	It was not very pleasant.	
59.00		Begins to show some relief. Frown vanishes. Facial skin stretches.
60.00		Looks quite peaceful and sleepy again.

"*H*" *was* 1 fluid ounce of solution containing 20 minims of solution of STRYCHNINE HYDROCHLORIDE.

Our friend wrote: "Evidently felt the constrictive effect of Strychnine."

Test No. 27. *Key letter N. Compare with Test No.* 17.

61.00	Tube in circuit.	
62.00		Quite peaceful so far. Breathing gentle.
62.30	Tingling in hands and legs. Circulation getting stronger.	Face flushes. Breathing still gentle. Clears throat and sighs. Breathing much slower.
64.00	Feeling of heaviness.	
65.30		Same but breathing slightly faster, almost up to normal.

66.00	It is very nice. (In a whisper.)	Swallows. Slow breath again, and gentle.
67.30	I would like to talk, but it is difficult. (In a whisper.)	Peaceful immobility continues. Dead but for colour and breath.
71.00	*Break* circuit	No change till break. *After* break: I ask "Was it pleasant or unpleasant?" No audible reply.
73.30	As though I had been looking down on myself as dead; stiff.	
77.00	I am not cold. (Faint whisper.) I want to come back. Give me some warmth.	
78.30	Let me feel your hand against my face.	Still immobile.
81.00	I am still dead. (Faint whisper.)	I complete relaxation circuit with her. (Both of us in same circuit.)
83.00	I am back in my toes; my legs. I feel life coming back. My fingers, my arms, my spine. Oh dear, oh dear, oh dear. I could not make up my mind whether to stay like that or come back. Most extraordinary.	Stretches violently.
		I ask "Alive again?" Nods yes. Looks peaceful and contemplative.
85.00		Closes eyes again, looks asleep.

"*N*" *was* 1 fluid ounce of Infusion of BUCHU.

Our friend wrote: "Good."

May I draw attention to the fact that when, in order to help her return to normal, I joined Miss Cameron in the circuit at 81 minutes, the desired result appeared within two minutes. This confirms observations made earlier in this book.

Test No. 28. *Key letter K. Compare with Test No.* 15.

86.00	Tube in circuit.	
87.00		Very peaceful. Still rather deathlike except for colour and gentle breathing. (Perhaps hang-over from 27.)

88.00		Still very peaceful but no longer deathlike. Pinker, lower jaw comes slightly forward.
89.00	Blood pressure stronger. My hands are burning. Blood all going to my head.	Face is fuller and redder. Lips quite red. Looks definitely alive and thinking, though eyes still closed.
91.00		Faint frown of puzzlement.
91.15	Hands seem most affected. Handles seem to burn.	(Is this merely recovery from 27?)
92.00	My hands feel glued to tummy, which feels hot too. Tummy and hands seem to heat each other.	
94.00	Breathing mostly from lower abdomen.	I ask "Not unpleasant?"
95.00	Not particularly pleasant either. Mild rigidity. From shoulders down to knees. From neck up almost normal. I don't think it is my hands that are affected so much as the trunk.	
96.00	*Break* circuit.	
97.00	Great sense of lower abdominal circulation. Including genitals. My head, hands, feet, or their movements were not affected. I don't feel sleepy.	In fact she looks quite awake though motionless.
98.00		Violent stretching.
98.15		Points to abdominal region as zone affected.
99.00		Gets up and leaves room.

N.B.—Subject has relieved her bladder three times inside two hours although her liquid consumption in the day had been normal. Unfortunately I did not note when diuretic effect began, but believe it was after 24, then after 26, and now again after 28. The quantity passed was about ¾ pint on each occasion (subject's estimate).

"*K*" *was* 1 fluid ounce of solution containing 1 tablet of THYROID and PITUITARY, i.e. 1 grain of Thyroid Whole Gland plus 1 grain Pituitary W.G.

Our friend wrote: "Very good."

His general comment on our tests of his second group of seven drugs was: "A most interesting set of reactions. They definitely hang together."

As the last week-end in September, which I was to spend with Maby, was approaching, I wrote to our pharmacologist:

(A) That in view of the persistence of the effects of one drug during the test of the next, and in order to get more comparable results between Miss Cameron's tests and mine, I proposed that we should both do some of the remaining tests in alphabetical order;

(B) That the effects of some of his drugs when administered in circuit had been not only marked but lasting, Miss Cameron and I having been *seriously disturbed*, if not worse, for some days by the last seven drugs, and

(C) That I was going to Maby and would show him all reports and keys; and then test with him drugs O to U.

CHAPTER XVIII

THE TRIPLE TESTS

During the week-end of the 26th to the 29th September, Maby scrutinised the twenty-eight reports of our tests on drugs "A to N." He agreed with our chemist that our results "definitely hung together." He also agreed with me that as we had already done 28 tests taking the drugs at random and had thus eliminated every chance of telepathic suggestion, we might allow two subjects to test the next group of seven drugs in the same order, and secure thereby the more comparable results produced by identical sequences. We decided that Maby would do the first test in alphabetical order, that Miss Cameron would do the second a few days later, also in alphabetical order, and that I would do the third the day after that, but at random. The only flaw in this agreed plan was that having acted as Maby's observer, I might subconsciously recollect some of his reactions and suggest similar ones to Miss Cameron telepathically. However, this was a risk we could take after the results of our first twenty-eight tests.

Maby tested drugs O to U (29 to 35) on the 28th September; Miss Cameron (36 to 42) did so on the 1st October, and I tested them on the 2nd October in the following chance order: 43 O; 44 Q; 45 S; 46 U; 47 P; 48 R; and 49 T. Our chemist's general comment on our reports on this third group of drugs was: "They are very interesting indeed and some of them show marked resemblance to known physiological results by internal medication."

THIRD GROUP OF SEVEN DRUGS: "BLIND" REFERENCE LETTERS O TO U.

First Test of Third Group of Seven Drugs, September 28th, 1941.
Subject: J. C. Maby.
Observer: L. E. Eeman.
Tests No. 29 O to No. 35 U in alphabetical order.

Test No. 29. *Key letter O. Compare with Tests Nos.* 36 *and* 43.

Time in mins.	*J. C. Maby's comments.*	*L. E. Eeman's observations.*
0.00	Tube in circuit.	
0.45	Increased warmth palms of both hands.	Peaceful expression. Various slight muscular adjustments.
1.45	Slight tendency to tingling, pins and needles chiefly left arm and hand.	
2.00	General sensation growing during last minute of clearing of catarrh, lifting of fag, right through body.	Clears throat.
2.30	Nervous system generally gently stimulated and warmed up.	
3.00	Hands very warm.	
4.15	Slight itching scalp and face right side. Increase capillary action. Want to scratch.	Well relaxed most of time.
5.00	Nothing disagreeable.	
6.00	Twitchings in both thumbs and wrists.	
6.15	Left arm and shoulders too. Nice sense of warmth all over. I feel released.	
8.00	Twitches mainly in arms and across shoulders.	
8.15	*Break* circuit. Immediately feeling taken away. Twitching and warmth down rapidly.	
9.00	Sigh.	

"*O*" *was* 1 fluid ounce of solution containing ½ grain CALOMEL.

Our pharmacologist wrote: "Nos. 29, 36 and 43: the circulatory effect in *all* three tests is marked."

Test No. 30. *Key letter P. Compare with Tests Nos.* 37 *and* 47.

10.00	Tube in circuit.	
10.45	Slight neuralgic twitch over left eye.	
11.15	Sinking feeling—caving in.	Breathing abdominal and steady.

12.00	Breathing faster, shallow. Discomfort epigastrium. Sigh not of relief but to relieve compression.	
13.00	Slight sciatic pain in right hip. Worst passed. Getting accustomed.	Clears throat.
13.30	Slight tingling electric feeling between skin and electrodes.	Looks a little worried.
13.50	Readjusted myself to onslaught Slight pain left temple.	
14.00	Had enough. *Break* circuit.	
14.15	Slight exhaustion, worry, chilling. 29 warmed me up, this neutralises it.	
16.30	Back to normal.	

"*P*" *was* 1 fluid ounce of solution containing 1 SYNTHOVO TABLET.

Our pharmacologist prefaced his comments on our three individual tests of this drug with the following general note: "Hexoestrol is a synthetic oestrogenic hormone. Hormones usually act through the blood stream. I cannot fairly judge these three results, for *this was one of the substances I included merely because I knew little about its activity and thus could not pass on to you any hints, telepathically* (?) *or otherwise.*" On Test No. 30 in particular he wrote: "I believe this to be a good reaction. Hormones (cf. No. 32, Adrenalin) seem to have a marked effect on this subject."

Test No. 31. *Key letter Q. Compare with Tests Nos.* 38 *and* 44.

18.00	Tube in circuit.	
18.30	Immediate feeling of clamminess in hands. Sweat glands might be acting.	Small sigh.
19.00	Sigh was part of reaction to 30.	
19.30	Warmth suffusing my cheeks, now passing off like a blush.	Breathing steady and calm.
20.30	Pulse and breathing steadying down. Comfort, slight drowsiness.	
21.15	This is doing me good after others. Like it best of all.	Peaceful expression.

22.00	Sigh of relief, that's all right! Feel job is done now.	Pleased sigh.
22.30	Generally soothing. Pleasant but had enough.	
23.00	*Break* circuit.	
24.00	*Link again at his request.*	
25.00	Feel pleasant. Nice feeling of calm after storm.	
26.00	Become more aware of heartbeats. Average speed, but heavy.	
27.30	*Break* circuit *again.*	
66.00	*After test No.* 35. *Q tried again.*	
66.30	Immediate improvement.	
67.30	Easing up, relaxation better altogether, increased warmth, nice and peaceful.	
68.00	*Break* circuit. Two minutes just right.	Stretch.

"*Q*" *was* 1 fluid ounce of solution containing 1 REDOXAN TABLET OF VITAMIN C. (50 mgs. ASCORBIC ACID, 1,000 Units).

Our friend wrote: "I believe this to be a good reaction as Ascorbic Acid regulates oxidation reduction processes."

I underline Maby's remark: "Two minutes just right" as evidence that doses should be controlled by time and not by quantities.

Test No. 32. *Key letter R. Compare with Tests Nos.* 39 *and* 48.

29.00	Tube in circuit.	
29.30	May be coincidence; slight flatulence.	Breathing steady. Calm expression.
30.30	Gradually increasing gastric discomfort. Have to swallow. Heartburn indigestion coming on.	Looks tense and worried.
31.30	Brow contracting. Tension in cervical vertebrae. Neck drawn back, pillow in way.	
32.00	Face, head and neck all feel set in plaster of Paris. Feel I must not move or will crack.	
33.00	Feel ought not to turn head to right or left.	

33.30	Slight right ear-ache. Little tingling in skin of upper face. All drawn up and tense. Head drawn back; stiff neck.	
34.00	*Break* circuit. Immediate fall at once as if you had taken off strait jacket. I am free again.	Sigh, instantaneous relief.
35.00	My head has flopped to one side.	Clears throat.
36.00	Everything was gummed up. Could have broken by will. If had been asleep could have produced horrible nightmare.	
37.00	Normal almost immediate.	

"*R*" *was* 1 fluid ounce of solution containing 1 per cent ADRENALIN CHLORIDE.

Our friend wrote: "I believe this to be a marked example of the action of Adrenalin. Note how it parallels the fear reaction, i.e. Adrenalin pours into the blood and the animal 'freezes' with fright. Note also the gastric discomfort—a by-product of increased activity. Look of worry due to hyper-tension, quite normal with Adrenalin." Experts have found this a typical Adrenalin overdose effect.

Test No. 33. *Key letter S. Compare with Tests Nos.* 40 *and* 45.

39.00	Tube in circuit.	
40.00		Salivation visible.
40.30	Twitches, both arms.	
41.00	Disagreeable, disgruntled, quarrelsome.	Sigh.
41.15	Nasty pain in thorax.	
41.30	Gone through to back. My sighs are to try to expand.	Sigh.
42.00	Pain persists below left shoulder-blade.	
42.30	Have overcome first shock of a rather acute onslaught.	
42.45	Second begins and I tense myself to meet it.	
43.00	Pain returns under left shoulder-blade. Shooting pain in right hip. Resisting attack, gripping electrodes, gripping teeth.	Looks angry.

43.30	That attack has passed. Releasing.	Looks very peaceful and dreamy.
44.15	Pain returns, *very sharp* left shoulder and front.	Angry again.
45.00	*Breaks* circuit himself. Attacks cyclic and seemed progressively worse.	
47.00	Recovery slow and gradual. At beginning I felt my face had Beethoven's expression, always fighting pain.	
48.00	Hands still feel rather tense. Want to loosen all joints. Last seemed most dangerous so far.	

"*S*" *was* 1 fluid ounce of solution containing 1 teaspoonful T.C.P. solution, a disinfectant containing chlorine, iodine, phenol, salicylic acid and bromine.

Our friend wrote: "Unable to give an opinion on 33, 40 and 45."

I wonder whether this is not, at least partly, an Adrenalin hang-over effect from No. 32?

Test No. 34. *Key letter T. Compare with Tests Nos.* 41 *and* 49.

50.00	Tube in circuit.	
51.00	Recovery from 33 seems accelerated.	Looks very peaceful.
51.30	Something becoming neutralised though still not comfortable.	Sigh.
52.00	Pain in back at last almost gone.	
52.30	Drowsy, can hardly be bothered to speak.	Has looked so almost from start.
53.00	Right eyelid has tendency to open although I don't want it to, as if someone were testing me for consciousness.	
53.15	Twitch in shoulders and arms. This is releasing previous tensions. Easing things up again. Twitches all the time.	Big sigh of relief.
54.00	Much better now.	

54.15	All worked itself off. Quite normal. Waking up a bit again.	Big sigh.
54.50	Back. Not quite right yet.	
55.00	*Break* circuit. This has balanced things up. Administered on its own it might have been different? Suitable sequence to others to put things right.	
58.00	More inclined to open eyes and take notice.	

"*T*" *was* 1 fluid ounce of solution containing 1 teaspoonful LIQUID EXTRACT OF LIVER.

Our friend wrote: "I believe this to be good. Drop in blood pressure and sedative action."

I underline that, as Maby suggests, the effect may be partly an overcoming of hang-over effects of Nos. 32 and 33.

Test No. 35. *Key letter U. Compare with Tests Nos.* 42 *and* 46.

60.00	Tube in circuit.	
61.00	Still right eye tendency to draw up.	Peaceful and dreamy look.
61.30	Oscillations of head, faster than pulse, rather muscular tremor.	Sigh.
62.00	Slight prickling, dorsal side of hands.	Neck readjustments. Looks sorry, pained.
63.00	Heartbeats much less pronounced than previously. Breathing rather shallow.	
64.00	Slight discomfort from ears and neck. Want to ease.	
64.30	Increasing tension in forearms. They want to straighten out. Contraction in brows.	
65.00	*Break* circuit. Not very agreeable, but nothing very potent. No marked change on breaking.	

"*U*" *was* 1 fluid ounce of solution containing 1 grain EPHEDRINE HYDROCHLORIDE.

Our friend wrote: "Notice tension and compare with Adrenalin No. 32."

It was after this test that Maby went back to No. 31 as previously recorded.

SECOND TEST OF THIRD GROUP OF SEVEN DRUGS, OCTOBER 1ST, 1941.
Subject: Mary Cameron.
Observer: L. E. Eeman.
Tests Nos. 36 O to 42 U in alphabetical order.

Test No. 36. *Key letter O. Compare with Tests Nos.* 29 *and* 43.

0.00	Tube in circuit.	
1.30		Facial circulation has risen progressively. Breathing slow and steady. Expression peaceful.
2.30		Fuller and faster breath.
2.45	I want to stretch.	Does so powerfully.
3.30		After stretch, breath slow again. Face pinker.
5.00		Shall I break? No reply.
6.00	Trying to express my feelings. Can't find words. Heavy, sleepy. Everything is effort. Jaw and ears tight. Tingling in hands.	Looks tenser.
7.30	Feel irritable and queer.	Frowns.
7.45.	*Break* circuit.	
8.30	No, not yet.	Suggest next sample.
9.00		Stretches long and hard. Face recovers peaceful look.
10.00	Now ready.	Change.

"*O*" *was* 1 fluid ounce of solution containing ½ grain CALOMEL.

Our friend wrote: "Nos. 29, 36 and 43: the circulatory effect in *all* three tests is marked."

Test No. 37. *Key letter P. Compare with Tests Nos.* 30 *and* 47.

10.00	Tube in circuit.	
10.30		Breathing a little faster than No. 36, and abdominal. Expression peaceful.

12.30		Fuller and abdominal.
13.00		Begins to frown.
13.30		Worried look accentuated. Breathing tenser.
15.00	I can't do anything, describe anything—unpleasant.	Breathing tenser.
15.51	*Break* circuit.	Has been rather disturbed by sample. Is there overlap from 36?
		Stretches, and again and again whole body.
19.00	Ready for change. *See* 38.	Dispersing effect of sample?

"*P*" *was* 1 fluid ounce of solution containing 1 SYNTHOVO TABLET.

Our friend wrote: "Can't quite judge this although possibly it is quite a normal reaction. This hormone increases the growth of secondary sexual characters, conditions the genital tract and influences the growth and contractibility of the uterus. The notable action here seems to be the abdominal effect."

Test No. 38. *Key letter Q. Compare with Tests Nos.* 31 *and* 44.

20.00	Tube in circuit.	
22.30		Slight twitch. Face rather less pink.
23.00	I think I have too much on my mind to-day to feel anything.	
23.30		Looks sleepy.
23.45		Stretches violently, as if tension had been reduced.
25.00		Several deep breaths—released looks peaceful
30.00	Feel puffy about the eyes. Sleepy.	As if very sleepy
	Break circuit.	
	37 was awful. Made me feel antagonistic. *See* 37.	

"*Q*" *was* 1 fluid ounce of solution containing 1 REDOXAN TABLET OF VITAMIN C. (50 mgs. ASCORBIC ACID, 1,000 units).

Our friend wrote: "Sedative effect most noticeable."

Test No. 39. *Key letter R. Compare with Tests Nos.* 32 *and* 48.

32.00	Tube in circuit.	
33.30		Twitch. Has looked depressed. Either sample, or is worried.
34.30		Worried look.
34.45	Shivering with cold.	
35.00		Stretches, looks better.
36.30		Some twitches. More peaceful.
37.00	I feel a bit better now. As if I was getting over something.	Look of strain definitely gone now.
	Break circuit.	

"*R*" *was* 1 fluid ounce of solution containing 1 per cent ADRENALIN CHLORIDE.

Our friend wrote: "Don't quite know what to say about this one. The toxic effects (even with small doses if the person is susceptible) of Adrenalin, are anxiety, palpitation, rapid pulse, tremor and dizziness, and coldness of the extremities. . . . Depression and cold fit in with known facts. But it is unusual for normal effects (e.g. increase in blood sugar such as might be demonstrated by banishing of strain) to follow toxic effects, usually the other way. Of course, the action might be cyclic. I think this one might be repeated. I suggest it should be done during an odd 15 or 20 minutes when there has been no other work of an exacting nature."

Test No. 40. *Key letter S. Compare with Tests Nos.* 33 *and* 45.

40.00	Tube in circuit.	
42.00		Easy sleepy breath. Looks asleep.
43.00		Almost snores. Not quite asleep.
44.00		Appears dead asleep.
46.00		Snoring.
47.00	*Break* circuit.	Unknown to subject

"*S*" *was* 1 fluid ounce of solution containing 1 teaspoonful T.C.P. solution, a disinfectant containing: chlorine, iodine, phenol, salicylic acid and bromine.

Our friend wrote: "Unable to give an opinion on 33, 40, and 45."

Test No. 41. *Key letter T. Compare with Tests Nos.* 34 *and* 49.

50.00	Tube in circuit.	
51.00		Has not yet woken up from previous sample. Still snoring mildly every now and then.
53.00		Deep sleep continues.
54.00		Deep sleep continues.
56.00		Deep sleep continues.
57.00	*Break* circuit.	Make circuit with subject. Sleep continues.

"*T*" *was* 1 fluid ounce of solution containing 1 teaspoonful LIQUID EXTRACT OF LIVER.

Our friend wrote: "Too indefinite. Requires testing again by itself."

Test No. 42. *Key letter U. Compare with Tests Nos.* 35 *and* 46.

60.00	Tube in circuit.	
60.30		Twitching but no awakening from 41.
61.00		Twitching more.
65.00		Sleep continues.
65.30	*Break* circuit.	Subject is either exhausted or worried to-day, or has been upset almost from start—36 or 37. Tests end at 5 p.m.
		An hour after tests subject was still very upset, abnormal, depressed, irritable, suspicious. I suspect 36 or 37 and not fact that we did tests in afternoon, after lunch. She had to leave so that observation was perforce interrupted.
		At 6.30 p.m. subject had to make great effort to pull herself together, having to meet relative at station. Felt eyes popping out of head and terrible depression, and more still, antagonism. Cold. States next morning that she had three worries on her mind, but does not think they would have produced her feelings, and especially her sense of antagonism. It was one of the worst experiences she had ever had. To an observer, the effect certainly amounted to temporary mental derangement.

"*U*" *was* 1 fluid ounce of solution containing 1 grain EPHEDRINE HYDROCHLORIDE.

Our friend wrote: "It is quite possible that Synthovo and Adrenalin contributed to Miss Cameron's depression, though Adrenalin might be the more potent."

I note that Miss Cameron first reported a sleepy tendency at 30 minutes, as she was finishing Test No. 38 (Vitamin C), that she overcame it partly during Test No. 39 (Adrenalin), and that she finally lost consciousness at 42 minutes (T.C.P. Solution). I have already stated that Miss Cameron and I had both been seriously disturbed more than once and for lengthy periods by previous tests of "blind" drugs. The reader may well feel that it was callous of me to continue introducing into Miss Cameron's circuit "blind" drugs, any one of which might have been toxic, to do so without allowing her time to recover consciousness and return to normal, and what is more, to persist in such a course after I had already recorded her depression.

I will answer, firstly, that Miss Cameron does not lack either courage or determination; secondly, that after many unpleasant experiences with "blind" drugs, we had agreed that in order to get convincing results we had to be ready to test any drug that came along, whatever the consequences; thirdly, that we had found that a few days' rest usually enabled us to recover from the effects of even violently toxic substances; and fourthly, that if we did so recover, this was, at least partly, because, together with others, we seemed to possess the faculty of abstracting ourselves from the action of drug frequencies as soon as our reactions to them began to strain our systems beyond endurance. If I may once again borrow from wireless parlance, man appears to possess a "switching on and off mechanism" which he normally operates

automatically and subconsciously, although he can learn to use it consciously and at will. Subjects who approach a first test with drugs in a condition of tense attentiveness thereby switch off their reactivity to drugs and thus perceive nothing, but they may become selective receivers once they have learnt to relax their voluntary muscles and to surrender all physiological and emotional control at will. When they have thus consciously switched "on" their reactivity, an unbearably toxic frequency may give them the opportunity to learn to switch "off" consciously in the deliberate and fearless acceptance of trance-like sleep. If they fail to do so, either merciful nature, or their intelligent subconscious, will switch off for them, or they will panic, when a reasonable operator will simply break the circuit.

I will return to this switch mechanism in Chapters XXIV to XXVI, and meanwhile, I trust that whilst the reader will give Miss Cameron due credit for her unfailing courage, he will, at least temporarily, absolve me from any lack of common sympathy.

Miss Cameron's unconsciousness during her later tests of this group had thwarted me in my wish to obtain closely comparable results by doing two consecutive tests in identical alphabetical order. I could, of course, have accepted our pharmacologist's advice and done Miss Cameron's tests over again, but I refrained from doing so for four reasons: (1) The new tests might have lost in validity, because since I had received our chemist's key to the drugs I might unconsciously have suggested appropriate reactions to Miss Cameron by telepathy. (2) The "switching off" mechanism operates so frequently that it needs illustration. (3) This test was a relative failure and its records must, in fairness, be included unaltered, and (4) The tests so far completed seemed to me to show results so clearly above chance expectation that three or four blank reports out of the planned total of seventy-one tests, could not reduce our aggregate of marks to insignificance.

I recognised that I could still have obtained identical sequences in two tests by doing mine also in alphabetical order, but I decided against this. I had not only acted as Maby's observer, but had so carefully dissected his reports that I knew them more or less by heart and could not therefore have escaped auto-suggestions in appropriate sequence.

THIRD TEST OF THIRD GROUP OF SEVEN DRUGS, OCTOBER 2ND, 1941.
Subject: L. E. Eeman.
Observer: Mary Cameron.
Chance order of L. E. Eeman's seven tests: 43 O, 44 Q, 45 S, 46 U, 47 P, 48 R, 49 T.

Test No. 43. *Key letter O. Compare with Tests Nos.* 29 *and* 36.

Time in mins.	*L. E. Eeman's comments.*	*Mary Cameron's observations.*
0.00	Tube in circuit.	
0.05	Immediate increase of circulation.	
0.10	Most marked in hands.	
0.50	Marked tingling round handles.	Eyes closed.
1.00	Sense of pulsation strong in whole body.	Calm look.
1.15	Head hot.	Voice low and articulation clearly defined.
2.00	Skin of hands and forearms tingling and pricking, especially left.	
2.05	Strong head pressure.	
2.30	No muscular contraction	
3.00	Peripheral warmth.	
3.30	Head pressure continues, otherwise not disturbing.	
4.00	Head pressure very strong.	Eyes open.
4.30	General internal effect rather one of clearing, cleansing.	Eyes close again.
4.50	Cheeks very warm.	Colour rather flushing.
5.00	Carry on.	
5.30	General circulation very strong.	
6.00	Fullness and warmth throughout. Enjoying it. I could stand a lot of this.	
7.30	Barring head pressure, no discomfort.	
7.45	Electric feeling in arms and hands and skin even stronger.	
8.30	Head pressure rather increasing.	Colour now normal.
9.00	Peripheral warmth continues.	
10.00	*Break* circuit.	
	After break, circulation continues but could now easily go to sleep, whereas during	Voice slow and calm.

test, though very warm, I did not feel sleepy.

"*O*" *was* 1 fluid ounce of solution containing ½ grain CALOMEL.

Our friend wrote: "Nos. 29, 36, and 43: the circulatory effect in *all* three tests is marked."

Test No. 44. *Key letter Q. Compare with Tests Nos.* 31 *and* 38.

12.00	Tube in circuit.	
12.30	Almost immediate peripheral cooling. In feet and legs.	
13.00	Sense of warmth reduced though pressure still high in head and more unpleasant.	
13.30		Colour paling.
14.00	Skin tingling in hands and arms diminished.	
14.30	Sense of tightening in chest.	
14.45	Unpleasant. Force an expansion to release tension.	
15.00	Uncomfortable, muscles resent.	
15.30	Tendency to jerkiness and contraction. Violent jerking. Jerking continues.	Colour yellowish.
16.00	*Break* circuit. I do not like it at all. Instantaneous relief on breaking. Big sighs of relief.	
16.30	Quite peaceful—pressure still very high. Breathing coming back full and easy.	Colour returning.
17.00	Very glad that's over!	
17.30	Breathing very full and easy over whole trunk. Tendency to yawn.	
18.00	Sense of circulation in hands and arms has returned.	
18.30	Am now getting back some of pleasant effects of previous sample.	

"*Q*" *was* 1 fluid ounce of solution containing 1 REDOXAN TABLET OF VITAMIN C (50 mgs. ASCORBIC ACID, 1,000 units).

Our friend wrote: "Due to regulatory effect of Vitamin C? Possibly the slowing down of bodily processes by Vitamin C has caused the unpleasant reaction?"

May I suggest that the reaction may also represent a clash between drugs due to the chance sequence: O-Q.

Test No. 45. *Key letter S. Compare with Tests Nos.* 33 *and* 40.

20.00	Tube in circuit.	
20.15		Eyes open.
20.30	Almost at once sense of alertness.	
21.00	Breathing speeds up.	
21.30	Breathing calmer again—seem adjusted.	
21.45	Circulation quite strong, rather marked in lower abdomen.	Eyes still open.
22.10	Circulation very strong. Pulsations too.	Colour normal.
23.00	Head pressure rather strong, feel much sleepier again.	Voice getting lower and more drowsy, eyes closed.
23.45	Although pulsations strong peripheral circulation not as strong as in No. 43.	Eyes open.
24.30	Pressure in head rather painful, slightly neuralgic.	Eyes closed.
25.00	Could go to sleep.	
26.00	Pressure in head still strong. *Break* circuit.	Eyes open.
27.00	Rumbling has been fairly marked but has been accentuated after break.	

"*S*" *was* 1 fluid ounce of solution containing 1 teaspoonful T.C.P. solution, a disinfectant containing chlorine, iodine, phenol, salicylic acid and bromine.

Our friend wrote: "Unable to give an opinion on 33, 40 and 45."

Test No. 46. *Key letter U. Compare with Tests Nos.* 35 *and* 42.

28.00	Tube in circuit.	
28.15	Immediate increase of muscular relaxation.	
29.00	Feel muscles sinking in bed.	Looks very calm.
29.30	Sense of weight increases.	Eyes closed.
29.45	Circulation and pressure strong.	Colour normal. Mouth looks rather tensed.

30.10	Slight neuralgic pain right elbow and hand.	
31.00	Circulation and pressure very strong.	Colour a little flushed.
31.30		Eyes still closed.
32.00	Mind has wandered sleepily—effort to speak.	
32.30	Heavy all over.	Voice very drowsy. Mouth more relaxed.
33.30	Circulation very strong.	
34.00	Neuralgic twinge left eyelid. My mind goes off every now and then.	Colour deeper.
35.15	*Break* circuit.	Eyes open.
	Waking up almost at once especially noticeable about eyes. Real stretches as if waking up after very deep sleep.	Stretches. Violent stretches.

"*U*" *was* 1 fluid ounce of solution containing 1 grain EPHEDRINE HYDROCHLORIDE.

Our friend wrote: "Quite good. Cf. Adrenalin (32 and 48). Circulatory effect noticeable and quite right. Should have expected some muscular tension, though that is not necessary."

Test No. 47. *Key letter P. Compare with Tests Nos.* 30 *and* 37.

37.00	Tube in circuit.	
38.00		Eyes open.
38.00	Pulse more noticeable at once.	
38.30	Resistance to circulation in body seems reduced.	Eyes open.
40.00	Sense difficult to describe: general and progressive accentuation of internal relaxation.	
41.00		Big sigh. Colour flushed. Eyes still open.
41.30	Loosening effect. Whatever had earlier caused tension, contraction, congestion, is now being overcome.	Voice low and rather laboured.
42.00	General loosening effect in body.	
42.30	Head pressure still high.	

43.00	Internal cleansing effect. Sigh of relief—release.	Another big sigh.
43.30	Want to stretch again—not as strong as before.	
44.00	*Break* circuit.	Stretches.
44.15	Continuation from earlier big stretch.	

"*P*" *was* 1 fluid ounce of solution containing 1 SYNTHOVO TABLET.

(Our friend wrote: "Abdominal effect here again notable." (cf. his note after 37.)

May I point out that at 41.30 minutes I said: "Whatever had earlier caused tension, contraction, congestion, is now being overcome," which suggests that 46 (Ephedrine Hydrochloride) had actually caused me "some muscular tension" as our pharmacologist had expected it to do, although I had not perceived it at the time. The reader will have noticed that some of the effects of drugs in circuit are frequently assessed by the subject only negatively, and posthumously, as it were, i.e. after the removal of the drug from the circuit and by contrast with the next drug.

Test No. 48. *Key letter R. Compare with Tests Nos.* 32 *and* 39.

46.00	Tube in circuit.	
47.00		Eyes open.
47.30	Circulation quite strong whole time.	
48.00	Jaw muscles and other muscles rather tighter. Muscles tightening more.	Colour normal.
48.30	Jaw, arms, hands, shoulders, chest muscles, trunk muscles.	
48.45	Legs, too.	
49.05	Physical feeling of determination and purpose and decision.	Mouth tensed. Eyes open.
49.30	Ruthlessness. Would break through if had to fight.	Voice determined and hard.
50.15	Sense of pulsation in head. Strong, clear, definite. Everything feels clear-cut.	
50.30	Decisive. Sharp, self-contained. Muscle tone much higher generally. Physical efficiency.	Large breath.

51.00 Motor nerves obviously active.
51.15 *Break* circuit.
Muscular relaxation almost immediate after break.

"*R*" *was* 1 fluid ounce of solution containing 1 per cent ADRENALIN CHLORIDE.

Our friend wrote: "This again, as with 32, is very good indeed. It shows what one might call a normal reaction to a normal dose while 32 shows the reaction to a light overdose. Though it probably really demonstrates the difference between two sets of biological apparatus. You show both the physical reaction to increased metabolism, etc., in your contracted muscles and also the mental effect which such increased body functioning is apt to have, i.e. aggressiveness. Action opposed to 'freezing'."

Test No. 49. *Key letter T. Compare with Tests Nos.* 34 *and* 41.

53.00	Tube in circuit.	
53.30	Immediate increased strength of pulsations.	Eyes open.
54.00	Felt over whole body.	
54.15	Tingling in hands, face, lips.	
54.45	Increasing.	
55.05	Pressure in head almost painful.	
55.15	Getting accustomed.	
55.45	Easier—sighing, but pressure in head still very high.	
56.00		Colour rising a little.
56.30	New high pressure cycle over whole body.	Eyes close.
57.00	Second cycle—tinglings stronger than first.	Eyes open. Swallows.
57.15	Again accustomed.	
57.30	Fading a little.	
58.00	Pressure increasing again painful in head.	
58.30	Head and lips tingling.	
59.00	Strong ear buzzing progressively loud.	
59.15	Hammering in head.	
59.30	Again fading.	
59.45	Breathing easier.	

60.00 *Break* circuit. Stretches.
Clearly cyclic, progressive in strength, but third cycle might have been followed by weaker fourth.

"*T*" *was* 1 fluid ounce of solution containing 1 teaspoonful LIQUID EXTRACT OF LIVER.

Our friend wrote: "Is there here a 'follow on' from 48, or even before that, causing this cyclic effect?"

When on the 2nd October we had completed our third test of groups of seven drugs, Miss Cameron and I felt so thoroughly upset and physiologically unbalanced that we decided to give the "guinea-pigs" a prolonged rest. In addition, we realised that we could not have given the fourth group of seven drugs a fair trial unless we had first recovered our normal health. This desire to be "normal" was increased by the unexpected arrival of a parcel of four sealed test-tubes with electrodes, marked I, II, III and IV, about which our pharmacologist told us only that they contained "bugs." He also wrote about the last seven drugs: "There are some very interesting solutions in the next batch and I am looking forward to seeing the results." After that, Miss Cameron and I were even keener than before to complete the Blind Tests, but it was not until the 16th October that we both felt well and sensitive enough to face the last series of drugs.

CHAPTER XIX

SEVEN DRUGS AND FOUR "BUGS"

As Miss Cameron and I both knew that test-tubes I to IV contained "bugs," good experimental technique demanded that we should not test these by themselves, as suggestion might have influenced us. We therefore decided to test the last seven drugs "V to Z," "Alpha and Beta," and the four bugs I to IV, all together in one run of eleven tubes and at random, and "hang" the consequences!

As I had greater powers of recuperation than Miss Cameron, I went "in" first (50 to 60) on the 16th October, and as the test had not upset me too violently, she followed me on the 17th (61 to 71). Here I may mention, by the way, that in addition to her daily work as my assistant, and to our disturbing tests, Miss Cameron did voluntary nursing and spent many nights a week on duty in a first aid post attached to a hospital in the heart of London. In this capacity, "like thousands of other women" as she used to say, she had "only done her job" in London's air raids, and one could not allow mere "bugs" to undermine her resistance to Nazis!

On the 18th of October, I sent our pharmacologist our twenty-two reports on "Drug V to Bug IV," and wrote him amongst other things: "Your comments on Tests 29 to 49 (J. C. Maby, M. Cameron and myself) are again encouraging despite the fact that Miss Cameron was obviously very worried and preoccupied as well as fatigued by a bad night on duty at the hospital. You suggest that two or three of the tests should be done again separately because they are too indefinite, but I am afraid I cannot do this in this series which must stand exactly as it developed with all drugs unknown to either observer or subject. It is better that we should keep its apparent failures, its undefined results and its contradictions without any touching up or correction. The method we adopted is scientifically sound and our results would have been statistically conclusive if we had only had 25 per cent of significant reports. . . . It has struck me that

most diverse drugs might show similarities in circulation reactions, indicative merely of an effort by the system to expel an unpleasant guest, and many of your drugs were unwelcome in the system. . . . Also, even in internal medication, all subjects do not react alike to the same drug, nor does any one subject invariably continue to react to every drug in the same manner year after year. . . . But the contradictions, the 'hangs-over,' and the persistence of behaviour in one subject when faced with similar agents may be very significant. . . . There are millions of wireless enthusiasts who will jump at the opportunity of testing facts of such far-reaching possibilities, all the more so as significant phenomena can be produced in a few minutes."

On the 21st October, our friend wrote: "There are some rather good and interesting results this time. I am enclosing the key and will send you comments later on this week."

For many days I waited impatiently for our friend's report, and when at last his comments on our tests 51 to 71 (Drug V to Bug IV) did reach me on the 31st October, they only amounted to a bare two lines on each one of our tests, instead of the usual analysis. True, a covering letter pleaded "pressure of work" and promised more detailed comments "when I get a little more time." It also mentioned, by the way, that a few nights before, when returning home, he had heard a plane: "Then there was a thud, a flash and an almighty bang, and then it happened again. The road was moving under my feet and window-panes were tinkling all around. He'd dropped five bombs 50 to 100 yards away and flattened a 'pub' and a row of empty slum clearance houses. Luckily there were only two people killed. That's the nearest I've been to a bomb, and it is not at all comfortable!" Judging from my personal knowledge of both our friend and bombs, this "comment" was an understatement. I was so grateful that he had escaped that I vowed, not for the first time, that I would never be impatient again!

FOURTH GROUP OF SEVEN DRUGS. TO WHICH WERE ADDED FOUR "BUGS." "BLIND" REFERENCE LETTERS AND NUMBERS V TO Z, ALPHA AND BETA, AND I TO IV.

First Test of Eleven Drugs and "Bugs," October 16th, 1941.
Subject: L. E. Eeman.
Observer: Mary Cameron.

Chance order of L. E. Eeman's eleven tests: 50 X, 51 Z, 52 Beta, 53 Bug I, 54 Bug III, 55 V, 56 Bug II, 57 Alpha, 58 W, 59 Bug IV, 60 Y.

Test No. 50. *Key letter X. Compare with Test No.* 64.

Time in mins.	*L. E. Eeman's comments.*	*Mary Cameron's observations.*
0.00	Tube in circuit.	
0.30	Slight increase of warmth.	
1.00	Surface warmth increase continues.	
1.15	Warm in head.	
1.30	Warmth more general.	Colour rising.
2.00	Pulsations more thumping.	
3.00	Warmth continues.	
3.15	Least marked in feet.	Voice normal.
3.30	Breathing abdominal.	
3.45	Warmth continues.	
4.00	Pulsations throbbing, most marked in head.	
4.15	Throat has been clearing for quite a while.	
5.00	*Continue*—In spite of pressure in head I rather enjoy strong sense of internal warmth. Hands now tingling violently, round electrodes itching.	
6.00	This feeling now spreads up arms.	
6.30	Still enjoying despite pressure.	
7.00	Skin itches in odd places.	Very calm.
7.30	If time did not press, would go on much longer. Warmth and fullness very general.	Eyes closed all time.
8.00	Have felt quite peaceful throughout. No thoracic breathing. Warmth and fullness continue.	Colour very high.
9.00	*Break.* I must have looked flushed. *On breaking I feel as though waking up although I had not realised I had been getting sleepy.* Even after break, warmth and tingling continue. *Four hours later—same test.*	Eyes open.

0.15	Immediate speed up of pulsations very marked.
1.00	Sense of pulsation spreads to surface.
1.30	Surface getting warmer.
2.00	Throat clearing.
2.30	I rather like this, as before.
3.00	Pressure in head still strong, especially upper jaw.
3.45	Tingling in hands and slight itching; itching in face and anus, superficial. Sense of skin circulation very strong, tingling, odd itches.
4.15	Strong pulsations in lips.
5.00	I feel I could stand quite a lot of this—suits me. *Break* circuit.

"*X*" *was* 1 fluid ounce containing 10 drops
TR. CANNABIS INDICA MARIJUANA (Indian Hemp).

Our friend wrote: "Good. Notice hypnotic effect."

I did enjoy that! Am I a dope fiend at heart? Awful thought! Whatever the truth, this was the only one of the "blind" tests which I had found pleasurable enough to wish to repeat it. Can that be mere coincidence? And when I remembered later that I had found it just as agreeable at my second trial as I had done at my first, I understood why addicts take to Cannabis. I have underlined my remark that on breaking circuit I felt as though waking up, although I had not realised that I had been getting sleepy. A combination of mental alertness with bodily drowsiness is a typical effect of the drug.

Test No. 51. *Key letter Z. Compare with Test No.* 68.

10.00	Tube in circuit.	
10.15	Sense of warmth less at once.	Voice slightly raised in comparison with last one (50).
10.30	Capillary contraction with sense of multitude of capillary pulses.	
11.00	Definitely cooler. Circulation sense much more arterial.	

11.30	Pressure less in head but more marked in neck and base of skull.	Eyes wide open.
12.00	Vague sense of slight muscle tension—jaw tightens.	
13.00	Lower abdominal contracts.	Forced breath.
13.15	Expansion becomes thoracic. Lower abdominal tightens further.	
14.00	Sense of surface coolth has spread to most of body and relatively to test (50).	Lips tight.
15.00	Pressure in jaw and skull bones. This might have been unpleasant had it not been for previous test.	Voice laboured.
15.15	*Break* circuit. On breaking, instantaneous release of abdominal tension. Abdomen expands fully several times. Jaw and other muscles relax immediately.	Normal voice returns.
17.00	Circulation is increased, skin tingling especially in hands reappears. General increase of warmth.	

"*Z*" *was* 1 fluid ounce containing 5 drops TR. STROPHANTHUS.

Our friend wrote: "Sense of constriction correct—particularly in arterial system. Should have expected improvement in circulation. Perhaps it is complicated by No. 50."

Test No 52. *Key letter Beta. Compare with Test No.* 71.

18.00	Tube in circuit.	
18.15	Strong pulsations over whole body, exceptionally marked in lips.	Eyes open.
18.30	But surface cooling.	
19.00	Pulsations very strong; rather internal, and surface cooling continues.	
20.00	Vague return of muscle tension.	Coughed and cleared throat.
20.30	Lips very full and pulsating.	

21.00	Tingling in hands and arms but no itch.	
21.15	Cool; marked in forehead.	Rather tense about the mouth.
21.30	Lips and hands tingle still stronger. Abdomen has been rather tense, and contracted,	
22.00	and breathing slight.	
23.00	*Break* circuit.	Had to relieve bladder.

"*Beta*" *was* 1 fluid ounce of INFUSION OF RASPBERRY LEAVES.

Our friend wrote: "I believe this is mixed with a 'hang-over' from 51. Stimulating and astringent action correct. Diuretic action probably from 51, although Raspberry affects plain muscle and might be the responsible agent."

Test No. 53. *Key letter "Bug I." Compare with Test No.* 63.

24.00	Tube in circuit.	
24.30	Calming.	Eyes closed.
24.45	Might sleep.	Looks peaceful.
25.00	Marked increase of muscular relaxation.	
26.00	Effort to speak.	
26.15	Would sleep if didn't fight against it.	Voice very low.
26.30	Pressure increases in head and warmth.	
26.45	*Feet cold.*	
27.00	*Cold at back of waist, light draught.*	
27.15	*Surface of whole body, limbs included, cooling markedly.*	
27.30	Head very hot by contrast.	
27.45	Very strong head pressure,	
28.00	especially base of skull and eye sockets.	
28.15	Head pressure continues, *so does body surface coolness, want to shiver. Shiver actually.*	Many shivers.
29.00	*Violent shiver.* Muscular spasms.	
29.30	Shivers and spasms calming down.	

29.45	Calm again—head slightly less hot and pressure slightly less	
30.00	and body surface less cool, after shivers and spasms.	
30.15	Head pressure up again.	
30.30	*Body surface cooling again; shivers* coming again.	Shivered violently.
31.00	And spasms. Obviously cyclic.	
31.30	*Break* circuit. Instantaneous ease on breaking. Breathing much freer and fuller. Big expansion, want to stretch.	Violent stretch.
32.00	Stretch continues. Spasms and shivers broke something down. Feel muscularly very supple.	

"*Bug I*" *was* 1 fluid ounce containing 500 units of DIPHTHERIA ANTITOXIN.

Our friend wrote: "Note cooling effect—probably represents medicinal value. Note also muscular effect and pressure somehow symptomatic of the disease itself."

Test No. 54. *Key letter* "*Bug III.*" *Compare with Test No.* 67.

33.00	Tube in circuit.	
33.15	Breathing fuller at once.	Eyes open.
33.30	Circulation very strong.	
33.45	Big expansions but no muscular contraction.	
34.00	Pressure in head much increased although circulation much stronger.	
34.45	*Surface very cool* and head hot	
35.00	with strong pressure.	
35.30	Head pressure very strong but breathing remains easy.	
36.15	Pressure in all head bones.	
36.30	Breathing quieter and less full.	
37.00	*Legs cold especially surface.*	
37.05	*Bladder again very full.*	
37.15	*This is rather rapid.* Head	Colour rising.
37.45	feels sleepy and hot and pressure, but body muscles awake.	

38.00	Sleepy head on alert body yet no voluntary muscle tension.	
38.15	Head pressure painful especially at base of skull, eye-sockets, nose and upper jaw.	Frowning. Eyes closed.
39.00	Head could sleep but body still very conscious.	
39.30	*Break* circuit.	
40.00	On breaking want to stretch and take deep breath. *Must again relieve bladder.*	Does so.

"*Bug III*" *was* 1 fluid ounce containing
ANTI-TYPHOID, PARATYPHOID VACCINE—contains
Bacillus Typhosus, 1,000 millions.
Bacillus Paratyphosus A, 750 millions.
Bacillus Paratyphosus B, 750 millions.
Bacillus Hirschfeld C, 750 millions.
Consists of a sterile suspension of the above organisms (killed).

Our friend wrote: "Notice pressure, cooling and heat."

Test No. 55. *Key letter V. Compare with Test No.* 61.

42.00	Tube in circuit.	
42.30	Circulation rather violent in head.	
43.00	Increase of warmth.	Eyes shut.
43.15	Muscular relaxation quite good. Breathing slow and progressively fuller.	Deep breathing.
44.00	Peaceful, drowsy, pitch of voice falling. Strong circulation—sleepy.	
45.00	Warm, comfortable. No tension. Salivation good.	
45.15	Breathing very free and full. Progressive relaxation. Drowsy—could sleep.	Looks peaceful.
44.00	Clearing throat.	
46.15	Pressure strong in head.	
46.30	Hands tingling near electrodes.	
46.45	Head pressure stronger.	
47.00	*Break* circuit.	No movement on break.
47.30	On breaking breathing immediately faster but shallower.	

Tensing up feeling through whole body. Must have been well relaxed.

"*V*" *was* 1 fluid ounce containing 3 drops of CREOSOTE.

Our friend wrote: "Notice head circulation" (as in 61).

Test No. 56. *Key letter "Bug II." Compare with Test No.* 65.

50.00	Tube in circuit.	
50.10	Head pressure bursting.	Eyes closed.
51.00	Like lid of kettle boiling.	
51.30	Strong throbbing pulsations.	
52.00	Deep breath after very slow breathing.	Another deep breath follows. Then another breath follows.
52.30	Long pauses between breaths. Deep expansion affecting whole trunk;	
53.00	mostly in thorax.	
53.30	Head pressure still very high.	
54.00	*Slight superficial cold. Feet cold*, head still hot.	Looks asleep.
54.45	Head pressure still very strong. Vague desire to stretch not	
55.00	coming to anything; no muscular tension.	
55.30	*Break* circuit.	Stretched one minute after break. This may or may not have been connected with drug? or Bug?

"*Bug II*" *was* 1 fluid ounce containing PNEUMOCOCCUS VACCINE MULTIVALENT 1,000,000,000.

Our friend wrote: "56 and 65: Notice breathing, coldness and stretching."

Test No. 57. *Key letter Alpha. Compare with Test No.* 70.

57.00	Tube in circuit.	
57.10		Eyes closed.
58.00	Quiet; pulsations strong Breathing gentle, but getting fuller.	
58.30	Still high pressure in head mainly in upper jaw bones and nose and upper teeth.	Voice slow and deep.

59.00	Noticeable surface warmth increasing, arms much warmer; hands tingling round handles.	
59.30	Feet much warmer. Pressure continues strong in head, teeth,	
60.15	upper jaw. Breathing slow and mostly abdominal,	
61.00	but free. Big expansion.	
61.30	More abdominal than thoracic.	
62.00	Congestion in base of head being overcome forcibly.	
62.15	*Break* circuit. On breaking breathing faster; pressure in upper teeth and jaw continues.	

"*Alpha*" *was* 1 fluid ounce containing 3 drops LIQUID ACID CARBOLIC (PHENOL).

Our friend wrote: "57 and 70: Notice similarity to Creosote (55 and 61) and differences in individual reactions."

Test No. 58. *Key letter W. Compare with Test No.* 62.

64.00	Tube in circuit.	
64.15	Indescribable feeling; more "brittle" circulation.	Face immediately looked drawn and frowny.
65.00	Feel facial expression tightening into unpleasant sneer; curious screwed-up feeling in face.	
65.15	Tension in lower abdomen.	
65.30	Weird feeling.	Frowning considerably and tight looking.
66.00	Like arterial hardening.	
66.15	Slight neuralgic pain in head. Now becoming accustomed; face, abdomen and body generally now relaxing.	But face still shows tension.
67.00	Hands much warmer, and forearms. Strong tingling near electrodes. Acclimatised.	
68.00	Breathing which had been shallow, now fuller.	Voice faulty.

68.30	Circulation freer. Getting over most curious effect. Pressure in head still high; begin to feel stretch. As if I had learned to deal with curious "guest."	Stretches.
69.15	*Break* circuit.	
70.00	Feel a bit as if waking.	Eyes opened.

"*W*" *was* 1 fluid ounce containing 5 grains BUTYL CHLORAL HYDRATE.

Our friend wrote: "Good. Normal hypnotic effect at the end."

Test No. 59. *Key letter "Bug IV."* *Compare with Test No.* 69.

71.00	Tube in circuit.	
71.15	Quite alert from start.	Eyes open.
71.30	Feel more tone and vigour in voice; more energetic, on *qui vive*.	Gave body movement.
72.00	*Not so warm.*	
72.15	*Appreciably cooler.*	
72.30	Pressure in head still strong but *circulation much less superficial.*	Voice very strong and alive. Eyes wide open.
73.00	Not a bit drowsy. Muscles alive; more alive; but not in a stretching way.	
73.45	Centre of interest definitely objective and not subjective.	Seems restless.
74.15	Taking notice generally; awake. *Much cooler now.* Pressure in upper teeth and gums still high.	
75.00	Toothache in fact; but this may be hang-over. Let's get busy sort of feeling.	Much vigour in voice.
76.00	Do something!	
76.30	*Break* circuit. On breaking breathing fuller. Feel calmer—more relaxed; more subjective.	

"*Bug IV*" *was* 1 fluid ounce containing CALF LYMPH VACCINE. SINGLE VACCINATION TUBE. SYN. VACCINE ANTIVARIOLUM.

Our friend wrote: "Notice cooling again."

Test No. 60. *Key letter Y.* *Compare with Test No.* 66.

78.00	Tube in circuit.	
78.15	Muscular tension going down at once. Calmer; slacker feeling.	Eyes open.
79.00	Rather sleepy; pitch of voice going down.	Eyes closed.
79.30	Rather inert and "don't care" feeling. Legs and feet rather	Looks peaceful and as if asleep.
80.00	cold superficially. Head pressure continues strong. Head pressure has been common factor throughout last six tests. May be due to subject's condition?	Pleasant countenance. Good colour.
81.00	Muscular inertia continues.	
81.15	Breathing little and shallow; abdominal rumbles.	Quite big expansion.
82.00	Surface chill spreading from	
82.15	legs to trunk, also arms.	
82.30	Head, though still under high pressure, is less warm.	Eyes open again.
83.00	*Break* circuit.	

"*Y*" *was* 1 fluid ounce containing 30 drops TR. GELSEMIUM.

Our friend wrote: "Good. Notice sedative effect."

I will add a note to my records of my test of eleven tubes. Before every test I always take the precaution of voiding the bladder. On this occasion the quantity passed had been about $\frac{3}{4}$ of a pint. No. 50 (Cannabis) took from Zero to 10 minutes; No. 51 (Strophanthus) from 10 to 17 minutes; and No. 52 (Raspberry) from 18 to 23 minutes. Immediately after this I was again forced to empty the bladder, that is, 6 minutes after "Strophanthus" and 23 minutes after the previous voiding. No. 53 (Diphtheria antitoxin) took from 24 to 32 minutes, and No. 54 (Anti-typhoid vaccine) from 33 to 40 minutes, and then I had to empty the bladder again, that is, 23 minutes after "Strophanthus" and 17 minutes after the previous voiding. On the last two occasions the quantity had exceeded $\frac{3}{4}$ of a pint, making a total of $2\frac{1}{4}$ pints in 40 minutes, a very exceptional occurrence for me and notable, for the day was not unduly cold and my drinking had been normal.

SECOND TEST OF ELEVEN DRUGS AND "BUGS," OCTOBER 17TH, 1941.
Subject: Mary Cameron.
Observer: L. E. Eeman.
Chance order of Mary Cameron's eleven tests: 61 V, 62 W, 63 Bug I, 64 X, 65 Bug II, 66 Y, 67 Bug III, 68 Z, 69 Bug IV, 70 Alpha, 71 Beta.

Test No. 61. *Key letter V. Compare with Test No.* 55.

Time in mins.	*Mary Cameron's comments.*	*L. E. Eeman's observations.*
0.00	Tube in circuit.	
1.00		Face pinker, breathing quiet and full, of whole trunk.
1.30	I have the beginning of fullness, swelled-out feeling. A pump blowing me up especially in face.	
2.00	Slight abdominal contraction.	
3.00	Rather restricting things altogether. Astringent. All seems to be drawing in, shrivelling; unpleasant in head. Not blood pressure, but tightening in head, face, especially forehead.	Rumbles.
4.30	Mouth dry; want to frown; breathing restricted; much tingling in hands; breathing very restricted.	
5.00	*Break* circuit. It has given pain in middle of forehead. I did not like it at all. Good to be free again. Restriction; astringent.	
6.30		Deep sighs of relief.

"*V*" *was* 1 fluid ounce containing 3 drops of CREOSOTE.

Our friend wrote: "Notice head circulation (as in 55). Note also rumbling, also unpleasant restrictiveness as if overdosed."

Test No. 62. *Key letter W. Compare with Test No.* 58.

8.00	Tube in circuit.	
9.00		Breathing slow and full.
9.30		Big thoracic expansion.
9.45	Just opposite of last one. Nice, cosy, warm, sinking in bed. Complete relaxation inside and out.	Eyes closed. Face happy, smiling.
10.45	Deep yawn.	And again.
11.00	There could not be a better opposite.	Eyes closed.
11.15	Lovely, tingly, restful.	Face pink but very happy and peaceful.
12.00	I feel pulsings all over me; feet, everywhere, even lower back.	Smiles.
12.30	Very restful for eyes too.	
13.00	It's grand, but I don't want to get too deep.	Deep sigh.
13.30		Yawns.
14.00	*Break* circuit.	Looked very happy and peaceful throughout.
15.00		Yawns and stretches.
15.30		Again yawns and stretches.
16.00		Opens eyes again.
16.30	Eyes very watery now.	

"*W*" *was* 1 fluid ounce containing 5 grains BUTYL CHLORAL HYDRATE.

Our friend wrote: "Good."

I may add that this seems an excellent description of the effect of a hypnotic drug.

Test No. 63. *Key letter "Bug I." Compare with Test No.* 53.

18.00	Tube in circuit.	
19.00		Breathing less smooth, faster, shallower; no smile.
19.30		Expression serious.
20.30	I feel rather the stillness of death in this one. Restricted one but not unpleasant. *Surface coolness* at first, has gone now.	
21.15	Breathing is difficult; I don't want to do or say anything.	Frowns unhappily. Worried. Jaw and lips tighter.
22.30	Back of head, neck and jaw ache. I feel tight.	Breath restricted.
23.00	*Break* circuit.	

23.30	Definitely restricted breathing. Very peculiar; I felt I was looking at my body, inside, in a detached not alive manner.	
25.00	Feeling gradual relief.	Frowning less; lips and jaw less tight. Breathing much freer.
26.30	This was not so unpleasant; rather interesting what was going to happen next.	

"*Bug I*" *was* 1 fluid ounce containing 500 units of DIPHTHERIA ANTITOXIN.

Our friend wrote: "Cooling and restrictive again."

Test No. 64. *Key letter X. Compare with Test No.* 50.

28.00	Tube in circuit.	
29.00	I am going in a whirl; I am falling!	Breathing fairly full; not tense.
29.45		Smiling, peaceful, a little
30.30		amused; internal joke; joke getting funnier. Might
31.15		laugh any minute; very peaceful.
32.00	Awful effort to speak; first feeling after couple of cocktails! Pleasant without unpleasant part of being sick!	Speech very thick. Laughs and gabbles.
33.00		Giggles
	It is funny. I got a bit of a hang-over!	
34.00	*Break* circuit.	
34.30	I have a bit of headache. It was funny. I wanted to speak but I couldn't. It swept over me within a very little time. I was sinking at once. Headache now.	
36.30	I must stretch. It will be good to.	

"*X*" *was* 1 fluid ounce containing 10 drops TR. CANNABIS INDICA MARIJUANA (Indian Hemp).

Our friend wrote: "Notice the peculiar sensations for which addicts take Cannabis, also unpleasant after-effect."

I would add that the rapidity with which correct reactions appear in this as in many other tests, is worthy of note.

Test No. 65. *Key letter "Bug II." Compare with Test No.* 56.

38.00	Tube in circuit.	
38.30		Breathing faster.
39.30		Face pinker.
40.30		Expression has been peaceful but rather wistful.
41.00	I have a sense of weight in this one. Very heavy.	Looks a little worried now.
42.00	I want to scratch; face and head mostly.	Does so. Yawns and stretches; face redder; yawns again; breathing calmer. Head and neck restless.
43.00	*Break* circuit.	
	I felt heavy at first, then restless. Wanted to move my eyes about.	
44.00	I wanted to scratch surface irritation in head and face.	
45.00	It wasn't unpleasant.	

"*Bug II*" *was* 1 fluid ounce containing PNEUMOCOCCUS VACCINE MULTIVALENT, 1,000,000,000.

Our friend wrote: "56 and 65: Notice breathing, coldness and stretching."

Test No. 66. *Key letter Y. Compare with Test No.* 60.

46.00	Tube in circuit.	
47.00		Breathing calm; face peaceful; a lot of rumbling.
47.30		Breath fuller.
48.00	Inside shivers. Started at beginning but said nothing because I thought it came after stretch. But it is this. (See note below.)	
49.00	Coolness right down inside of spine.	
49.30	Spasm of shivering inside.	
50.30	Heartbeat seems to be strong in body; round heart.	Sighs.

51.00	*Break* circuit. Not too pleasant. Not sedative.	
52.00		Stretches.

N.B.—At 48 minutes Mary Cameron refers to stretches recorded by observer at 42 minutes, towards end of No. 65 (Pneumococcus Vaccine).

"*Y*" *was* 1 fluid ounce containing 30 drops TR. GELSEMIUM.

Our friend wrote: "Good. Notice depressing effect, and effect on the heart. 60 and 66 show individual difference."

Test No. 67. *Key letter "Bug III."* *Compare with Test No.* 54.

53.00	Tube in circuit.	
54.30		Breath irregular; face a little worried; jaw dropping.
55.00	*This is another cold one. Cold feeling; shiver inside.*	Face rather yellow; frowns; looks more worried
56.30	*Shivering mostly in legs; thighs.*	More worried.
58.00	*Break* circuit. I didn't like it. I might have gone to sleep, but sleep induced in not very nice way; I want to get rid of the effect.	Stretches it off.
60.00	Peace after stretch.	

"*Bug III*" *was* 1 fluid ounce containing
ANTI-TYPHOID, PARATYPHOID VACCINE—contains:
Bacillus Typhosus, 1,000 millions.
Bacillus Paratyphosus A, 750 millions.
Bacillus Paratyphosus B, 750 millions.
Bacillus Hirschfeld C, 750 millions.
Consists of a sterile suspension of the above organisms (killed).

Our friend wrote: "Notice cooling; most marked."

Test No. 68. *Key letter Z.* *Compare with Test No.* 51.

61.00	Tube in circuit.	
61.30	I must have been unconscious for short time.	Very peaceful.
62.30	Pleasant change after others . . . I might . . . easily . . .	Speech not clear, drowsy—I ask her to complete sentence three times, she only says faintly:

Ahem!

64.00		I ask "Sleepy?"
64.15	Super Aspro!	Smiles happily and sleepily.
65.00		Blissfully peaceful.
66.00		I call "Shall I break?" Can barely answer in whisper.
67.00	*Break* circuit.	
68.30	I seemed to lose all sense of time in this, and of body too. I can't feel my hands very well yet. It must have been potent.	
70.00	I must stretch.	Does so
71.00	I could have gone right off in this.	

"*Z*" *was* 1 fluid ounce containing 5 drops TR. STROPHANTHUS.

Our friend wrote: "Quite good. Notice sedative and constrictive effect. Notice also evident improvement in comfort from 67 (anti-typhoid paratyphoid vaccine)."

Test No. 69. *Key letter "Bug IV."* *Compare with Test No.* 59.

72.00	Tube in circuit.	
73.30	*Oh! cold, nasty cold one.*	
74.00	*Nasty-chilly.*	Rather restless.
75.00	Not unbearable, but not pleasant.	
76.00	*The difference between samples is really unbelievable.*	
77.00	This made me overcome completely drowsiness of previous one, not from feet up but from head down.	
77.30	*Break* circuit.	

"*Bug IV*" *was* 1 fluid ounce containing
CALF LYMPH VACCINE. SINGLE VACCINATION TUBE. SYN. VACCINE ANTIVARIOLUM.

Our friend wrote: "Notice cooling again."

Test No. 70. *Key letter Alpha.* *Compare with Test No.* 57.

79.00	Tube in circuit.	
80.00		Very peaceful expression. Might be asleep; rumbling.

81.00		Breath a little faster, more thoracic, but looks asleep.
82.00	I am wandering a bit. I can't concentrate on my thoughts much.	Scratches; speech rather hazy.
82.30	My right arm is itching and my left thigh, now appendix region. I want to scratch.	Much rumbling continues.
83.30	Lips feel rather full; I don't feel sort of dead fixed to couch as I have done.	
84.00	*Break* circuit. I wandered a bit. Didn't like it much. A bit of a headache. Now feel muscles tense and irritable.	

"*Alpha was* 1 fluid ounce containing 3 drops LIQUID ACID CARBOLIC (PHENOL).

Our friend wrote: "57 and 70: Notice similarity to Creosote (55 and 61) and differences in individual reactions."

Test No. 71. *Key letter "Beta." Compare with Test No.* 52.

86.00	Tube in circuit.	
87.00		Quiet so far; but not as peaceful looking as before.
88.00	Quite a lot of inside shivering in this one.	
89.00		Quiet, but not that happy smile.
89.30	I was away . . . quite away.	Muscles jerk a little as in sleep. Obviously asleep, again, whether due to this sample, or hang-over, or fatigue?
91.00	*Break* circuit.	Subject asleep. I let her sleep in relaxation circuit, but without drugs in series, as she appears tired by tests.

"*Beta*" *was* 1 fluid ounce of INFUSION OF RASPBERRY LEAVES.

Our friend wrote: "Hang-over from 70 (Carbolic acid) very persistent and masks other effects."

I suggest that Miss Cameron's "Quite a lot of inside shivering in this one" is a hang-over not only from 70, but also perhaps from 67 (anti-typhoid) and from 69 (antivariolum).

Now that I have completed our records of our 71 "blind" tests of our pharmacologist's 32 test-tubes, I could write pages on the many remarkable "coincidences" which these records present. However, I will only draw the attention of pharmacologists and statisticians to one of the various symptoms which subjects describe "blind" whilst they are actually in circuit with drugs, and to the circumstances in which this symptom periodically appears. Pharmacologists will decide whether these circumstances are in keeping with "the book" and statisticians whether LAW, and not coincidence, is at work.

The symptom which I have chosen amongst those reported by subjects whilst in circuit with test-tubes, is the feeling of "cooling, cold, shivers," however subjects may spontaneously describe it. This feeling is reported 17 times only in our 71 tests whilst a test-tube is in circuit, that is, in Tests Nos. 4, 6 and 9—39 and 44— 51, 52, 53, 54, 56, 59, 60, 63, 67, 69 and 71.

Statisticians will observe:

(A) That the symptom appears in three of our four groups of tests: Groups 1 to 14; 29 to 49; and 50 to 71.

(B) That Group 50 to 71 (22 tests) shows the symptom 12 times, whereas Groups 1 to 14, 15 to 28, and 29 to 49 (49 tests) between them only show it 5 times, or a proportion of 5.34 to 1.

Is such a discrepancy purely fortuitous or can it be justified by facts which pharmacologists and statisticians could consider significant? Let us analyse the relevant tests in detail.

Test No. 4 (Diamorphine Hydrochloride). After two minutes, the subject reports: "Surface chill feeling beginning with spine. Then arms and hands, and legs and feet. Small spasms of shivering inside the skin. Flesh creepy feeling." Does that belong to the drug or is it a reversal or "hang-over" from No. 3 (Benzedrine)?

Comparing 4 with 14 (Diamorphine Hydrochloride) we find restriction and contraction in both, but "no cold" in 14. Comparing 4 with 11 (Distilled Water) which latter follows 10 (Benzedrine) as does 4, we read *after* tube has been taken out of circuit: "Cooler than during 10."

Tests Nos. 6 *and* 9 (Both Hyoscine). We read: (6) "Cold shivers," and (9) after 1 minute: "Sense of peripheral circulation

appreciably reduced," and later: "Surface cooler." These reactions are not only similar, they "fit" the drug.

Test No. 39 (Adrenalin Chloride). We read: "Shivering with cold." That fits one of the classical reactions to Adrenalin: "freezing," and 32 and 48 show other classical reactions to it.

Test No 44 (Vitamin C). We read, after 30 seconds: "Almost immediate peripheral cooling in feet and legs," and after 1 minute: "Sense of warmth reduced," both of which suggest reference to previous test: 43 (Calomel), which together with 29 and 36 (both Calomel) had shown marked circulatory effects. No. 44 only shows "cold" *by contrast* with 43.

Test No. 51 (Strophanthus). We read, after 15 seconds: "Sense of warmth less at once"; after 1 minute: "Definitely cooler. Circulation sense much more arterial"; and after 4 minutes: "Sense of surface coolth has spread to most of body and *relatively* to test 50" (Cannabis). That is, the subject spontaneously observes that 51 shows "cold" *by contrast* with 50.

Test No. 52 (Raspberry). We read, after 30 seconds: "Surface cooling"; after 1 minute: "Surface cooling continues"; and after 3.15 minutes: "Cool; marked in forehead." Comparing this with

Test No. 71 (Raspberry). We read, after 2 minutes: "Quite a lot of inside shivering in this one," and we note the similarity between 52 and 71.

Test No. 60 (Gelsemium). We read, after 1.30 minutes: "Legs and feet rather cold superficially," and after 4 minutes: "Surface chill spreading from legs to trunk, also arms." Comparing this with

Test No. 66 (Gelsemium). We read, after 2 minutes: "Inside shivers"; after 3 minutes: "Coolness right down inside of spine"; and after 3.30 minutes: "Spasm of shivering inside," and we note the similarity between 60 and 66.

That leaves the "cold" symptom unaccounted for in Tests Nos. 53, 54, 56, 59, 63, 67 and 69, that is: 7 "colds" out of the 12 in our last group of 22 tests, or 7 "colds" out of the total of 17 in our whole 71 tests. Putting it the converse way: 10 "colds" out of 17 accounted for! Statistically, that seems good when compared with chance expectation, but statisticians must decide that point.

However, let us investigate the 7 unexplained "colds." They

all explain themselves, for they are all related to anti-febrile vaccines. We may then well ask ourselves: "If 7 out of a total of only 8 vaccines have all produced 'cold,' why did not the 8th, No. 65 (Pneumococcus Vaccine) do so too?" Cannabis (64) had deeply affected Miss Cameron, and Pneumococcus (65) may be a mixture of hang-over from 64 and of feverish restlessness suitable to Pneumococcus. Gelsemium (66) may show "cold" partly on its own as it does in 60, and partly as a delayed effect of Pneumococcus (65).

We have now accounted for 17 "colds" out of 17, and if pharmacologists and statisticians care to investigate the "heats" and other symptoms in our tests, they may find them as enlightening as the "colds." But the story behind our "colds" may add yet a little more to the significance of our results. When our pharmacologist had written that he was sending us four "bugs" and had advised us to take proper precautions in handling them, we had naturally thought of live cultures and not of vaccines. This had suggested to us that our reactions to the "bugs" should be febrile and our minds were therefore filled with auto-suggestive images of "feverish heat." It follows that when I reported warmth for some four of my 11 tests, I felt sure that I had "hit the bull" four times out of four with my "heat waves." But my pleasure at this apparent triumph was marred by the thought that Miss Cameron, as she was placing the "bugs" in my circuit, might have helped me to turn on the heat at the appropriate times by telepathy. The reader may judge of my surprise when, in the happy conviction that I had shown fever for my "bugs" and that Miss Cameron would do the same for hers, I actually saw her register not "heat" but "cold" for three out of four of them and "delayed action" cold during the drug immediately following her fourth! And this at a time when I could have been sending her telepathic suggestions of "heat" only! But my hopes of success were finally shattered when, after *her* tests, Miss Cameron showed me the records of mine, and I realised that instead of the "heats" I had dreamt of I myself had actually shown "colds" for every one of my "bugs"!!!

However, dejection turned to glee when our pharmacologist's key to his drugs and "bugs" reached us. He informed us that the substances which he had described as "bugs" were really "vaccines" and that he had deliberately used an ambiguous term

so as to oppose the implied suggestion of live cultures to the specific frequencies of actual vaccines. Then did I indeed rejoice, for specific frequencies had once more defeated suggestion!

In final comments on our last tests our pharmacologist gave us a few suggestive notes, and among others: "You will have noticed the cooling effect of the vaccines, and that their total effect is not altogether pleasant. It makes me wonder whether there isn't something in the argument of the anti-sera-therapists that it is improper to put poisons into the blood.

"There is quite a noticeable difference between your reactions and those of Miss Cameron. The difference seems to be more or less constant. She is apt to get a total effect showing the toxic effects, whereas you seem to stop clear of the worst of the toxic effects."

Here I must again emphasise that when drugs are administered by the propagation of their specific frequencies in the relaxation circuit, even in minute doses, their toxic and/or overdose effects are liable to appear within a few minutes or even seconds, which suggests that dosage should be by "time" and not by quantities.

I cannot close my record of the Blind Tests without again expressing my deep gratitude for our pharmacologist's co-operation. With his help I had at last obtained independent evidence that objective facts develop when drugs are placed in a human relaxation circuit, and that they do so without the assistance of artificial energy and independently of, and even against, suggestion, telepathic or other.

I hoped that doctors of medicine would agree that this evidence warranted tests on hospital patients, for I believed that one hour with a few cases of say, an infectious fever, would produce significant results, and that, in any case, if these hospital tests did no good, they could not do any harm. However, medical friends assured me that the Profession would reject our evidence as "subjective" and that they would only become interested in my work when I could show constant and "objective" results by the propagation of the specific frequencies of at least a few selected drugs, vaccines, sera, etc., in a number of well-authenticated cases of well-known diseases! What an impasse! How could I get at patients already isolated in hospitals when these very hospitals were closed more effectively against me than against infection itself? In *How Do You Sleep?* in a chapter

headed: "An Appeal to Doctors and Physicists," I had begged doctors to repeat be it only a few of my experiments. On two occasions, in 1936 and in 1940, I had sent copies of the book to the senior medical officers of sixty hospitals in London and district. On the last occasion I had enclosed stamped and addressed envelopes for these gentlemen's replies, but I had received only one answer to 120 letters, and that, though very courteous, had been negative. What more could I do? It seemed that I could only continue my attempts to induce doctors to repeat those of my experiments which show that drugs in the relaxation circuit act on the human body, and then hope that they might investigate the next question: "Is the action of drugs in the circuit *curative*?" But my attempts to reach even this limited objective invariably met with the same obstacle.

I claimed that my tests were "objective," and doctors of medicine asserted that they were "subjective" and therefore unfit to serve as basis for either theories, experiments, or conclusions. Had I been wasting my time all these years, or were we merely attaching different meanings either to the words "objective" and "subjective" or to the facts I have described?

I found that most doctors applied the terms "objective" and "subjective" (almost exclusively) respectively to "signs" which they could themselves observe and to "symptoms" which only the patient himself could feel and observe. Their own observations made reliable bases for theories, experiments and conclusions, but sensations were too illusory, as most of them asserted, even to be dependable guides as to what was really happening in a human body. Whilst I fully accepted the description of signs as objective and of symptoms as subjective, I did not agree that symptoms could never be made into reliable bases for theories, experiments and conclusions, for, as a matter of statistics, that is precisely what they can be! I insisted that admittedly subjective symptoms, mental facts, could be given an objective quality by suitably devised and repeated "blind" experiments which would relate them statistically to objective drugs and vaccines, etc. And all my experiments had been so devised, and all had been at least duplicated!

But few of the doctors I knew had ever heard of the experiments made famous by J. B. Rhine in his *Extra Sensory Perception*, a classic to which I have already directed the reader's attention.

In this, the author describes a method for the statistical evaluation of the significance of percentage results above chance expectation in any given number of "blind" tests.

The "E.S.P." technique, now accepted as valid by those who have specialised in the study of the "subjective," enables observers to relate the introduction of a drug or vaccine, etc., in a circuit to the subsequent symptoms of a subject already in that circuit, to do so statistically (as I did in my analysis of our "colds") and to state that the relation between the two facts, introduction of drug and perception of symptoms, is one of "sequence."

To those who say that they "will only accept E.S.P. findings when the 'subjective' has been taken out of them," I can only retort that they should only accept heat measurements when thermometers and heat itself have been abolished, for in E.S.P. work it is the very subjective itself that one is investigating. I would refer those critics to Karl Pearson's *The Grammar of Science* in which they will be reminded that science must be ready to investigate ALL facts, yes, even mental and "subjective" facts, to classify them and to draw from them an understanding of the law of nature which shall be based on logic and be free from bias or prejudice. If it is a subjective fact which Mrs. Smith reports when she says that she feels "cold," that fact acquires an objective quality as soon as it can be shown that she feels "cold" as a "sequence" to the introduction of vaccines into her circuit and that she subsequently looses that feeling when certain other substances, such as say, alcohol, make her feel "heat," provided, of course, that her feelings can only have been promoted through an "extra" sense and not through any one of her ordinary senses. And this remains true whatever an "objective" thermometer may say about Mrs. Smith.

To those who use the alternative argument that my researches are not connected with E.S.P., I must point out that in my tests subjects "perceive" a "something"; that perception presupposes a sensory mechanism; that my tests are so arranged that the subject's normal senses cannot "perceive" that "something," and that therefore an "extra" sense must be postulated, a sense which "perceives" frequencies other than those of say, sound and light.

However, I must not waste any more time on mere quibbles, for I am only concerned, at the moment, with the question: "Have I made a prima facie case for the investigation, in hospital

patients, of my claim that drugs, vaccines, sera, etc., act on the living body in the relaxation circuit?" Should any doctors feel that I may have done so, and should they be prepared to put the matter to a practical test, may I suggest to them a small series of preliminary experiments, which could be completed in one fever hospital, in one morning, without risk to patients and without interference with any treatment they may already be undergoing?

Let an infectious fever be chosen, the normal treatment and course of which are well established. Let there be available:

(A) A few patients who have not yet reached the crisis of the complaint.

(B) A few patients who have passed that crisis, whose temperature has returned to normal, and who are unmistakably immunised.

(C) A few medical students who, although in good health, are unmistakably not immunised.

(D) A few test-tubes, fitted with electrodes, and containing, in solution, normal doses of a drug the normal effect of which in the complaint chosen is well established, such as: M and B 693.

(E) A few test-tubes, fitted with electrodes and containing, in solution, normal doses of the sera or vaccines normally used in connection with the complaint chosen.

(F) The simplest form of relaxation circuit: All right hands lead to one main, all left to another main, and the test-tubes are inserted at the junction of the two mains. (See Fig. 18.) So as to eliminate "bi-polarity" complications, all subjects should be either right- or left-handed. Care should be taken to relax the healthy and not immune subjects before the tests; the fever patients are less likely to need this attention.

1st Experiment.

Six non-immune subjects (as in (A) above) spend half an hour in the relaxation circuit, together, but without drugs, vaccines or sera. This is a "circuit" control period.

2nd Experiment.

Three of the non-immune subjects used in the first experiment spend half an hour in the relaxation circuit with three medical students (as in (C) above) but without drugs, vaccines or sera.

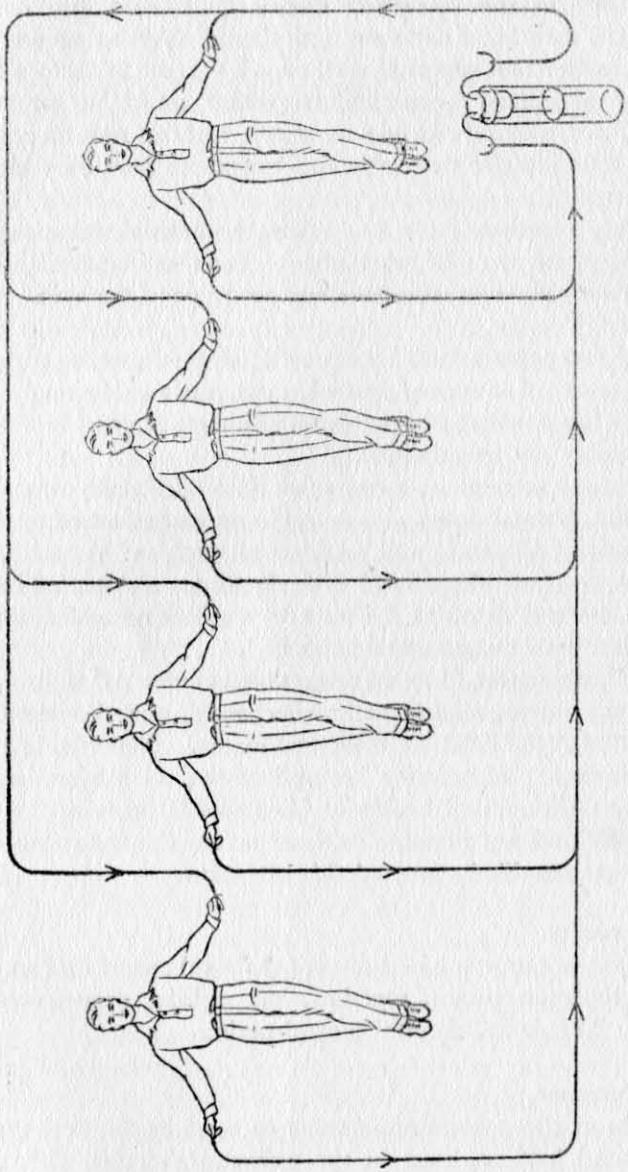


FIG. 18.—Relaxation circuit using hands only in parallel, with drug in series.

3rd Experiment.

The other three non-immune subjects used in the first experiment spend half an hour in the relaxation circuit with three immune subjects (as in (B) above).

4th Experiment.

The first experiment is repeated with six new non-immune subjects (as in (A) above). This acts as a second "circuit" control period.

5th Experiment.

Three of the non-immune subjects used in the fourth experiment spend half an hour in the relaxation circuit with three *new* medical students *and* a test-tube containing the drug chosen.

6th Experiment.

The other three non-immune subjects used in the fourth experiment spend half an hour in the relaxation circuit with three *new* medical students *and* a test-tube containing the vaccine or serum chosen.

Before and after these preliminary experiments, the temperature, respiration and pulse of the subjects are taken. However, in a more thorough investigation, tests of the subjects' blood and of the potency of the drugs, sera and vaccines used would also precede and follow experiments.

To close this chapter, I will relate a few facts which may appear interesting and significant to intending investigators, and —add one or two questions.

(A) I instructed a patient to place herself in circuit for from 10 to 15 minutes, before sleep, with a test-tube which I left with her. When I saw her the next morning, I found that she was suffering from (1) a violent headache, (2) acute depression, (3) a temperature, and (4) a well-defined rash. She confessed that she had fallen asleep in the circuit and had only woken up when she had been in series with my "drug" for just under an hour. She had no idea—but was much relieved to hear—that her signs and symptoms belonged to an overdose of M. & B. 693, of which I had placed only *one* standard tablet in my test-tube. Would ingestion of one tablet "blind" have caused overdose effects even if the patient had known what these effects might be?

(B) A bottle containing only sodium salicylate in solution was used "blind" for a total of approximately 50 hours on some 60 patients in some 30 days. During that time no patient was in the circuit with the bottle for less than about 10 minutes or for more than 1 hour 15 minutes at a time. The following effects were observed:

(1) Profuse sweating: several times.
(2) Lumbago removed: twice.
(3) Rheumatic conditions markedly improved: several times.
(4) Temperature reduced.
(5) Pulse slowed down: generally.
(6) Headache removed or induced: several times.
(7) Buzzing of the ears: several times, and once in 15 seconds.
(8) In 30 seconds one patient reported a "saccharine-like" sweet taste in the mouth.

At the end of the month, analysis established that "*no* chemical or other change had taken place and that no substance that could have been derived from sodium salicylate was present in the solution."

(C) When test-tubes are used so that one electrode is always connected with the left hand of a right-hander or the right hand of a left-hander, and the other electrode vice versa, a deposit often appears on one of the electrodes, and with certain combinations of chemicals on both of them. However, here I must leave it to chemists and physicists to establish the facts and to assess their significance.

(D) Copper is a disinfectant and is generally used as such by dentists, amongst others. If what we may provisionally term a "human carrier wave" carries with it the specific modulations of, say, sodium salicylate, may it not also carry the specific modulations of the copper in the insulated wires used in the circuit? And if the sodium salicylate modulations thus carried produce appropriate medicinal effects, might not copper modulations produce disinfection?

(E) I have gladly made "blind" drugs tests organised by different investigators, and some of these, based on J. B. Rhine's E.S.P. card technique, involved 2, 4 or 8 drugs, each tested repeatedly and in random order.

The initiators of those tests claimed that statistical evaluation of "guesses" would be easier with, say, 2 subjects, each testing

4 drugs eight times, than with the same 2 subjects each testing 32 different drugs once only. In practice, however, this statistical gain is more than offset by the following disadvantages.

(1) Unlike the "blind" identification of cards, that of drugs, whether through ingestion, injection or radiation, has cumulative, hang-over, acclimatising and habit-forming as well as immediate therapeutic or toxic effects. Such effects differ not only in quality but also in potency from drug to drug, whatever method of administration is used, and thus, the hang-over effect of drug "A" being stronger than that of drug "B," a subject might "guess" these random series as follows:

A B A B as A A A A
B A B A as B A A A
A B B A as A A B A and
B A A B as B A A A

and although such guessing would correctly express the relative durability of A and B effects it would be statistically misleading.

(2) Fatigue, saturation, immunity, etc., operate more effectively with drugs than with cards.

(3) Miss Cameron and I have found repeated tests of the same 4 drugs, with say one drug dominant, even more disturbing to health than had been our 32 single tests of 32 different and, at least in part, mutually neutralising drugs, for such tests are usually followed by marked overdose effects of the "dominant" drug. However, one would readily face ill-health were it not for the fact that three different groups of investigators have failed (two of them in writing) to call even the correct "naming" of a drug "blind" in circuit significant. In the circumstances, is it unreasonable to hope that the simple hospital tests which I have suggested will be made? At any rate, they can do no harm!

CHAPTER XX

EXTERNAL RADIANT ENERGIES

My examination of witness No 9: "Abnormal physical factors" has shown that he is an influential member of the "gang" whose crimes we are investigating. Although he has as yet disclosed but little, that little suggests that he knows a great deal. "The police," doctors of medicine and physicists, should now make it their business to extract from him the rest of his secrets, for I cannot, unaided, carry such an undertaking to its rightful conclusion—the service of mankind.

I have dealt as faithfully as I could with witnesses No. 1: "The relaxation circuit"; "No. 2: "Myself"; No. 3: "Horizontality"; No. 4: "Relaxation"; No. 5: "Physiological reactions to conscious thought"; No. 6: "Telepathy"; No. 7: "The value of numbers of subjects"; No. 8: "Drowsiness, unconsciousness and sleep"; and No. 9: "Abnormal physical factors." This leaves me with witnesses No. 10: "External radiant energies"; No. 11: "Suggestion"; and No. 12: "The fact that subjects are alive."

No. 10: "External radiant energies" did not appear in my original list of witnesses for the simple reason that I had not noticed him. He had actually been present at all critical times, but although I had observed some of the effects of his presence I had mistakenly attributed these to more evident witnesses. Worse blunder! When in 1936 Maby had begged me to keep my eyes open for cyclical evidence of the activities of "external radiant energies," I had blindly continued to ignore this witness. However, facts being "obstinate things" I was eventually compelled to recognise and overcome in myself the fixity of ideas which I had so often deplored in others.

"Cosmic" and "earth" rays are established facts and accepted as such by Science, although their causes, *modus operandi* and modalities are not as yet fully explained. With the help of ionisation counters and other special electrical measuring and recording apparatus of which they employed a great variety, Maby and Franklin had demonstrated the physiological significance of

such rays (for footnote, see end of chapter, p. 299). They had also shown amongst other things:

(A) That certain high frequency Hertzian rays of extra terrestrial origin apparently varied in intensity in cycles of years, seasons and shorter periods.

(B) That such radiation changed phase at intervals which varied in length from a few minutes to an hour or more, its plane of polarisation also being subject to rotation in the earth's general field as well as to local magnetic action.

(C) That at least some of the so-called earth rays were mere reflections or "echoes" of cosmic rays, rebounding from conductors within the earth's crust, such as underground streams, water pockets, or geological deposits of different kinds.

(D) That cosmic rays also "echoed" from conductors above the earth's surface, whether horizontal or vertical, such as water, metal pipes, metallic or other structures, and trees, etc., and that their general behaviour and distribution were influenced by the earth's magnetic field.

(E) That the fields thus formed above and around conductors clearly reflected certain periodic changes of phase and polarisation of their "parent" cosmic rays.

(F) That, like electrical apparatus, the human neuro-muscular system, organs and cells also react to such high frequency radiation, whether direct or reflected from underground or surface conductors and to at least some of the so-called earth rays; and

(G) That human neuro-muscular reactions to some of these radiations varied in nature and intensity in relation to their changes of phase, intensity and polarisation as recorded by electrical apparatus.

I have only mentioned above those of the facts instrumentally demonstrated by Maby and Franklin which concern my present argument. Their experiments covered a wide field, and I wish to acknowledge that but for Maby I might never have ventured at all into this particular territory.

In addition to facts (A) to (G) above, I must note that cosmic and earth rays and their derivatives may be beneficial or harmful to living tissue, a point which the researches of Cody, Winzer, Melzer, Lakhovsky, Jenny, Oehler, Stauffer, Mannlicher, Dannert, and others have combined to place beyond doubt. I will only refer to experiments carried out by Dannert in Switzerland from

1932 onwards and confirmed by later tests at the Kaiser Wilhelm Institute at Dortmund and of which I was privileged to hear Dannert's own account in London in 1938.

Large numbers of mice were placed in a long run which passed over a strong underground stream and extended several feet beyond it. Expert supervision, which included post-mortem examination of hundreds of specimens, established:

(*a*) That mice vacated that part of the run which was above the stream.

(*b*) That when a proportion of the mice were caged above the stream, 13 per cent of these developed spontaneous carcinoma, and all became remarkably less healthy and fertile than those in the "free" zone.

(*c*) That when fresh colonies of mice were predisposed to the disease by the application of cancer tar behind the ears, *all* those in the stream zone developed cancer and only 17 per cent of those in the free zone did so.

From all the above I single out the following two principal conclusions:

(1) Men react to cosmic rays, to their reflections (whether from underground or surface conductors), and to earth rays; and (2) Some of these rays are beneficial and others harmful to living organisms either:

(*a*) Qualitatively (in terms of specific frequency and kind),
(*b*) Quantitatively (in terms of intensity or time),
(*c*) According to local polarisation and phase, or
(*d*) By virtue of combinations of the above factors.

Two questions arise:

(*a*) Can any of the phenomena observed in the relaxation circuit (I assume "all subjects in parallel" as in Figs. 13 or 14) be caused even partly by Witness No. 10: "External radiant energies"? and

(*b*) Are "external radiant energies" at least contributary causes of *ALL* the phenomena observed in the relaxation circuit?

Soon after, at Maby's suggestion, I had at last begun to look for cyclic evidence of "external radiant energies" in the relaxation circuit, I realised that quite a number of my phenomena could be explained at least partly by cosmic or earth rays, or their reflections or changes of phase, and partly by some of the several

causes I had already investigated, and I mention here a few of the facts which seemed capable of such a mixed explanation.

(1) Subjects frequently state after a period of the relaxation circuit that they all feel as if they had got "more out of the pool than they had put into it" (p. 40). Although I had attempted to explain this apparent getting of new energy out of "nowhere" by assuming that the seemingly new energy was really that saved by relaxation, it seems to me now that external radiant energies may also be "contributory causes."

(2) I have already noted repeatedly that subjects in circuit commonly fall asleep, awaken, yawn, stretch, rub their eyes, feel hot, or cold, shiver, etc., practically at the same moment, spontaneously and not only in the absence of suggestion but even in spite of it. I had attempted to explain this unconscious synchronisation of similar reactions by assuming that much as in-flowing water reaches the same level at practically the same time in separate communicating vases, and ultimately overflows, so vital energy gathering within communicating subjects in an additive circuit (see Fig. 11, p. 73) reached separate but comparable nervous centres at the same time and ultimately overflowed in similar nervous impulses; but it seems to me now that "external radiant energies" may induce apparently fortuitous synchronisations or reversals of behaviour to coincide with changes of phase in the cosmic rays.

(3) Long before Maby and I had met, my assistant, Miss Cameron, and I had frequently been struck by the fact that, sometimes for days on end, synchronous behaviour in the relaxation circuit would recur, or alternate, at much shorter intervals than usual. I had attempted to explain this cyclic acceleration by assuming, not without egocentric fatuity, that since I appeared to be the only constant human factor in successive circuits, plethoric cycles in my vitality might account for higher frequencies in the recurrence or reversal of unconscious neuro-muscular behaviour by those in circuit with me. But, as Maby has demonstrated, "external radiant energies" also have their cycles of "polar reversals" and changes of phase, and it seems possible that such cycles may underlie the physiological reactions in question.

(4) Occasionally, too, one or more days would stand out from the average by the unmistakable fact that all patients in circuit showed stronger reactions and greater improvement than normally.

I had also attempted to explain this fact by variations in my health, and although in terms of witnesses No. 6: "Telepathy," and No. 9: "Abnormal physical factors," the condition of one subject must affect that of all others in circuit with him, here again, it seems to me now that "external radiant energies" may be "contributory causes."

(5) I have already noted that whether an "abnormal physical factor" such as a drug or a "bug" is in the circuit or not, all subjects generally reach the "past reaction" stage together, and that thereafter they may experience a marked reluctance to remain in circuit although this reluctance can often be overcome by the simple expedient of turning the relaxation into a tension circuit. I had attempted to explain this double phenomenon of inertia and resentment of a given circuit by assuming that "nervous batteries" were of limited capacity, but the efficacy of the reversal of the circuit suggests that this reversal might be the equivalent of a change of phase in cosmic rays.

(6) There is no doubt that the specific frequencies of "abnormal physical factors" are propagated within the circuit, whether these factors reside in a subject or in a test-tube, and provided human "carrier waves" are brought into play. However, since the suggested human carrier wave is not necessarily of purely vitalistic origin and since the human body is just as suitable a conductor, etc., for cosmically excited radiation as any stream, tree or metal, it seems to me now that "external radiant energies" may be "contributory causes."

(7) As I began my first experiments in group telepathy in the relaxation circuit I observed, much to my surprise, that I obtained appreciably stronger reactions from my subjects with very long aerial wires than I did with very short wires. I had attempted to explain this unexpected fact by assuming that since all subjects clearly radiated telepathic rays in all directions, the added length of wire made it possible to "trap" more of these human rays. In view of Maby's instrumental demonstration of neuro-muscular reactions to seeming derivatives of cosmic rays I now conclude that it is more reasonable to assume that "external radiant energies" not only are but *must be* "contributory causes" of *all* the phenomena observed in the relaxation circuit, whatever other fundamental or merely qualifying causes may be at work.

If this assumption is justified, it seems that just as to-day we acknowledge that all our activities are functions of solar radiations and that these are beneficial or harmful to living organisms in terms of frequency, potency, or time, etc.; so to-morrow we may come to acknowledge that cosmic and earth rays are at all times helping to shape, not only our individual activities and health, but our racial destiny and evolution. And this, in proportion as, according to the degree of our "civilisation," we subject ourselves more or less correctly though unconsciously to their influence. It may even happen that just as we now control and select sun radiations for health purposes by means of suitable screens and even produce effective substitutes for chosen sun rays (ray treatments of various kinds, artificial vitamin production, etc.), we might in time utilise selected cosmic and earth rays for health purposes in doses carefully measured in terms of frequency, potency and/or time, etc.

It is worth noting here that irradiation (artificial) by X-rays and beta particles has been found to disturb the mitotic processes of cell division of living organisms, and so to cause hereditary mutations of a well-marked kind in the germ cells. Here, then, is direct experimental evidence of the possible role of the X- and gamma-rays thrown out by matter under cosmic ray bombardment affecting the vitality and evolutionary development of animals and plants in a remarkable manner. This may, in fact, be the cause of those sudden and otherwise inexplicable genetic jumps known as mutations. We may perhaps ask whether the intelligent investigator who artificially irradiates germ cells by X-rays would countenance the proposition that the emitter which from outer space bombards matter with cosmic rays and thus influences the evolution of living organisms may not also be intelligent and purposeful?

We must suppose that cosmic rays have descended upon our planet for as long a time as have sun rays, and that life on earth, in all its forms, has therefore evolved just as much in a cosmic as in a solar frame, and that those species which now survive are not only adapted to but dependent on cosmic radiations in suitable quantities and proportions, not only for their health and survival but for their evolution. However, the last century is but a minute compared with the millennia which have adapted the human organism to radiant energy surroundings which, we

must assume, had hardly changed during the ten thousand years which preceded our industrial revolution. Yet, in this minute, rapidly increasing proportions of civilised humanity have been made to live, sleep, eat, work, play, and even fight, in surroundings of concentrated metallic masses, steel girders, railway trains, cars, and engines of production and destruction, all no doubt admirably adapted to their particular purposes, but all also haphazard conductors, reflectors, deflectors, or condensers of cosmic rays. Not only has *homo sapiens* been given only sixty seconds in which to adapt himself to that chaotic cosmic ray distortion, but he has been asked to do so on the fiftieth story of a sky-scraper, 500 feet from that ground within a few inches of which all but a few of his innumerable forebears had enjoyed their recuperative slumbers, done their work and evolved. And there appear to be sound reasons to believe that earth rays, whether beneficent or maleficent, may only possess weak powers of penetration beyond a few feet from the ground! Has this last minute disturbance of the balance between cosmic and earth radiations in man's immediate surroundings had any bearing on the progressive restlessness, irritability and tension, both individual and national, of the last few generations, or on the incidence of certain diseases, such as cancer? Oh! I know the learned will say: "Pish, tush, and likewise, bah! Cancer is caused by this, that or the other thing, we don't quite know which, but that hardly matters, since you are wrong anyhow." For all that, if we are to continue to have our being in "steel cages" it might be good to devise effective "screens" for at least some radiations, for whatever the cause of cancer may be, resistance to it may be undermined by cosmic and/or earth ray unbalance or distortion. (See Dannert's mice above.)

It might be argued that this is speculation and that what is needed is experimental work. Very true! But the experimental method, which, incidentally, enjoins agnosticism on those who will not experiment, only comes to life with speculation, for without it we can only repeat the same experiments *ad nauseam*, and ultimately, through sheer boredom, abandon all "seeking" and all hope of ever "finding."

If I had the means, I would experiment on cosmic and earth rays in a non-magnetic building situated on carefully tested "neutral" ground. I would do so with different forms of the

relaxation circuit and with at least a dozen subjects. Outside the building, I would erect, at different heights, a series of "spider web" aerials or other detectors suitable to trap diverse cosmic rays, and below the level of the subjects in circuit and within a few inches of the ground I would place another series of aerials or other detectors to trap earth rays. I would arrange my wiring so as to connect cosmic with earth rays *through* the subjects in circuit and would vary the number and height of detectors of either type in the hope of discovering the most health-giving quantities and proportions of both rays. I would devise and test various carefully worked out "inductances" or other methods for the control and selection of rays. I would work with and without "abnormal physical factors" in the circuit (see Fig. 19). I would be ready to detect short- and long-distance telepathy, even cosmic telepathy, in case this were possible, as spiritualists believe, and . . . whatever resulted I would not be surprised. No, not even if across cosmic distances, cosmic radiations did produce in the subjects in circuit identical, synchronous and yet apparently spontaneous physical reactions of a new and unexpected order. No, not even if these physical changes heralded abnormal mental states of an apparently intuitive nature. No, not even if apparently distinct and separate "inspirations" did not only "hang together" but actually "made sense" just as though they had emanated from one source, and that an intelligent one! There would be nothing in any such happenings which should surprise us, for they would only suggest an extension of the receptive faculty so often exhibited by quite "ordinary" people during group telepathy experiments. It might even appear that, outside of time, Intelligence was eternally shaping matter, by means of radiation, to the end that, within time, men might evolve, sensitive and selective enough to "tune in" to It and to receive, understand and obey Its messages. In this non-magnetic building, and with these tuned human receivers, I would . . . but then, I have neither the building nor the means . . . yet!

Meanwhile, like many detectives at the end of a long criminal hunt, I am beginning to wonder whether in omitting "external radiant energies" from my original list of suspects, I had not overlooked the leader of the "gang"? When doctors of medicine, physiologists, and physicists experiment with cosmic and earth rays in conjunction with the relaxation circuit, as they will in

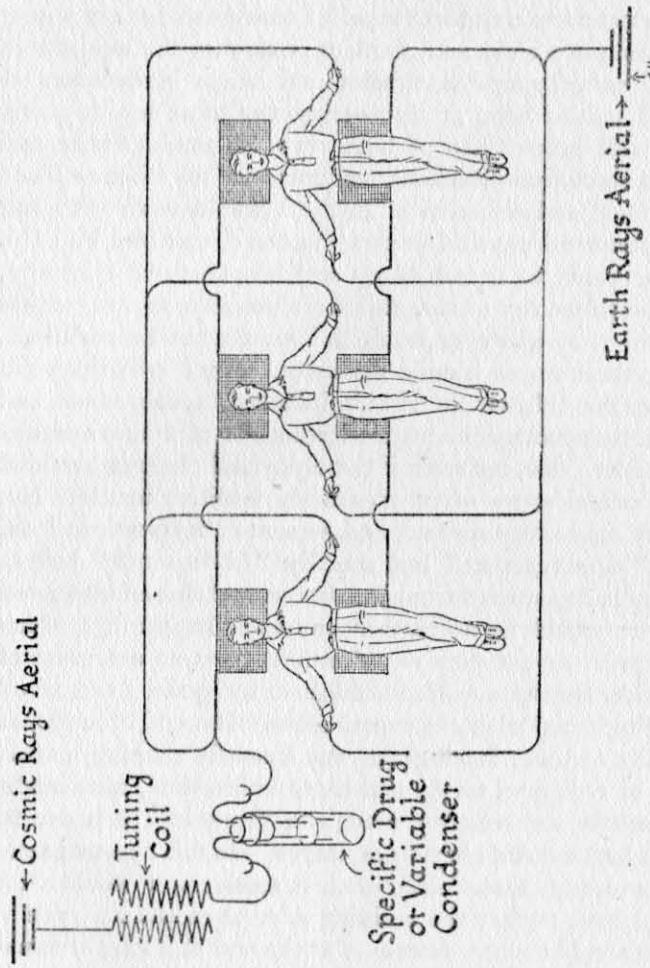


FIG. 19.—One of many possible relaxation circuits using cosmic and/or earth rays, tuning coil, and variable condenser or specific drug.

time, they may find, with the assistance of scientific instruments, that by mutations or otherwise, these radiations play a fundamental, intelligent and spiritualising part in the evolution of living matter, and they might ultimately feel grateful for metric evidence of the activities of an Intelligence superior to that of Homo Sapiens. The fact that such evidence might be as humbling to the material dogmatists of that day as the exposure of the geocentric fallacy by Galileo had been to their prototypes, would have many compensations for the ordinary dweller on this apparently rather chaotic planet.

See *The Physics of the Divining Rod*, by J. Cecil Maby, B.Sc., A.R.C.S., F.R.A.S., and T. Bedford Franklin, M.A., F.R.S.E. The larger part of the first edition of this great work was unfortunately destroyed by enemy action, but a revised and enlarged edition is anticipated after the war.

CHAPTER XXI

SUGGESTION

I am now left with two witnesses to examine: No. 11: "Suggestion," and No. 12: "The fact that subjects are alive."

When critics dismiss my theories and experiments they generally feel obliged to produce "reasons" for their attitude, and the most popular of these is that I obtain my results by "suggestion." It appears that whoever intones this word is magically enabled to promulgate a scientific conclusion without any necessity either to think or to repeat any of the many experiments which exclude suggestion. By this simple incantation he also establishes that no cure is better than a cure by suggestion, for in the latter case "the patient either believes that he has been cured of a disease which he has never had, or he neglects one which he has because he thinks that it has been cured by suggestion"!

Boring as the automatic reiteration of this word may become, I continue to welcome it for its implications. These are:

(A) That these *are* facts to observe and explain.

(B) That these facts are not "usual," for if they were, explanations of them in terms of common experience and of known law would jump to the mind, and

(C) That the facts observed appear to the speaker to involve causes which are as yet little understood. There are, it is true, many theories as to how suggestion should be used, but we know little as to how and why it works. The effect is that the more readily a man uses the term in order to account for an unexpected phenomenon, the less he seems able to define what he means by "suggestion." In honest English the phrase: "It is all suggestion" often signifies: "The facts, though surprising, are undeniable; they do not come under any law of which I know; I can only understand or explain them, on the lines you suggest, but you can hardly expect me to admit as much"! It is on a par with that delightfully vague but at times magically impressive diagnosis: "It is all nerves, my dear fellow, all nerves."

F. W. H. Meyers' definition of "telepathy": "The communication of impressions of any kind, from one mind to another independently of the recognised channels of sense," can be amended and expanded into a sound definition of "Suggestion" as follows: "The communication from any source, by any means, to any number of living organisms, of any impressions capable of influencing the behaviour of their recipients."

This definition may appear too comprehensive, but a discussion of its terms will justify it. Suggestion need not come only from a mind, for "things" can influence ideas and conduct just as much as "propositions" can; for instance, bright winter sunshine may suggest a brisk walk as effectively as the words: "We ought to take a walk in the sun." But, to-day's "bright winter sunshine" only releases a subsidiary suggestion, the parent suggestion having accumulated in earlier and oft-repeated memorising of the effects of walking in the sun, and suggestion by "things" is thus reminiscent of the "trigger action" in both post-hypnotic suggestion and conditioned reflexes. Suggestion need not reach its recipient exclusively through the recognised channels of sense as is shown by my experiments in group telepathy. Suggestion is not confined to communication from only one mind to only one other mind, for we have the mob suggestion of Nazism and similar movements. In these both the demagogue and his individual hearers use mass suggestion, he consciously and deliberately by his oratory, and unconsciously by telepathic radiations, and they, unconsciously, by spoken and acted reactions to the speaker and by their own mutual telepathic radiations. We have also the silent mass suggestion of the many "senders" in my group telepathy experiments. Suggestion is not even confined to communication from mind to mind, for we have, in group telepathy, the reception of impressions by the nerves, organs and muscles of the many recipients whose minds do not at the time appear to receive any impressions from the minds of the many senders. Suggestion need not actually influence the behaviour of recipients; it is enough that it should be capable of doing so, for it remains "suggestion" whether it elicits appropriate reactions or not. And, I am not defining here either "successful suggestion" or the qualities which may tend to make it so, whether these qualities rest in the minds or "things" which suggest or in the minds, nerves, organs or muscles which

receive, in the nature of the suggestion itself or in the form of its presentation, or yet in the channel of its transmission.

Some critics argue that my definition should read: "... capable of influencing the *ideas* or behaviour," but "behaviour" includes "ideas." It must be noted that not only sound ideas but also erroneous and even contradictory propositions are capable of influencing either mental, organic or neuro-muscular behaviour. Further, few would call a given proposition a "suggestion" unless its acceptance by the "recipient" were at least capable of influencing his behaviour; and his bare acceptance of it would in itself be a change of mental behaviour.

Some schools (*vide Encyclopædia Britannica*) define suggestion as: "The communication of any proposition ... so as to secure its acceptance with conviction, *in the absence of logical grounds for its acceptance.*" This definition confounds the communication of a proposition with the manner both of its presentation and of its acceptance, whereas suggestion remains "suggestion" whatever its presentation and whether it is accepted or not. It always is the communication of an impression, but whatever its nature some presentations and states of mind are more likely than others to make it acceptable; and here I would rather say: "States of mind, nerves, organs and muscles." The implication that a suggestion ceases to be "suggestion" the moment there are logical grounds for its acceptance appears absurd. Do grounds for acceptance become logical or illogical as soon as either the giver or the receiver of a suggestion thinks them so? Does a receiver who accepts such illogical-logical arguments do so under suggestion? And whether the answer to such a question be "yes" or "no," where is its logical basis? Is it claimed that the mere presence of logical grounds for the acceptance of a suggestion deprives it of its suggestive qualities, even when the operator is not aware of them and cannot therefore either put them into words or convey them telepathically, and the subject does not even glimpse them either consciously or subconsciously? Or, that a proposition for the acceptance of which there are only illogical grounds only remains a "suggestion" as long as the subject does not think such grounds logical? If this were so, the chief qualification of a good suggestionist would be the ability either to deceive himself or to dissemble convincingly, and then, acceptance of a suggestion, with or without conviction,

could hardly be called a logical process, even thought it might involve conscious thought.

But, is there any evidence that acceptance of a suggestion must always be a logical process? Is there any evidence that acceptance must always imply conviction? Is there even any evidence that acceptance itself must invariably precede the carrying out of a suggestion? Indiscriminate execution of a suggestion does frequently follow the giving of it, and this execution is often complete to the last detail, even to its post-hypnotic timing to a specified minute; but to conclude from that that acceptance, in one form or another, must *always* precede execution, is a *non sequitur* and it rests only on the unwarranted assimilation of "integral" and "dissociated' mental states.

Suggestionists seem to agree that, at any rate in hypnotic suggestion, and however mild the hypnosis, the subject is in a state of more or less marked dissociation; but such a state is a common experience which can be described as follows: "As I get tired, heavy, drowsy, and gradually fall asleep, I become progressively less conscious of my physical, mental and moral faculties, and exercise progressively less control over my functions, movements, desires and thoughts. Consciousness and control do not appear to diminish according to any rigid law or order that I have observed, but to do so at random and in zones or fields. If at any stage of this process of becoming unconscious and of surrendering control by instalments or *quanta*, any one of my faculties is externally stimulated whilst all or most of the others are allowed to continue going to sleep, this one faculty may be the only channel through which my motor nervous system may be objectively stimulated. My censor which, by then, has apparently been short-circuited, does not any longer control my reactions, and as a result, I may unconsciously, automatically and inescapably obey the only suggestions that reach my "executive" nerves, if I may call them that. My resulting unconscious activities may then disturb and half-awaken me, when I may vaguely feel that I have done something or other; but the post-factum discovery that I have done this thing is not evidence that *I* had heard the suggestion, or deliberated before acting, or decided to act, or had even known that I was acting. Discoveries of this kind always leave me with the realisation that *I* had *done* nothing but instead *been* the

aimless witness of short-circuited nervous automatisms and the mechanical recorder of their details, details which I would later be able to recall consciously."

If agreement about the fact of dissociation is fairly general, so is disagreement about its causes and operation. Some divide the personality into layers of consciousness or levels of being, one or more of which survive the death of the physical body; others divide it vertically into separate compartments controlled by a superior authority and normally communicating with each other only through that censoring master; others, whilst accepting such a scheme, make the master and all its conscious subordinates have their being and function on a non-material plane from which they control their respective physical instruments, our various nerve centres; others yet see in the master and all its dependants purely material entities, probably quasi electro-magnetic; whilst still others look upon this supposed mechanism as a mere illusion of a spiritual ego, which alone possesses reality. But however opposing doxies may partition the personality, whether in layers of progressively unmaterial matter, or of spirit and matter, or in variously insulated communities of grey cells, or in reality and the illusion of it, the majority are agreed that the personality must use the brain and its dependencies as its instruments of consciousness and self-expression whilst functioning on the physical plane, whether brain and plane be real or delusional, or if real, the only realities.

Physiologists agree that no part of the brain can function consciously without an adequate supply of blood and oxygen, and that innumerable combinations of psychological, nervous and physiological factors constantly produce apparently uncontrollable variations of this supply, both general and local. We may conclude from this that even the most integrated personality is at all times in a state of relative dissociation, in the sense that it never can be coincidentally and equally conscious either of all its faculties or of all their objective stimulants; that deliberation, judgment, decision, etc., must always involve successive concentrations of consciousness on successive aspects of successive problems, with parallel variations of blood supply to successive brain centres, and that therefore the personality hardly ever functions consciously as a true integer. It seems that even concentration itself is but a form of dissociation, and that it

differs from absent-mindedness, somnolence, hypnosis, schizophrenia, etc., mainly in degree and in the fact that it may, though it need not, be consciously and deliberately induced by the subject himself, with consciousness, will and judgment uninhibited by other personalities.

If my experiments in group telepathy mean anything, I should add a qualifying note to the last paragraph and end it either: "with consciousness, will and judgment *apparently* uninhibited by other personalities" or "with consciousness, will and judgment inhibited by other personalities only through unrecognised channels of sense," for every personality may thus be constantly impinged upon, and not only by other personalities but by animals and things, and in manners and degrees which we do not at present credit, but to which we may in time attach importance. The more integrated and the more aware of its integration a personality would become, the more it would also become conscious of this universal though normally subconscious interaction and of the real oneness and brotherhood of all life; the more it would sense through intuitive but still material senses, or "aerials" the profound spiritual and material truth so "matter-of-factly" expressed by Professor J. B. S. Haldane when he wrote: "The progress of medicine is proving that it is a biological fact that we are members one of another. This is true even for our own domestic animals. . . . A sick animal may be a menace. Much more a sick man, woman or child" (*News Chronicle*, January 22nd, 1942). My experiments in group telepathy and with abnormal physical factors in circuit suggest that diseases may spread not only by contagion and infection but in some cases by "radiation," the true "filter passer." And immunity, as well as diseases!

Whilst a completely and consciously integrated personality might "sense" consciously this oneness of the universe it cannot do so by means of the recognised channels of sense alone, for we can only achieve an optimum sensory perception by concentration on one sense organ, a concentration which involves relative dissociation or disintegration. Logically, the conscious integration of the personality which alone could afford us the sense of ultimate reality, can be attained only in the complete dissociation of the personality from the recognised channels of sense, in the "mystical experience." That this experience is

at least partly real is suggested by the almost complete unanimity of the mystics of all ages, climes and creeds in their spontaneous and independent descriptions of its fundamental characteristics. It involves, so they all claim, the direct perception of a reality outside of time, space, and a physical organism, by a personality functioning within time, space and a physical organism. Thus the phenomenon appears dual (spiritual (?) and material), a conclusion which is confirmed by the fact that a large proportion of mystics have stated that before each contact with spiritual reality (as they term it), they had registered, not without fear, the feeling that they were having something akin to an apoplectic stroke. This suggests a sense of the complete and coincident suffusion of all or many brain centres with blood, i.e. general cerebral hyperhoemia as opposed to the local hyperhoemia induced by concentration. This leads to the apparent contradiction that the maximum of dissociation and disintegration produces the maximum of association and integration, a contradiction which vanishes when we realise that during the rare moments of total cerebral hyperhoemia it is the direction in which the personality happens to concentrate its "inner eye" which governs the "experience." When the "eye" is turned "outwards" a maddening flood of sensory impressions, blinding, deafening, burning, but all born within the brain centres themselves, overwhelms the consciousness; when "inwards," it seems that the Kingdom of God, within, is glimpsed by the personality up to the limits of its then powers to bear the vision or hear the message, and is thereafter interpreted by it in terms of its own upbringing, religion, philosophy, intellect and evolution.

The picture, we see, is one of extreme opposites reaching out in all directions, and of an illimitable variety of shades and degrees between them. At times in conscious co-ordination and at others in uncontrollable chaos, faculties and senses invade consciousness or fade away; consciousness itself constantly expands or contracts, and ever changes its field and the sensory instruments through which it knows and assesses it. The personality sleeps, wakes, eats and drinks; it looks and sees, it listens and hears; it feels, it loves and hates; it observes, it measures and weighs; it argues, deliberates, philosophises and prays; but all the time, although it knows it is itself and periodically apprehends the permanence and distinctiveness of that self, it also changes not

only the point of view from which it observes that self but the introspective instruments with which it does so, be they intellectual or physical. In the circumstances, it is not remarkable that men should have achieved quasi unanimity on one aspect of human nature only, the persistence and distinctiveness of the self. On almost everything else which concerns psychology, philosophy, religion, theology, politics, economics, medicine, and all the "logies," "sophies" and "isms," even on science with a capital S, there is a delectable diversity of opinion coupled with a touching identity on one point and one only—the claim that each one's doxy is "logically defensible." In England alone there are hundreds of religions, philosophies and policies, etc.; in the world, thousands; and they all boast their logical defences. However, noting the patent fact that they are mutually exclusive in important respects, we can hardly grant "logical grounds" to more than one doxy in each field and cannot even do that little with a sense of "logical" certainty. As with religions, philosophies and politics, etc., so with suggestion, and in the literature on the subject, there are many tomes devoted to the logical defence of contradictory theories and techniques, which, if they cannot all be logical, can nevertheless all claim many remarkable cures and do so with every justification. This is enough to show that in the therapeutic field as in the religious, philosophical and political, etc., it is not the presence or absence of logical grounds for the acceptance of a suggestion, beneficial or otherwise, that decides whether it will or not influence behaviour. The fact is that the human mind can believe almost anything with or without logical grounds for its belief and that it can then adopt with perfect logic any behaviour which logically derives from premises unlogically and even unconsciously accepted.

It is difficult to understand why in the face of these facts some schools still attach importance to the absence of logical grounds for the acceptance of a suggestion, but since they do, laymen can hardly be criticised for drawing the seemingly reasonable conclusion that behaviour which rests on no logical grounds can only be unreasonable, and for refusing to be treated by suggestion, because, as I have heard it put, "suggestion is only self-deception, and I will neither deliberately deceive myself, nor allow anyone else to deceive me, and least of all in hypnosis." No, not only does common sense deny that a conscious or

subconscious action must be made less perfect or effective if the agent be given logical grounds for its performance, but long experience has convinced me that the more the practitioner takes his patient into his confidence, the more he shares with him his own beliefs, fears and hopes about the latter's condition, the more carefully he eliminates from his argument anything that may even savour of deception or mental reservation, the more he makes that argument patently and severely logical, and the more readily he will secure the patient's trust and effective co-operation in his attempts to change his conscious or subconscious behaviour. In therapeutics, and most especially so when the approach is psychological, honesty is the best policy, and deception, even when it succeeds, will always "leave a foul taste in the mouth" of the patient. The demagogue may not have an avowable object, but the healer certainly has, and this is —to cure the patient, which means, to make him function in mind, nerves, organs and muscles according to natural law; and he must state that object to the patient and show it to be logically attainable. True, integral logic is never reached either by the best healer or the most intelligent patient, but to me, at any rate, the ideal argument would run as follows: "I believe, for the following logical reasons, that you are ill in your own particular way, of which this, that, and this other fact are evidence, because you function unnaturally in this, that and this other way. I further believe, for the following logical reasons, that if you will only 'think' in the following manner, you will function subconsciously and eventually behave consciously according to natural law, and finally, I believe, for the following logical reasons, that this will in time restore you to health, or (if complete health is too much to hope for) to such a state of health as will enable you to do this, that or this other work and to enjoy this, that or this other pleasure." When the healer "doesn't know," he must say so frankly, and seek the patient's co-operation in "finding out." This may entail the loss of a patient, but the patient who prefers deception to logic and honesty is seldom worth keeping or healing, and will be lost anyhow when the "deception" cure will have failed and sullied the healer's good name.

If ill-logic, or a-logic, fails, does induced dissociation in either mild or deep hypnosis fare any better? Whatever technique is adopted, we do know at least that we all live in a permanent

state of relative a-logic and dissociation and that we are seldom actuated by unadulterated logic alone. Are we likely to produce better results, better and more lasting cures, better, stronger, more confident humans, finer characters, and minds more competent to handle efficiently, logically and ethically their cured nerves, organs and muscles, if we root our healing technique in unlogical automatisms, however "correct-habit-forming" and in unconsciousness however mildly hypnotic? or must we rest our hopes in the fullest possible awakening of the logical faculties, in the maximum expansion of consciousness, in the richest integration of the personality, all obtained in the *conscious* relaxation of the voluntary neuro-muscular system? True healing, I contend, can only be found in the complete quiescence of that system, when the whole of the subject's vital energy is available for natural function and metabolism. I will argue that there is nothing of lasting physical or moral value which cannot be achieved at least as well in the light of integrated consciousness and logical discernment as in the relative darkness of hypnotic unconsciousness, disintegration and a-logic.

CHAPTER XXII

THERAPEUTIC SUGGESTION

Therapeutic suggestion may be defined as: "The communication from any source, by any means, to any number of living organisms, of any impressions capable of influencing the behaviour of their recipients in such a manner that they may become healthier."

This definition raises the following questions:

(1) What is health?

(2) What are the factors which make a suggestion potentially health-giving?

(3) What are the factors which induce subjects to accept a therapeutic suggestion and to carry it out either in mental or in physical reality?

(4) What are the factors which help to make the carrying out of a suggestion by its recipients actually health-giving?

1st Question. "What is health?"

"Health is the state of adaptation to objective functions which we reach after sustained conscious and subconscious functioning of our minds, nerves, organs and muscles in accordance with the laws of nature." It will make it easier to justify this definition if we couple "health" with "fitness." Health and "fitness" are always relative to the subject's environment and to his activities in that environment. The hardy dweller in the upper Andes fails in the plains, the fittest Eskimo in southern climes; the hewer of wood may be unfitted for his work by a three miles run; the tough engineer may break down after a month in the accounting department, and the "pure scientist" after only days of executive responsibility. Suggestion must aim at developing faculties for which the subject's circumstances offer scope: e.g. the miniature painter may be incapacitated by suggestion tending to the muscular development which is essential to an athlete. Fitness has no meaning unless it is related to the performance of an objective function; we are fit for this, that or the other work, fit to fight for our lives, or just fit to die. True

health or fitness cannot be attained by the square peg in the round hole, and whilst adaptability and versatility are invaluable at any age and in any field, one of the chief ingredients of perfect health will always be "the right hole," that is, the right function in life for the individual such as he is and such as he may become by natural development. And, "the hole" must be kept "right" in relation to the subject's evolution; for instance, ethical progress may lead him to doubt the honesty of a business practice which he had previously taken for granted, a doubt which must create conflict. Then, if the practice is ethical and the doubt merely morbid, suggestion must involve the logical reassurance of the subject as to his integrity, and if it is not, suggestion must lead him to change his ways, and pure logic must convince him that failure to do so must entail progressive ill-health. It follows that in the framing of a therapeutic suggestion two objects must be kept in mind:

(1) It must tend to make the subject's conscious and subconscious mental, nervous, organic and muscular behaviour accord with the laws of nature, and

(2) It must do so in relation to his environment and to the performance of his objective functions in that environment.

To sum up, no suggestion can be health-giving *per se*, for however much it may be so for one subject, it may still be fatal to another. To this, many critics have replied: "You can't mean that? What about general suggestion on the lines of Coué's 'Every day, in every way, I get better and better'; surely that does good to all types of cases, and it is the same for all?" First of all, general suggestion does not do good to all, and in any case, it is not the same for all. What it does to any subject is governed by what "getting better" means to him, for the miniature painter may transmute the words into the image: "I am painting better than I have ever done before," and the professional boxer into: "One hook from that right, and out goes Jock the Mountain!" Other factors must come into play before any suggestion can be general-health-giving, potentially and actually.

2nd Question. "What are the factors which make a suggestion potentially health-giving?"

I have already argued that in order to be therapeutic, a suggestion must involve the concept of the performance of an

objective function; but against this, critics have said: "Surely a suggestion involving only a subjective function, such as 'breathing' is health-giving?" It may be, but only relatively, and surprising as this may seem, it may cause unbalance and thus do more harm than good. There is no such thing as good or bad breathing when breathing is divorced from other subjective functions, such as circulation, temperature control, cell nutrition, etc., and their variations, nor is there such a thing as intrinsically good subjective function when this is divorced from objective functions and their variations. Health depends on balance between brain, nerves, organs and limbs, to mention only the physical, and between those parts, functioning as a whole, and the performance of objective functions. Granted, a chest patient may benefit when his doctor says: "You are breathing better to-day, Mr. Jones, you are expanding your chest more freely." But much will depend on what Mr. Jones thinks of his condition, of his chances of recovery, of good breathing, of his doctor, and of many apparently irrelevant oddments besides. More, a suggestion, focused on breathing, may act negatively and call up the patient's breath inhibition: "I hardly dare breathe for fear of coughing." As experiments will show, Mr. Jones's breathing will benefit less from hours of a suggestion focused on breath itself than from a minute of suggestion focused on an objective function which merely implies good wind, such as: "Go back in your mind to a seaside holiday when you were fifteen, and imagine as vividly as you can, yourself and other boys, in bathing costume, on the sunny beach, and running a thrilling 100 yards race." If Mr. Jones does this, his thoughts, no longer focused on breath, will not call forth any breath inhibition, for he had no inhibition about running when he was fifteen, and everything in him that ever played any part in the act of running, breath included, will receive nervous impulses, vaso-motor as well as motor, and these in turn will release sensory impulses and his whole organism will rise to better function and will do so as a co-ordinated and balanced community, each part keeping step with every other. Yes, this is so! But why? And what is the logic of it and what the mechanism?

Let us observe ourselves doing the little things of daily life, and let us try and detect why and how we do these things and why we can do them, for thus we may not only discover the logic

of our conscious mind as it promotes our conscious doings, but we may also deduce from this the logic of our subconscious as it promotes our repair and development work, and adapts us to our objective functions.

Why do I want to blow my nose? No, not simply because it is congested, but because by being congested in physical reality, it makes me realise that it is free and that I am breathing through it, somewhere in my mind, in mental reality. If it were not free somewhere in my mind, if I had no mental image of a free nose, no memory of how right it felt, and could not compare this memory with the uncomfortable present—*I could never even want* to blow my nose.

The sensation of the congested nose recalls the image of the free; this makes me resent the congested and want the free nose; this want recalls the apparently simple trick of blowing my nose and suggests the image of "myself blowing it." I know from experience that I can do nothing with my body unless the action has first passed through my mind, and as a result I now call up a whole chain of images of successive actions which I must first live in my mind and can only then live in my body: my hand goes to my pocket, I disentangle my handkerchief from various oddments, raise it to my nose, my fingers squeeze my nose, my lungs contract and I have blown my nose; it is clear, and I can breathe through it. The significant point about this chain of actions is that whilst I must always first live in my mind "Z," i.e. "blowing my nose," before I can do so with A, B, C, D, E, etc., I must always live these in my body as well before I can do so with "Z." The order always is: Z in mental reality; then A, B, C, D, E, etc., successively in mental and physical reality, and only then Z in physical reality.

The object of suggestion is to influence behaviour, to promote actions, and actions themselves result only from the conception of ends as already achieved, and of these ends as desirable; this fosters the wish for their realisation which in turn suggests "means" to the end desired, but suggests first "means" Z, the final action which will produce the end desired, the free nose. We must conceive both the "end" and the "means" Z, which I may blend into "end action," with our conscious mind, but A, B, C, D, E, etc., both images and actions, develop almost automatically and more or less subconsciously from the conscious

conception of the "end action." It follows that in order to be therapeutic a suggestion must involve an end image of health, which as shown earlier must be framed within the performance of an objective function; that this end image of health must be desirable, and that the function to be performed mentally as the means to the end must be conducive to that end and be conceived as such.

On and off, for over fifty years, I have been blowing my nose, walking, and doing many other things, but when I create in my conscious mind the various "end actions" which must be lived mentally before anything can be done in my body, I am entirely unconscious of how the wonderfully appropriate and accurate adjustments of muscles, organs, etc., that produce the end actions of blowing my nose, of walking, etc., come to be made at the bidding of my conscious mind. And yet, the whole complex procedure is so miraculously perfect in every little detail that although I am not conscious of being particularly intelligent about it myself, I register and postulate the action in me of a being who, though subconscious, must be highly intelligent. How the mere creation by my conscious mind of the wish image of blowing my nose is sufficient to induce my subconscious mind to produce all the necessary mind, nerve, muscle and organ changes, and how it produces them, I do not know, nor can anyone tell me, and least of all in scientific terms, although many have made the attempt. But the fact remains that it not only suffices but that it is indispensable. Many years ago it dawned on me that although I had then been able to walk for some twenty-five years I still did not "know" how I walked, and I determined to try and find out. After another thirty years, I know just as little about the problem as when I started, that is—exactly nothing; but this does not deter me from asking my subconscious to help me walk whenever I wish to do so, or from believing implicitly that it will "do it for me."

The creation of a "wish image" produces the "end action" involved in it, and it does so not only in conscious life but also in dream life. I dream that I am running to catch a train. I run perhaps faster than I have ever done in real life, but sleep has cut off the motor nerve connection between my brain and my limbs, and my arms and legs remain at rest. Suddenly, having lost my train, I wake up and discover that although my

limbs have not worked, my heart, lungs, sweat glands and other organs are functioning vigorously and doing the very work which I should have needed in order to repair the fatigue which I should have suffered if I had done a real run after a real train. But as I have suffered no such fatigue and thus need no repair, the work done is not work of repair; it is work of development, growth, creation, undertaken by myself, under a plan, subconsciously conceived by myself—the dream image of "myself running." This dream image, this plan evolved by my subconscious mind, suffices to produce nerve, organ and, ultimately, cell changes, that will specially develop in my system everything that plays any part, however trifling and indirect, in the act of running, and it will thus make me fitter for that act. Fortunately, although we cannot pick our nightmares, we can choose our day dreams, and we can use them to promote in us metabolic changes that lead to specialised development. But, powerful though their suggestion may be, day dreams are generally a pure waste of time because we usually indulge in them without attempting to make them into effective instruments of creation. We can turn them into constructive suggestions by deliberately day-dreaming desirable ends, by desiring these ends intensely, and by imagining ourselves achieving them by the perfect performance of a related objective function; for instance, we can help our physical development if, strongly desiring that end, we turn a day dream of a slack and weary walk up a steep hill into the image of an intensely run race to its summit, and rest thereafter for a while in order to observe the therapeutic effect of the suggestion upon our subjective functions.

(I may here state my opinion that not all our dreams require the far-fetched, complex and often contradictory explanations of them so ingeniously contrived by different writers. Some of our dreams, I contend, are suggestions intelligently conceived by our subconscious minds as effective means to desirable ends. Such ends may be the immediate stimulation of general metabolism or of specialised functions, during sleep, with the more remote objects of developing our characters, minds and bodies and of adapting them to new or trying situations or duties. Not all, but many dreams are part of the formative mechanism of evolution, used and interpreted more or less intelligently by more or less advanced subconscious minds, and some may be

telepathically derived from other minds, either still in the flesh, or "departed.")

3rd Question. "What are the factors which induce subjects to accept a therapeutic suggestion and to carry it out either in mental or physical reality, either as a subjective dream or as an objective action?"

This question involves:

(A) The recipients of a suggestion.

(B) The givers of a suggestion.

(C) The logical basis for the belief in the therapeutic value of the given suggestion, and

(D) The channels of communication.

(A) The recipients of a suggestion. The state of a recipient may vary between the extremes of deep hypnosis and of the fullest awareness of all his faculties, mental and physical; between complete automatism and the fullest logical discernment open to him. The closer the subject's state is to the automatic end of the scale, the more blindly he will carry out any suggestion, whether beneficial or harmful, intelligent or idiotic, in all its details of form and time, either immediately or post-hypnotically; and the closer his state is to full logical discernment the more the therapeutic value and desirability of the end action will need to be logically justified to him if he is to carry it out accurately and effectively, whether in mental or physical reality. But, whatever the state of the subject, be it automatic or logical,

(B) The giver of a suggestion must in himself live the end action in mental reality and he must be acutely aware of its desirability and therapeutic value, and of

(C) The logical basis for the belief in that therapeutic value. The need for the suggester to pre-live in mental reality the end action which he wishes a subject to re-live after him, the need for *his* "wholeness," sincerity, conviction and logic is obvious when the recipient is in a state of full logical discernment; but, though less obvious, it is just as real when the recipient is in a state of hypnotic automatism or can only respond unconsciously and automatically to a suggestion given only telepathically. This need arises not solely, as might be thought, because a subject reacts more readily to a suggestion when it is expressed with the authority usually born of conviction and logical knowledge, for

this "authority" might well be acted convincingly even by an unconvinced suggester, but because it is only in wholeness and conviction that a suggester can telepathically radiate, or "transfer," as well as speak, a powerful suggestion free from all conflicts in the "mental symbolism" which is the very core of psychic radiation. The importance of what is in the mind of the suggester apart from what he expresses in words or gestures has been overlooked by many writers on the subject, and experiments in group telepathy in the relaxation circuit will convince any seeker after truth of the gravity of this omission.

(D) The channels of communication are the recognised channels of sense plus the telepathic sense. All that has been written in (A), (B) and (C) applies with equal strength to each of the six senses, but there is no need to illustrate how speech, gesture, voice, expression, tone, smell, taste, touch and telepathic radiation can all be used so as to make a suggestion more acceptable.

4th Question. "What are the factors which help to make the carrying out of a suggestion by its recipients actually health-giving?"

(1) The relaxation of the subjects. Healing, the object of therapeutic suggestion, and with it, growth, development, adaptation, etc., only reach their fullest efficiency when the voluntary neuro-muscular system is completely quiescent and the whole of the subject's vital energy is available for subjective function on the lines given by the suggestion.

(2) The nature, therapeutic value, logic, clearness and definition of the end action as lived in mental reality by both the suggester and the subjects.

(3) The strength of the suggesters' and of the subjects' desire for the realisation of the end action.

(4) The energy available for the performance of the physiological work promoted by the suggestion. Experiments show that this energy increases with the number of subjects in the relaxation circuit.

(5) The number of channels of communication. Experiments show that the greater the number of senses used or stimulated in communication and the greater the stimulation of each, the greater are the subjects' reactions.

(6) The clearness with which the subjects register and memorise all the changes of function and sensation produced in them by, and immediately after, their living of the end action in mental reality. The more time and attention they give to this process of self-observation the deeper and the more lasting will be the impression made on their subconscious.

Having enumerated the six major groups of factors which help to make the carrying out of a suggestion actually health-giving, I must:

Firstly, underline the word *help*. Factors only "help," and not one of them by itself, no, not even any two of them alone, could make any suggestion actually health-giving. Three factors are a minimum and one of them must be mental, another dynamic, and a third mechanical: (1) A mental image with all the qualities required, logical, therapeutic, etc., clearly conceived and perceived, and vividly lived in mental reality; (2) Abundant energy, of the right kind, correctly supplied in the relaxation circuit, so that the mental image can be turned into "work"; and (3) Bodies mechanically relaxed so that circulation of the blood and other bodily functions can proceed efficiently according to the mental image and at the lowest cost of energy. The more completely the six groups of factors are brought into play and the more perfectly they are handled as an integral whole, the greater, the more rapid and the more lasting will be the subjects' gain in health.

Secondly, I must emphasise that therapeutic suggestion must operate exclusively on the plane of mental reality and that it does neither involve nor require the actual immediate or early performance of the objective function involved in the image of the end action. The object of therapeutic suggestion is the subconscious direction of vital energy to subjective functions so that their performance shall develop the subjects' capacity for given objective functions. The actual performance of these objective functions as the immediate sequel to suggestion is the premature deflection of vital energy from essential adaptive metabolism to the exercise of an objective function for which the subjects' capacity has still to be developed. It is to be deprecated, and not only must time be allowed for the deep groving of the suggestion before the capacity aimed at is tested in actual practice, but subjects should be advised to postpone this test until a spontaneous

urge to make it informs them intuitively that their capacity for it is maturing. For example: if the subject uses the suggestion that he is running in order to improve his wind, he should persevere with suggestion alone for days or weeks and refrain from testing his wind in an actual run until the desire or urge to run spontaneously rises within him and he can say: "Now, I feel I would enjoy running, for its own sake; in fact, I *want* to run."

Thirdly, I must deal with a seemingly reasonable objection to suggestion to which I have already referred and which is so frequently voiced by intelligent and educated people that its wide currency must be taken as a measure of its need of correction. This objection runs roughly as follows:

"When I know full well that I am lying on my back, I am not going to deceive myself into believing that I am running a 100 yards race."

To this I would reply:

"When your nose is congested and you imagine it as free so that you may want to blow it and make it free, do you 'believe' that it is actually free before you have actually blown it?"

"No, of course not."

"No. But you know that you cannot blow your nose or even think of doing so in physical reality, until you have seen it free in mental reality. And if you remember the old tag: 'Seeing is believing,' you must actually 'see' and 'believe' your nose free on the creative plane before you can manifest its freedom on the physical plane. But here, 'believe' is used in the same sense as in that 2,000 years old pearl of psychological insight: 'All things whatsoever you ask and pray for, believe that ye have received them and ye shall have them' (Mark ii. 24—R.V.). Reality on the mental plane is not the same as reality on the physical plane, but belief in it must precede manifestation and it is the only mental 'fact' that has ever produced any of the physical facts ever engendered by man, be these small or great, good or evil, man-making or man-destroying."

CHAPTER XXIII

CO-OPERATIVE THERAPEUTIC SUGGESTION

I will summarise the factors which *help* co-operative suggestion to produce therapeutic results and co-ordinate these factors into a technique of group healing which will be simple to operate and economical of time and energy. As I do so, I shall refer again to hypnosis and discuss Braid's monoideistic theory.

The following factors *help* to make co-operative suggestion efficacious:

(1) The subjects rest in the "all in parallel" relaxation circuit, attention being paid to their right- and left-handedness, irrespective of sex (Figs. 12 or 13, pp. 76, 77).

(2) They rest on the back completely relaxed. In order to secure this last condition, the ability of all subjects to relax their voluntary muscles consciously is cultivated before they are allowed to participate in any large group relaxation circuit.

(3) Whenever possible, the number of subjects in circuit should not be less than six. It should not exceed that number unless most of the subjects have had previous experience of the circuit. Although better results are obtained with two subjects in circuit than with only one, the best results only develop with larger numbers.

(4) Subjects in excess of the number of available beds co-operate with the suggester by holding in mind the images which he may describe, and they thus reinforce him telepathically. The greater the number of silent telepathic co-operators the better.

(5) Subjects in circuit should not always be exclusively of the same or even of similar types or diseases. As the introduction of toxins into the blood stream stimulates the production of anti-toxins, so the introduction of abnormal frequencies or subjects into a group of normal subjects stimulates the radiation of curative anti-frequencies on the plane of vibrations. This does not mean that groups composed exclusively of "similars" are ineffective, for "similars" and "dissimilars" can both be mutual healers. Conditions alter cases, and the fact that whilst a specialised

suggestion might benefit all the members of a group of "similars" it might not suit some of their "dissimilars," must govern all questions of grouping.

(6) Whilst the immediate object of suggestion is the improvement of subjective function in the subjects in circuit, this improvement itself is only a means to the ultimate end that these subjects may become better adapted to their objective functions in life. A suggestion must therefore embody a mental image of the performance of one of these objective functions (or of one likely to adapt the subject to it) and this image itself must imply the performance of all the subjective functions involved in it.

(7) The suggester must himself live vividly on the plane of his own mental reality the objective function which he wishes his subjects to live on theirs; he must know and believe that the mental living of that function is curative both in logic and in fact, for only in this vividness, sincerity and belief will he find the wholeness and integrity which he needs to radiate his mental reality to his subjects telepathically.

(8) Before a suggester can expect his subjects to co-operate with discernment in a practical test of his technique, he must satisfy them that logically, it must be therapeutic. His argument, couched in simple terms, must convince by logic rather than by power of utterance.

(9) Before describing the objective function which he expects his subjects to perform mentally, the suggester must explain to them that although a suggestion may not be explicitly connected with sleep, it may nevertheless induce it, and that when it does so, sleep should be welcomed.

(10) He must also state his belief that whilst sleep is a legitimate object of suggestion it is not a legitimate means to predispose a subject to carry out blindly a hypnotic suggestion, and that reduction of consciousness can never be a legitimate means to suggestion, no, not even when the subject might be prepared to carry out the given suggestion if he were in a state of full logical discernment.

My conviction that whilst unconsciousness is a legitimate end for suggestion, it is not a legitimate means to it and my opposition to certain hypnotic practices do not rest either on my respect for the individual or on a sentimental shrinking from even a temporary diminution of his freedom. They rest on experience

both of the hypnotic method and of that which secures its results by the widening rather than by the narrowing of the subject's field of consciousness and by the sharpening rather than by the dulling of his logical discernment. This experience has overcome any preference I once felt for the hypnotic technique by demonstrating to me that anything which has any real and permanent therapeutic value (and a deal more besides) and which can be achieved under hypnosis, can be gained by the logical discernment method and can be gained by it without any of the less desirable reactions of the post-hypnotic period.

In my deprecation of hypnotism, I do not assume that the theories or practices which I criticise are general, but my argument demands that I should refer to at least some of them in order to contrast them with the "logical discernment" method.

(11) When, shortly after he had coined the word "hypnotism," Braid had retracted it and with it the implication that the reduction of consciousness and the dissociation which accompanies it were the *sine qua non* of successful suggestion, he substituted for hypnotism "monoideism," or the doctrine that the holding of one idea to the exclusion of all others was the effective agent in suggestion, whether hypnotic or conscious.

Carried to its extreme logical conclusion monoideism means that the most effective way of inducing a child to free his congested nose is to make him concentrate exclusively either on the idea that it is congested in physical reality or on that that it is free in mental reality, whereas, the idea of the desirable act of blowing it, can only be born of the polyideistic coupling of dissatisfaction at the congested nose and memory of and longing for the free. A comparison between at least two ideas is required before action, or adaptation to it, can develop even in imagination only; dissatisfaction and desire must combine and the stronger they are, the more urgent, powerful and effective will be both action and adaptation to it; and positive suggestion at least is meaningless without action as an end and adaptation to it as a means. The strength of dissatisfaction and desire does not rest on mono- but on poly-ideism and it is proportional to it, for the child who merely registers the fact that his nose is congested will be much more likely to let it go on dripping than the one who thinks to himself: "How much better I could breathe, run, climb, dance,

skip, laugh and sing if I had a free nose." The more numerous the objective functions which the child can imagine himself performing efficiently in mental reality, the more logical reasons he will have for desiring his mental realities, the more unbearable he will find the physical reality, and the sooner and the more efficiently he will blow his nose. True, before actually blowing it, he will pass through an *apparently* monoideistic stage of concentration on the act of blowing it, but that act itself is polyideistic and it is only made possible by the conception of an object which is urgent in proportion as it is polyideistic.

Action and monoideism are mutually exclusive; monoideism is static, it fixes the mind and suspends action, and if the latter does on occasions appear to follow from a single idea, appearances are deceptive. For instance, a racing driver may appear to be monoideistically changing from top gear to second, but actually he polyideistically prepares to accelerate or to decelerate as may be dictated by circumstances which have not yet developed but which he anticipates. Thanks to this one change of gear he will be better able either to accelerate or decelerate at will, and it is because he holds these or similar possibilities in mind polyideistically that he changes gears. No experienced driver would admit that his gear changes are monoideistic automatisms, for after emergencies he can generally recall "in slow motion," as it were, a multitude of ideas which had flooded his mind and made possible the seemingly flash-like selection and execution of the appropriate manœuvre.

To argue that whilst the conscious mind cannot produce action out of monoideation, the hypnotised mind can do so subconsciously, is to go against the facts, for a hypnotised subject who appears to carry out blindly a post-hypnotic suggestion of which he does not consciously remember the logical concatenation may implicitly reject both monoideism and a-logic when he innocently invents a plausible "theme," of ideas or events, by which he feels he is logically (?) justifying to himself and, if need be, to others, his seemingly illogical behaviour. To argue from this that his rejection of both monoideism and a-logic rests only on a habit of his conscious mind is to ignore the fact that, under a second hypnosis, he may recall, not the "invented" and plausible, but the actual "theme" which had in fact motivated him under the first hypnosis.

These second-hypnosis recalls of subconscious hypnotic motivation tend to show:

(A) That the explanatory "themes" successively advanced by a truthful subject in different states of consciousness, contradict each other in almost all, but not quite in all, details.

(B) That although one of these "themes" may be based on logically accepted premises, none of them need be.

(C) That whether or no his premises have been logically accepted and whatever his state of consciousness, the subject seeks "logical sequence" in his "themes."

(D) That both (or all) "themes" have their genesis in some identical, or similar, or related fact or idea.

(E) That the subject views this fact, or idea, successively from different "angles," or levels, or depths of consciousness.

(F) That from each level of consciousness the subject "sees" a different picture and can thus, and at a few minutes' interval, propound, with sincerity, two logical (?) but contradictory explanations of his behaviour.

(G) That at most levels of consciousness the subject is unconscious of his logical (?) concatenations at other levels.

(H) That there is a level of consciousness from which the subject can view or recollect and integrate the logical (?) concatenations of all his other levels, although it may not be possible to demonstrate this point in all experiments.

(I) That when post-hypnotic compliance with a "first-hypnosis" suggestion is purely automatic (a "reflex" or "electric short," as it were) the subject must have been, not relatively conscious, but totally unconscious, during that hypnosis.

Although the literature of hypnotism abounds in accounts of cases that make these various points clear, I may here give one example, out of many, which will illustrate how by passing from his normal objectively-aware level of consciousness to any one of the many dissociated levels on which he may be able to function, the subject may produce different logical (?) plants from the same factual or ideological seed. The subject of the experiment which I will now relate was my assistant, Miss Cameron. Miss Cameron is very sensitive, highly-strung, and acutely selective in her detection of objective influences, as has been shown in our drug tests. She has a great gift of sympathy which makes it natural for her to "get into other people's shoes" and take their

troubles unto herself. She is a keen and accurate observer and recorder of her subjective reactions and a punctiliously truthful woman. At the time of this particular experiment we had been testing the rapidity with which the reversal of the relaxation circuit could awaken a subject out of a deep trance produced exclusively by a prolonged rest in the relaxation circuit. We had already established that reversal of the circuit would quickly rouse a subject whom the strong and repeated suggestion to wake up had not affected, and we wanted to compare next the efficiency of circuit reversal with that of mechanical shock. It so happened that we were both free from one o'clock until 4.30 p.m., and we arranged that we should go our separate ways for lunch and get back in time to start our test not later than two-thirty. I returned at two o'clock, and in order to give subsequent happenings their full meaning I will give them a time-table which can only be approximate, since I had no time-keeper present and was too engrossed in what I saw and heard to note the exact flight of minutes.

At about two-fifteen Miss Cameron returned from lunch. As soon as I saw her, her demeanour, facial expression and dazed eyes, made it clear that she must have suffered some severe shock, and I prepared to minister to her. Very tense and shaken, she immediately gave me what I shall call "Theme No. 1." She was walking on the pavement on her way back to my rooms when she saw an old lady absent-mindedly step off the kerb just as a bus was fast approaching. Miss Cameron and others instantly yelled shrieks of warning, the old lady suddenly saw the bus, tripped and fell right across its path, a few feet from where Miss Cameron was standing. There was a fearful screech of brakes and tyres, the bus swerved violently, and by a miracle stopped a few inches from the lady, who then got up, badly shaken, but unhurt. I made Miss Cameron lie down on the treatment couch, in the relaxation circuit, and explained to her that "at the critical moment in her mind and in a flash, she had experienced what would have happened to the old lady had not the bus driver so skilfully avoided her. This explained her shriek at least as satisfactorily as did sympathy, and, after all, sympathy meant: 'feeling *with*' someone else."

Possibly because of the shock she had just experienced, Miss Cameron fell asleep quicker than she usually did in the relaxation

circuit and well inside five minutes she was in a deep trance. I kept her in the circuit for half an hour and at about two-fifty I tested the depth of her condition, in silence, by violently shaking her head, arms and legs, as I had often done before, but she just went on sleeping peacefully. Naturally (for the sake of polarity) I was careful to shake her right arm and leg with my left hand, and vice versa, and to oscillate her head with my left hand, both of us being right-handed. I then asked myself: "Could she stand a fairly heavy fall to the ground without waking?" I caught hold of her left hand in my right, dragged her inert body off the couch, holding its upper part and head off the floor until both her legs had thudded on to it. Then I dropped her head and shoulders hard enough to wake anyone without really hurting him. Still, she slept on happily! To make sure, I again lifted both her legs as high as I could and dropped them with an awful bang. No effect! There was Miss Cameron fast asleep and spread-eagled on the floor. Would tension polarity succeed where mechanical shock had so clearly failed? At about three o'clock I stood, placing my feet on either side of her head, right foot to right shoulder, meaning to lift her back on to the couch from behind, but, I had hardly touched her right and left shoulders with my right and left hands *respectively* (tension polarity) when she shot up and sat looking at me, rather puzzled at first, but apparently wide-awake. And then, after two or three seconds' hesitation and with unimpeachable sincerity, she gave me "Theme No. 2": She was walking on the pavement on her way back to my rooms when SHE absent-mindedly stepped off the kerb just as a bus was fast approaching. SHE suddenly saw the bus, tripped and fell right across its path. There was a fearful screech of brakes and tyres, the bus swerved violently, and by a miracle stopped a few inches from HER. She had then got up, badly shaken but unhurt, and come back to my rooms. However, when she had got there she had only just had the strength to walk upstairs and let herself in, and she had then collapsed on the floor of my room where I had just found her, unconscious. Clearly, Miss Cameron No. 2 who had just given me "Theme No. 2" knew nothing of Miss Cameron No. 1, or of "Theme No. 1," and she did not suspect that I knew them both. So, I played up to her, made her lie down on my couch in the relaxation circuit and told her that, after such a shock, what she wanted was a good

rest. Inside five minutes she was again fast asleep, and I decided to leave her in the relaxation circuit until she had "slept it off." I was writing at my desk, near the couch when, at about three-thirty, Miss Cameron stretched vigorously and sat up, apparently wide awake, and she immediately repeated to me "Theme No. 1" and then proceeded to tell me all that happened between two-fifteen and three, although she had been unconscious most of that time. When she referred to her innocent invention of "Theme No, 2." she did so with obvious amused indulgence and said: "Was it not interesting how when you woke me up and I couldn't understand what had happened to me, I gave you, and myself, a perfectly satisfactory explanation?" Clearly, Miss Cameron No. 3 knew both Miss Cameron Nos. 1 and 2, and she knew that I knew them both. However, as she then yawned once or twice and still seemed a little tired, I told her that she might as well go on resting until our next patient arrived, and, once more I made her lie down on the couch in the relaxation circuit. Again, inside five minutes, deep sleep. At about four-fifteen, she woke up spontaneously and stretched, and as she began to speak, I asked myself which of the three of her I might be listening to? It was a 4th Miss Cameron! She gave me "Theme No. 1" again, *as though I had never heard it before*, but all that had happened between two-fifteen and four-fifteen had become non-existent, including her other selves. It took me some time to acquaint Miss Cameron No. 4 with her three sisters and this integration only proceeded by careful and guarded steps. And I underline the fact that whereas Miss Cameron No. 4 (apparently her "normal conscious") had only linked up with her Nos. 1, 2 and 3, with my integrating help Miss Cameron No. 3 (normally subconscious) had had spontaneous and direct knowledge of her Nos. 1, 2 and 4.

Does not this example illustrate the dissociated subject's instinctive urge (at all levels or in all states of consciousness) for logic, sequence, the cause and effect relationship, and the polyideism involved in the duality: cause—effect?

To sum up, monoideism is illogical, and it goes against the facts. As experiments show, the more polyideistic the presentation of a suggestion, the more numerous the mental images it calls up, the more muscles, organs and senses these images involve, the more all these factors cohere logically and the more powerful

will be the physiological reactions of the subject and the better will these adapt him to the performance of a given objective function. For instance, if the apparently mono- but in fact poly-ideistic suggestion: "Imagine that you are running a hundred yards race," releases say 100 units of physiological work per minute during one minute, it will release many times that amount per minute during many minutes if it is made more polyideistic and polysensory, thus: "Imagine that you are running on a hard sunny beach, and against five opponents. Feel the hardness of the sand, the heat of the sun, the bite of the wind; smell and taste the salt in the air; see and hear hundreds of brightly clad spectators cheering you on; and win the race in a tremendous final burst of speed. Have you got that picture? In all its details? Right, get ready to live it in your mind: one, two, three —go!"

Polyideism is of particular value when different subjects are grouped in circuit. One of these may have run many a hundred yards race, another may be a sailor rich in memories of salt breezes, another an actor to whom spectators are a great incentive, and yet another may have glowing recollections of tropical heat. The bare suggestion of a hundred yards race given to such a group will stimulate fully only one of its members, the runner, but the polyideistic and polysensory description of the race itself, the salt sea air, the spectators, and the heat, will induce each individual to respond with particular vigour to one special image and, as a result, to radiate to the other subjects in circuit specific vibrations which these subjects could not themselves have generated but to which they can and do react. It is good therefore to group in circuit dissimilars not only in type and disease but also in memories and abilities, and better still to include amongst the subjects one specialist in the function to be suggested. Experiments show that when, for instance, a brilliant sprinter joins a group of non-athletic subjects who are unaware of his prowess, their physiological reactions to the suggestion of a hundred yards race are amplified, not only whilst the sprinter is in circuit and "lives" the suggestion with them, but also thereafter, when they re-live the suggestion by themselves. Patients have volunteered remarks like: "I never got much out of that idea of running a hundred yards until last Tuesday's group, but since then, I get strong reactions whenever I think of it," this being said in ignorance of the fact that a great sprinter had joined that Tuesday group. This is evidence not only of the telepathic power of a specialist, but also of the reality, depth and permanence of the impression made on *conscious* subjects by their own physiological reactions to the vibrations radiated by this specialist when he was himself *conscious*. Would anyone claim that if instead of being conscious, logical and integrated whilst in the circuit, my subjects, the sprinter included, had been hypnotised, a-logical, dissociated and mono-ideistic, they would have benefited more from their imagined race, repeated it more easily when alone and produced more powerful and more adaptive physiological reactions when re-living it? No one has yet made such a claim *after* witnessing or taking part in these experiments.

(12) I have heard it argued that granting that hypnosis is merely secondary to mono- or poly-ideation, and that whatever can be achieved with it can also be gained without it, the use of hypnosis is nevertheless justified, for with its help a desirable change of behaviour can be induced more rapidly than with conscious suggestion. It is true that hypnotic suggestion does on occasions promote changes of behaviour with magical rapidity, but experience has convinced me that, generally speaking, rapidity of change of behaviour is not a proof of a lasting cure but rather a warning of an early relapse into former conscious or unconscious habits. Although the efficient performance of an objective function must always be the ultimate aim of all therapeutic suggestion, the practitioner should not suggest to his subjects the actual performance of that function as the immediate result of his ministrations. He should instead take as his immediate and limited objective the development of his subjects' capacity for that function and of their liking for and urge to it, by making them perform it in imagination only, but easily, efficiently, and pleasurably, and at any time but the present; and he should prefer the past to the future tense, for reasons which will appear later. By this imagined performance he will "condition" his subjects for an eventual actual performance, but he must do so rather with the "gradualness" of progressive evolution than with the suddenness of mutations, and he should leave it to his subjects themselves to recognise, spontaneously, when they are "ripe" for an acutal performance. Most subjects will "perform" in imagination *consciously* just as easily as they would under

hypnosis, and being conscious both of their imaginings and of their immediate physiological reactions to these, they will be able to repeat their mental exercises when alone and will do so with physiological reactions that will progressively "condition" them for the objective function in view. If I prefer the free association of psycho-analysis to the induced dissociation of hypnosis, it is partly because free association conditions its subjects for the objective functions of life progressively and gradually, partly because it is poly-ideistic, and partly because it tends to integrate the personality logically and in the light of consciousness; and the fact that "myognosis" promotes emergence more efficiently than does free association does not affect this preference.

On more than one occasion when discussing psychological treatment with practitioners who, like myself, had discarded hypnosis in favour of one form of conscious approach or another, we agreed that one of the most decisive reasons for our changes of technique had been the fact that frequently when we had thought that we had achieved a permanent cure by hypnotic suggestion the patient had returned periodically and demanded our help with progressive insistence. He would then generally present his difficulty in one of two ways; either he would say: "I can't do this, that or the other thing. You can make me do it, and I beg you to do so," thus implicitly recognising that far from strengthening the will, hypnotic suggestion often weakened it, and substituted for it a deplorable automatism which could only be maintained by the frequent intervention of a hypnotist who thus became no better than a drug habit; or the patient would say: "I know that you can make me do this, and I want to do it, but I want to know how you make me do it so that I can make myself do it," thus implicitly recognising and resenting unconsciousness, a-logic, dissociation and automatism, and displaying a healthy craving for consciousness, logic and integration, a craving which it would be the duty of the practitioner to respect, encourage and attempt to satisfy.

Since experience has led me to prefer consciousness, logic and integration to hypnosis, I will not discuss the various techniques enployed to dissociate the personality. I would, however, suggest to practitioners who favour insulin shock therapy that they might find this substance not only effective but also readily

controllable when administered in the relaxation circuit (see Chapters XV to XIX).

Let us now assume that a practitioner in charge of a group of subjects has established amongst them good conditions for efficient co-operative healing. His subjects who number, say, twelve, are all lying on their backs, relaxed, in the "All in parallel" relaxation circuit (Figs. 12 or 13, pp. 76, 77). The twelve subjects include dissimilars in sex, age, type, diseases, memories and capacities. The practitioner has conveyed to his subjects that he will presently suggest to them polyideistically some objective function which he wishes them to live in imagination and which he and his silent telepathic co-operators, of whom he has many in the treatment room, will also live in imagination. He has also satisfied them logically that by this conscious living of that objective function in imagination they will obtain in themselves, circulatory, respiratory and other physiological and metabolic changes, the immediate object of which is to condition them for that function, but that he does not expect them to perform that function actually, either immediately or at any other time, before they feel spontaneously disposed to do so. They realise that as a result of the physiolotical changes promoted both by the relaxation circuit itself and by their imagined objective functions they may feel a desire to sleep, and, accepting the practitioner's assurances that he will only use sleep as an end of suggestion and not as a means to it, they will welcome it as recuperative, constructive and creative. They will observe their mental activities and their bodily reactions to these and carefully memorise both for repetition when alone so that they may thereby sustain their own progress.

In these circumstances, what can a practitioner achieve? What has been achieved in fact? Before I answer this question, I will mention one thing which the practitioner cannot achieve. He cannot induce conscious subjects to relax in the tension circuit and if they are already in the relaxation circuit, he cannot induce them to remain relaxed when he reverses the circuit unknown to them. Even under hypnosis I have generally failed to induce subjects to remain relaxed in the tension circuit even when giving them the strong and sustained suggestion that they were in the relaxation circuit. In other words, even under hypnosis it is extremely difficult to reverse the

natural polarity of subjects of either sex who have consciously relaxed.

This is what has been achieved and can be achieved again by any good practitioners. Victims of acute insomnia of long standing have found recuperative sleep and have wooed it easily and without the use of narcotics which most medical men only prescribe with reluctance. Nervous, circulatory, respiratory, digestive and eliminatory disorders, headaches, high blood pressure, rheumatism, lumbago, sciatica, influenza, fevers and many other physical ailments have shown remarkable and rapid improvement, again without the use of drugs. Disorders of the personality and character have responded particularly well. I fully realise that this must read very much like an advertisement for a universal panacea, but this would hardly deter me from penning my words, for as any painstaking and thorough investigator will observe, the relaxation circuit coupled with sound and *positive* psychological treatment touches a fundamental and vital "X" in man, an "X" which physical medicine has not yet explored and the reality of which is not affected by scepticism however sincerely felt or vividly expressed.

Many years of practice have naturally produced some remarkable and, I confess, unexpected cures, but their description would in no way reinforce my argument, for it is the average result that matters, especially when it is produced by the technique and irrespective of the technician. But these years have also produced facts which were not only unexpected, but so surprising that it was only after several repetitions of them that I could begin to accept and attempt to explain them. I have mentioned a few of these and hinted at some others and I will now tell of three more and of how they came to light.

(1) One day, early in the thirties, I happened to be giving suggestion to a group of four patients in my then imperfect relaxation circuit. They had all reported feeling a lovely sense of peace and relaxation, and internal glow, when, meaning to increase these impressions and particularly that of internal glow, I spoke to them roughly as follows: "I now want each one of you to concentrate on the idea that the other three are radiating their life force into him through the copper wires and that he is receiving more and more warmth." Here was, or so I felt, a clear and positive suggestion of increasing warmth, and one therefore

which could produce nothing but "increasing warmth." Yet, to my intense amazement, all four subjects spontaneously, and practically together and immediately, reported a marked cooling off which was so intense that some of them actually shivered. Quickly, I surveyed the situation: "Correct wiring for the relaxation circuit? Yes. All relaxed? Yes. Correct positive suggestion? Yes. Accepted and faithfully carried out by all? Yes! Let us try the converse suggestion." I then said: "And now, I want each one of you to concentrate on the idea that through his own hands and the copper wires *he is giving* and pouring out the whole of his life force to the other three and making *them* glow." Almost instantaneously not only did all four patients report glow, but their breathing which had become shallow and tense became deep and slow. The suggestion of warmth had produced cold when conceived in terms of "receiving" and glow when in terms of "giving." Is there a fundamental psychical "X" in man to which it is truly and inescapably "more blessed to give than to receive"? Does the mere conception of grasping, taking, receiving, produce on the psychic plane what the electrician would call a "short"? Is it true that "He who giveth his life shall have it?" Is it the curse of mankind, nations and individuals alike, that we all want to get 100 per cent and to pay no more than 5 per cent for it instead of thinking only of service, of giving 100 per cent and of expecting nothing in return? In simple arithmetic, if A tries to take 100 apples from B's orchard, and B 100 pears out of A's, and each whilst wanting the other's 100 fruit will only give 5 of his own in exchange, and they fight, they will of course damage many of their fruits and move few from orchard to orchard, and they will spend much energy in fighting and destruction instead of in goodwill and nourishment, in "guns" instead of "butter." How much more economical and efficient it would be if A concentrated exclusively on carrying 100 pears to B's orchard, and B 100 apples to A's. They would destroy no fruit, and their fighting energy would be available for more ploughing and sowing and reaping. Each would feel gratitude and goodwill for the other, and each could understand the other . . . despite the boundaries and the fences . . . and the race and colour barriers. . . . And perhaps . . . they would pull down the fences! However, be that as it may, I repeated my experiment many times and now have no doubt that in the group

relaxation circuit, the thought of receiving warmth produces cold and that of giving it glow.

(2) This unexpected contact with an inverted economic code hidden in the psychic man turned my mind to what is pleasingly called "the higher things" and to the problem of the efficacy of prayer. I asked my group to pray God for more warmth instead of just concentrating on the image of it . . . and they got more warmth! Had God turned on a little more heat in reply to that prayer? I do not wish to appear either presumptuous or blasphemous, but it seems to me that God can only work by law and that His law decrees that the more we attempt to do with the conscious self, the more doubts and conflicts we arouse and the less we achieve, and that the more we entrust to the subconscious within, to the God whose Kingdom is indeed within, the more we release of the psychic energy which we ever dam instead by the striving of our inhibiting and self-seeking egos.

(3) Meanwhile, those who had got some warmth by concentrating on the image of it and had then found that they could get more of it by asking God to give it them, found later that they could get still more of it if, instead of *asking* God to give it them, they thanked Him for having given it them just as they would have done if He had already done so. Before we can pray for warmth, we must polyideistically register a lack of it on the plane of physical reality, and an abundance of it on the plane of mental reality, and, holding the two concepts, we must mentally see ourselves moving from the one to the other in terms of time. We can do this by mentally transposing the present objectionable cold and the future desirable warmth into the past objectionable cold and the present enjoyable warmth, but it is more effective to transpose both the present cold and the future warmth into past cold and past warmth, the warmth being "past" in the sense that it is conceived as having already been achieved and *gratefully* enjoyed for some "time." We gain more warmth more readily if we *gratefully* concentrate on the abundance of it on the plane of mental reality and conceive it as having been achieved in the past, than if we concentrate on the lack of it on the plane of physical reality and conceive its overcoming as still to be achieved in the future. The gain is due not only to the superiority of a positive over a negative suggestion, but also to the fact that

since our temperature control mechanism is managed subconsciously, by the God within, the concept "to be achieved," connoting effort, rouses the interfering, conflicting, doubting and striving conscious mind and its associates, the motor nervous system and the voluntary muscles, whereas the concept "already achieved," connoting rest, the Sabbath, the day when the work of the God within is done, stills the conscious mind, the motor nerves and the voluntary muscles, and leaves the field free for the subconscious to spend in it, uninhibited, not only its own energy but also that which the stilled conscious might have wasted, and to spend it subconsciously on the vaso-motor nervous system which controls circulation.

The practitioner should make his subjects perform their objective functions in imagination only, and in the past rather than in the future tense; in their minds they should already have achieved the perfect hundred yards, the perfectly free nose, and they should be able to look back on them *with gratitude*, for, as was said: "All things whatsoever ye ask and pray for, believe that ye *have* received them and ye shall have them."

It is by design that I end two consecutive chapters with the same quotation, the last to differentiate between the mental and physical planes of reality, and this to contrast "things" received in the past with "things" to be gained in the future, the idea "I have done, therefore I have received," with the idea "I will do, therefore, I must get," creative repose with consuming strife.

Would the reader now please close this book, put it back on its shelf and, peacefully relaxing in his chair, meditate for five minutes. Let him then decide to read on, and he will observe that before he can begin to get out of his chair in order to fetch the book so that he might read on in physical reality, he must already have read on in mental reality. This is the logical technique not only of the conscious mind with its objective work, but also of the subconscious mind with its subjective work. However, we constantly observe that the conscious mind is compelled to promote work in physical reality before it can produce objective effects. As a result, we find it difficult to believe that the subconscious mind can be induced to promote subjective work by the simple process of conceiving that work as already accomplished by the "God within" on the plane of mental reality and of *thanking* Him for it. And we find it still

more difficult to accept the notion that the God within must then be given time to do His work and must be trusted to do it and that it inhibits that work even to suggest that it should be done "now," and at once by the "mechanic without."

CHAPTER XXIV

ALIVE

I will now examine my twelfth and last witness: the fact that, my subjects being alive, life makes itself manifest in and through them. I cannot say that I have not already met this witness 'life,' or that he has not already given me interesting information! In fact, he accompanied all my previous witnesses when I questioned them, and, in one way or another, he was constantly giving them and me evidence of his presence.

More than once, when I thought that some other witness was giving me a complete explanation of some puzzling fact, "life" had butted in and said: "Mr. Detective, you seem to think that this witness knows a good deal; actually, he knows very little. He does not even realise, any more than you appear to do, that *I* am working him all the time. Haven't you overlooked me? Ask *me* a few things! I will answer any well-thought-out question, but I can't volunteer information on a point if it doesn't seem to you to matter, or if you already know everything about it! And remember, I can only give partial answers to partial questions."

Life has often spoken to me in these tones through some other witness to whom I was giving my exclusive attention, and I confess that I seldom realised that it was he who was speaking or even remembered that he was there at all. I must not therefore condemn others when they refuse to pay any more attention to him than I did at first.

Life always speaks the language of radiation, whatever other tongue he may appear to use. In order to receive his varied broadcasts we must therefore employ the apparatus best adapted to detect life—the living body. Since the human body is the most versatile and selective of all known detectors and interpreters of life, we must use it in preference to others. But, we must be ready to check with other bodies any information broadcast to us through the living man, whenever any animal appears able to render us such a signal service.

We want our human life detectors to give us significant, constant and reliable results. We must therefore choose the most sensitive and selective subjects from the available many—not a simple task. We must then remember that each individual is capable of many coincident activities. Some of these may inhibit his motor automatisms by their mechanical interference. Others may confuse his sensory apparatus by their blurring multiplicity. We must therefore induce and help each human life-detector first to relax his voluntary muscular system and then to concentrate on sensory observation. We must them allow him a control period of at least a quarter of an hour in this state of relaxed attentiveness before we dare use him as a life detector. During this period we must not deliberately submit him either to any of the specific radiations which we wish him later to detect or to the suggestion that they may be active, lest this might induce him unconsciously to produce his normal reactions to them and thus to mask his response to their real onset.

Further, in order to reduce to the minimum those of his reactions which might be due to suggestion (auto- or hetero-), we must, during actual tests, keep him ignorant of what is in fact being radiated. And, finally, we must meet the objection of telepathic suggestion by leaving some of our tests to pure chance, and by allowing investigators to ascertain what has in fact been radiated only after our human detector shall have disclosed to us what he has detected.

Let us now assume that we have gathered a number of congentially sensitive subjects. May we expect them, here and now, to achieve refined perception, high selectivity and accurate self-observation? No! With this, as with every other human gift, persistent training is required to develop fully even the most favoured subjects. Their natural susceptibility to the subtle stimuli which we expect them to detect and interpret must be "educated" before we can hope to integrate their findings into a coherent, logical and comprehensible whole. And even then, they and we shall need some apparatus.

However, before I describe the simple apparatus which I have used in my experiments with human and animal life-detectors, I will draw attention to a few simple phenomena of ordinary life which will, I trust, be checked by those who have not yet observed them.

An infant lies asleep in his crib. He holds his little *thumbs* in his clenched *fingers!* Why?

His loving mother stands watching by his side, her arms relaxed on the guard of the crib, and her hands hanging loosely a few inches from and pointing at the infant's head and tummy respectively. According to whether she stands on one side of the crib or the other, the infant's breathing is slow, deep and restful, or fast, shallow and restless. There is no contact between the mother's finger-tips and her beloved mite, only proximity, but of course, she thinks, she feels, she loves, she dreams, she hopes, she fears, and these attitudes of her mind make a difference to the babe's sleep. At times the variations in its unconscious behaviour are very marked as the mother moves from one side of the crib to the other, or passes from a happy to a fearsome mood, and the sensitive mother notices that her own body does not escape those variations! Why?

The infant awakens and the mother picks it up in her arms. According to whether she holds its head in her left hand and its little sit-upon in her right, or vice versa, there are again subtle variations in the infant's breath and tension, and in her own sense of inner peace! Why?

The child has grown. He is now five, a jolly, active little fellow, running after a ball. He trips up, falls, bumps his forehead on the ground and screams. His anxious mother runs up, gently lays the *inside* of her hand on the bruised forehead and the child seems to like this, for he calms down, stops crying, and goes on playing with his ball. His mother's hand felt *warming*, comforting, cosy, and, yes, healing, to the child! Why?

A few months go by, and as the child lies in bed, his little body consumed by fever, his tortured mother gently lays the *outside* of her hand on his cheek and the child seems to like this, for he calms down and his breathing becomes slower and easier, provided, of course, that the mother uses the correct hand and stays on one side of the bed. The mother's hand felt *cooling*, easing, and yes, healing, to the child! Why?

When instinct (?) fails to guide the mother and she places the inside of her hand on her child's fevered head, he seems to dislike this, for the hand feels warming and oppressive. But there are cycles in febrile complaints; there is the sense of cold when, though the thermometer is high, the patient shivers, and

the feeling of suffocating heat when the temperature chart is down; and signs and symptoms may get mixed. And, some mothers seem to know intuitively which hand to use, when to use the inside of it, and when the outside, and from which side of the bed. They appear to possess a sense of orientation relatively to the child's body, and the child knows when he likes the inside of his mother's hand and when the outside! Why? But, the sensitive mother who does these things does not know why she does them; she only knows it is "the way"! Why?

A few years go by, and the boy is now a healthy, normal young man to whom the feminine stands revealed under a new and somewhat surprising aspect. He discovers that his hand and that of a particular young woman seem to attract each other, and then, that he likes to hold hers in his, though it takes him some time of diffident investigation to ascertain that the pleasure is mutual. But one hand is better than the other. Stimulated by his experiments with hands, and possibly abetted by other promptings, the young scientist enquires into the problem of feet. Bold beyond all restraint, as all true seekers after light, he invites his fellow explorer out to tea, and they are thrilled to find that, under the table, their feet (lower polar terminals) confirm the pleasurable discoveries which they had made with their hands (higher polar terminals). Very naturally, they pursue their investigation of polar attractions (and sometimes repulsions) to its pre-ordained consummation: that other little investigators shall in turn face and endeavour to understand and solve the riddle of "the way" and purpose of Life! Why?

Many years have gone by, and the young man is now old, and sick and tired. He and his fellow seeker of earlier days still occasionally link hands as life has taught them it was good to do, and they still like it and seem to find in it peace and quiet and balance. They like it now not for the stimulant it used to be as much as for the meditative gratitude it arouses for so much that has gone before. Mostly, however, grandpa and grandma have grown to like resting apart with their hands clasped and their feet crossed, connecting polar opposites, much as when he was a boy he used to link the poles of his horseshoe magnet with a "keeper" before putting it away! Why?

To these many "whys" various superficial answers may be given, but they will only explain that human beings do these things

"because they like doing them" without explaining "why they like doing them" and as though that point simply did not matter. And I may be accused of having been tendentious in my description of a variety of instinctive (?) human linkages by suggesting that they may all have their *raison d'être* in quasi electro-magnetic bi-polarity. But, surely, enough has been written in this book to make this notion jump to the reader's mind without my help, and experiments which I will later describe will probably clinch the matter for him.

Every one of these experiments is simple and direct, and the apparatus required is not only simple, but inexpensive. It is therefore reasonable to hope that many of those who are interested in the intricacies of wireless detection, if no others, will not only repeat my experiments and verify my observations and findings, but also that they may devise new and more enlightening ways of inducing both human and animal sensitives to tell us a little more about life.

My apparatus consists of:

(A) Two or three pairs of copper handles fitted with from six to ten feet of insulated copper wire so arranged that the loose end of any wire can be connected with that of any other, out of sight of the subjects.

(B) Two or three pairs of copper mesh bands about two inches wide and eighteen inches to two feet long and similarly fitted with insulated copper wire.

(C) Half a dozen empty and sterilised glass bottles or jars of about pint size.

(D) A few test-tubes fitted as for the "Blind" drug tests described earlier and to which may be linked the loose ends of any of the insulated copper wires referred to in (A) and (B). Tumblers and hairpins would serve the purpose. (See Fig. 17, page 195).

(E) A few small doses of common substances or drugs, in solution, such as alcohol, tobacco, coffee, tea, salycilate of soda, Epsom salts, aspirin, sal volatile, chlorodyne, or any other that may be available. These may be used "blind" or otherwise, and whether subjects or operators do or do not know their normal effects on human subjects.

(F) One or more "pancake coils," a device well known to wireless investigators and in which a length of insulated copper

wire is wound around itself in a flat (pancake) spiral, with one loose end emerging from the centre of the spiral and the other from its outer rim. In electrical parlance, when such a coil is included in a circuit, the following effects will appear, among others:

(1) The total resistance of the circuit will be increased in proportion to the nature and length of the coil.

(2) The inductive capacity, and hence the natural electrical resonance or "tuning," of the circuit will be altered.

(3) Provided a direct current is flowing through such a coil, a bi-polar magnetic field will result on the two sides (really ends of a flattened solenoid) of the coil, and a north pole will result on one side and a south pole on the other. It is thought by many, though not accepted universally, that this bi-polar magnetic field will rotate in the same direction as the direct current in the coil and will thus form magnetic vortices on either side of the coil.

This is all the apparatus required. (See Fig. 20).

Experiments upon the 12th and Last Witness: the Fact that the Subjects in Circuit are Alive

Some of these experiments are most conclusive when made in a cool room, with the temperature not much above 50° Fahrenheit, although significant results may be obtained at higher temperatures. The subject's hands and feet should feel cold both to himself and to observers.

1st Experiment.

The subject has been resting on the back, on a couch, completely relaxed, for at least a quarter of an hour, his hands a few inches away from his body and his feet some eighteen inches apart, a position which will be referred to hereafter as "poles apart"! His breathing has developed a stable frequency and depth, but he feels cold and would appreciate a blanket, which is denied him. He is then asked to clasp his hands, fingers linked, over the epigastrium, and to cross his feet.

After a short while he observes that he feels slightly less cold, and that his breathing has become a little deeper and slower. This experiment is reversed and repeated two or three times, or until the facts are clearly established. Quite naturally, and, it seems, reasonably, the subject accounts for these phenomena

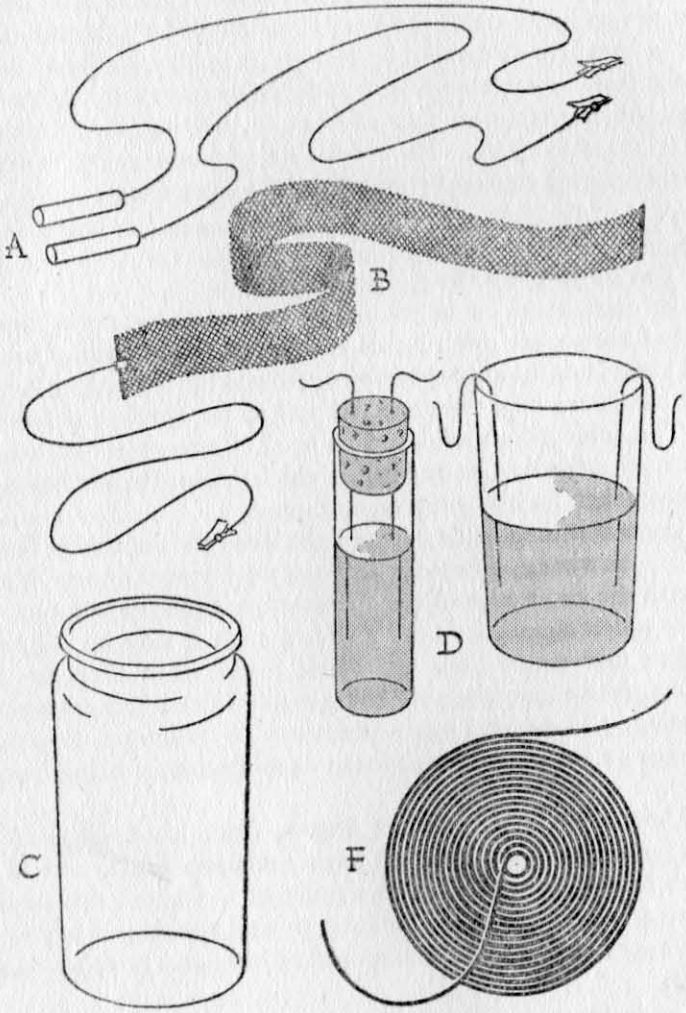


Fig. 20.—Apparatus described on pp. 341–2.

by the fact that having linked his extremities, brought his arms in contact with his body and his legs with each other, he has appreciably reduced his cooling surface. He is satisfied that this provides a complete explanation of the facts, knowing as he does that the temperature of the body is maintained by the circulation of the blood (as discovered by Harvey in 1628) with the assistance of the respiratory, vaso-motor and skin-evaporation mechanisms, etc., subjectively, and that of exercise, heating, ventilation and covering, objectively. He notes that all these objective factors have remained constant throughout the experiment.

2nd Experiment.

The subject is resting, "poles apart."

In each hand he holds lightly one of the copper handles. One of the copper mesh bands is wrapped round each of his feet and knees, but the six copper wires attached to the copper handles and bands are kept disconnected and as far apart as possible.

The subject feels cold and in need of covering. In time he reports that the handles and bands which felt cold at first now seem to have taken on his own temperature.

Contact is then made between the loose ends of two or four of the copper wires. These connections can be made either "blind" or with the knowledge of the operators, but the subject must not know which connections are made, though it may be suggested to him that connections are being made when they are not, or that given connections are being made when others are actually in being. These and other variations of technique depend on whether or not suggestion, spoken or telepathic, is being investigated.

After a while the subject knows, from his feelings alone, whether connections have or have not been made, and if so, which have been made. The significant fact about this sensory knowledge is that, as in the first experiment, the subject acquires it in terms of changes of *his temperature sense* and breath rate and depth.

For instance, if the left hand has been linked with the right hand and the left foot with the right foot, the subject will report an increase of *warmth* in all four extremities, the warmth gradually spreading to his whole system, and a slowing down and deepening of his breath. If the left hand has been linked with the

right hand, but the left foot with the right knee, he will report progressive warmth over his whole body, with the marked exception of his right leg below the knee. If the left knee has been linked with the right knee he will report that both his legs remain cold below the knees. If his left hand has been linked with his right foot and his right hand with his left knee, he will report that his left leg remains cold below the knee. And whenever, unknown to him, the operators pass from one circuit to another, his sensations will pass progressively from those suitable to the first circuit to those adapted to the second, and any part which has been left out of the circuit will register cold.

The subject's *sensations* of progressive and localised warmth and cold are real sensations occasioned by the making and breaking of given circuits, and not auto-suggestions. This is proved by the excess of correct "blind" guesses above chance expectation (*vide:* Rhine's E.S.P.). They are also objectively real sensations.

As I prefer versatile and live human detectors to specialised but dead instruments, I first tested the objective reality of the subject's sensations of warmth and cold in the circuit with the hands of other subjects. They reported that feet that had felt cold to them at the beginning of a test had remained cold when the circuit had been completed between the subject's knees, but that they had felt progressively warm to them when it had been completed between his feet. Since then, these and similar observations appear to have been confirmed by objectively minded though less versatile thermometers whose findings are unfortunately vitiated by the fact that they were registered by fallible human eyes.

Clearly, the circulation of the blood cannot alone explain *all the facts of temperature control* I have related, and we must postulate in addition a quasi electro-magnetic "X."

A torrent of new questions floods the mind: How does this quasi electro-magnetic "X" act on the body? Does the linking of some of its opposite poles provide the body with additional energy with which to function better in its entirety? If so, why is the sensation of increased warmth confined to those parts of it which are included in the particular circuit in force? Does this energy act directly and exclusively on local vaso-motor groups? Might this explain the localisation of the sense of

warmth? Does this energy act positively in the relaxation circuit and negatively in the tension circuit? Which way does this energy flow? What is its source? Does the physical body act merely as the conductor of a quasi electro-magnetic "X" emanating from outer space and secondary to cosmic and/or telluric rays? Or, does the physical body itself generate this "X"? Or, is there a quasi electro-magnetic or etheric body? If so, can it independently of the physical body, account for either the whole or part of the radiations detected, either as their generator or as their mere conductor, or as both? If so, which of the two bodies is fundamental to the other? If the quasi electro-magnetic or etheric body is fundamental to the physical, is it the vital, the conscious, the sentient, the thinking being, and the ruler of health and disease? We know that the physical body ages, ails, dies and decays, but does it alone do so or does it impose its own fate on its quasi electro-magnetic or etheric counterpart? Or does it age, ail and die as a mere reflector of the ageing, ailing and dying of this counterpart? Or does it die only when its fundamental quasi electro-magnetic or etheric ego or psyche discards it as a worn-out or irreparably damaged instrument, in order to live on, itself, free, elsewhere? Or do both age and disintegrate in ever perfect synchronism under the influence of yet a further "X"?

Speculation? Of course this is speculation! But how far do we get without it? And, speculation or not, can experiments be devised to shed any light, however faint, on any of these many new questions? Simple and direct experiments?

3rd Experiment.

The subject is resting "poles apart."

In each hand he holds lightly one of the copper handles. As he already knows from the second experiment that connecting his left hand with his right by means of copper wire gives him a sense of warmth and comfort, and since this fact is not now being investigated, he may be told openly that the circuit between his hands is being closed and that he may himself close that between his feet by crossing them at the ankle.

Clearly, since the copper handles and their respective ten feet of copper wire are identical and interchangeable it should not make any difference to the subject in which hand he holds

either handle! But, curiously enough, it DOES make a difference, and it does so in more than one set of circumstances.

As long as the twenty feet of copper wire lie on the floor in a regular semi-circle surrounding either the subject's head or his feet, it does not matter in which hand he holds either handle.

However, if the wire is made to pass under the head and spine of the subject, close to and parallel with them, and he holds in his left hand the handle attached to the head end of the wire and in his right the handle attached to the spine end of it, the subject displays and registers respectively the, by now, well-known signs and symptoms associated with the "relaxation circuit." If the position is reversed the subject enters the "tension circuit." And all this holds good whether the subject is right- or left-handed and male or female.

Clearly, not only does a quasi electro-magnetic "X" flow from hand to hand along the twenty feet of wire, not only does this "X" flow in a fixed and definite direction, but in flowing along the wire it surrounds it with a quasi electro-magnetic field of *moving* forces. And equally clearly, we can only explain the contradictory reactions of the subject to reverse arrangements of the handles by postulating that the physical body itself is also surrounded by a quasi electro-magnetic field of *moving* forces with the movement of which the hand-to-hand field harmonises or clashes according to the arrangement of the handles and wires.

But physical medicine has no evidence to offer on this quasi electro-magnetic, or etheric, or auric (aura) "field" phenomenon.

4th Experiment.

The subject is resting with his feet crossed; in each hand he holds lightly one of the copper handles and he knows that the circuit between these handles has been completed.

The wires have not only been connected, but as the subject rests they lie in a regular semi-circle surrounding either his head or his feet. And the subject feels comfortable, resting as he is in a "relaxation circuit."

Obviously, we could make the twenty feet of wire run to, say, one hundred, but twenty feet gives us something to play with, and apart from making the wire pass under and close to the subject's spine, we could tie it into knots, or make patterns with it such as, say, spirals. But if we like spirals, the ready-made

spiral of a pancake coil will save us a lot of trouble. So, we break the circuit between the subject's hands and, unknown to him, we insert in it one of our pancake coils, and we wonder whether he will notice any change in his sense of comfort and well-being? Well, it all depends! If he is right-handed he will register an increase of well-being when his left hand is connected with the outer lead of the pancake coil and his right with its inner lead, and progressive discomfort if this arrangement is reversed. But it will be the other way about if the subject is left-handed. And females react exactly like males, just as they do when the wire passes under and close to the spine.

Clearly, whereas nature differentiates structurally between physical bodies in terms of sex, she does so electro-magnetically between right- and left-handers irrespective of sex. This suggests that if the physical body does in fact conceal a quasi electro-magnetic or etheric body, this etheric body, which must be either right- or left-handed, must also be a-sexual and, if self-reproductive, not sexually so, unless sexual differences on the etheric plane of being (?) are in the nature of a "mass-difference" of sign, or potential, between males and females. Though it may be "other-material," this etheric body must still be material, and thus, at least three dimensional. It must function in time and space, whether it can or not do so independently of the physical body. Its functions presumably include the displacement of itself (a field of forces?) in any direction (in space-time?), its rotation on any of its three (?) axes (right- and left-handedness?) and the movement of its parts (etheric vortices, whirlpools?) relatively to each other.

But whether or not there is a quasi electro-magnetic or etheric body, whatever its relations to the physical, whether it is self-reproductive or not, whether non-reproduction is or not evidence of continuity, this first experiment with a pancake coil not only confirms that energy flows in a definite direction between hand and hand, but it also establishes that the direction of flow is from left hand to right in right-handers, and the reverse in left-handers.

And whether or not there is a quasi electro-magnetic or etheric body, physical medicine has no evidence to offer on the subject.

5th Experiment.

The subject continues to rest as in the fourth experiment. He holds one handle in each hand; the circuit is completed between them; the pancake coil, resting on one of its faces, remains in the circuit; and the subject's feet are crossed. If he is right-handed, his left hand leads to the outer end of the coil and his right to its inner end, and the other way about if he is left-handed. Thus, the subject is resting in a "relaxation circuit" and he enjoys in addition the effect which a correctly linked pancake coil has on the quasi electro-magnetic or etheric "X" which is flowing from one of his hands to the other.

The experimenters bear in mind that a pancake coil is surrounded by an electro-magnetic field of forces which rotates in the same direction as the energy which flows in at the outer and out at the inner end of the coil. They are aware that this direction of rotation remains the same as that of the flow of energy within the wire whether the pancake coil rests on one of its faces or on the other: e.g. the flow of energy is always from left hand to right with a right-hander, whether it spirals clockwise through the coil when this is one side up or anti-clockwise when it is the other side up.

Clearly, therefore, it should not make any difference to the subject whether a pancake coil correctly linked with his right and left hands rests one face up or the other. But, curiously enough, it DOES make a difference when such a coil rests on or near the subject's body.

We pick up the pancake coil from the floor without breaking the circuit, and keeping the same face of the coil uppermost, we gently deposit it on the subject's trunk. We allow the subject a little time to decide whether or not he "likes" the coil where we have rested it, and when he has decided, we slide it to some other spot, an inch or two away. If we are patient and continue these displacements, always allowing the subject to assess comfort in each new position of the coil, we end by finding:

(A) That there is a point of optimum comfort (O.C.).

(B) That, radially from the O.C. point, discomfort increases proportionately to the distance.

(C) That along certain radii maximum discomfort is reached at a certain distance from the O.C. point, beyond which distance comfort increases until a second O.C. point is reached.

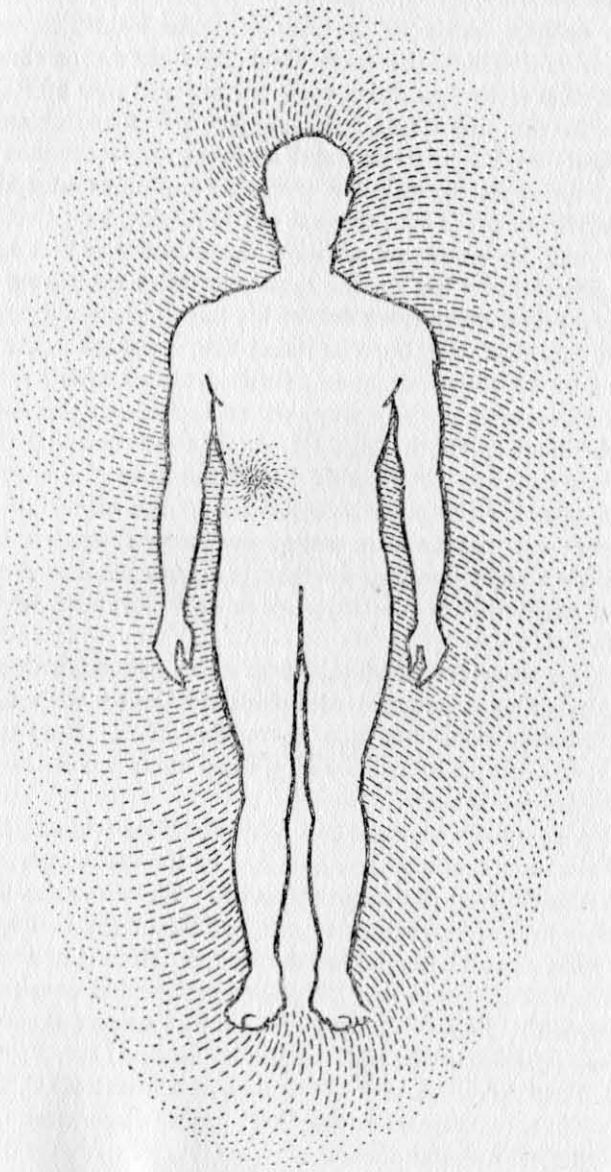


FIG. 21.—Illustrating the vortical field which, it is suggested, surrounds the human body, and recalls the aura of occultists, mystics and clairvoyants. One inner vortex only is indicated.

(D) That, radially from this second O.C. point discomfort is also proportional to the distance.

(E) That when points of maximum comfort have been located, comfort can be changed to discomfort by the simple reversal of the pancake coil, i.e. by placing "down" the face that was "up."

This experiment may be extended to cover the limbs, throat and head of the subject, when the phenomena observed in his trunk will be duplicated.

Naturally, this experiment requires patient and delicate observation, but when a trained sensitive makes clear and consistent reports, we are faced with facts which need an explanation. Could the reversal of the rotating field of forces which surrounds the pancake coil cause different and opposite reactions in the subject's trunk unless there were in that trunk itself and at nodal points in it, other fields of similar forces which rotated (vortices?) with or against the pancake coil field?

Do not the above five experiments recall the aura so frequently described by occultists, mystics and clairvoyants? Do they not combine to suggest that there may, in fact, be, for right-handers:

(A) A flow of electro-magnetic (?) force down the left and up the right side of the body (clockwise). (See Fig. 21), and also

(B) Clockwise inner vortices (one only illustrated) and

(C) The reverse for left-handers?

However, whether or not there are quasi electro-magnetic fields of forces rotating respectively around the body and within it, and whether, if there are such fields, they belong to the physical or to a possible etheric body, physical medicine has no evidence to offer on the subject.

Could we not devise experiments which might at least suggest in what direction we should look for that evidence?

CHAPTER XXV

THE MISSING LIMBS

People who have lost a leg, or other part, may periodically feel their missing limb even years after its amputation. A missing or "phantom" left leg may seem as real to them as the right which, they know, has substance.

We are told that this illusory feeling is due to traces of memory of the missing limb which persist in those parts of the nervous system which had been concerned either with its movements or with its sensations. But these memories of a leg that is no more have their peculiarities! The real leg may have been pulped in an accident, or gangrened after an infection, or torn off by a shell, but the patient seldom feels his imaginary leg as pulped, or gangrened, or torn off! He generally feels it instead as it had been before these unpleasant happenings. He may feel the cramp which used to attack him in bed, or the corn that was so painful, or the pleasant tingling that came over his feet when he sat by the fire after a walk in the cold. Memories of oft-repeated experiences are more persistent and more readily awakened than those of short-lived incidents. And, suggestive circumstances play their part in the selection of special memories for awakening at particular times and in recurring series. Not only the bed, the shoes and the fire-place, which the patient periodically meets or recalls, seem to evoke these special memories. The damp, the cold, the sun, a dry atmosphere, the "electricity in the air," all seem to press special buttons and to call up well-defined re-livings of past experiences. And these re-livings are so "real" that, at times, they make even inured patients wonder which is the truer reality, the leg in the mind or that which it recalls. And philosophers, too, dispute on relative reality, and they reach conclusions which would lose nothing in unanimity or finality if instead of amputation the contenders had suffered decapitation.

However, it is very reasonable that patients who have lost a

limb should still remember and thus feel it. It is in fact so reasonable, so much like what we should have expected to find, that one wonders whether we did not find it so just because we had expected to? Let us be unreasonable! Let us speculate whether a "something" in a missing leg may not, after all, be relatively real? And let us be consistent in our unreasonableness and devise new experiments on the assumption that, in objective fact, at least part of a missing leg may be relatively real.

1st Experiment.

The subject, who has lost his left leg below the knee, is resting "poles apart." In each hand he holds lightly one of the copper handles. One of the copper mesh bands is wrapped round each of his knees and one round his right foot. Where his missing foot would have rested on the couch, we stand one of our glass bottles, and around it we wrap a fourth copper mesh band. The six copper wires attached to the copper handles and to the copper mesh bands are kept disconnected and as far apart as possible.

The subject feels cold and in need of covering. When the copper handles and the copper mesh bands seem to him to have taken on his own temperature, contact is made "blind," between one or two of the copper wires on his left side and one or two of those on his right. After a while, the subject knows, from his feelings alone, which connections have been made, and, as in previous experiments, he acquires this knowledge in terms of a change in his *temperature sense*.

For instance, if his left hand has been linked with his right hand, and his left-foot-bottle with his right foot, the subject reports an increase of *warmth* in all four extremities, including the missing left foot, the warmth gradually spreading to his whole system. If the left hand has been linked with the right hand, and the left knee with the right foot, he reports progressive warmth over his whole body with the exception of his left leg below the knee. If his right hand has been linked with his right foot, and we place the loose end of his left-hand wire anywhere along his left leg (including the left-foot-bottle) and two or three inches away from the leg (real or missing) his feelings alone tell him at approximately what part of the leg the loose end of the wire is pointed.

2nd Experiment.

The subject, who has lost *both* legs below the knee, is resting "poles apart."

In each hand, he holds lightly one of the copper handles. One copper mesh band is wrapped round each of his knees, and one round each of the two bottles which take the place of his missing feet.

When the copper handles and the copper mesh bands seem to him to have taken on his own temperature, contact is made between his two hands, unknown to him, and he remains thus for a while, for control purposes. Eventually, contact is made "blind," between one of his two left leg wires and one of his two right leg wires. Soon, the subject knows, from his feelings alone, which connections have been made.

For instance, if his left knee has been linked with his right-foot-bottle, he reports an increase of warmth in the whole of his right leg but only down to his knee on the left. If his left-foot-bottle has been linked with his right-foot-bottle, both legs feel warmer down to and including the missing feet.

3rd Experiment.

The subject and all details remain as at the beginning of the second experiment. Contact is made through the wires between his hands.

About two yards away from the subject's feet, a second subject sits, facing him, and holding a copper handle in each hand. Both subjects may be either right- or left-handed, but they need not be, as long as their relative handedness and polarity are noted. A screen separates them so that they cannot see what connections may be made between them.

When both subjects report that the copper handles and the copper mesh bands seem to them to have taken on their own temperature, contact is made, "blind," between one of the two left leg wires of the first subject and the right hand of the second, and between one of the two right leg wires of the first subject and the left hand of the second.

After a period of observation the connection with the first subject's legs may be changed from knee to foot-bottle, or vice versa, unknown to both subjects; and/or the second subject's handles may be changed from hand to hand.

When both subjects are sensitive, well relaxed and experienced EACH can soon tell, independently of the other, "blind," and from his own feelings alone:

(A) Whether the circuit made is a relaxation circuit (e.g. right hand to left leg and vice versa if both subjects are either right- or left-handed), or a tension circuit (e.g. right hand to left leg if the subjects are of opposite handedness).

(B) Whether the circuit has been made between hands and real knees or between hands and foot-bottles.

Both subjects can tell (A) from their respective sense of comfort and relaxation or restlessness and tension, and from the automatic changes in their respective breath rate and depth.

Only the first subject can tell (B) from the distribution of his sense of warmth over his legs, but BOTH subjects can distinguish a circuit between hands and real knees from one between hands and foot-bottles, and each makes that distinction on a new and, I suggest, significant basis. When they compare their sensations of warmth and comfort and their breath rate and depth in the following three states:

(*a*) No circuit;

(*b*) Relaxation circuit between hands and real knees, and

(*c*) Relaxation circuit between hands and foot-bottles,

with each other, they find that physiological activity is normal in (*a*), stronger in (*b*), but strongest when real hands are linked with foot-bottles, as in (*c*).

Work requires energy; more work, more energy; most work, most energy. When two different circuits connect the same source of energy (our first subject) with the same mechanism (our second subject) in succession, and the mechanism does more work with one circuit than with the other, experience suggests that the lower output circuit interposes a "resistance" between the source of energy and the mechanism. In our particular case, is the real knee a "resistance" between an invisible knee and our second subject's body? Is it the linking up of an invisible body (our first subject's) with a visible body (our second subject's) which stimulates the latter to enhanced activity? Or, is it the linking up of two invisible bodies, with or without the intervening "resistance" of physical bodies, which stimulates both the invisible bodies (electro-magnetic, etheric?) to enhanced activity? Are the two physical bodies reagents on their own

accounts, or are they mere reflectors of the mutual stimulation of their invisible bodies? Does the linking up of two etheric (?) bodies with or without resistance merely stimulate the two physical bodies, or are etheric bodies the very life of their physical doubles? Is the etheric body (?) the LIVING body?

4th Experiment.

The subject and all details remain as at the beginning of the second experiment.

When the subject reports that the copper handles and the copper mesh bands seem to him to have taken on his own temperature, contact is made between his two hands, his two knees and his two foot-bottles. A period of observation is then allowed for control purposes. Eventually, a pancake coil is introduced in four successive ways (right-handed subject assumed):

(A) Outer wire to right knee, inner wire to left knee.

(B) Reverse of (A).

(C) Outer wire to right foot-bottle, inner wire to left foot-bottle, and

(D) Reverse of (C).

The subject prefers (B) to (A) and (D) to (C), and his preferences generally amount to strong likes and dislikes.

He also prefers (D) to (B), although he likes them both, and his preference is generally based on quantity and quality in his sense of warmth and comfort.

5th Experiment.

The subject and all details remain as at the beginning of the second experiment.

When the subject reports that the copper handles and the copper mesh bands seem to him to have taken on his own temperature, contact is made between his two hands, his two knees and his two foot-bottles. A period of observation is then allowed for control purposes. When the subject reports that he has become stable in the prevailing circuits and that he is ready to observe any changes in his sensations which might be caused by the introduction of new factors, the experiment proper begins.

Several different drugs or other substances, say half a dozen, have been placed in different test-tubes fitted as for the "Blind" drug tests described earlier. The tubes are identified by numbers

or letters only; no one in the laboratory knows which tube contains which drug; and the key to the letters or numbers remains sealed until after the experiment.

One test-tube, chosen at random is inserted in the circuit between the self-observing subject's foot-bottles (Fig. 22). It remains in circuit until the subject has assessed and described his symptoms. It is removed from the circuit only at the subject's request, when either his observations are complete or he finds his reactions too disturbing. When it has been removed, the subject is allowed a period of recuperation and a new test-tube is introduced only when, in the subject's OWN estimation, he has returned to normal and is once more ready to observe his symptoms.

The scientific reader will forgive me if I underline again rules of procedure with which I have already dealt in Chapters XV to XIX, and the necessity of which may by now appear obvious. I am compelled to emphasise their importance once again by the fact that superficial and inexperienced investigators have ignored them more than once. Assuming mistakenly that my "Blind" drug tests are invalid because my subjects decide when test-tubes are put in or taken out of the circuit, these investigators deprive their own subjects of safeguards which are essential to selective detection. They place a variety of drugs in circuit in rapid succession and irrespective of whether or not the effect of one drug has worn off before the next is administered. Naturally, the victims of such unscientific behaviour can only experience mixed or hang-over effects, which are generally followed by more or less marked and prolonged ill-health.

"Knowing when a test-tube is put in or taken out of the circuit" cannot help a subject to produce the correct reactions to a drug which is unknown not only to him but also to all his observers any more than knowing when a pack of E.S.P. cards is placed face down on the table can help that subject to name its top card.

The subject himself alone can know when he is ready to observe his reactions to a new factor or when he has sufficiently recovered from the disturbance caused by one drug to have become again a normal reagent to the next.

And here I should also remind intending investigators that the Telepathy Experiments described in Chapters XI to XIII

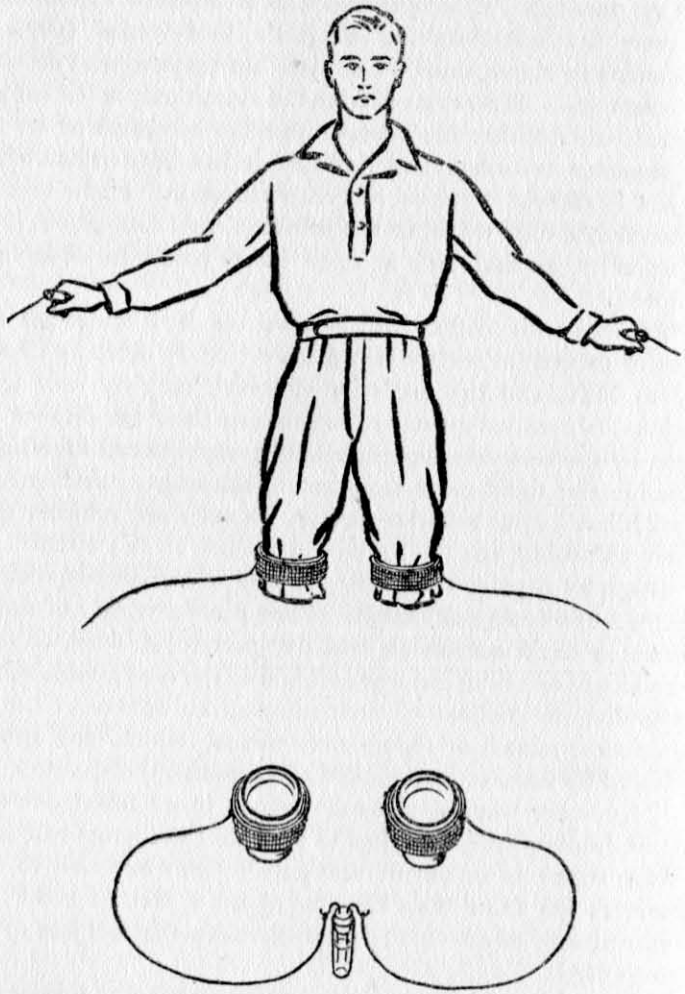


FIG. 22.—Subject with both legs amputated, copper-mesh-bands, copper-foot-bottles and drugs in series.

suggest that all observers should be and remain placidly detached during tests and that they should, in particular, refrain from forming mental images which might telepathically suggest specific reactions to the subjects in circuit. This rule grows in importance in proportion to the number of witnesses, and it is most easily observed when this number is reduced to a minimum.

When all reasonable precautions are taken, and especially when a sensitive subject is allowed to control the timing of tests, he generally displays remarkable correlation between his symptoms and the drug in circuit between his two foot-bottles. Then, if his correct "guesses" exceed chance expectation to a statistically significant extent, it is clear that there IS an objective relation between these "guesses" and the drugs between his invisible feet. (See Rhine's E.S.P.)

If the body of a subject who has had both legs amputated below the knee does in fact react appropriately to the frequencies (?) of drugs which though in circuit between his invisible feet are not directly connected to his visible body, several questions arise:

(A) Do such frequencies (?) act on his physical body directly through space? or

(B) Do they act only on his electro-magnetic (etheric?) body and does this in turn act on the physical?

(C) When drugs are ingested or injected, is their total effect the sum total of their action on different parts of the physical body exclusively? or

(D) Is their total effect the sum total of an action which is partly on the physical and partly on the etheric? or

(E) Is their action on the etheric fundamental to their total action on the physical? Could we consider the latter action as purely reflective of the former? In practice, can we address ourselves primarily to the etheric?

I am not prepared to dogmatise, or even to draw conclusions, and will not venture beyond speculation, and for two reasons. My first is that my main object is to stimulate research: on the electro-magnetic "X" of which this book suggests at least the reality; on the nature and function of that "X"; on its apparent a-sexuality and right- and left-handedness; on its possible non-self-reproductivity and durability (?); on its communication with other different or similar "Xs"; on the interdependence and

oneness of all such "Xs", whether they substand man, animal, plants and the drugs derived from them, minerals, or, yes, even angels; on the possibility that such an electro-magnetic "X", an "other material" but still material "X", substands all that "matter" which vibrates slowly enough to impress our senses, an "X" which though material must be less material and more essential than that "slow" matter; an "X" which though essential cannot yet be essence itself.

My second reason for not drawing conclusions is that since hospitals are closed to me, I have found it firstly, extremely difficult to find subjects who not only had lost TWO limbs but who could and would co-operate in my researches, and secondly, impossible to obtain the collaboration of two such subjects at the same time and to make with them together the series of experiments with "FOUR foot-bottles" and no real limbs, which I have planned and which I consider indispensable before we can reach even provisional conclusions (Fig. 23).

The war has deprived many quiet heroes not only of two limbs but also of some of their sense of usefulness. Perhaps in some hospital some day, a keen investigator will give such cripples a new interest in life by making circuits between their four invisible feet, with foot-bottles, pancake coils, test-tubes and drugs. Such men, or women, might find existence more worth while again if they could thus join in the search for Truth. And it may perhaps encourage a seeker after that elusive quarry to embark on the venture which I have just outlined if I refer to two more details:

(A) When test-tubes containing, say, a salt, in solution, are used so that one electrode is always connected to the right-foot-bottle of a right-hander or to the left-foot-bottle of a left-hander, and its other electrode vice versa, a deposit often appears to form on one of the electrodes. Further, with certain combinations of chemicals, deposits appear to form on both electrodes. (See p. 288.)

(B) When a subject, lying "poles apart" with a test-tube in circuit between his foot-bottles, reacts to a particular drug with marked and clear symptom and breath changes, these changes may be annulled if it is suggested to the subject that he has raised both his legs to the vertical and that his "etheric" feet are therefore out of the foot-bottles.

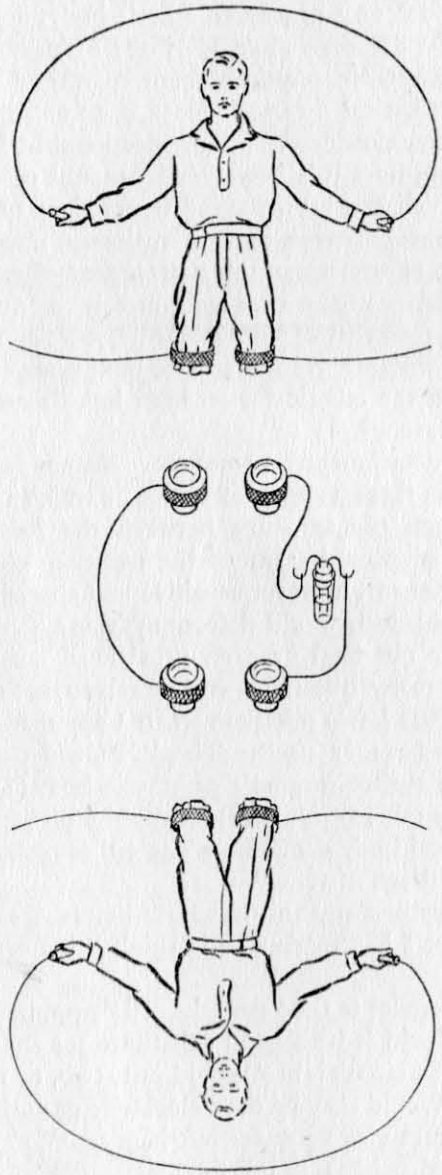


FIG. 23.—Two subjects with both legs amputated, copper-mesh-bands, copper-foot-bottles and drugs in series.

If there is such an entity as an etheric body, does this follow the psyche in its dreams and wanderings? Can its parts detach themselves from their physical counterparts? Can it detach itself from its physical double? Does it do so more or less in sleep or in unconsciousness, however deep and however caused? In normal sleep, does this detachment amount merely to a discoincidence which can be measured in fractions of an inch and yet be sufficient to cause and to maintain unconsciousness? In deeper sleep or trance can this detachment extend to yards or miles? In death, are we to see merely a more complete "detachment" than that of sleep? Or must we accept *it* as "the end" for both bodies? Is the etheric body the psyche or must we look behind the etheric for an even less "material" though still material psyche?

If in sleep detachment becomes more distant as unconsciousness deepens, is there a depth of trance at which nothing would circulate through the test-tube between the foot-bottles? At which no deposit would form on the test-tube electrodes? At which no instrument, however sensitive and specialised, whether human or mechanical, would detect anything?

Whether or not final or even provisional answers are ever found to these many questions, and whatever these answers may be, it is clear that I was mistaken when I assumed that my 12th witness might be LIFE itself. The "X" which I was cross-examining, the electro-magnetic or etheric body (?), a whirlpool of forces in the ether of space (?), cannot be LIFE itself any more than the physical body can. Both can either make life manifest or be manifestations of IT. Which?

I had recognised my mistake long before I started writing this book. But I had made it, and think it better to record the fact.

Note.—Reference to the "pancake coil" prompts the following questions: "Would it be a good substitute for the copper mesh mats used in the circuit?" "Would one, two, or many of them be used?" "Would they be used clockwise or anti-clockwise for right-handers and vice versa for left-handers?"

CHAPTER XXVI

CONCLUSION

In Chapter VI of this book I enumerated the factors which I thought might have contributed to the effects which I had observed in my experiments. I had, at first, found eleven such "witnesses," but later, Maby had convinced me that I ought to add at least a twelfth: "External radiant energies," to my list:

1. The circuit.
2. Myself.
3. Horizontality.
4. Relaxation.
5. Conscious thought.
6. Telepathy.
7. Number of subjects in circuit.
8. Drowsiness, unconsciousness and sleep.
9. Abnormal physical factors.
10. External radiant energies.
11. Suggestion, and
12. Life.

As I completed the examination of each "witness," I drew conclusions as to his share of responsibility for the phenomena I had observed. I must here note, first, that these conclusions were of limited applicability; second, that I may have overlooked some witnesses; and third, that even those twelve witnesses whom I have cross-examined have not given me all the evidence I might have wished. This is due partly to my limitations as a detective, but mainly to the fact that most of the information which is still lacking could be gathered and evaluated only by teams of specialists who would work in well-equipped laboratories and who would have at their disposal numbers of human subjects not only suitable in type and condition, but also able and willing to assist in research.

Although I have devoted some twenty-five years to my investigation, it is still in its early stages and whatever general conclusions I may now draw must be qualified by later work. Perhaps "conclusions" is too big a word and I ought to rest content with the more modest:

INTERIM OBSERVATIONS.

1. A number of radiations or other dynamisms, additional to those which affect the known senses, and disregarded by official science, act on the living body.

2. The living body reacts to some of these dynamisms in specific manners.

3. The living body possesses specialist sense organs additional to those normally accepted.

4. The techniques described in this book, when properly co-ordinated, offer means for the selective investigation of some of the actions and reactions in question.

5. Some of these actions and reactions are of therapeutic value.

6. Some of these actions and reactions are independent of direct contact between the agents and the reacting physical bodies.

The above six observations are amply justified by the facts established up to date and would be confirmed by further investigation. I hope that official science will repeat some of my experiments and will thus be induced to carry my enquiry much beyond this humble beginning in the study of co-operative healing.

APPENDIX

By J. CECIL MABY

The following notes and comments, prepared at Mr. Eeman's request, will, it is hoped, serve to bring the specialised data of the main text of this book into perspective with the more general biophysical picture to which they appear properly to belong, and thus assist the reader in arriving at a verdict. They are, however, necessarily brief (in comparison with the sum total of modern data which point the same lesson) and, in parts, somewhat speculative. But, in view of widespread misapprehension regarding the subject, it was felt that something of the kind was urgently needed as a corollary to a monograph of this sort, especially as stress of war and world shortages have prevented the publication of such data, to which the author might, otherwise, have referred in support of his arguments.

Nature of the Supposed Radiations.

The rays and forces postulated by the author would appear to be susceptible of both guidance by linear conductors, as in "wired wireless," and of propagation across space or through electric insulators, as for ordinary Hertzian radio and other electro-magnetic "ether" waves. So that one may assume that we are dealing here with a perfectly normal, physical wave radiation detectible by instruments. And such detection (see below) has, in fact, already been achieved in a variety of ways by other workers, including the present writer.

In the first place, it is now known that both corpuscular and wave radiations of various types and frequencies, depending on the atomic and, apparently, nuclear, structure of the excited source, are emitted more or less continuously and "spontaneously" by all bodies, irrespective of vital activity. So that the classically radioactive materials are not, really, unique in this sense, though they are abnormally unstable and especially liable to disruption and decay. And this fact has lately been admitted by advanced

physicists, thus confirming the general thesis of dowsers and radiesthetists, using physiological methods of detection that surpassed in sensitivity our former physical instruments. So that the natural *existence* of such "electronic" rays need be no longer in doubt, scientifically. Much detailed work, moreover (see footnote 1), has already been done on this problem, as a special branch of electronics; though, owing to the war, little has yet been published.

Meanwhile, modern discoveries in Atomic Physics and Radio-electronics, X-ray analysis and cosmic ray research point the way, following upon the earlier investigations in classical spectroscopy and radioactivity. E.g. the *temporary radioactivity* of normally "inactive" materials when excited by the super-hard rays from the modern cyclotron, and the fluorescence and *emission of waves of characteristic frequencies* from substances bombarded by high-frequency gamma rays, as in the work of Barkla and Moseley. These are good examples of what the radiesthetist means when he asserts that "all matter radiates on its own specific wave-length"; only that it appears to do so more strongly if violently shock-excited or electrically oscillated by artificial means. But various cosmic and telluric rays of high energy (and their multiple secondaries), plus, perhaps, less violent electronic oscillation, however originated, may be thought to maintain the normal background of subtle radioactivity of non-living matter in general. And this can be shown instrumentally to be of very variable intensity from time to time and place to place in relation to various geophysical factors.

Such rays and their field patterns are now detectable by apparatus of special design, as lately devised by the present writer and his colleagues; though this is no place for a detailed exposition of such work. And various subsidiary and "background" reactions on certain delicate electric instruments, previously dismissed as "random," "residual" or "accidental," can be shown to result from rays and fields of this class. But, owing to the subtlety and variable intensity (according to time, place and certain critical distances and dimensions involved), and to the fact that they fall into "awkward" regions of the spectrum, the precise analysis of these radiations has proved to be a tedious business.

It appears, however, that this generalised non-vitalistic

radiation is compound in nature, comprising: (1) *Extremely penetrating, very high frequency waves of a gamma ray or near-cosmic type*, normally travelling in straight lines (apart from some diffraction, etc.), that possesses ionising and photo-electric characteristics, capable of affecting various electrometers, photo emulsions, etc. (2) *Much lower frequency waves of what may, tentatively, be called "electronic" type*, probably associated with fast-moving and oscillating electrons, that may fall into the infra-red to ultra-short Hertzian wave-bands, and which appears to obey the ordinary laws of electro-magnetic optics (reflection, refraction, interference, polarisation, etc.); and (3) *Ionising electric corpuscles* of various velocities and penetrating powers. But the latter may be secondary to class 1, above, or merely due to general cosmic radiation and its concomitants.

In all this, moreover, there is evidence of a primary high frequency component, representing a kind of "carrier wave," on which there are superimposed a wide range of far lower frequency modulations and harmonics characteristic of the specific nature, dimensions, etc., of the objective sources of the radiation in question. (See footnote 2 and below.)

Electrical Nature of Nerve Impulses.

In the second place, on the physiological side, it is clear from instrumental tests (see below) in the last few years that living organisms also emit electro-magnetic wave radiations, which depend for their intensity and frequency on (*a*) general vitality and metabolism, and (*b*) immediate psycho-physical tone, and subject to both reflex and voluntary control. To this category belong the brain waves detected and electrically recorded (after high amplification) by Berger, Cazzamalli, Adrian and many others, which have been accepted by official science. So that Mr. Eeman is not responsible for an heresy.

It is, however, not yet quite clear whether Eeman is concerned solely with such electric energy externalised by the nervous systems of his subjects, and of intensity and frequency dependent on individual and temperamental make-up, mental activity, emotional and metabolic activity, feeling tone, etc. He may also be dealing with a proportion of similar radiation of the non-vitalistic kind previously mentioned, which will also emerge from the body organs and tissues of his subjects, copper connectors

etc.; including pick-up of generalised "electronic" radiation of the sort used by dowsers.

But it seems likely that either the basic nervous energy of the living organism or else extraneously applied electric oscillations should provide the fundamental "carrier wave" and prime mover in such experiments; though individual and specific frequencies will inevitably be superimposed thereon, and so modify and "colour" the simple energising effect. Polar phase will also be important, in a purely electrical and radionic sense, as he has, in fact, found when making the various body connections. So that persons may sense that they are "in tune" or "out of tune" mutually, either because their body radiations are of inimical frequencies (note effects of emotion, etc., in this connection) or because they are out of phase—waves out of step with one another, thus causing mutual damping of energy.

In any case, the whole situation is extremely complex: far more complex than even professional physiologists, such as Adrian and Cazzamalli, on the one hand, or psychiatrists and radiesthetists, such as Eeman and his collaborators, appear to realise. And it would appear that medical radiesthetists, working on radionic lines with electric receivers and transmitters capable of precise tuning (e.g. those of Wigelsworth and Drown) may be on the surest ground, so far. Though Eeman rightly takes into account the emotional and mental states of his subjects, which, as Prof. Adrian and others have shown, may very greatly modify the intensity and even quality of the vital impulses. Nervous impulses and their internal or external effects are certainly as complicated in wave form and "meaning content" as, say, the sound-track of a motion picture film or the modulated Hertzian wave-train of a television transmitter. So that superficial applications and interpretations at this time will be worse than useless.

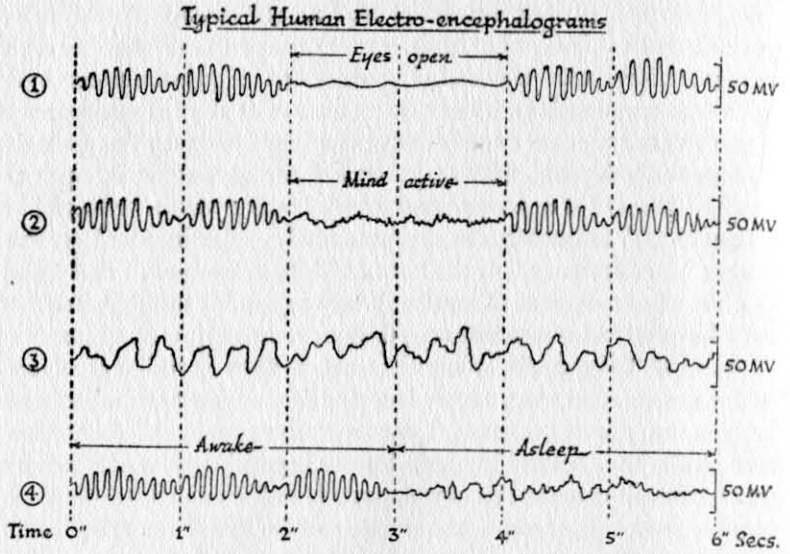
Recent analysis of nervous impulses, as first suggested by the work of the German scientist Berger, and followed up by Prof. Adrian at Cambridge and Prof. Cazzamalli, at Rome, has conclusively proved them to be electrical in nature; namely, very minute intermittent electric discharges along the nerve fibres, of uniform individual intensity, but widely variable frequency. And the latter depends on the intensity of the sensorially or psychologically actuated stimulus. Thus, the modern electro-

encephalograph, which picks up and amplifies and photographs such impulses from the brain or other parts of the nervous system, shows that the switch over from a quiescent cerebral state of somnolence and inattention to one of alert attention may cause the number of electric nerve impulses to jump from about 10/sec. to 2,000/sec., with an increased energy output in equivalence. And it has been asserted that "thought waves" of variable intensity and frequency are, in such a case, superimposed on the longer "carrier waves" of the normal "idling" output. But these electric effects do not, of course, really represent thought itself—only its physical concomitant. (See accompanying diagrams.)

Prof. F. Cazzamalli, using ultra-short-wave Hertzian receivers and suitable screening cages, has further shown that emotional broadcasts, which he terms "psycho-radiant reflexes" (concomitant with the better known, internal psycho-galvanic reflex) occur when human subjects are given a sudden shock to body or mind. And the present writer has shown the same thing both physiologically, using radiesthetic sensitives, and instrumentally, using a new instrument that will be briefly described at the end of this section. So that such nervous energy and "brain waves" can also be externalised and projected to a distance through space, as in spontaneous telepathy.

As B. J. Duffy (whose admirable book *Food for Thought*, Longmans, Green & Co., 1944, should be read by all who are interested in psycho-physical problems) sanely remarks: "The variation in the number of impulses of low frequency is obviously due to the variation in mental concentration, and is the physical result of psychical action. The modulations imposed on these stimulus waves are . . . merely electrical concomitants of data presented to the thinking mind." This is confirmed by my own tests with the new radio-electrometer (see below), and similar remarks are applicable to the psycho-radiant reflexes under emotional tension. And it is suggested that the resultant wave forms represent the integrated result of various "meaning frequencies," and are analogous to oscillograms, sound tracks and phonograph records of, say a musical programme or recorded speech.

As Duffy points out, a purely electrical theory of tuned resonators within the central nervous system, in place of the old idea of memory traces, "engrams," etc., may well satisfy the



(1) Amplified electrical record showing typical idling output of some 10 impulses per sec. from cortex of inactive brain (subject relaxed, eyes closed, mind "blank"), interrupted in middle period by opening of eyes. Visual attention and cerebration cause damping of normal "alpha waves," and very high frequency supervenes—not apparent on this record.

(2) Similar effect to that shown in graph (1), except that, instead of opening his eyes, the subject makes a simple numerical calculation during the middle period, indicated by temporary suppression of the so-called alpha rhythm, which is replaced by "thought waves."

(3) Type of (abnormal) record obtained from a brain tumour, showing the larger, so-called "delta waves," averaging about 3 per second.

(4) Change from "alpha" rhythm when awake to "delta" type when asleep, plus "sleep waves" of 12–14 cycles per second.

Note.—That the time base is given at bottom of records (vertical lines represent seconds intervals), and typical intensity of impulses (rising to approx. 50 micro-volts) is indicated on the right. The tracings shown here are not actual photographic or pen records, but diagrammatic representations of the general types of record obtained by physiological workers with the electro-encephalograph.

physical aspect of cerebration, reflex responses and recognition. But the type of mental image aroused by stimulation of such cerebral resonators appears to depend on the particular nerve fibres and cortical cells that are excited; each group and type being specific in its functional effects—as can be shown by crude electrical stimulation of the various sensory nerves and their associated projection areas in the brain. Whereas micro exploration of the cortex itself has shown that any given oscillatory frequency (within a certain range of tolerance) that is imparted to a peripheral nerve ending is more or less faithfully reproduced centrally.

Mental excitation or attention (see diagrams) damps out the long-wave, low-frequency oscillations (idling "alpha rhythm"), though the number of oscillations per second is greatly increased and the energy output to the muscles, etc., thereby amplified. Externalised output (Cazzamalli–Maby) likewise increases in states of tension, emotion or merely interested attention—especially in relation to *visual* activity, which creates a detectable electro-magnetic beam effect, as Dr. C. H. Russ pointed out in *The Lancet* some years ago, and as I have been able to confirm. (See below.)

Again, Dr. G. Crile, famous for his work in the U.S.A. on electrical bi-polarities in living cells and organs, has further demonstrated that the brain emits visible radiations; and he claims that there are both infra-red and ultra-violet rays incidental to consciousness. This falls into line with many past claims, by von Reichenbach, Kilner, Boddington, etc., on an electric "aura" around the human body, which Boddington investigated with an argon glow lamp, Kilner with dicyanine filters, and others by sensitive electrometers. And it is interesting to note that Gurwitsch's "mitogenetic rays" from growing plants, etc., were said to fall in the ultra-violet spectral region, whereas those of Cazzamalli (see above) belong to the ultra-short Hertzian range. So that we return to roughly the same two wave-bands as were deduced above from my own enquiries in relation to vital phenomena.

But such radiations are by no means exclusively physiological in origin, and the extremely penetrating nature of certain components removes them from the infra-red and Hertzian region into the gamma-ray or higher frequencies; and some of the

more easily recordable wave-lengths may represent only low frequency modulations and harmonics of a "carrier" of enormously higher frequency. One such wave-length which appears throughout the present writer's physical and physiological observations (instrumental) on these "electronic" effects is between 6 and 8 cms., with bigger "beats" at multiples of that wave-length. (See footnotes 1, 3, 7 and 10.)

Too many workers have participated in classical investigations of nervous impulses to be fully listed here, but names such as Sherrington, Eccles, Gasser, Erlanger, Graham, Hodgkin, Monnier and Matthews have been prominent recently, as well as men such as Ostwald, Bernstein, Lillie and many others in early days. Berger, Adrian and Cazzamalli have already been specifically mentioned.

Finally, it should be observed that the so-called mitogenetic rays of the Gurwitsch school of experimenters, which appear to have been amply confirmed by their effects on other growing organisms, such as root tips and yeast cultures, also fall into line with the Eeman-Abrams-Reichenbach hypothesis of vital radiations of considerable biologic potency. Whereas experiments with heavy metals, placed in close proximity to similar sensitive organisms, have proved the effects of the radiation from inorganic substances, under (presumably) cosmic ray bombardment. And the same class of rays can be detected by suitable electroscopes and ionisation counters (see footnote 3), on the one hand, and by those sensitive persons called dowsers, on the other.

Such reactions are subtle demonstrations of what has, lately, been officially approved in the medical field by radiologists utilising powerful ultra-violet, X-ray, radium and short-wave Hertzian sources. But in their case the specific effects due to *frequency*, though urged by a few workers, have tended to be swamped by the more generalised diathermic and ionising character of the rather gross dosages employed. Hence, the *time-intensity* factor has assumed prodominance in official reports. So that, from being a highly promising method of administering (perhaps) physical medicine in a specific and qualitative sense, modern short-wave therapy, or "diathermy," as some call it, has lapsed back into the old undifferentiated rut where only intensity and duration of dosage are thought to count. In fact, the latter technique is extremely crude.

If, however, a few more critical investigators, including those of the radiesthetic and "electronic" schools are not mistaken, more frequent or longer doses of far weaker intensity, *but specific frequency and kind*, may be all important; though mass treatment with intense X-ray, radium emanation, ultra-violet ray, infra-red (heat) ray and high-frequency diathermic devices are also of undoubted value for certain purposes. Notably, in the treatment of cancerous growths, tubercular lesions, skin diseases, rheumatic conditions and focal infections of various kinds. But the more subtle specific frequency treatment of the patient's whole body and nervous system, along the lines recommended in this and other books of like scope, may yet be found to predispose him to a more "natural" recovery by stimulating vital metabolism and eliminating certain states of internal discordance or electrical non-equilibrium in a way that the grosser forms of radio-therapy can never hope to achieve. A combination of both methods would, therefore, appear to be indicated, with drugs, injections and surgery as last resorts, or, at least, as subsidiary methods of treatment of disease; whether the latter be a functional disorder or a pathological and toxic infection. For, by building up the natural energy and recuperative functions of the living body and its nervous system, the depredations of parasitic bacilli, bacteria and viruses can undoubtedly be circumvented or reduced.

The opinion is growing that most disorders and diseases are attributable to a lowered and degraded condition of the body under which immunity from attack decreases and susceptibility to collapse of our natural defences increases rapidly. And the mind and the subject's emotional outlook play leading parts in control or else lack of control. The problem of maintenance of sound health is, therefore, always a joint psycho-physical one; and our prime duty, like that of a nation, is to maintain our natural defences. But that we can best do by *natural* means—by good clean living and rest. Second best, I think we may resort to a little outside and semi-artificial help of the kind recommended in this book, including a purging of our minds and emotions of festering thoughts, inhibitions, phobias, etc. Third, we may utilise dietetic aids, such as foods or capsules rich in certain vitamins and body-building substances. Last of all should we resort to drugs, injections and operations—the usual adjuncts of medicine.

My Own Position as Referee.

I have personally witnessed some of the chief effects described in the body of this book, and I have also set aside a considerable period of time to carry out a thorough preliminary examination of Eeman's claims in my own laboratory (see footnote 4); using fresh un-prejudiced subjects (normal and abnormal, male and female); with suitable automatic recording apparatus for pneumographs, sphygmographs, etc.; the results of which enquiry will be outlined below as a matter of general interest to the reader.

It may also be as well to point out that my own interest in this work is purely academic, and in no sense financial or tied up in any way with Mr. Eeman's personal practice; and when we have met it has generally been to argue in a friendly fashion.

Finally, it should be noted that the account of the blind drug tests, in so far as I briefly collaborated, and the chemist's reports on the results of those tests (see Chapters XV to XIX) have been carefully checked by me and found to be correct. This part of the work I consider to be especially significant and hard to belittle. And similar remarks apply, I think, to Eeman's tele-radiesthetic experiments.

Control Checks on Eeman's Results.

In my own series of experiments, devised to check some of Eeman's contentions, made at this laboratory in 1936–37, I carefully applied all reasonable precautions known to para-psychologists to guard against direct or telepathic suggestion, also, of course, against ordinary sensory perceptions leading, perhaps, to auto-suggestion of bodily reactions to the applied Eeman circuits. Telepathic transference of ideas between operator and subject, though in evidence in *some* instances (see footnote 5), could not possibly have been the cause of *all* the reactions observed. For we were careful so to arrange matters that the operator did not know (until the commutator switch was examined) exactly what cross-linkage of limbs was in force at the given time, any more than the subject himself did. Again, apart from a quick general reading of Eeman's instructions, I had purposely not studied beforehand what specific results were to be expected in each case; while additional complications (reversing the normal results) arose as a result of left-handedness in some subjects. So that, even if the subject and/or operator had been "clairvoyantly" aware of the commutator connections, they could not have foreseen what reactions to have expected. Yet the main body of data thus obtained definitely seemed to confirm Eeman's basic conclusions, as set forth in this book.

Bodily and Organic Polarities.

For some while, however, he and I were at cross-purposes regarding bodily polarities (see polar diagrams in main text) as determined by the Eeman technique, on the one side, and by electrical and radiesthetic means (which I have not space to discuss here) on the other. But a recent exposition by Eeman of his main polarities and a realisation on my part that I, like him, was getting confused, at times, by innate left-handers, in whom all the normal polarities appear to be reversed, have now cleared up this temporary disagreement. All methods of determining such polarities—which have, at least, some sort of electrical or electro-magnetic basis—thus appear to fall into line, which is very pleasing. Thus both Eeman's contention regarding inversion in the case of natural left-handers and also the ancient idea of "animal magnetism" are seen to possess a real physical basis, the significance of which in social and, especially, sexual relationships, Eeman has indicated in his own way (see footnote 6). And it would further appear that the relative intensity of the rays or emanations is by no means a fixed quantity, but varies from person to person and from time to time in relation to health, fatigue, inherent vitality, etc.

An important point should be noted here; namely, that "positive" or "negative" polarity is relative rather than absolute, much as in electrical practice. I mean to say that whatever person, limb or organ is most highly activated in the present sense relative to another person, limb or organ will tend to be classed as "negative." Thus a man's body *as a whole* may appear to be "negative" with respect to a woman's body as a whole, which will be called "positive." Similarly, though the one side of the body in a given subject will act as a "positive" pole, say, to the reverse side, yet there are also, apparently, secondary polar distinctions between the upper and lower extremities of a single limb; the whole organism being compounded from bi-polar elements, as biophysicists such as G. Crile have aimed to show by their life's work. And this

bi-polarity no doubt extends down to the lowest levels and the smallest cellular or even intra-cellular elements. It is, of course, indicated very dramatically in cell division and nuclear mitosis in which case stained and fixed preparations exhibit a clear bi-polar field between the dividing elements (so-called centrosomes, spindle, chromosome alignments, etc.), simulating a bi-polar magnetic or electric field and its associated lines of force. And I think that anyone who has carefully studied mitotic phenomena under the microscope must agree that we have here more than a bare analogy.

These polar distinctions may, therefore, be regarded as *relative* differences of electrical or pseudo-electrical potential; and it must be understood that the terms at present applied are only terms of verbal convenience pending fuller knowledge of such vital phenomena. But note that we are speaking here in objective physical terms, not in psychological or imaginary symbols.

It should, finally, be recognised that if the generally accepted bi-polar effects in the human body are admitted—as I believe they must be admitted by any serious investigator of the subject—and two right-handers or else two left-handers are placed face to face or back to back in contact, or near contact, then the various biophysical polarities tend to neutralise one another and cancel out; thus forming a closed system in which "short-circuiting" will eliminate externalisation and wastage of the given energy. (Compare the effect, by analogy, of paired bar magnets with opposite poles in conjunction and the use of "keepers" with same.) This effect may be expected to prove restful, comforting and beneficial, especially if the totalised energy levels of the two systems are about equal and the frequency of the hypothetical radiation in question is syntonised in them also—as would occur in the case of two persons who are in "tune," or sympathetic physical harmony.

Here, then, we have a physical basis to certain broad sensations between friend and friend, or, still more, between lovers of opposite sexes, provided they are well matched as to similar right- or left-handedness and to the other factors just mentioned. If not, only discord and mutual irritation and repulsion will result from such close contact, even though psychological and spiritual sympathy exist. And such instances of physical repulsion "for no apparent reason" are not rare, as everyone knows; whereas various degrees of physical attraction may be logically explained by the reverse conditions of appropriate body polarities and radio-frequencies, *ex hypothesi*. Failing some better explanation, therefore, we have here a very sensible and acceptable interpretation of such things. And the soothing and restful effect of crossing one's own feet and clasping one's own hands together (which tired, sensitive and elderly people do instinctively, the world over) is likewise understood.

Summary of Main Results of My Tests.

It is tempting to describe some of the more curious phenomena which my two assistants and I observed in the course of our check-up on the Eeman reactions. But as these merely repeated with variations what Eeman himself has recorded elsewhere with far more authority and detail, I must content myself in offering the following outline of our main observations in generalised form.

As a result of several hundred critical tests, as already explained, we concluded that:

(1) When certain parts of the human body are externally linked together as Eeman prescribes for a single subject, then certain subtle but more or less well-defined psycho-physical changes in the latter tend to occur; affecting, for instance, salivary and gastric activity, muscular tonus (local or general), the sympathetic nervous system, respiration and the cardiac cycle. In addition, concomitant psychological changes occur, as evidenced by the expression, speech and thoughts of the subject.

(2) Similar, often more marked, effects may be observed when two or more persons are cross-linked in suitable unelectrified circuits either by direct flesh contact or (perhaps less strongly) *via* flex-conducting wires. And what one almost invariably finds is that there is a right and a wrong way of making such connections, so far as comfort and contentment on the part of the subjects are concerned. Moreover, the same subject will repeatedly choose the same circuit arrangements, as judged simply by his or her bodily sensations after the contacts have been established for some little while; the opposite arrangement inducing spontaneous malaise and irritability, etc., as Eeman has himself found. A thoroughly relaxed state of mind and body is

essential to the best and most pronounced results (*without* hypnosis).

(3) There appears to be antagonism between right- and left-handers if connected in a single circuit in an inappropriate manner; it being, apparently, necessary to reverse all the normal (i.e. right-handed) connections for a left-handed subject. The relative intensity of the effects and so, presumably, of the emanating force, evidently varies on different occasions and with different subjects. But some subjects seem to be consistently stronger in their output of the hypothetical energy or rays; whereas others are weak as active agents, but highly receptive and reactive as percipients. And there is a broad indication that men, on the whole, are stronger "agents" and women more sensitive "percipients." ("Transmitters" and "receivers" in radio jargon.) Possibly neurotics, hysterics, dyspeptics, etc., are extra sensitive to such effects, also what radiesthetists term "dowsers," "diviners" and weather sensitives.

(4) Such reactions appear to run in cycles of activity with a tendency to some degree of reversal of the effects after a certain (? variable) lapse of time—as if the subject had become fully "charged up" and begun to produce a "back voltage," or as if the actual polar signs of the field itself had become inverted. (See footnote 7.) Possibly the turning point marks the optimum duration of "treatment" in a given circuit, to transgress which may be mildly harmful.

(5) When such linkages are made in the right sense, or organic polarity, between different individuals, increased emotional and mental sympathy may result between them with more or less of what has been called psychic *rapport*, over and above the general physiological effects. Muscle tone may also be very markedly affected and, I think, group strength. (See footnote 8.) But the right subjects in the right sequence and right state of mind, too, should be chosen for such experiments. (See footnote 9.)

(6) The inclusion in the human circuit of a specific, but (to both subject and operator) unknown drug apparently introduces certain specific effects in terms of physiological response; and initial experiments under very carefully controlled conditions, with Mr. Eeman's own assistance, made on two occasions at this laboratory, present a very strong prima facie case for the hypothesis of the Abrams "Electronic" school and the contentions of modern radiesthetists: that drugs, etc., do indeed emit some radiation or communicable emanation capable of producing in suitably sensitive and relaxed persons their proper, specific biological reactions.

These effects can, evidently, be transmitted along metal wires, and it appears that they may be enhanced by electrical oscillation of the drug in series with the detector subject. Though subtle, this remarkable effect seems to be definite and repeatable. Nor could the results obtained by us be attributed to either suggestion or telepathy, let alone normal sensory perception, which was, under the given circumstances, out of the question. But no more than a brief start has yet been made in this extremely important and promising field, though both Mr. Eeman and I have independently repeated similar effects several times and would have done much more but for the war. (See footnote 10.)

(7) The body polarities observed by von Reichenbach, Abrams and others in the last century, and now reaffirmed by Eeman, can also be confirmed by radiesthetic means by those human sensitives called dowsers and diviners, using rod or pendulum. The resultant "radiation" can, moreover, be conveyed by otherwise unenergised wires (being careful about earthing and insulation factors), and will even cause delicate responses in the most sensitive electric instruments, as a few medical investigators managed to show many years ago.

(8) In certain emotionally unstable subjects of artistic and hysterical temperament, such bodily polarities may be subject to periodic reversal—probably concomitant with lunar phases and the geomagnetic cycle associated therewith. Homosexuality may also be implicated here.

(9) Complete muscular relaxation, together with full maintenance of consciousness and mental activity (exclusive of *motor* activity), appears to be as important and beneficial as Eeman maintains; and hypnotic or other abnormal states are not necessarily involved in the technique. At the same time, I think there can be little doubt that the mere fact of bodily lethargy combined with a state of (in some instances) enhanced cerebral awareness and acuity might lead automatically to a highly suggestible and receptive state in, at least *some* subjects—especially those of an emotional, hysterical or morbidly hypersensitive temperament. So that, although actual hypnosis may be avoided,

and though direct suggestion of the Coué type may also be absent, nevertheless some degree of auto-suggestion of "benefits to come," relief from pain, etc., is unavoidable in the more amenable patient. The partly psychological (faith-healing) aspect of such treatment cannot—as Eeman concedes—fairly be denied. *At the same time it is equally my conviction that there also exists a purely physical and physiological aspect of the Eeman treatment, more or less as claimed by him, that depends upon the physical contacts and linkages employed and upon certain subtle radiations of a seemingly electro-magnetic kind, capable of transference along ordinary metal and other conductors. And the disposition of such physical circuits, their relative polarities, and the frequencies and intensities of the radiation apparently involved are evidently of prime importance to the results achieved by this particular form of psycho-physical therapy.* (See footnote 11.)

Observations with a New Radio-Electrometer.

Many years ago a Frenchman, Dr. Baraduc, devised a simple instrument, called the "Biometer," consisting of a long, light needle of non-magnetic (or diamagnetic) material, suspended by an unspun silk fibre in a draught-proof case, with subjacent graduated scale, that he claimed would respond to certain vitalistic radiations. One hand would, for instance, usually attract one end of the needle, whereas the other repelled it; and the amount of response appeared to vary from time to time and from one person to another. But it could, unfortunately, be shown that warm and cold dead or inorganic objects produced similar effects; so, too, did certain electrified objects. And, despite much enquiry and argument for and against a truly biometric factor, the issue remained in doubt.

Many other similar devices, consisting of weakly magnetised needles, paper cylinders, paper vanes and whirligigs of various forms were also devised by enthusiastic vitalists. But, though very clear, often violent and seemingly bi-polar responses, that looked to be related to health and vitality, were obtainable, orthodox physicists still insisted on electro-static, thermal, air-draught and turbine explanations of the resultant movements. And the obvious similarity of one form (the "windmill" variety) to Crookes' radiometer, or "light mill" was, naturally, indicated.

Yet these simple detectors continued to attract sporadic

attention among inquisitive people, among them Air Chief Marshal Lord Dowding (who recently wrote articles in the Sunday papers about such a rotating paper cylinder and its supposed detection of a "new force") and the present writer, who spent much time some years ago upon a careful examination of such claims. And about a year ago it was decided to try to get to the bottom of the business, applying all that is now known regarding short-wave radiations, etc. (see above), in relation to both living organisms and so-called "dowsing" effects. For earlier investigation had shown that there certainly *was* some unknown force at work, apart from ordinary heat, magnetism and electricity, a conclusion arrived at after the most cautious tests had been repeatedly carried out, that eliminated each normal factor in turn. E.g. air currents, molecular gas pressures, magnetism and electrostatic effects, severally, were disposed of.

The history of the present investigation (still in progress) cannot possibly be given here, as it would fill a large book, and the curious reader is referred to the *Journal of the British Society of Dowsers* (June and September 1945) for a preliminary account and discussion. The electrical theory of the vortical action, in a clockwise ("positive") or—when the polarity of the "electronic" field is inverted—anti-clockwise ("negative") sense, is also intricate and technical, and is bound up with the whole of "dowsing" theory. (See footnotes 1, 4, 6, 7, and 10; also *The Physics of the Divining Rod*, Maby and Franklin, published by Bell & Sons, 1939.)

It must, therefore, suffice to say here that, on the initial basis of the simple paper cylinder, balanced on a needle point through a light cross straw, and placed in draught-proof cylinder (which may be of any material, apparently, but open at the top or else very tall and thin), it has now been possible to construct a new form of radio-electrometer of extreme sensitivity. And this instrument unquestionably responds not only to the close proximity of the human hands (which might be warm, and so set up air currents), but also to *some form of electrical wave radiation*, of the kind discussed above, *capable of transmission across space* (one well-known electrical engineer, collaborating in this work, has got responses at up to 70 feet distance, so far) *and also of guidance by linear conductors.* And such radiation can be shown to be thrown out both by living organisms (see below) and by

simple electric oscillators, underground or piped streams of water etc.

More particularly these main points in respect of Eeman's theory and practice can be objectively demonstrated by the instrument:

1. Energy output from a given subject, limb or organ depends on general vitality, health and fatigue, other things being equal.

2. The different parts of the body exhibit bi-polarities in good accord with the radiesthetic, bio-electric, theory, causing opposite deflections or rotations of the instrument when suitably connected to it through wires from a distance, *provided a perfectly balanced electro-magnetic field is first arranged.* . . . Otherwise, the rotor gets biased in one or other direction, even though it does not actually move in advance of the connection.

3. Bodily output, as a whole, is greater from the front than from the back, and there appears to be a special *visual* effect; though this may be merely an increased energy output with visual attention, as in the electro-encephalograph records cited above.

4. Polar distinctions between male and female sexed objects and between right- and left-handed persons are indicated, as, too, between positive and negative (non-vital) electric poles.

5. Energy output is greatly increased with both mental and muscle tension. And there may even be a degree of polar inversion when relaxation changes to a state of tension.

6. Energy output is markedly greater from certain regions of the human body, other things being equal; and these appear to be referable primarily to the nervous system in a normal subject.

Several special forms of this instrument have been built, tested and demonstrated to engineers, doctors, physiologists and physicists, who have not expressed disagreement with my interpretations of the phenomena; though absolute stability and constancy of action in the face of various geophysical and local sources of energisation (which, unfortunately, are variable as to both intensity and polarisation) have not yet been achieved. So that it is not proposed, in this place, to give working diagrams, etc., pending commercial development of one or more forms of the instrument—especially as anyone can experiment with the simple paper cylinder and his two hands, for himself, in a warm, draughtless room.

But it should be noted that, in order to obtain good effects from

a distance, either by mental concentration or through wires and in relation to body polarities, etc., it is advisable to increase the natural sensitivity of the radiometer by simply balancing it on a very small electric lamp of from 5 to 25 watts, and enclose the whole thing in a square or cylindrical draught case with *open* top. Then, if the whole set-up is perfectly symmetrical and is placed in the middle of an empty room clear of electric apparatus, running water or emotional human observers, it should remain still until the field is upset by "electronic" energy of the kind under discussion.

But exact dimensions of the component parts, magnetic orientation, air temperature, the presence and movement of electrically charged clouds, etc., are all critical and complicating factors. So that, lacking proper construction and usage, such radiometers must remain scientific toys rather than precision instruments.

Heat is not essential, but it increases sensitivity (without creating any spurious "turbinative" movements, if there is no asymmetry in the construction); and between 80–100° F. is a convenient operating temperature; though really strong electric fields will give movements at much lower temperatures, provided friction, inertia, air-damping and electro-magnetic damping (due to the fields of neighbouring objects at certain critical distances) are reduced to a minimum. And settled anti-cyclonic weather is best for delicate tests, and the effects are weaker and/or more disturbed in stormy weather (draughts and temperature changes being excluded, *N.B.*).

Provided they are not tense or emotional, but only "passively interested," observers may watch from a distance of not less than ten or fifteen feet; and the instrument should be carefully insulated from earth and from electric mains.

Omitting individual values (for economy of space), the following are typical results of sets of ten readings in each group, taken consecutively under "quiet" and balanced electro-magnetic conditions with the latest model of this radiometer at the writer's laboratory. It will be seen that the sort of effects described by Eeman and other radiesthetists are clearly vindicated. And it should be noted (1) that polarity (direction of motion of the rotor) was constant throughout the series of readings, of which *averages* only are given; and (2) that no observations were made when the

radiometer was in a disturbed or unbalanced state—no spurious responses, that is to say. The readings given here are, moreover, typical of many thousands taken with many different subjects in a variety of ways. But the technique is, admittedly, not at all easy as there are many physical, physiological and even psychological factors to contend with. It is, however, perfectly objective and repeatable in skilled hands, and will be published in detail in the near future.

(*a*) *Test for Ordinary Bi-polar Electronic Response.*

Single lead from, alternately, positive and negative terminals of a 36-volt dry battery to central electrode of the radiometer.

Positive electric pole: Average deflection +62°.
(Range of variation: +42° to +108°.)
Negative electric pole: Average deflection −78°.
(Range of variation: −40° to −165°.)

Note that higher electric potentials give higher values; that the various parts of the instrument and connections can be earthed without stopping the responses (*not* an electrostatic action); and that condenser (air, or otherwise insulating) gaps in the circuit do not stop reaction (radio effect), nor is there any detectable direct current flow involved (*not* galvanometer response). But the general electric field must be kept stable and balanced in order to get fairly consistent readings of this kind. . . . Balance of the field, as judged by slight negative bias in the mean values, was not perfect in this case. But bi-polar distinctions are plain.

(*b*) *Test for Polar Distinction between Two Hands.*

Subject in, as nearly as possible, completely relaxed state of body and mind, hands (palmar contact) taken alternately; other remarks as above . . . Many hundreds of readings taken for this type of response with many different subjects, male and female, of which this is a typical set. Left-handers tend to give reversed effects.

Right hand . . Average deflection +117°.
(Range of variation: +22° to +450°.)
Left hand . . Average deflection −121°.
(Range of variation: −34° to −605°.)

Note wide range of variation, due, apparently, to vital and emotional states, variable interest and attention, as well as to geo-electric and "cosmic" factors, affecting instrumental sensitivity towards a given standard stimulus—which has not yet been overcome.

(*c*) *Test for Effects of Eeman-type Body Connections.*

One hand connected to radiometer, the other hand placed on either top or bottom of spinal column when the instrument has first come to rest after the initial instrumental contact. Other conditions as above. . . . These readings therefore refer, presumably, to energy picked up from top or bottom of spine or, at least, to altered output from the hand in contact with instrument when the secondary body contact is made. But note that similar reactions are obtained when the free hand is brought into contact with a plus or minus electric pole, or even with an object such as a fertilised (and electrically polarised) hen's egg, or a specimen of human hair. And the instrument can also be used directly (i.e. without human contact), in one model, for the detection of positive or negative electro-magnetic polarities of inorganic objects, such as chemical salts and solutions. These need not be radioactive in the grosser, classical sense, though it appears that bigger responses are obtainable when they are electrically oscillated or shock-excited.

Right hand to *top* of spine . . Average deflection +33°.
(Range of variation: + 20° to +62°.)

Right hand to *bottom* of spine . . Average deflection −37°
(Range of variation: −20° to −54°.)

Left hand to *top* of spine . . Average: −23°. Range: −8° to −63°.

Left hand to *bottom* spine . . Average: +45°. Range: +18° to +80°.

Note that opposite polar responses are obtained from *top* and *bottom* of the spine, respectively; that these effects are reversed when *left* instead of *right* hand is used; and that the reactions, in each case, from the *base* of the spine were higher than from *top* of spine. But the amount of response (on average) depends on contacting exactly the best spot; and merely moving the free hand in space without making a body contact does not cause such instrumental reactions. Contact by the operator's free hand with the appropriate parts of another person's body does, however, cause responses; and it has been found (in a preliminary way) that the directions and degrees of response in such instances fall into line with the general hypothesis advanced by Eeman in this book. But the whole thing would take up too much space if recorded fully here; my aim being simply to show that Eeman's general thesis appears to be susceptible of instrumental demonstration by some such means as this. Also the technique was worked out after his book had been completed.

(d) Test for Dorsi-ventral Effect of Body Field, Relaxation and Tension.

The subject sat at a distance of five feet from the radiometer, watching it *without* interested attention until it had been quite motionless for a minute or longer, using a mirror. He then focused intense visual attention, (*i*) without any muscular tension or sensible emotion, and (*ii*) with tension and emotion, on the instrument and observed the resultant deflection—which normally occurs after about 5–10 secs. delay and is complete within a minute. This was done both *facing* the instrument and *back turned*, observing it in a small mirror, taking ten readings in each state, alternately.

Facing *towards* radiometer . .	*Tense*: Av. +129° (Range: +48° to +290°). *Relaxed*: Av. −80° (Range: −18° to −264°).
Facing *away from* radiometer . .	*Tense*: Av. +71° (Range: +10° to +149°). *Relaxed*: Av. −57° (Range: − 22° to −153°).

Note that response was stronger facing the instrument, also when tense and mentally attentive, than in the reverse states, and that strong teleradionic (distant, unconducted) responses were obtained.

FOOTNOTES TO APPENDIX

By J. Cecil Maby

1. *Viz*: Work carried out during the last twelve years (with the help of physical, biological and mathematical colleagues) on the instrumental detection of the rays and fields related to Radiesthesia and Dowsing, and their application to practical problems of radio-location and diagnosis of subterranean objectives. Very considerable commercial success and accuracy have, recently, been thus achieved.

2. *Cf.* The so-called "psycho-radiant reflexes" invoked and instrumentally recorded by F. F. Cazzamalli and his colleagues a few years ago in Italian physiological experiments, that were found to affect special short-wave Hertzian receivers.

3. Instruments for automatic recording of electric rays and particles of a penetrative kind.

4. The Biophysical Laboratory at Bourton-on-the-Hill, Glos., dedicated in recent years to radiological (physical) and radiesthetic (physiological) research work, using the latest available instrumental methods of detection, recording and control on classical scientific lines.

5. Thus one receptive and "sympathetic" subject in a lethargic state twice picked up the tune "John Peel" when this was imaginatively whistled to himself by the operator *without any external sign or sound*, within a few seconds of the thought, and the result was clearly shown by his pneumograph tracing, using a special method of recording.

6. It is hoped to be able to publish an independent analysis of such polar relationships, etc., in due course, apart from Eeman's work.

7. My own work on non-vital electro-magnetic radiations of geophysical and/or cosmic origin suggests that such "polar reversals" may be related to physical phase changes under the control of the Earth's general field. Various automatic instruments are similarly affected.

8. Certain primitive tribes in Africa and elsewhere have long realised this fact, and used it for the communal lifting of relatively enormous weights which their joint strength is normally incapable of shifting.

9. Compare the phenomena of the psychic séance room and harmonious circle.

10. Recent investigation of similar specific frequency effects in respect of purely physical objectives and targets since the war has, however, advanced the general understanding of this subject a long way. The results of this work will be published as soon as conditions allow.

11. I have suggested that more marked and consistent results might be obtained by adding *artificial* energy. But Mr. Eeman does not agree to this proposal.

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