

JAMES JOSEPH WALSH

PSYCHOTHERAPY

James Walsh

Psychotherapy

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Содержание

PREFACE	6
INTRODUCTION	8
HISTORY OF PSYCHOTHERAPEUTICS	13
SECTION I	13
CHAPTER I	13
FIRST PHYSICIAN	13
PSYCHOTHERAPY IN EGYPT	13
MIND HEALING IN GREECE	17
ALEXANDRIAN PSYCHOTHERAPY	18
PSYCHOTHERAPY AT ROME	18
ARABIAN MENTAL MEDICINE	19
MEDIEVAL MIND-HEALING	20
MENTAL HEALING IN THE RENAISSANCE	20
PSYCHOTHERAPY AND MODERN MEDICINE	20
CHAPTER II	24
REMEDIES PLUS SUGGESTION	24
CHAPTER III	29
THERAPEUTIC PERSUASION	29
CHAPTER IV	36
CHAPTER V	38
ASTROLOGY	39
HERBAL MEDICINE	40
ALCHEMY	40
MATHEMATICAL MEDICINE	41
MAGNETISM	41
ELECTROTHERAPY	42
LIGHT AND PSYCHOTHERAPY	43
THE X-RAY	43
RADIUM AND RADIO-ACTIVITY	44
SUGGESTION AND PSEUDO-SCIENCE	44
CHAPTER VI	45
CHAPTER VII	51
CHAPTER VIII	57
CHAPTER IX	59
CHAPTER X	64
IMPRESSIVE PERSONALITY	65
SUCCESS IN HEALING	69
CHAPTER XI	70
GENERAL PSYCHOTHERAPEUTICS	75
SECTION II	75
CHAPTER I	75
CHAPTER II	82
CHAPTER III	88
CHAPTER IV	94
CHAPTER V	111
ATTENTION	111

MEMORY	114
UNCONSCIOUS CEREBRATION	115
ABSTRACTION OF MIND	115
PREOCCUPATION OF MIND	116
VITAL ENERGY BEHIND BRAIN CELLS	117
CHAPTER VI	120
SLEEP COMMUNICATIONS	122
PATHOLOGICAL SIGNIFICANCE	124
MENTAL RELAXATION	125
REMEDIAL MEASURES	126
CHAPTER VII	126
CHAPTER VIII	131
CHAPTER IX	134
FORMER METHODS OF HYPNOTIZATION	135
PRESENT DAY METHODS OF HYPNOTIZATION	137
PRACTICE OF HYPNOTISM	139
ANIMAL HYPNOTISM	142
DANGERS OF HYPNOTISM	142
SECTION III	144
CHAPTER I	144
CHAPTER II	145
CHAPTER III	150
CHAPTER IV	156
CHAPTER V	157
SECTION IV	161
CHAPTER I	161
Конец ознакомительного фрагмента.	167

James J. Walsh
**Psychotherapy / Including the History of
the Use of Mental Influence, Directly and
Indirectly, in Healing and the Principles
for the Application of Energies Derived
from the Mind to the Treatment of Disease**

PREFACE

"Prefaces are a great waste of time," said Francis Bacon, "and, though they seem to proceed of modesty, they are bravery." In spite of this deterring expression of the Lord Chancellor, the author ventures to write a short *apologia pro libro suo*. Five years ago he began at Fordham University School of Medicine a series of lectures on Psychotherapy. This book consists of material gathered for these lectures. It will be found in many ways to partake more of the nature of a course of lectures than a true text-book. In this it follows French rather than English or American precedent. Its relation to lectures makes it more diffuse than the author would have wished, but this is offered as an explanation, not an excuse. Addressed to medical students and not specialists the language employed is as untechnical as possible, and, indeed, was meant as a rule to be such as young physicians might use to their patients for suggestion purposes.

The historical portion is probably longer than some may deem necessary. The place of psychotherapy in the past seemed so important, however, and psychotherapeutics masqueraded under so many forms that an historical résumé of its many phases appeared the best kind of an introduction to a book which pleads for more extensive and more deliberate use of psychotherapy in our time. The historical portion was developed for the lectures on the history of medicine at Fordham and perhaps that fact helps to account for the space allotted to this section of the book.

So far as the author knows, this is the first time in the history of medicine that an attempt has been made to write a text-book of the whole subject of psychotherapy. We have had many applications of psychotherapeutics to functional and organic nervous and mental disease and also indirectly to nutritional diseases; but no one apparently has attempted to systematize the application of psychotherapeutic principles, not only to functional diseases, but specifically to all the organic diseases. A chapter on the use of mental influence in anesthesia was, during the course of the preparation of this volume, written for Dr. Taylor Gwathmey's text-book on Anesthesia, which is to appear shortly (Appletons).

No one knows better than the author how difficult is the subject and how liable to misunderstanding and abuse. He appreciates well, too, how almost hopeless it would be to make a perfectly satisfactory text-book of so large a subject at the first attempt. The present volume is founded, however, on considerable experience, on wide reading in the subject, and on much reflection on its problems. It is offered to those who are interested in the old new department of psychotherapy until a better one is available. The author's principal idea in the book has been to help students and practitioners of {viii} medicine to care for (*curare*) suffering men and women and not cases, to treat individual human beings, not compounds in which various chemical, physical and biological qualities have been observed, diligently enough and with noteworthy success, but incompletely as yet, and quite without the satisfying adequacy which it is to be hoped will result from future investigations.

James J. Walsh.
110 West Seventy-fourth Street,
New York City.

INTRODUCTION

To physicians who are students not alone of the manifestations of disease but also of the workings of human nature, there are few chapters in the history of medicine more interesting than those which record the welcome by each generation of the supposed advances in the treatment of disease. Each generation announced its cures for diseases, provided its remedies to relieve symptoms, and invented methods of treatment that seemed to put off the inevitable tendency toward dissolution. Yet few of these inventions and discoveries maintain their early reputations, and succeeding generations invariably abandon most of this supposed medical progress in favor of ideas of their own, which later suffer a like fate. Plausible theories have not been lacking to support the successive remedies and methods of treatment, but the general acceptance of them was always founded far less upon theory than upon actual observation of their supposed efficacy. Certain remedies were given and the patients began to improve. Patients who did not have the remedies continued to suffer, and sometimes the course of their disease led to a fatal termination. Even with the best remedies death sometimes took place, but that was easily accounted for on the ground that the disease had secured so firm a hold that it could not be dislodged, even by a good remedy. The connection of cause and effect between the administration of the remedy and the improvement and eventual cure of the patient seemed to be demonstrated.

The archives of old-time medicine disprove the notion that clinical learning and teaching—that is, observation and demonstration at the bedside—were not part of medical education until quite modern times. The medical books of the thirteenth, fourteenth and fifteenth centuries are full of descriptions of actual cases, while, over a millenium before, one of Martial's epigrams tells of a patient who dreaded the coming of his physician because he brought with him so many students, whose cold hands gave chills to the poor victim.

Coincidence and Consequence.—In spite of the opportunities for careful observation thus afforded and the facilities for training clinical observers in medicine, many remedies came into vogue, were enthusiastically applied, and then, after a time, went out of use and were heard of no more. Sometimes they were subsequently revived and had even a greater vogue than when originally brought out. But most of these remedies eventually went forever into the lumber room of disused treatments. Of the many thousands of remedies which had the approval and the praise of past generations, two score at most hold a place in the pharmacopeia of to-day.

There are many reasons for this initial success and eventual failure; but the most important explanation lies not so much in reason as in coincidence. In the majority of human ills there is a definite tendency to get better, and almost anything that is given to the patient will be followed by relief and improvement. The recovery is not, however, on account of the remedy, but occurs only after a definite succession of events that would have taken place either with or without the remedy.

Mental Influence.—What the old physicians did not, as a rule, appreciate, or at least failed to value at its true significance, was the effect upon the patient's mind of the taking of a remedy. Because of the confidence with which it was given, the patient, having full faith in the physician who gave it, became impressed with the idea that now he must get well. The very presence of the physician and his assurance that the illness was not serious and that many symptoms that were sources of dread to the patient were only concomitant conditions of the ailment, naturally to be expected under the circumstances, relieved the patient from worry, and so gave his nervous energy a chance to exert itself in bringing about improvement. In other words, the suggestive elements of the presence of the physician and the taking of his remedy were important therapeutic factors which enabled what was an absolutely inefficient remedy, as the event proved when closer observations of it had been made, to relieve even serious symptoms, or helped a weak remedy to accomplish good results by strengthening the patient's resistive vitality.

In recent years we have come to study much more closely this suggestive element and to appreciate better its true value. Suggestion has always been an important factor in therapeutics, but has been used indeliberately and indirectly rather than with careful forethought. Not that the great thinkers in medicine have not known its value and have not used it deliberately on appropriate occasions, but that the profession generally has been so much occupied with the merely material means of curing that practitioners have not realized the influence for good of the psychotherapeutic factors they were unconsciously employing.

The history of the phases of psychotherapy brings out clearly how much it has always meant in the curing of human ills.

Constancy of Psychotherapy in Medicine.—Though we are prone to think of it as coming to attention in our time, psychotherapy has played an important role in every phase of the history of medicine. It has always been at work, though usually under other names, and has been effectively used without conscious direction. Germs and their pernicious activity were not recognized before our time, yet many definite precautions against them, such as cooking of food and the keeping of perishable goods on ice, which now seem to be the direct result of our knowledge of bacteriology, were commonly practiced. The influence of the mind on the body exerted itself quite apart from man's recognition of its place or appreciation of its power. When employed unconsciously it was in many ways even more effective than it will be when a consciousness of the means by which it is applied becomes more general. For most people are unwilling to confess that their minds exercise as much influence as now proves to be the case, and that over-solicitude means so much in inhibiting the curative powers of nature, and that it is this which is favorably affected by psychotherapy.

The great physicians employed psychotherapy very commonly, and on that account many of their disciples were inclined to think that they were neglectful of medication and other remedial measures. At all times physicians have had to be large-minded and have had to recognize the limitations of medicine in their own time, to turn to other agents and to appreciate how much their own influence on the patient and that of the patient on himself meant for the relief of symptoms and the increase of resistive vitality.

Some of the phases of indeliberate psychotherapy, however, are even more interesting than this chapter of the history of genuine and deliberate psycho-therapeutics. Not a few of the remedies recommended, even by distinguished physicians, were utterly inert, yet accomplished good through their effect upon the patient's mind. If we were to omit all reference to certain favorite prescriptions that passed down from generation to generation, sometimes for centuries, yet eventually proved to be quite inefficient for the purpose for which they were employed, what a large lacuna would be left in the history of medical treatment! Galen's *theriac* is a typical example of this. Still more strikingly the role of psychotherapy is seen in the many remedies that were recommended at various times for such self-limited diseases as erysipelas, ordinary coughs and colds, pneumonia and typhoid fever. Anything that was administered just before the change for the better came in these diseases, or that was persistently taken until that change came, was proclaimed as curative.

An even more interesting chapter in the positive history of psychotherapy is that which shows how the value of genuine remedies was exaggerated by suggestion, and how these remedies became therapeutic fads, and sometimes almost seemed to be cure-alls. What a large place antimony holds in medical history, though it is now entirely discredited! How beneficent has venesection seemed, though it is now frankly confessed that it has but a narrow usefulness for a very circumscribed set of ills! Calomel in large doses has a history very like that of antimony. Alcohol in various forms, now so strikingly losing its hold in therapeutics, must also be placed in this category.

Psychotherapy has perhaps had its most fruitful field of potency in connection with discoveries in the physical sciences. Whenever a discovery has been made in any science, an application of it to medicine has been mooted by some fertile mind, though as a rule it eventually proved to have no place in medicine. One might ordinarily expect that the suggestion would be latent only when the discovery

was in one of the sciences allied to medicine, but this relation has not been necessary. Discoveries in astronomy even, in light, in electricity, in every department of physical science, have each been given their opportunity to affect patients' minds favorably, and have succeeded.

Irregular Phases of Psychotherapy.—The quack has always been a psycho-therapist *par excellence*. His main stock in trade has been his knowledge of men and his power to convince them that he was able to do them good, so that he could tap all the sources of energy that were in the patient, some of them quite latent, yet of great efficiency. Often what the quack and the nostrum vender did for their patients was calculated to do harm rather than good, yet the mental energy aroused by the appeal to the patients' minds was sufficient not only to neutralize the evil, but to release curative powers that otherwise would not have been called out. The advertisements of the nostrum maker have proved especially effective, and printer's ink, properly administered, has been a most potent remedy.

Drug Therapeutics.—Many of the newer phases of mental healing pretend to do away with drugs. Nothing is farther from my purpose than to condemn drugs: I am simply pointing out how much supposed drug efficacy has been due to the mental influence on the patient of the suggestion that went with the drugs. There has been no thought at all of pushing drugs out of the extremely valuable place they occupy in medicine, for I yield to no one in my thorough conviction of their usefulness. But the efficacious element in the administration of many drugs has been entirely the confidence of the physician in them, which confidence was communicated to the patient's mind. Undoubtedly many highly recommended drugs have in themselves tended to do harm rather than good, and have been useful only because of this psycho-therapeutic element. Dr. Oliver Wendell Holmes' famous expression, that if all the drugs that had ever been used had been thrown into the sea instead of put into patients' bodies the human race might have been the better for it, should not be taken to mean that a great many drugs are not efficacious. Above all, it leaves out the most important consideration, that patients, while taking drugs that are either inert or at times even slightly harmful, have had their mental attitude towards themselves and their ills so favorably modified by the repeated suggestion that the result has been distinctly beneficial.

There are probably two score of drugs that are simply invaluable—magnificent auxiliaries in times of physical and mental distress. To realize and appreciate the place of these drugs, their limitations, how they should be administered, and what they can do under varying circumstances, has taken us centuries. When to these drugs there is intelligently attached the influence that psychotherapy has over the patient, their efficacy is probably doubled. Without that influence nature often works against the drug and lowers its efficiency. That is the reason why physicians, when themselves patients, do not respond well to drugs. Familiarity has bred contempt for some of the old-fashioned remedies, but the contempt that comes from familiarity is often quite undeserved, and many of the things that we thus undervalue because of accustomedness have a power that should be respected. People in a dynamite factory become so familiar with danger as to despise it at times, but that does not lessen the energy of the dynamite when occasion arises. When the physician himself is ill he is likely to remember his failures with drugs rather than his successes. That is, however, only the tendency of human nature to a certain pessimistic outlook where we ourselves are concerned.

There is another class in whom familiarity with drugs has become a serious matter. They are the patients who have made the rounds of physicians, have learned to read prescriptions, have looked up the significance of the various remedies that they have seen prescribed, have heard doctors talk about them, and remember only what is depreciatory, and who critically examine a prescription and conclude that the remedies recommended are not likely to do them good. Every physician knows the hopeless condition such patients are in. Mental attitude will greatly help drugs, and it can utterly undo the effect of all drugs except those which have certain drastic mechanical effects. Drug failure in these cases is another illustration of how much psychotherapy means in connection with drug treatment.

Not only is there no intent, then, to lessen respect for drugs in this textbook of psychotherapeutics, but the one thing that the author would like to emphasize is the necessity for

giving drugs in sufficient doses. Recommendations in text-books of medicine are often vague in their indications as to dosage, and surprisingly small doses are, in consequence, sometimes prescribed. Practically the only remedial element of such small doses is the mental effect on the patient, whereas a combination of pharmaceutic and psychotherapeutic factors would be much more efficacious. It is not unusual to find that the patient who is supposed to be taking nux vomica as an appetizer or a muscle tonic, or in order to produce heart equilibrium in the cardiac neuroses, is getting five drops, two and a half minims, three times a day, when he should be getting at least twenty drops with the same frequency. I have known a physician to prescribe ten grains of bromid where thirty to sixty grains should have been prescribed, and such valuable pharmaceutic materials as bismuth and pepsin are often given in doses so small that they preclude all possibility of benefit except by mental influence.

With therapeutic nihilism or skepticism of the power of drugs I have no sympathy. As a teacher of medicine I have for years emphasized the necessity of the use not of conventional doses of drugs for every patient, but of doses proportioned to the body weight. It seems to me quite absurd to give the same amount of a drug to a woman who weighs a hundred pounds and to a man who weighs two hundred and fifty pounds of solid muscular tissue. I believe in using drugs well up to their physiological effects if the drugs are really indicated.

With regard to other modes of treatment the same thing is true. Where they are indicated, balneo-therapy, hydro-therapy, mechano-therapy, electro-therapy, massage, and all the forms of external treatment, should be used rationally and not merely conventionally. The individual and not his affection must be treated. In all of these methods there is a psychotherapeutic element, and for the benefit of the patient this, too, must be recognized and used to its fullest extent.

Supposed Novelties in Mind Healing.—We hear much of mental healing, of absent treatment, of various phases of suggestion, and of the marvelous therapeutic efficiency of complete denial of the existence of evil, and sometimes we wonder whether all these things are not offshoots of our recent growth in the knowledge of psychology. It is possible, however, to find, masquerading under the head of the efficacy of nostrums in the past, the equivalents for all the activities of mental healing of the present. It all depends on what is the scientific fad of the hour. If it is electricity, then some mode of electrical treatment serves the purpose of suggesting cure, and relief of symptoms follows. If drug treatment of any particular kind is attracting much attention, then the suggestion is most effective that is founded on this basis. Perkins' tractors or the Leyden jar are effective at one time, radium or the X-rays at another, sarsaparilla or dilute alcohol at another, while a generation that is much interested in psychology may find, as ours does to a noteworthy degree, quite sufficient favorable suggestion for the cure of many ills in purely psychic influences, either direct or indirect, deliberate or unconscious.

Men and women do not change, their ills are about the same, and except for certain definite scientific remedies it is only the superficial mode of treatment that differs very much. Psychotherapy has always been an important element in most of the therapeutics of history. With so much accomplished in the past by indirection, there can be no doubt but that important advances in psychotherapeutics must result from the extension of its deliberate use.

We have not yet reached a point in our knowledge of the mode of the influence of the mind on the body that will enable us to treat this large subject in a scientific manner. What has been written is set down rather as suggestive than conclusive. There is almost nothing that the human mind cannot do, its power ranging from the ability to delay death for hours or even days to causing sudden or unlooked for death under strong emotional strain. But we are as yet without definite data as to the possibilities of the immense power for good, and also for ill, that lie unrevealed in this domain. Anything that makes for observations by a large body of trained observers in a large number of cases will almost surely serve to bring about a development of this subject of valuable practical application.

Psychotherapy is open to large abuse. It will happen that men who are not trained in diagnosis will occasionally try to use psychotherapeutic means when what is needed is the knife, the actual

cautery, a good purge, some strong drug, or other efficient remedy whose value has been demonstrated and which any trained physician can use. It will also happen that men who lack tact will occasionally disturb patients' minds still further by what they say to them in a mistaken attempt at psychotherapy, and will sometimes suggest other symptoms and make sufferers worse by their clumsy attempts to remove symptoms that are already present. Every good thing, however, is open to the same objection. Even good food is abused. The use of drugs has been so abused that the abuse has done much to discredit medicine at many periods. There is a Latin proverb which says: "From the abuse of a thing no argument against its use can be drawn." We cannot prevent liability to abuse, and psychotherapy is sure to meet that fate. It has been abused in the past, and is abused now, and always will be abused, but formal study of psychotherapy and its deliberate employment will do more than anything else to limit the inevitable abuse.

If its place in history and in medicine is definitely set forth, its problems squarely faced and their solutions definitely suggested, it is much less likely to be misused. At least, then, the whole subject is open for free and frank discussion and for such additions and subtractions as may make this department of therapeutics as important, or at least in a measure as valuable, as climato-therapy or balneo-therapy or mechano-therapy or electro-therapy. The development of each of these subjects has proved helpful. It is true that each specialist has, in the eyes of his colleagues in general practice, exaggerated the significance of his own department. This is true in all specialties, however, and psychotherapy deserves quite as much as any of the subjects we have mentioned to have a place among the text-books of medicine; and so this one is committed to the judgment of clinical observers. Long ago Horace said:

Si quid novisti rectius his candidus imperti
Si non his utere mecum.

HISTORY OF PSYCHOTHERAPEUTICS

SECTION I

PSYCHOTHERAPY IN THE HISTORY OF MEDICINE

CHAPTER I

GREAT PHYSICIANS IN PSYCHOTHERAPY

"The real physician is the one who cures: the observation which does not touch the art of healing is not that of a physician, it is that of a naturalist."

Psychotherapy is as old as the history of medicine and may be traced to the earliest ages. The great physicians of all time have recognized its value, have used it themselves and commended its use to their disciples, though realizing its mysterious side and appreciating its limitations.

FIRST PHYSICIAN

The first physician of whom we have any record was I-em-Hetep, who lived in the reign of King Tcsher of the third dynasty of Egypt, probably before 4000 B. C. Among his titles, besides that of Master of Secrets, was Bringer of Peace. He was looked up to as one who, when not able to cure physical ailments, did succeed in consoling and reassuring patients so as to make their condition much more bearable. Like others of the great early physicians, he was after his death worshiped as a god, a tribute which probably signifies that those who had been benefited by his ministrations felt that he must have been more than mortal.

The extent of the Egyptians' admiration for him will be appreciated from the fact that the step pyramid at Sakkara is said to have been built in his honor, though, as a rule, pyramids were erected only to honor kings or the very highest nobility. The extant statue of I-em-Hetep shows a placid-looking man with an air of beneficent wisdom, seated with a scroll on his knees. It produces the distinct impression, as may be seen from the illustration, that his patients must have trusted him thoroughly, since this is the memory of his personality that was transmitted to posterity. While he came to be looked upon as the medical divinity of the Egyptians, he was never represented with a beard, which is the token of the gods, or of mortals who have been really apotheosized. Evidently his devotees felt that it was the divine in his humanity which was the most prominent feature that they wished to honor. Among the Greeks AEsculapius, who had been merely a successful physician, came to be honored as a deity. When we recall the condition of therapeutics at that time, it is evident that man's appreciation of his power to console, even though he might not be able to heal, of his influence over men's minds in the midst of their sufferings, and the confidence that his presence inspired, were the real sources of their grateful recognition.

PSYCHOTHERAPY IN EGYPT

Among the Egyptians the first great development of medicine came among the priests. The two professions, the medical and priesthood, were one, and the temples were the hospitals of the time. We have stories of people traveling long distances to certain temples in the early days of Egypt and also of Greece. Often the sick slept in the temples and dreamed of ways by which they would be cured. The stories make one feel that somehow the sleep which came over them was not entirely natural and

spontaneous, but must have been something like hypnotic sleep. As for the dreams, the suggestions of modern time given in the hypnotic condition seem to be the best indication that we have of what happened in those old days. Certain it is that the persuasion of the patient that he would get better, the influence of the diversion of mind consequent upon his journey and the regulation of life under new circumstances in the temple, with the repeated suggestions of the priests and of their various remedial measures, as well as those due to the fact that other patients around him were improving, all plainly show the place of psychotherapy at this time.

Much of the old-time therapy was in association with dreams supposed to have been in some way inspired. This was true at Epidaurus, at Kos, at Rome, at Lebene, at Athens, and at every place we know of where cures were worked in the olden times. To the modern mind it seems impossible that dreams should come so apropos unless they were in some way directed. The only explanation seems to be the use of suggestion, with the probable production of sleep resembling our modern hypnotic trance. Apparently the patient's attention was little directed to the origin of the suggestions received, but he remembered and benefited by them.

The most explicit testimony that we have to the antiquity of psychotherapeutics and to the employment of the influence of the minds of patients over their ailments in the olden time is in Pinel's "Nosographie philosophique" and in his "Traité médico-philosophique sur l'alienation mentale."

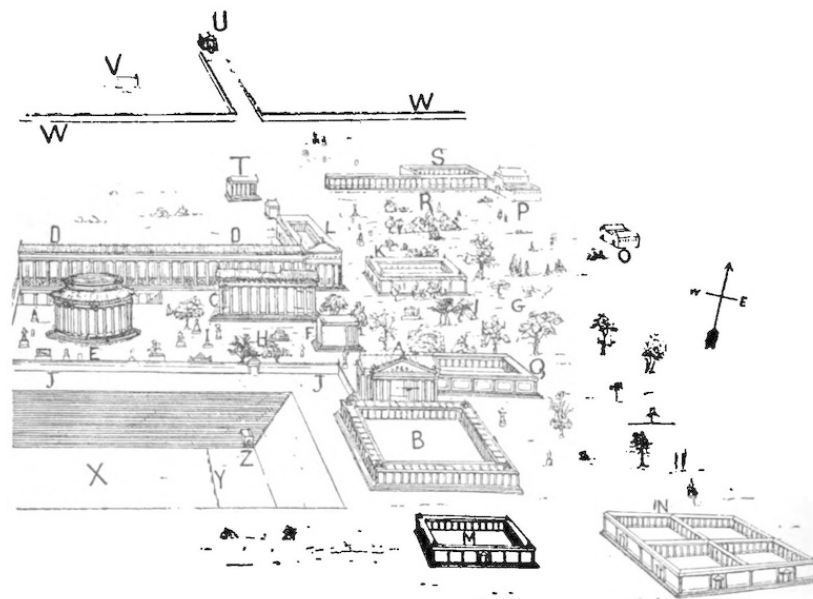
Pinel himself will be remembered as the great French psychiatrist who, confident that he could control most of them by mental influence, first dared to strike the chains from the insane in the asylums of Paris, at the end of the eighteenth century, when for more than a century they had been treated more barbarously than ever before in history. The passage makes clear that the writer himself, over a hundred years ago, was persuaded of the significance of the patient's mental attitude and of the value of mental treatment for many nervous and mental diseases:

An intimate acquaintance with human nature and with the character in general of melancholics must always point out the urgent necessity of forcibly agitating the system, of interrupting the chain of their gloomy ideas, and of engaging their interest by powerful and continuous impressions on their external senses. Wise regulations of this nature are considered as having constituted in part the celebrity and utility of the priesthood of ancient Egypt. Efforts of industry and of art, scenes of magnificence and of grandeur, the varied pleasures of sense, and the imposing influences of a pompous and mysterious superstition, were perhaps never devoted to a more laudable purpose. At both extremities of ancient Egypt, a country which was at that time exceedingly populous and flourishing, were temples dedicated to Saturn, whither melancholics resorted in crowds in quest of relief. The priests, taking advantage of their credulous confidence, ascribed to miraculous powers the effects of natural means exclusively. Games and recreations of all kinds were instituted in these temples. Beautiful paintings and images were everywhere exposed to public view. The most enchanting songs, and sounds the most melodious "took prisoner the captive sense." Flowery gardens and groves, disposed with taste and art, invited them to refreshment and salubrious exercise. Gaily decorated boats sometimes transported them to breathe, amidst rural concerts, the pure breezes of the Nile. Sometimes they were conveyed to its verdant Isles, where, under the symbols of some guardian deity, new and ingeniously contrived entertainments were prepared for their reception. Every moment was devoted to some pleasurable occupation, or rather a system of diversified amusements, enhanced and sanctioned by superstition. An appropriate and scrupulously observed regimen, repeated excursions to the holy places, preconcerted fêtes at different stages to excite and keep up their interest on the road, with every other advantage of a similar nature that the experienced priesthood could invent or command, were, in no small degree, calculated to suspend

the influence of pain, to calm the inquietudes of a morbid mind, and to operate salutary changes in the various functions of the system.

The Temple at Epidaurus as a Health Resort

This gives some slight idea of the magnificent arrangement of this famous health resort of the Greeks in which every possible care was taken to influence the mind of the patient favorably and bring about his cure. The buildings of the Hieron or medical institution of Epidaurus were beautifully situated about six miles from the town of Epidaurus in picturesque scenery and the most healthful surroundings. There were a series of bathing houses for hydropathy. The abatons, lofty and airy sleeping chambers with their southern sides and open colonnade, are singularly like the open balconies of our tuberculosis sanatoria. Every occupation of mind was provided. There was a theatre that would seat over 10,000 people. Here the great classic Greek plays were given with fullest effect. There was a stadium seating about 12,000 people in which athletic events were witnessed, finally there was a hippodrome for all sorts of amusements in which animals shared. Then there were the walks through the country, sheltered paths around the grounds for inclement weather, even tunnels for passage from one building to another and all the influence of religion, of suggestion, of contact with cultured priests thoroughly accustomed to dealing with all manner of patients. No wonder the place was popular and many cures effected.



THE TEMPLE AT EPIDAUROS AS A HEALTH RESORT

A, South Propylaea; B, Gymnasium; C, Temple of Esculapius; DD, East and West Abatons (temple enclosures); E, Pholos; F, Temple of Artemis; G, Grove; H, Small Altar; I, Large Alter; J, South Boundary; K, Square (building); L, Baths of Esculapius; M, Gymnasium and Hostel; N, Four Quadrangles (for promenade and exercise); O, Roman Building; P, Roman Bath; Q, Portico of Cotys; R, Northeastern Colonnade; S, Northeastern Quadrangle; T, Temple of Aphrodite (?); U, Northern Propylaea, on the Road to Epidaurus; V, Roman Building; W, Northern Boundary;

X, Stadium; Y, Goal or Starting Line; Z, Tunnel between Temple and Stadium.
(Caton.)

There are other phases of Egyptian medicine which serve to show us how early many of the psychological ideas that we now are trying to adopt and adapt in medicine had come to the thinkers in medicine of long ago. There is, for instance, now in the Berlin museum an interesting papyrus of the Middle Kingdom, the date of which is about 2500 B. C, in which there are many modern ideas. It is a dialogue which attempts the justification of suicide. The principal speaker, a man weary of life, has made up his mind to suicide, but is hesitant. The others who speak in the dialogue are his *secondary personalities*. The Egyptians considered that there were several of these interior persons with whom the man himself might have communication. A man could play draughts with his *ba* somewhat as we play solitaire. He could talk to and exchange gifts with his *ka*. He could argue and remain at variance, but more often come to an agreement, with his *khou*. This last was his luminous immortal *ego*, which, according to the then generally received Egyptian conception, formed a complete and independent personality. The whole scene thus outlined is typically modern in certain phases of its psychology, and presents the only known treatment for the tendency to suicide. While we have but this instance, there seems no doubt that the same system of persuasion must have been employed for the cure of other mental conditions than that which predisposes to suicide.

What is described in our quotation from Pinel as the most ancient form of psychotherapy has all down the centuries been the rule of life for patients at institutions similar to those of Egypt. We know more of Greece than of other countries; there the shrines of AEsculapius were in many ways what we now call sanatoria. They were spacious buildings pleasantly situated, the hours of rising and of rest were definitely regulated, the patients' minds were occupied with the details of the cure, they met pleasant companions from distant places, they had all the advantages of diversion of mind, simple diet, long hours in the open air and abundance of rest away from the ordinary worries of life. Besides, there had usually been some weeks or months of preparation during a lengthy journey and all the diversion of mind which that implies. No wonder that these institutions acquired a reputation for cures of symptoms which the physician had been unable to accomplish while the patient was at home in the midst of his daily cares and worries of life.

The temples in Egypt, in Assyria, in Greece, were much like the health institutions—"cure houses," as the expressive German phrase calls them—of our day. Pictures of the temple of AEsculapius at Epidaurus show a magnificent building with beautiful grounds, ample bathing facilities, and evidently many opportunities for a quiet, easy life far from the worries and bustle of the world and with everything that would suggest to the patient that he must get well. This phase of psychotherapy in the olden time is not only interesting in itself, but furnishes a valuable commentary on corresponding modern institutions, since it shows that it is not so much the physical influences, which have differed markedly at different periods, as the mental attitude so constantly influenced at these institutions which was the real therapeutic factor.

Now our sanatoria are nearly all founded on some special principle of therapeutics. Some of them have dietetic fads and no food out of which the life has been cooked is eaten. Some of them are absolutely vegetarian. Some of them depend on wonderful springs in their neighborhoods, others on certain forms of exercise, still others give the rest cure. All succeed in relieving many symptoms. No one who has analyzed the cures effected will think for a moment that it is the special therapeutic fad of the institution that accomplishes all the good done for patients suffering from so many different complaints. Similar ills often are affected quite differently, and, while some are relieved, others are not. Those who fail to be cured at one will, however, often be relieved at another. It depends on how much influence of mind is secured over the patient and how much diversion from thoughts of self is provided.

MIND HEALING IN GREECE

When Greece awoke to the great literary and scientific discussion of human thought that gave us such philosophic and scientific thinkers as Hippocrates, Plato and Aristotle, then psychotherapy, in the formal sense of caring for the mind of the patient as well as for his body, came to be explicitly recognized as having therapeutic value. Hippocrates insisted that medicine was an art rather than a science, that personality had much to do with it, and that the patient must be optimistically influenced in every way. The first of his aphorisms is well known, but few realize all of its significance. Hippocrates declares that "life is short and art long, the occasion fleeting, experience fallacious and judgment difficult. The physician must not only be prepared to do what is right himself, *but also to make the patient, the attendants and externals coöperate.*" No one emphasized more than he the necessity for differentiating the individual patient, and to him we owe, in foundation at least, the aphorism that it is more important to know what sort of an individual has a disease than what sort of a disease the individual has, for the chances of cure greatly depend on favorable individuality.

Perhaps Hippocrates' most striking direct contribution to psychotherapy is his aphorism with regard to pain. He said: "Of two pains occurring together in different parts of the body, the stronger weakens the other." When the attention is distracted from pain, then it is lessened. Of two pains, then, only the one that attracts the most attention is much felt, and, if a slight pain is succeeded by a severe pain in another part of the body, the lesser pain will apparently become trivial, or, indeed, not be felt at all.

In Plato we find the direct philosophic expression of the value of psychotherapy. There had been during the preceding century a great increase in information with regard to the facts of physical nature, and especially the sciences relating to the human body, and so men had come, as they are prone to at such eras—our own, for instance—to think too much of the body and too little of the mind that rules it. Accordingly, we have from Plato a deliberate, emphatic assertion of this great truth under circumstances which make us realize how keenly he appreciated its significance for the art of medicine and for humanity.

Professor Osier, in his address, "Physic and Physicians as Depicted in Plato,"¹ tells a story which shows clearly how much the great Greek philosopher appreciated the place of psychotherapy.

Charmides had been complaining of a headache, and Critias had asked Socrates to make believe that he could cure him of it. Socrates said that he had a charm which he had learnt, when serving with the army, of one of the physicians of the Thracian king. Zamolxis. This physician had told Socrates that the cure of a part should not be attempted without treatment of the whole, and, also, that no attempt should be made to cure the body without the soul, "and, therefore, if the head and body are to be well, you must begin by curing the mind; that is the first thing. And he who taught me the cure and the charm added a special direction. 'Let no one,' he said, 'persuade you to cure the head until he has first given you his soul to be cured. *For this,*' he said, *'is the great error of our day in the treatment of the human body, that physicians separate the soul from the body.'*"

Because it anticipates so much that is thought to be recent in the treatment of certain affections this paragraph is interesting from many standpoints. Headache is typically one of the ills that in the modern time has often been cured by suggestion. Critias knew how much confidence Charmides had in Socrates, whom he looked upon as his master, and that, therefore, Socrates' declaration of his power to cure would probably be sufficient to relieve his disciple. Critias shrewdly suggests, however, that Socrates possessed a charm which he had learned from a distinguished royal physician. Cures

¹ "Æquanimitas and Other Addresses."

in the modern time of any kind are likely to be much more effective if they come from a distance and, above all, if they have some connection with royalty, or have been tried with favorable results upon distinguished personages.

ALEXANDRIAN PSYCHOTHERAPY

When the center of interest in Greek medicine was transferred from Greece itself to Egypt, and the Alexandrian school represented what was best in medical thinking and investigation, we find evidence once more of wise physicians realizing the influence of the mind on the body and of what seemed to physicians of lesser experience the cure of physical ills by mental means. One of the most distinguished physicians of all time is Erasistratos, who, with Herophilus, made the fame of the great medical school at Alexandria, the first university medical school in the world's history. Both practiced dissection with assiduity, and, while it is Herophilus' name that is associated with the *torcular* within the skull, and it was he who gave the name *calamus scriptorius* to certain appearances in the fourth ventricle, and otherwise stamped his personality on the study of the brain, it is to Erasistratos that we have to turn for a typical example of the mental physician. Erasistratos, about 300 B. C, recognized the valves of the heart, gave them the names tricuspid and sigmoid, and, like his great colleague, studied particularly the nervous system. He seems to have distinguished the nerves of motion from those of sensation, recognized their different functions and the different directions in which they carried impulses, and thought the brain the most important organ in the body.

The story is told that he was summoned in consultation to see the son of Seleukos, surnamed Nikator, the Macedonian general of Alexander the Great, who became ruler of Babylonia. The illness of this son, Antiochos, had baffled the skill of the court physicians. While Erasistratos was feeling his patient's pulse, the stepmother of the young prince entered the room. She, the second wife of his father, was young and handsome, and Erasistratos noted that there was great perturbation of the pulse as soon as the stepmother came in. He correctly surmised that the young man was in love with the lady and that his illness had been occasioned by the feeling that his love was hopeless. The very sharing of his secret seems to have started the young man's cure, and Erasistratos' wisdom and medical skill became a proverb throughout the East.

PSYCHOTHERAPY AT ROME

Galen.—Galen, whom we are prone to think of as a Latin because so much of his work was done at Rome, but whose works have come to us in Greek, and who was a disciple of the Greek school of medicine, brought up under Greek influence in his native town of Pergamos, re-echoed Hippocrates' expressions as to the necessity for securing the patient's confidence and setting his mind at ease. The story in the "Arabian Nights" of his experience with the quack, which is known to most people, shows clearly how the place of mental influence in the relief of human ills must have been brought home to him. For nearly fifteen centuries his works continued to be the most read of medical documents. Nine tenths of all the physicians of education and influence, confidently looking to him as their master, kept copies of his works constantly near them, and turned to them for medical guidance as they would to the Bible for spiritual aid.

The book of Galen which is usually placed first among his collected works shows how much more important is the mind than the body for human happiness, and insists on mental interests as making life worth while. In it he describes the good physician, and says that to be a good physician a man must also be a good philosopher. When he comes to talk of the different sects in medicine—for even in his time there were groups of men who founded their medical practice on very different principles—he points out that the members of the different medical sects, while all employing practically the same remedies, do so on quite different principles, and yet get about the same results.

This concept comes as near to being a conscious reflection as to the place that the patient's mental reaction had in therapeutics as might well be expected at that early date.

Alexander of Tralles.—After Galen, medicine suffered an eclipse because the Romans became too devoted to luxury to permit of its development, and later the descent of the barbarians from the North disturbed silence and culture. In spite of the disturbance, however, there is evidence during the succeeding centuries of the deliberate use of mental influence and even of direct suggestion in the cure of disease.

Alexander of Tralles (sixth century A. D.) was not judiciously critical in his selection of remedies. Often he has quite ridiculous therapeutic suggestions, and yet we have at least two stories with regard to him which clearly indicate his employment of mental influence. One of his patients is said to have been suffering from the delusion that his head had been cut off by order of the tyrant, but he was cured as soon as the doctor hit on the interesting expedient of making him wear a leaden hat, which eradicated his delusion and made him think his head had been restored.

It is also in Alexander Trallianus, as he is sometimes called, that we have the original of the story which has been often told, many writers giving it as an experience of their own. A woman was sure that she had swallowed a snake, and that it continued to exist in her stomach, devouring much of her food and causing acute pain whenever large quantities of food were not provided for it. All sorts of remedies had been tried without result. At last Alexander gave her an emetic and then slipped into the basin into which she was vomiting a snake resembling as closely as possible that which she thought she had swallowed. The ruse effected a complete cure. Usually in latter-day variants of this story the cure is only temporary, for the patient after a time has the same symptoms as before and then is sure that during the time of its residence in the stomach the snake has given birth to young.

Paul of Aegina.—In the seventh century Paul of Aegina collected all that had been written on insanity by physicians of olden times, and many of his directions and prescriptions for treatment show that he appreciated the value of mental influence. He recommends that those who are suffering from mental disease should be placed in a quiet institution, should be given baths, and that an important portion of the treatment should consist of mental recreations.

ARABIAN MENTAL MEDICINE

The Arabian physicians who succeeded to the traditions of Greek medicine preserved also those relating to psychotherapy. Rhazes, the first of the great Arabian physicians, has a number of aphorisms that show his interest in and recognition of the value of mental healing. He insisted that "doctors ought to console their patients even though the signs of death are impending. For the bodies of men follow their spirits." He believed that the most important function of the physician was "to strengthen the natural vitality for, if you add to that you will remove a great many ills, but if you lessen it by the drugs which you employ you add to the patient's danger." "Truth in medicine," he said, "is a goal which cannot be absolutely reached, and the art of healing, as it is described in books, is far beneath the practical experience of a skillful, thoughtful physician." Manifestly he realized the importance of the influence of the physician over the individual patient.

His greatest successor among the Arab physicians, Avicenna (eleventh century), "the Hippocrates and the Galen of the Arabians," as Whewell called him, has some striking tributes to what he recognized as the influence of the mind on the body. He appreciated that not only might the mind heal or injure its own body, but that it might influence other bodies, through their minds, for weal or woe. He says: "The imagination of man can act not only on his own body, but even on other and very distinct bodies. It can fascinate and modify them, make them ill or restore them to health." In this, of course, he is yielding to the dominant mystical belief that man can work harm to others, which subsequently, under the name of witchcraft, came to occupy so prominent a place for ill in European history. But at the same time it is evident that his opinions are founded on his

knowledge of the influence of mind on body, as he had seen its action in medicine. From him we have the expression: "At times the confidence of the patient in the physician has more influence over the disease than the medicine given for it."

MEDIEVAL MIND-HEALING

During the Middle Ages faith was one of the things most frequently appealed to, and even the physicians made use of religious belief to secure a favorable attitude of the patient's mind toward the remedies. One of the men who particularly realized the importance of this was Mondeville, the great French surgeon.

Pagel has called attention to Mondeville's insistence on preparing the patient's mind properly for venesection. The patient should be made to feel that this procedure was sure to do him good, and various reasons should be given him why the removal of a certain amount of blood carried with it poisons from the body, and so gave a better opportunity to nature to conquer the disease. If the patients were unfavorably disposed towards venesection, Mondeville thought that it should not be performed, as it was not likely to do good. It was not that he felt that the mental influence was the more important of the two therapeutic factors, but that a combination of the remedial force of blood-letting with a favorable state of the patient's mind meant so much more than could be accomplished by venesection alone that it was worth while to take pains to have the combination of the two. We in modern times realize that in most cases blood-letting rather did physical harm than good. It continued to hold a place in medicine because patients were so much impressed by it that they were given renewed vigor after its use.

MENTAL HEALING IN THE RENAISSANCE

What is exemplified in medieval medicine in this matter remains true during the Renaissance. In the fifteenth century Petrus Pomponatius, well known as a thinker and writer on borderland subjects related to medicine, came to the conclusion that men might very well be cured of certain ailments by influence from the minds of others, and that such treatment, undertaken by physicians appropriately endowed, produced wonderful effects. He said:

Some men are specially endowed with eminently curative faculties; the effects produced by their touch are wonderful: but even touch is not always necessary; their glances, their mere intention of doing good are efficient for the restoration of health. The results, however, are due to natural causes.

PSYCHOTHERAPY AND MODERN MEDICINE

Paracelsus.—Paracelsus, the great physician of the first half of the sixteenth century, who may well be considered the father of modern pharmaceuticals, had no illusions with regard to the exclusive power of drugs over disease. He recognized that mental influence was extremely important, and often lent a power not otherwise possessed to many remedies. He said:

Imagination and faith can cause and remove diseases. Confidence in the virtue of amulets is the whole secret of their efficacy. It is from faith that imagination draws its power. Anyone who believes in the secret resources of Nature receives from Nature according to his own faith; let the object of your faith be real or imaginary, you will in an equal degree obtain the same results.

Personal magnetism, in the sense in which we now use it, a transference of the idea from the science of magnetics as related to the phenomena of the magnet, seems to have originated with Paracelsus. He was sure that the influence exerted over certain patients by certain physicians was due

to a force very like that exerted by the magnet over iron. He was even inclined to think that magnets themselves might exert a strong potency over diseased conditions, and he found them to be useful in epilepsy. Doubtless in many cases of supposed epilepsy successfully treated the ailment was really of an hysterical nature. In these cases the strong suggestion which the use of the magnets gave for many centuries acted favorably.

Agrippa.—The writings of Cornelius Agrippa, a contemporary of Paracelsus, and, like him, a student of alchemy and of the secrets of nature, contain corresponding passages which serve to show how much of interest there was in mental influence during the Renaissance. All of these men were, of course, a little outside of the ordinary medical tradition, intent on getting to realities, not being satisfied either with words or assumptions, refusing to accept many things that the physicians of their time completely credited. Agrippa in a characteristic passage said:

Our mind doth effect divers things by faith (which is a firm adhesion, a fixed intention, and a vehement application of the worker or receiver) in him that coöperates in anything, and gives power to the work which we intend to do. So that there is made in us, as it were, the image of the virtue to be received, and the thing to be done in us, or by us. We must, therefore, in every work and application of things, affect vehemently, imagine, hope and believe strongly, for that will be a great help.

Van Helmont.—At the end of the sixteenth century Van Helmont, who carried on the work in pharmaceutics begun by Paracelsus, and to whom we owe the discovery of a number of substances commonly used, as well as the invention of the word "gas," was a thorough believer in the influence of mind over body and, indeed, in the existence in human beings of storehouses of latent energy ordinarily unemployed, but that might under special circumstances be tapped to produce wonderful effects. Indeed, some passages remind us of Prof. James' expressions in his discussion of the law of human energy. Van Helmont said:

All magical power lies dormant in man, and requires to be excited. (Compare Prof. James's "Law of Mental Energy" in the chapter on Mental Influence). This (need for excitation) is particularly the case if the subject upon whom we wish to operate is not in the most favorable disposition; if his internal imagination does not abandon itself entirely to the impression we wish to make upon him; or if he towards whom the action is directed possesses more energy than he who operates. But when the patient is well disposed or weak, he readily yields to the magnetic influence of him who operates upon him through the medium of his imagination. In order to operate powerfully, it is necessary to employ some medium; but this medium is nothing unless accompanied by internal action.

Sydenham.—In the more modern period the deliberate use of the influence of the mind on the body is quite as clear. Undoubtedly the greatest of modern physicians, who well deserves the name of the English Hippocrates, is Sydenham. How much Sydenham realized that many of his patients' ailments could only be cured by occupying their minds with other things is seen in his writings. There is a characteristic story told by Dr. Paris in his "Pharmacologia" which illustrates this well and is a striking anticipation of what we are prone to think of as very modern views in these matters:

This great physician, Sydenham, having long attended a gentleman of fortune with little or no advantage, frankly avowed his inability to render him any further service, at the same time adding, that there was a physician of the name of Robertson, at Inverness, who had distinguished himself by the performance of many remarkable cures of the same complaint as that under which his patient labored, and expressing a conviction that, if he applied to him, he would come back cured. This was too encouraging a proposal to be rejected; the gentleman received from

Sydenham a statement of his case, with the necessary letter of introduction, and proceeded without delay to the place in question. On arriving at Inverness, and anxiously inquiring for the residence of Dr. Robertson, he found, to his utter dismay and disappointment, that there was no physician of that name, nor ever had been in the memory of any person there. The gentleman returned, vowing eternal hostility to the peace of Sydenham, and on his arrival, at home indignantly expressed his indignation at having been sent on a Journey of so many hundred miles for no purpose. "Well," replied Sydenham, "are you better in health?" "Yes, I am now quite well; but no thanks to you." "No," says Sydenham, "but you may thank Dr. Robertson for curing you. I wished to send you on a journey with some object of interest in view; I knew it would be of service to you: in going, you had Dr. Robertson and his wonderful cures in contemplation; and in returning, you were equally engaged in thinking of scolding me."

Morgagni.—In the century following Sydenham we have a number of examples cited by Morgagni, the father of pathology, in which his recognition of the value of the mind as a curative agent and of the harm that may be done by over-occupation of the mind is set forth at its proper value. Benjamin Ward Richardson in his "Disciples of AEsculapius"² tells of two incidents in which this phase of Morgagni's very practical application of knowledge to medical practice is exemplified:

In other examples, where the symptoms are due to mental oppression, he pursued a course of treatment that was of soothing nature. A distinguished professor of physic at Bologna happened to discover that his pulse was intermittent, and being extremely anxious about it was incessantly feeling his pulse, to discover that the evil was daily increasing. Morgagni's advice to his patient was to take his finger off his wrist and not to inquire too anxiously about his condition. The advice was followed, and the result was a complete removal of the disturbance.

It is a very singular truth that in describing the action of the nervous system on the circulation Morgagni shows that he was cognizant of the fact that the circulation may be disturbed by two sets of nervous irritations, one inflicted through the pneumogastrics, the other "through those nerves which are subservient to the arteries"—the vaso-motor system which is readily disturbed by the mind. In one patient he observed great perturbations of the pulse in both wrists as the result of mental anxiety. But a day or two later the pulse derangement was confined to the left side altogether. The pulse of the right arm was quite regular, while that of the left arm still showed the inequality. When the mental distress was relieved, this pulse also became equal.

Morgagni cites Sydenham's contemporary, Lancisi, the great Italian physician, as recognizing the influence of the emotions on the heart. Examples of similar convictions as to mental influence in medicine are also found in the works of Morgagni's great contemporaries, Boerhaave and Van Swieten, and the great physicians of the seventeenth and eighteenth centuries were closely imitated in their recognition of the value of the influence of mind over body in medicine by their successors in the profession.

John Hunter.—Wise old John Hunter recognized the influence of the mind on the body very clearly. He said, for instance, "There is not a natural action in the body, whether voluntary or involuntary, that may not be influenced by the peculiar state of mind at the time." He lays it down as a law that "every part of the body sympathizes with the mind, for whatever affects the mind, the body is affected in proportion." He said further, "as a state of the mind is capable of producing a

² London, 1901.

disease, another state of it may affect a cure." He called attention to the fact that the touch of a corpse produced wonderful effects upon the minds of patients. He said, "Even tumors have yielded to the stroke of a dead man's hand." He observes that "while we should naturally expect that diseases connected with the nerves—and those in which their alteration is in the action of parts not in their structure—would be most affected by the imagination, we find that there are other diseases in which they appear to have little connection that are much affected by the state of mind."

German Mind Healing.—In his monograph on "Psychotherapy in Its Scientific Aspects"³ Dr. Berthold Kern calls attention to a forgotten book of the German physician Scheidemantel, published in 1787. Its title was "The Emotions as Remedies." It seems to be very rare since even our Surgeon General's Library has no copy of it. The author treated psychotherapy systematically. He insisted that man was a unit in which body and soul mutually influenced each other. Scheidemantel blamed the moralists for considering the soul exclusively and the physicians for thinking only of the body. He thought that this was a serious mistake for both sides and he seems to have anticipated much of our recent discussion on the influence of the body and of things physical generally in what is called crime and various divagations from law. On the other hand, he thought that the influence of the mind on the body was one of the most important elements in therapeutics.

Reil, after whom the Island of Reil is named, and who taught us much with regard to brain anatomy, was also interested in the influence of mind on body. He was the professor of anatomy at Berlin in the early part of the nineteenth century and had great influence over the medical science of the time. He insisted on the recognition and development of psychotherapy and hoped to give it a place beside the medical and surgical treatment of human ills. He did much to create a current of thought in German medicine which culminated in Johann Müller's very definite expressions with regard to the power of the mind over the body.

Very probably the most striking expression of the influence of mind upon body is in that wonderful old book, Johann Müller's text-book of physiology, issued in an English edition (London, 1842) under the title "Elements of Physiology." The subject, a favorite study, is set forth very clearly, and evidently from personal knowledge. He recognized that the mind might influence every organ and function of the body. The influence of expectancy he emphasized particularly:

The influence of ideas upon the body gives rise to a very great variety of phenomena which border on the marvelous. It may be stated as a general fact that any state of the body, which is conceived to be approaching and which is expected with perfect confidence and certainty of its occurrence, will be very prone to ensue as the mere result of that idea, if it do not lie without the bounds of possibility. The case mentioned by Pictet, in his observations on nitrous oxide, may be adduced as an illustration of such phenomena. A young lady, Miss B., wished to inspire this intoxicating gas; but in order to test the power of the imagination, common atmospheric air was given to her, instead of the nitrous oxide. She had scarcely taken two or three inspirations of it, when she fell into a state of syncope, which she had never suffered previously; she soon recovered. The influence of the ideas, when they are combined with a state of emotion, generally extends in all directions, affecting the senses, motions and secretions. But even simple ideas, unattended with a disturbed state of the passions, produce most marked organic effects in the body.

With regard to the influence of the mind over the body in the matter of fatigue Müller is especially emphatic. He states just as clearly two generations ago the Law of Reserve Energy as James stated it in recent years. Of course, Müller was far beyond his time in everything, but then men who

³ "Die Psychische Krankenbehandlung im Ihren Wissenschaftlichen Grundlagen." Berlin 1910.

really think always are, and even Müller's accurate expression only represents what had been in the minds of thinking men in many previous generations. He says:

The idea of our own strength gives added strength to our movements. A person who is confident of effecting anything by muscular efforts, will do it more easily than one not so confident in his own power. The idea that a change is certainly about to take place in the actions of the nervous system, may produce such a change in the nervous energy, that exertions hitherto impossible become possible. This is still more likely to be the case, if the individual is at the time in a state of mental emotion.

Even this necessarily fragmentary and rather disjointed sketch of the main features of psychotherapeutics, as we see them recognized by the great physicians of the past, serve to show that mental influence has always been appreciated as an important element in the care of the individual patient.

The times when special attention has been paid to psychotherapy have certain special characteristics. Usually the periods have come just after a signal advance in medicine made through devotion to physical science. Great attention is given to the advances and for a time the individual patient is forgotten in the hope that at last physical science is going to solve the problems of the physical man. With the disappointment that always follows there is a reversion of feeling and men realize once more how important is the mental state of the patient, even in physical diseases. Then there comes an emphatic expression of the value of psychotherapy. We are at present in the midst of one of these periods, hence the widespread interest in the subject.

CHAPTER II

UNCONSCIOUS PSYCHOTHERAPEUTICS

The great authorities in medicine, the men whose thought counted for most in the development of not only the science but the art of medicine, the men to whom we look back as having been great practicing physicians, have always used this remedial measure deliberately and have suggested to others that it should be so used. But the smaller minds have been satisfied to think that their drugs, their external remedies and applications, have been the sole sources of the benefit that accrued to the patient. Such smaller men are prone to think that they have specifics for disease, while the larger men hesitate and recognize that coincidence plays a large role and that the suggestive factors in therapeutics often deceive us as to the real efficacy of drugs and remedies.

All physicians have at all times used, though often unconsciously, the suggestive factor in therapeutics, and mental influence has had everywhere a large role in the treatment of disease. Only in recent years have we come to appreciate how many diseases are self-limited. In the treatment of these self-limited diseases all sorts of drugs and therapeutic methods achieved a reputation. Some of them were looked upon by generations as specifics, though we know now that they are almost, if not completely, useless so far as any direct influence upon the disease is concerned. Indeed, at times they were, *per se*, harmful rather than beneficial, and the patient literally got well in spite of the treatment, though the repeated suggestion of betterment often more than overcame the ill effect and helped in recovery.

REMEDIES PLUS SUGGESTION

Prof. Richet, the head of the department of physiology, University of Paris, quotes the expression of a French critic of medicine: "Hurry up and take the new remedy while it still cures. After a time it will lose its power." The power that is lost as remedies grow familiar is the suggestive element that accompanied them at the beginning. They were announced with a flourish of trumpets as a discovery in therapeutics, a number of cases treated with them were much benefited (because of

the feeling that they must do good), and it was only after a great many cases had been treated, many of them under circumstances where patients knew nothing of the claims made for the remedies, and where physicians had little or no previous confidence in them, that their true place in therapeutics was revealed. Every physician of experience has seen the popularity of remedies wax and wane as a consequence of the attention called to them. We have new therapeutic discoveries every week. Enthusiastic articles are written about them, many of them in perfect good faith, and then after a time no more is heard of them, or they sink back into the long list of dubious remedies that may be tried when others have failed, but have no special claim upon us, in spite of the fact that some physicians continue to think them wonder-working.

"Time is short and art is long, the occasion is fleeting, experience fallacious and judgment difficult," as Hippocrates bemoaned 2400 years ago, and conditions in medicine continue the same. With suggestions and coincidence ever at work, it is still practically impossible to determine the intrinsic value of any remedy until after a prolonged trial. In the olden time it was still more difficult because there had been no such accumulation of experience as we have to guide us, and so it is not surprising to find striking examples of even great physicians recommending remedies whose main therapeutic influence must have been the element of suggestion.

Galen's Theriac.—Perhaps the most striking instance of suggestive therapeutics is Galen's famous *theriac*, various prescriptions for which have come down to us, some of them much more complex than others, so Galen is probably not responsible for all its absurdities. This remedy contained a host of ingredients, some of which neutralized others, and all of which taken together could have had but little effect save by a strong suggestion to the patient that as he was taking so many drugs he surely must be benefited.

Bernard's Theriac.—Almost in our own time another *theriac* came prominently before the public. In his younger years Claude Bernard, the French physiologist, worked in a little drug store in a country place not far from the farm on which he was born. There he found that the most called for remedy was a *theriac*. It was good for most of the ills that flesh is heir to and was bought in quantities by the old women of the neighborhood, who administered it on every occasion. The remedy was made in large quantities, but the secret of its composition in this particular pharmacy was what interested Bernard. Whenever any compound was for any reason spoiled in the drug store, the rule was, "Put that aside for the *theriac*." This much sold remedy then consisted of the most heterogeneous drugs. It was so diluted that it could do no harm, though it had quite sufficient taste and odor to make every one who took it realize that without doubt they were taking a strong medicine.

The effect of the knowledge of the composition of this wonderful remedy on Claude Bernard was the best that could have been anticipated. He resolved to study the physiological effects of drugs so that they could be given scientifically, and not in the hit or miss fashion that made possible the success of the *theriac*.

The custom of Bernard's country drug store, however, was not different from that of most country drug stores of the time. Unconscious psychotherapeutics we may well call it, because the main therapeutic factor was suggestion, renewed as often as the mixture was taken, that the patient ought to feel better, until finally whatever symptoms were due to over-attention and to concentration of mind on feelings of discomfort were diverted. Just as soon as the inhibition exercised by this over-attention ceased its hampering effect nature completed the cure.

Suggestion in Colds.—Many remedies acquired a reputation for breaking up coughs and colds. It is, however, extremely doubtful whether any one has ever aborted a cold, or any other infection, that had gained a hold on the patient. We now know that this common affliction is not due to cold but to absorption of infectious material. Nansen spent two winters near the North Pole without catching any cold, and his men were as healthy as himself. He had been back in civilization scarcely a week before he and his men were confined to bed with a grippy cold. In the far north, and high on mountains where the temperature is low, colds are not as common as they are in crowded cities and especially

among those who are much in crowds. Cold weather only predisposes to the infection, and after it has occurred it is sure to run its course. That course may be longer or shorter. The cold is usually preceded by chilly feelings. Every one knows it is possible to have chilly feelings that seem to portend a cold, yet be well the next day. If in the meantime any remedy is taken, credit will be given to the remedy. When a cold was supposed to be merely a disturbance of circulation or a congestion, one might expect to break it up. Now that we know that it is a microbic infection, and know further that microbic diseases are usually cured by a definite reaction on the part of the body, we are not so likely to think of breaking them up. There are still physicians who think they can abort a threatened pneumonia or abbreviate typhoid fever, but they are not those who know most about the science of medicine.

We have the story, then, of a series of remedies used with great confidence in coughs and colds, some of them physically beneficial, many of them, especially those containing opium, often physically harmful, yet taken with such confidence that undoubtedly the patient was helped through his mind if not otherwise. What is thus true for this class of diseases can also be said of other minor affections. Many internal remedies have been used for boils and styes and other external infections and have often had wide vogue. The reason for their acceptance as remedies has been that the giving of anything produces a more hopeful attitude in the mind of the patient and this, by bettering the general health, sometimes overcomes the tendency that may exist to a repetition of such infectious processes.

Erysipelas.—The medical history of erysipelas is just a succession of remedies recommended, each claimed to be almost infallible, yet abandoned after a time for another for which like exaggerated claims were made. The doctrine of signatures played a large rôle in the treatment of erysipelas, and, strange as it may seem, still survives. According to the doctrine of signatures, erysipelas, being a disease involving intense redness of the skin, red things in nature would be likely to do it good. Red pepper, for instance, was suggested for it over and over again, both internally and externally. Various red remedies have been favorites at different times in history. At present, in many country places, a poultice made of cranberries is supposed to be most efficacious. For many years I lived in a small town where one of the grocers put in a large stock of cranberries each fall, though the people of the neighborhood used them but little on the table, because during the winter there were many calls for them for the making of poultices for erysipelas. People who have had erysipelas, especially if it has occurred on unexposed portions of the body, are supposed to be protected against its recurrence—for there is a distinct liability to its recurrence—by the wearing of red flannels!

There is scarcely any drug that has not at some time been recommended as almost a specific for erysipelas. Anything that was given on the third or fourth day, and it was only at this time as a rule that patients came to physicians to be treated, seemed to bring about the alleviation of symptoms that occurred on the fifth or sixth day.

Erysipelas, because of the sudden irruption of fever which accompanies it, the intense redness which characterizes it, and the discomfort which is often present, is an affection that disturbs patients very much. For them, then, the presence of the physician and his assurance that their affection is not likely to be severe, and his prompt relief of certain conditions, all act by suggestion on the patient's mind and strengthen the natural curative reaction.

In country places where physicians were not near, erysipelas was one of the affections that continued almost down to our own day to be treated by incantations. I have known in a little American country town of a woman making a "charm," as it was called, for erysipelas.

Pneumonia.—Pneumonia is another of these sharply self-limited diseases that give opportunity to many remedies for the acquisition of a reputation as cures. Croupous pneumonia is so disturbing in its onset, so rapid in its progress, yet so strictly self-limited in the previously strong and healthy, that in the old days there were many remedies that were supposed to bring about the crisis. The old text-books contain so many cures that it is surprising pneumonia should have continued to be the fatal disease it has been at all times. Almost any remedy that is used for three or four days in

pneumonia will be followed by the crisis with, in most cases, a favorable termination. The crisis takes place some time from the seventh to the tenth or eleventh day, and often we do not see a pneumonia patient until the second or third day of the disease. Just before the crisis the patient runs into a series of acute and more or less alarming symptoms. Often there is much restlessness, difficulty of breathing with complaint of heaviness, and perhaps prostration. The pulse and temperature are high, the skin hot and dry. Then in the midst of this the patient sleeps, there is a critical sweat, the temperature drops, the patient wakes up feeling quite well, there is little difficulty in breathing, and he feels that recovery is sure to come. The change is so great that it is natural that it should have been attributed to all sorts of remedies which had been used immediately preceding the crisis.

I once heard an old physician declare at a meeting of a large and important medical society that calomel in divided doses was practically a specific for pneumonia. He said he waited forty-eight hours to be sure that the affection was pneumonia, and also that it had reached that diffusion in the lungs beyond which it was not likely to go, then he gave the calomel. He said that, almost as a rule, during the next forty-eight hours the crisis came—and he attributed it to the calomel. We have had other remedies just as curious as this recommended and taken quite seriously. Some years ago a Russian physician, who had been treating soldiers in the Russian army for the pneumonia which occurs so commonly after exposure on the Steppes, announced that he had found in digitalis almost a specific. He pushed the tincture up to twenty drops three times a day, beginning it just as soon as the pneumonia was detected, and the rate of mortality among his patients was about one per cent. According to his theory, it was the failure of the heart in pneumonia that made the disease fatal.

Apparently the character of the patients in whom his pneumonias occurred was forgotten. They were absolutely the most favorable cases that could be selected. Most of them were young men between twenty and twenty-five. At this age no one who is given a reasonable amount of fresh air should die of pneumonia. If the patient had a serious heart lesion, or a crippled kidney from nephritis after scarlet fever, or crippled lungs because of a previous attack of tuberculosis, then the pneumonia might be fatal—indeed, almost inevitably would be, or, in the last-mentioned case, would end by lysis and not crisis. It really matters little what remedy is given to young, otherwise healthy, adults; they will get better, barring serious complications. The use of digitalis lessened the chances of recovery by stimulating too early in the case the heart that later had to bear one of the most serious strains that the organ can stand. But doubtless this harm was more than overcome by the patient's knowledge that he was taking a new and powerful remedy, supposed to be particularly calculated to cure him.

Moreover, the special interest of the physician in these cases, and his administration of a remedy with confidence which inspired the patient, undoubtedly did much good. Pneumonia is one of those diseases in which the patient is likely to be greatly depressed unless he is surrounded by favorable mental influences, and is encouraged to believe that he is going to get well. Every physician has probably had cases in which patients died, not because of the severity of the disease, but because they gave up the struggle in fright. If several of a man's friends have died of pneumonia during the year or two before he gets it, he is likely to conclude, especially if he is of the worrying kind, that his doom is sealed as soon as the diagnosis of pneumonia is made. If this thought persists hardly anything will save him. He must be assured that pneumonia is not necessarily serious, that there are remedies that influence it, and that his own case is particularly likely to respond favorably to them.

We now realize that nursing is the most important element in the treatment of pneumonia. Such attention to the patient as will treat symptoms so as to prevent them from disturbing him, will secure him against discouragement, will arouse his resistive vitality by assuring him of a favorable termination. This will above all prevent the patient from feeling that he is attacked by a fatal disease. The presence of the doctor and his general directions make the patient realize how thoroughly the course of the disease is understood and therefore how likely it is that a favorable termination will be brought about. We know how much the mind may interfere with the breathing if allowed to dwell on it, and therefore if the patient becomes over-solicitous about the condition of his lungs he

seriously hampers his recovery. In pneumonia the physician has always brought relief, and he has usually attributed his success to his drugs, though he has felt, too, that the confidence inspired by him meant much for his patient. It would have been better had he exaggerated the mental influence rather than the drug power.

Typhoid Fever.—Typhoid fever is another affection for which we have many therapeutic suggestions, with wide vogue, that are nevertheless almost directly opposed to what we know about the pathology and etiology of the disease. Typhoid fever runs its course in from between twenty to thirty days. The majority of people who take the affection and who give in to it early enough, so as not to wear themselves out, come through successfully. Complications may carry them off, but we expect uncomplicated cases to recover. The longer course of typhoid has made the action of drugs appear less striking than in pneumonia and erysipelas, but a number of remedies have been proclaimed to shorten its course, to make it less dangerous, to cure, and sometimes actually to abort it. So often have these come and gone that the physician who knows the history of therapeutics is likely to be suspicious of them. Even at present there are certain remedies supposed to have this effect, but one does not find them used in hospitals where large numbers of cases are seen and where there are opportunities for comparative observation. They are used only by physicians who see a few cases every year, and to whom coincidences may mean much more than they are likely to when extensive statistics of the disease are made.

As a rule, these remedies are founded on some real or supposed scientific principle. The antiseptic treatment of typhoid, for instance, was based on the supposition that if one can kill the microbes in the intestine the disease will run a shorter course. The principle apparently fails to note that any remedy likely to kill microbes is still more likely to kill cells of other kinds, and above all human cells lessened in their resistive vitality by disease. The advocates of this remedy also forget that typhoid is now recognized as a general disease with only a local manifestation in the intestines, and that the treatment of this local manifestation is no more likely to affect the course of the disease than the treatment of the symptoms of typhoid would be likely to do. But the giving of remedies with the thoroughgoing confidence that awakens trust is in itself an excellent therapeutic agent, and patients thus treated are sure to be benefited in so far as they share the physician's confidence. Just the same effect, however, can be produced by careful nursing and by making the patient realize that even though typhoid fever runs a definite course, which we cannot abbreviate nor probably influence, we can by nursing so prevent complications as to make a fatal termination almost impossible.

Whooping Cough.—Perhaps none of the common affections illustrate the influence of psychotherapy better than it is exemplified in the history of the therapeutics of whooping cough. We have had all sorts of remedies suggested for it, and most of them have been introduced by those who had found them of great service in shortening the course of the disease, and in making the "whoop" disappear much sooner than would otherwise be the case. There have been internal and external remedies, inhalations and inunctions, as well as many less likely methods of treatment. Practically none has maintained itself. Whooping cough is likely to run a rather long course. We know now that as a consequence of the strain upon the lungs tuberculosis not infrequently develops. Whenever this is true the tendency to cough is likely to be prolonged far beyond the natural period, and from habit ingrained upon the nervous system the "whoop" is likely to continue, though there is no necessity for it. It is this secondary period of the affection that the remedies have succeeded in shortening either apparently or in fact.

Practically anything that is done for children is likely to instil the persuasion that the "whoop" should disappear. Anything impressive will arouse this favorable attitude of mind toward the affection, and hence the remedies have obtained a reputation. In the interior of many countries draughts of sea water are a popular remedy for whooping cough. Sea water, it is said, loses its efficacy if carried long distances from the shore, so the children must be brought to the seaside. In mining regions children are taken down into the mines. The experience is enough of itself, especially when

talked over a good deal in the family, and when the occasion is often the first outing that the child has had for months, to bring with it such improvement in health as will enable it to suppress the whoop. If the exposure to the mine air does not bring improvement, it is said to be either because the child was not taken deep enough, or because there was no gas in the air, or the wrong sort of mine was chosen, or some other plausible excuse is advanced.

The development of scientific medicine, or at least what we are pleased to think of as more scientific therapeutics than they had in the past, has not kept us from having many and varied remedies for whooping cough, which, after being introduced on apparently good authority and apparently accomplishing many good results, have eventually been allowed to drop into innocuous desuetude. Whenever the administration of any such remedy was accompanied by strong suggestion—when the internal remedies were particularly distasteful, or the inhalations rather trying or at least sure to attract the attention of the sufferers—then good results followed. But the cures were due to the mental influences at work. In recent years various serums, including diphtheria serum, have been tried with reported good results. The giving of the injection is one of those little operations that is likely to impress itself forcibly upon the child's mind, and when given in connection with the promise, implied or explicit, of improvement it is easy to understand that there will be a tendency to lessening the frequency of the whoop, at least during the secondary periods of the disease.

CHAPTER III

GENUINE REMEDIES AND SUGGESTIVE EXAGGERATION

The story of the suggestive use of drugs shows us many suggestions employed even by distinguished physicians, men whose work is eminently rational and has lived long after their time. In fact, very few, even of the most distinguished physicians, have failed to extol remedies which later proved to be quite ineffectual. Hippocrates felt quite sure that an external application of snake skin was a cure for all forms of that chronic skin manifestation, lichen. Pythagoras declared that anise seed held in the hand was an excellent remedy for epilepsy. These are only examples which serve to show how much suggestion has been used unconsciously by the medical profession. The sensation produced by the touch of the viper's skin was sufficient in some patients to bring about a change in the circulation in the skin, or perhaps a distinct modification of the nerve impulses on which trophic conditions in the skin depend, and this may have produced some cures on which Hippocrates founded his recommendation. We know that the skin can be unfavorably affected directly through the nervous system, and there is no good reason for thinking that it may not also be affected favorably. In our own day we have seen the suggestive influence of an operation act as a remedy in epilepsy and have lauded it for a time. It is, therefore, not surprising that Pythagoras saw, as he thought, the strong scent of the anise seed act favorably. Both of these conclusions as to the causative agency at work were wrong, because it was suggestion and not the operation in most cases, nor the anise in any case, which caused the improvement.

THERAPEUTIC PERSUASION

It is not only in the distant past, however, but also in quite modern times that these therapeutic persuasions have existed among physicians, and as a result physicians have frequently recommended and employed remedies that we now know not only to have been quite useless, but sometimes even harmful. A typical example of this is the use of antimony, originally discovered and studied by Basil Valentine, an alchemist who had busied himself much with the nature of substances, vegetable and mineral, and with their action as remedies for disease. Sir Michael Foster hailed him as the first of pharmacologists, and said: "The old monk did not care for the problem of the body; all he sought to

understand was how the constituents of the soil and of plants might be treated so as to be available for healing the sick and how they produced their effect."

Suggestion and Antimony.—This was an eminently scientific research. It brought the father of pharmacology to certain supposed discoveries which continued to occupy men's minds for centuries, yet ultimately proved to be utter misunderstandings of drug action, because suggestion played so large a role that it vitiated all the conclusions. The best known of Basil Valentine's books is the "Triumphal Chariot of Antimony," which contains many interesting scientific observations that were probably new at the time and which show their author's investigating spirit and his interest in scientific research.

In spite of his scientific advances, however, Valentine was wholly mistaken with regard to antimony. He used it in various diseases, and, of course, it always produced very definite effects on the bowels. These effects the physician could easily foretell. It was for the patient a proof that the physician knew much, both about his disease and his remedies, since he could prophesy the results. After the antimony had exerted its influence the patient was much more ready to think that he must get better, and the influence of this suggestion worked strongly in all cases where the affection was not serious, and undoubtedly helped the patient's resistive vitality to throw off disease. In weak patients its physical effect was lamentable. It still further reduced vitality, and when used by thoughtless physicians must have done great harm. In spite of this, however, antimony continued to be used for centuries. Shortly after the middle of the seventeenth century, when it was beginning to be neglected, antimony received a new lease of life as a consequence of its employment in a lingering illness of Louis XIV. The French king was attacked by what has since been recognized as typhoid fever. Many remedies were tried, but all in vain; the fever continued. When the fever had nearly run its course and the physicians were on the point of acknowledging that they could do nothing, and when a fatal termination seemed near, it was decided at a consultation to follow the advice of an old practitioner and use the old-fashioned remedy, antimony. Almost immediately the king began to get better. His improvement was quite naturally attributed to the last drug that he had taken, and antimony regained and held its remedial reputation for the next two centuries.

Such stories have always worked wonders in producing popular faith and even professional confidence in drugs. When great personages seem to be cured by certain remedies, ordinary logic ceases to act, and the strong power of suggestion comes in to strengthen whatever remedial influence there may be.

Calomel and Suggestion.—Such mistaken notions as to therapeutic efficiency are not confined to centuries before our own. During much of the nineteenth century calomel was employed as extensively as antimony had been in preceding centuries. Calomel was often given in doses which produced effects resembling those of antimony. Even in the small doses we now employ, it is apt to be a thorough purgative. In the twenty and forty grain doses, commonly administered by the country doctors of two generations ago at the beginning of practically every ailment, it was purgative—and worse. Its effects could, of course, be very strikingly seen, and what patients wanted were just such visible results of the doctor's prescription. Undoubtedly, then, the calomel did good, but not by its effect upon the patients' bodies, but upon their minds. Calomel is still used in ways that partake more of the old-fashioned ideas than we care to confess. Some of its supposed effects in stimulating the flow of bile have been placed in doubt by modern investigation, but we still use it empirically, and undoubtedly its effectiveness is partly due to the fact that many patients see the results in the purgation in dark coloration of the stools and are confident that improvement must follow—and it does. Perhaps at a subsequent operation we find the bile ducts effectively blocked and then learn for certain that the stool coloration observed was not biliary but due to a chemical reaction of the calomel itself.

Venesection and Its Suggestiveness.—Between the periods of antimony and calomel popularity venesection was the favorite remedy of physicians. It is hard to understand now the extent to which this practice was carried by the medical profession. People were bled for nearly every

combination of symptoms. In severe cases the amount of bleeding practiced was almost incredible. Mirabeau, the great French orator, suffering from angina pectoris, was bled some eighty ounces in the course of forty-eight hours. In spite of this heroic treatment, which his physicians thought ought to have cured him, he died. We find it hard to understand how he lived so long. This, of course, was an exceptional case at the very height of the venesection furor, but it helps us to realize how convinced physicians were of the curative power of the practice.

Thoughtful physicians like Morgagni did not accredit it, or at least refused to allow it to be practiced on themselves, but its acceptance was practically universal. Probably no remedial measure ever generally used was calculated to be so effective as bleeding in producing a strong mental influence. The rather sacrificial preparations for it, the sight and the prick of the lancet, then the sight of the blood, the languor that followed, the reaction on nature's part to reproduce the lost material, all united to impress the patient's mind so deeply that it is easy to understand that all the reserve of mental force was now directed toward helping nature in the cure of whatever disease was present. Venesection itself in nine out of ten cases probably did more physical harm than good, but all the good came from its suggestion.

We are now apt to think of venesection as consisting only in the removal of some blood from a favorably situated vein, but we must not forget that in the olden time they bled from many veins, and that a particular vein was picked out because it was supposed to be connected in some way with the seat of the special trouble under treatment, and as a result there was a particular appeal to mental influence. A vein on the forehead was opened for the treatment of migraine and diseases of the eyes, on the nose in case of discharge from the eyes, back of the ears in chronic headache and in stuporous conditions, or beneath the chin when there was pain in the eyes, or in the nose, or in the jaws. The cephalic vein was opened for headache and for certain affections of the eyes and ears. Altogether there were thirty different veins opened for as many maladies. It was thought extremely important in the drawing of blood from the arm that that arm should be chosen which, for some anatomical or other reason, was supposed to be the more intimately connected with the affected part of the trunk or head. The psychotherapeutic factors at work in these cases are easy to understand, and their beneficial effects gave the practice a firm foothold in medicine.

Quinine and Suggestion.—Whenever any drug has secured a reputation its use has always been extended to many other diseases besides that for which it was definitely indicated. Quinine is a typical example. It is a specific for malaria and, properly administered in suitable doses, breaks up the fever—not because of any action upon the febrile condition itself, but because it kills the *Plasmodium malariae* whose reproduction in the blood brings about the paroxysms of fever. It was argued, however, that since quinine was good for one kind of fever it would probably be good in others, and all sorts of theories were invented and supported by supposed observations of the effect of quinine on various organs and tissues, even on the white blood cells, by which its efficacy in fever was supposed to be explained. Quinine was used in all sorts and conditions of fever, and acquired a reputation as a remedy that had the power even to abort conditions leading to all fevers. It was used in large doses for such conditions as cold, incipient pneumonia, or indeed any disease with a chill at the beginning, and was supposed to be a powerful prophylactic.

Now it is settled that while quinine in small doses is an excellent tonic, it has no effect at all upon fevers in themselves nor upon fever-producing conditions. Yet it is still administered by many who have not quite abandoned the old teachings as if it were a general febrifuge. In the meantime, the use of quinine as a prophylactic of colds and other minor febrile conditions has spread so that many people make themselves very uncomfortable by taking a large dose of quinine and whiskey whenever they fear they are going to have a cold. As a consequence they feel dull and heavy the next day, but assume that they would have been much worse than they are had they not taken the potent remedy the night before. Undoubtedly some of them are enabled by the suggestive value of the remedy and the continued suggestion of its unpleasant effects to throw off the lassitude that comes from some

minor infection and are encouraged to get out into the air, when they might otherwise have stayed in the house. This enables them to get rid of their colds sooner than would be the case if they allowed themselves to be confined. Most of them, however, are harmed rather than benefited, and the cold runs its course, unaffected except that the patient is more miserable and depressed for the first day or two than he would otherwise have been. There are physicians who still use quinine as a febrifuge in typhoid and other essential fevers, and doubtless its bitter taste helps their patients because of the suggestive value of an unpleasant medicine.

St. John Long's Liniment.—An interesting exemplification of the power of mystery in adding to the curative value of a commonplace remedy is found in the story of the famous St. John Long liniment. St. John Long was a well-known quack in London in the early part of the nineteenth century. Like all quacks at all times, his specialty was chronic diseases. He claimed to be able by means of external applications to cure the pains and aches to which the old are so likely to be subject. St. John soon acquired an immense reputation. He gave a liniment with a secret formula that was literally a miracle worker. People who used it found after a few times that they were free from, or at least greatly relieved of, aches that had bothered them for years. It was good for sprains and for internal pains of all kinds, as well as for the so-called chronic rheumatisms, which have as their principal symptom pains and aches around joints. So great a reputation, indeed, was acquired by the remedy that an agitation was begun to have Parliament buy the secret from its inventor in order to present it to the British nation. The proposition was actually carried through the legislative chambers and a considerable amount of money, still larger in those days because of the comparatively greater value of money, was voted to St. John Long.

His liniment had a place in the British Pharmacopeia under his name for many years afterwards. It proved to be only a simple old-fashioned remedy, the basis of which was turpentine, and one of the principal ingredients was the white of egg. Just as soon as the secret was known the power of the remedy began to decline. So long as it remained mysterious and unknown, discovered by a man who supposedly had made a special study for many years of these conditions, and had finally worked out the external applications necessary for them, it accomplished wonders. Just as soon as it was known to be a combination of familiar turpentine and egg it lost its power. The remedy is, of course, an excellent counter-irritant, and the gentle rubbing undoubtedly did much good. The most important element, however, was the mental influence, the feeling that now things must be better, which thought distracted attention from the aches and pains and caused the unfavorable influence of over-concentration of mind on the part to cease, for the vaso-motor system is particularly under mental influence. Every now and then since that time some liniment or oil containing nearly the same ingredients as that of St. John Long's acquires a reputation as a consequence of a campaign of advertising. It is the printers ink that counts, however, and just as soon as the advertising ceases to attract attention the remedy fails in efficiency.

Alcohol Plus Suggestion.—Alcohol has been employed in medicine with the persuasion that it is a remedy for many states of exhaustion, though we have gradually gotten away from its use to a great extent, because we realize that subsequent physical ill consequences outweigh, in most cases, the physical good it may do. Its use was undoubtedly due to the confidence of physicians communicated to patients, and the sense of good feeling which it gives and which proves a further strong suggestion to the patient. This sense of well-being is illusory, for it is sure to be followed by a longer period of dejection, which more than counteracts it unless the dose of alcohol can be maintained for some time.

A generation ago few physicians would have cared to treat exhausting diseases, the continued fevers for instance, without liberal doses of alcohol. Practically the only treatment for pyemia and septicemia on which any stress was laid, and in which there was any general confidence, was the administration of alcohol in large quantities. In the septicemia consequent upon puerperal infection it was the common teaching to give alcohol by the tablespoonful or more every hour, or oftener, until its effects began to be noticed, and ordinarily large quantities were required, so that sometimes nearly

a quart was taken in the twenty-four hours. Undoubtedly these septic conditions were accompanied by great mental prostration, and this was emphasized by the knowledge that they are often fatal. So patients were usually depressed into a state of mind in which their resistive vitality was much lowered. Alcohol, then, by producing a sense of well-being as well as by stimulating hope in other ways and suggesting possibilities of recovery, undoubtedly exerted a powerful and favorable influence on the mind. Its use in these cases nearly always did good, in spite of its inevitable depressive reaction, for the course of these infections was rapid and the dosage of alcohol could be maintained until there was a change for the better or the fatal termination was in sight.

Alcohol was frequently used in many other conditions of a similar nature, and above all in the septic conditions so common in hospitals before the days of antiseptics and asepsis. When it is recalled that amputations yielded a mortality from sepsis of at least one in four, the extensive use of alcohol in hospital practice two generations ago will be readily understood. We have changed that, however, and Sir Frederick Treves, at a meeting of the British Medical Association at Toronto, five years ago, called particular attention to the statistics of the use of alcohol in British hospitals. During the last forty years milk and alcohol have exactly changed places in the London hospitals. Between 1860 and 1870 about four times as much was spent for alcohol as for milk in these hospitals; during the last decade about four times as much was spent for milk as for alcohol.

A corresponding change has taken place in many other phases of treatment in which alcohol was commonly used. The physician of fifty years ago would have thought that one of his most efficient remedies had been taken from him if he could not use alcohol freely in tuberculosis. There are practically no well-known specialists in tuberculosis now who recommend the use of alcohol. On the contrary, most of them point out the dangers from its use and consider that the depression which follows even a moderate dose is likely to do much more harm than the temporary and fleeting stimulation which it gives can do good. In the treatment of phthisis in recent years milk has done much more than take the place of alcohol: it has displaced it entirely. The medical profession realizes now that what the consumptive needs is not more stimulation—for more of that than is good for him is forced upon him by the toxins of the disease—but more nutrition to enable him to resist the progress of the disease and raise his resistive vitality against its toxemia. The one stimulant that is of service in the affection is oxygen, and even that should be given in nature's dosage rather than by artificial means.

Alcohol in Pneumonia .—A corresponding change has taken place in the professional attitude towards the use of alcohol in pneumonia. There was a time not so very long ago when alcohol was considered the sheet anchor of our therapeutics for pneumonic conditions, especially those in which from the beginning a fatal termination seemed inevitable, because of the age of the patient or some complication. There were physicians who said that if they had to choose between all the drugs of the pharmacopeia on the one hand without whiskey and whiskey without all drugs whatsoever, for the treatment of pneumonia, they would make the latter choice. We are not as yet entirely away from the point of view that attributes a certain value to alcohol in pneumonia, though even those who still employ alcohol are less emphatic in their advocacy of it. Any one who has seen the result of the fresh air for pneumonia patients will think less and less of alcohol. One well-known clinical authority declares that the very best place to treat pneumonia in our cities would be beneath the trees in the parks. Our patients are being treated at the ends of wards with the windows up, on the balconies, and on the roofs, and the death rate is much reduced and the necessity for any other than oxygen stimulation seems much less.

Alcohol in Vague Affections .—The suggestive influence of the effect of alcohol is unconsciously obtained in a number of vague and rather chronic affections. Among these the most noteworthy are women's diseases. Various alcoholic home remedies, gin and whiskey, usually disguised by some bitter, used to be popular. But the known presence of alcohol in these discredited them. Then the nostrum vendors proceeded to supply something just as good. They were, in fact,

the same things under another name. Many of the much-advertised remedies that are supposed to cure the ills the weaker sex is liable to, have been found to be little more than dilute whiskey, for in alcoholic strength they were about equal to whiskey diluted once with water, and the other substances were added only to disguise the taste and the odor of this principal ingredient. Many of these remedies have elicited innumerable flattering testimonials and not all of these were fraudulent or obtained by questionable means, but many of them were given because of results secured through the remedies. The alcohol gave the well-known sense of well-being, and the suggestive influence of this increased the appetite, tempted the patient to move around more, and to get more into the air than before, and the consequence was an improvement in the general health, in the midst of which many symptoms that seemed to the excited imaginations of run-down individuals to be serious were relieved. In a great many cases, however, the result was the formation of a whiskey habit; hence the crusade which has discredited these remedies.

Other patent medicines, and, indeed, some of the proprietary preparations, commonly recommended as nutrients and the like, and supposed to be ethical, are found to owe whatever efficiency they have to their alcoholic content. Here once more the suggestive elements were the more important, and enabled substances of little physical efficiency to produce effects that seemed to indicate the presence of powerful energizing materials.

Whiskey in Snake-Bites.—A typical example of a remedy which owes its efficacy to mental influence over the patient is the use of whiskey for snake-bites. It is generally recognized that whiskey is not only of no special beneficial effect for snake-bite, but that when taken in the large quantities usual in such cases it probably produces an ill effect by disturbing the patient's general condition and lowering his resistive vitality. I have no doubt, however, that its use in considerable quantities has in these cases proved of value because of the mental effect upon the patient. Ordinarily a snake-bite is followed by a sense of extreme terror and prostration that lowers the resistive vitality. This is overcome by the temporary stimulation of the alcohol. The generally accepted idea that whiskey is almost a specific remedy for snake-bite takes away from most people this dread and consequent depression, and does this especially at a time when the acuter symptoms of the venom are making themselves felt. Only about one in six even of those bitten by large rattlesnakes are likely to die. Many circumstances are in their favor. The bite is not likely to be fatal unless the full contents of the poison sac is injected—which will not be done if the sac has been emptied in the preceding twenty-four hours—and if there are any obstacles, such as clothing or even hair, on the part struck by the snake. Most people, however, would almost die from fright, and such a thing is quite possible, if they thought there was no remedy. The fact that they understand that alcohol is an almost infallible remedy gives them courage, and as soon as they receive some whiskey and it begins to take effect this intense depression is relieved.

It would be better if the knowledge we now have as to snake-bites were more generally used, and if people understood that only rarely is such an accident fatal. In this way there would be no necessity for an appeal to mental influence through whiskey. It is probable, however, that alcohol will still be used for many years, at least in the country districts, because the supposed knowledge is too widely diffused for a correction to come soon, and then other modes of treatment have not that persuasive mental influence which whiskey has as the result of the long tradition. There are many other popular remedies for snake-bite not quite so inefficient as whiskey, but that will continue to enjoy a reputation and really have a certain efficacious result as a consequence of the expectant attitude evoked by the fact that for as long as the patient has heard anything about these things this particular remedy has been mentioned always as the one thing sure to do good.

Other Cures.—Fontana, toward the end of the eighteenth century, was sure that he had discovered in caustic potash an absolute specific for snake poisoning. He had had a series of cases, and felt that he had actually observed this substance following the snake poison into the system and neutralizing it. Its active effect on the external tissues proved eminently suggestive for the patient and

good results followed. We have had many specifics since, and yet we are not quite sure how much any of them avail unless recent biological remedies prove lasting in their effects and are really of therapeutic efficiency.

Antidotes and Suggestion.—For many other poisons beside snake venom there have been announced supposed antidotes of all kinds. The literature of the antidotes used for opium is extremely interesting and even in recent times contains many disillusion. Twenty years ago our medical journals contained any number of cases in which a solution of potassium permanganate seemed to have proved effective in neutralizing not only opium itself but its alkaloids and derivatives. Not only was it efficacious, then, if taken while the opium was still in the stomach but, just as with Fontana's caustic potash and the snake venom, it followed the opium into the tissues and at least blunted its action. Numbers of cases were reported in which potassium permanganate was supposed to have had this desirable effect. The effect of alcohol in neutralizing carbolic acid attracted as much attention as did potassium permanganate for opium. Here there was no doubt that alcohol immediately after the external application of carbolic acid did prevent its corrosive action. It was supposed to do the same thing in the stomach and even, as some enthusiastic observers thought, followed the carbolic acid into the tissues. Here once more the claim is not proven and it is evident that the influence on patients' minds when small doses of carbolic acid were taken, was the real therapeutic factor at work.

Poultices in Suggestive Therapeutics.—Poultices represent another phase of the value of suggestion in medicine and surgery, though for many centuries those who used them were sure that the reasons for their employment were entirely physical and not psychic. All sorts of poultices have been used and each was supposed to do specific curative work. New forms of poultice material have been introduced, and physicians and patients have been certain that each worked wonders of its own. The drawing power of the poultice was extolled until patients dwelt on the idea that this external application was literally engaged in extracting from them, even from distant portions of their anatomy, virulent material that would do harm if allowed to remain in them. Poultices in suitable cases, because they represent moist heat, do good by counter irritation, by bringing about the expulsion of gas, by diverting internal hyperemia to external tissues, but most of their supposed efficacy has been really due to the bother required to prepare and apply them, the discomfort of having them on, and the feeling that now something had been done and the aches and pains must get better. They are still used, but to a much less degree than before. Now the ordinary teaching is that a hot water bag wrapped in dry flannel, if dry heat is the agent desired, and in moist flannel, if moist heat is the desideratum, is much more efficient. It takes but a few minutes for a poultice, no matter how hot when applied—and occasionally in the olden time they were applied so warm as to burn or scald—to decrease in temperature to that of the body. After that they represent only a moist compress.

It is easy to understand that the suggestive influence of poultices might serve for an age that knew less about the realities of the efficacy of external applications than ours. As a matter of fact, we have, nevertheless, shown ourselves to be quite as credulous and ready to receive analogous remedies as the past generation. With the waning of the popularity of the poultice, not only among the profession, but also among the people generally, there came into use various plasters which were supposed to have even more wonderful efficacy than the poultice of the olden time. These required a good deal of trouble to apply and once applied remained on for hours, and so continued to produce a definite curative effect on patients' minds. When first introduced, exaggerated claims were made for their therapeutic value and a regular crusade to diffuse correct information regarding them had to be made, in order to set them in their proper place as mere wet compresses, without any therapeutic efficiency beyond that of cloths wrung out in water and kept in touch with the skin.

Poultices and the Doctrine of Signatures.—There was a general impression in the past that the indication of the ailment for which substances are medically useful has been set on them by nature, either through the color, or the form of the plant, or other qualities. In general, the law of similars is supposed to hold in the doctrine of signatures—like cures like. Hence the cornmeal poultice for light

jaundice, the flax-seed meal poultice for darker jaundiced conditions and for tendencies to gangrene. The charcoal poultice was employed for this same purpose with no better reason, though some of its efficacy may have been due to oxygen present in the pores of the charcoal. I have already spoken of the appeal to the patient's mind in the use of the cranberry for erysipelas, and various other berries were used in like manner on the doctrine of signatures.

Deterrent Materials and Suggestion .—Another basic principle in the making of poultices was the use of deterrent, repulsive materials, because these were more effective on the patient's mind. All the ordures were so employed. Goose and chicken excrement was supposed to be particularly efficacious for many of the purposes for which we now use iodine. It was applied over sprains and bruises on the unbroken skin. Cow-dung was employed as a poultice for sprains of the larger joints, especially on the feet and legs, but to be efficacious it had to be applied fresh. I have known, within twenty years, of physicians in two so supposedly cultured parts of the country as Pennsylvania and Maryland, to employ such ordure poultices for the cure of sprains and dislocations, and these physicians had a great reputation among the people of their countryside. They were known especially as good bone doctors, and their use of such deterrent materials instead of decreasing their practices rather added to them.

Ointments.—In the Middle Ages ointments made of the most far-fetched materials were employed even by distinguished surgeons. That, indeed, is the one serious flaw in the surgery of the thirteenth and fourteenth centuries, when they did everything else so well. These ointments contained all manner of materials that were likely to impress patients and make them feel that something wonderful was being done for them. Crushed insects of all kinds were employed for external lesions. Here the doctrine of similars seems once more to have been in play. Insects gave creepy feelings, and whenever such feelings, or the paresthesiae generally, were complained of, a poultice or ointment made of insects seemed to be the natural remedy. The more repellent the materials, the more efficient they were likely to be. Many of the paresthesiae are due to neurotic conditions and it is not surprising that when an ointment of crushed lice—these insects being collected from barnyard fowls or from hogs—was used, the suggestive influence was strong. Another important ingredient in ointments were portions of dead bodies. A bit of a mummy from the East was supposed to be particularly efficacious. Portions of the bodies of men who had been hanged, or of the moss that grew on the skulls of malefactors whose bodies had been long exposed in chains to the air, were also favorite ingredients. Plants and shrubs gathered in graveyards, especially in the dark of the moon, because on account of the terror of the place they were then harder to get, also had a great reputation.

CHAPTER IV SIGNATURES AND PSYCHOTHERAPY

Similia similibus curantur , like is cured by like, is a very old idea. According to the doctrine of signatures nature had put an external natural marking or a symbolical appearance or characteristic upon a plant, mineral or other object, to indicate its special usefulness for the treatment of certain diseases or for affections of certain organs. Sir Robert Boyle, sometimes spoken of as the father of chemistry, said, "Chymists observe in the book of nature that those simples that wear the figure or resemblance, by them termed signature, of a distempered part, are medicinal for that part or that infirmity whose signature they bear." On this principle yellow flowered plants were good for jaundice, because they resembled it in color. The blood stone was good for hemorrhage, and plants of certain forms were good for the organs or parts of man which they resembled. Certain plants were named with this idea. Kidneywort, liverwort, are typical examples. Scorpion grass, our familiar forget-me-not of the *genus myosotis*, was so-called because its spike resembled a scorpion's tail and was, therefore, good against the scorpion's sting, or against pains similar to that produced by such a sting. Some of the resemblances were extremely far-fetched, but in spite of the defect of nature's signature on them,

they seem to have been effective in therapeutics. The plant, sometimes called Jew's ear, which can by an effort of the imagination be made to bear resemblance to the human ear, was, for instance, supposed to be a successful cure for diseases of that organ.

We know now that there is no significance in this doctrine of signatures. It represented one phase of pseudo-science. But the idea of itself was enough to help people to throw off many symptoms, to relieve discouragement, to encourage them with the thought that they ought to get better; accordingly they took new heart, ate better, went out more, and as a result naturally slept better, and then nature did the rest. Signatures are an exquisite example of pure psychotherapy, as the initial agent and natural curative methods accomplishing the cure.

Signature Details.—Some of the details of the doctrine of signatures are amusing. For a considerable period nuts were supposed to be a good brain food, and some traces of this idea are still extant, although there does not seem to be any better reason for it than the fact that many nuts have an arrangement of their lobes which resembles the conformation of the brain. On the same principle the Chinese use ginseng-root as a general tonic. The extract is not of any special significance in medicine, though it has come to be much advertised in recent years, and the Chinese continue to pay high prices for it. The reason is that the root of the ginseng plant often resembles the human body. The more nearly this resemblance can be traced, the more virtue there is for the Chinese in the particular specimen of ginseng. The signature is on the roots. It is good for man because it looks like man, just as the nuts are good for the brain because they look like the brain. In modern times we are likely to think that we are far away from any such self-deception. But our deceptions have a more appealing pseudo scientific element in them. Fish was for some time considered a good brain food because fish has phosphorus in it and so has the brain. The two reasons have as much connection as that between nuts and the brain; or ginseng and man.

Astrological ideas came in to help out ignorance and foster supposed knowledge. The sun and the stars were favorable planets and the moon unfavorable. If anything about a plant reminded the gatherer of the sun or the stars, then that plant was sure to be beneficial, especially in chronic diseases. If anything reminded him of the moon, however, then it could be expected to be maleficent in influence. Though childish, this had yet its power to help.

The use of nitrate of silver, which in the old days was called lunar caustic, because it had, in a fresh state, a silvery, moon-like sheen, was largely a matter of signatures. The signature went both by similitude and by contrary. Since the lunar caustic supposedly had a moon quantity, therefore it would be good for moon-struck people—the lunatics of the old time and of our own time. As a consequence nitrate of silver was used in many obscure nervous and mental diseases. In epilepsy it was commonly employed. Even in our own times, entirely on empiric grounds, it was used for such severe organic nervous diseases as locomotor ataxia and sometimes to such an extent as to produce argyria. Undoubtedly, its use, with confidence on the part of the physician and suggestion and persuasion on the part of the patient, did much to relieve sufferers from discouragement and from such psychic disturbance of their general health as would have made their condition seem worse.

Wines as Remedies.—How much suggestibility means in the choice of remedies that of themselves are more or less indifferent, may be well judged from the recommendations with regard to various wines that have been made by physicians. At one time and place it is red wine, at another it is white wine that is particularly effective. For certain nations the stronger wines, as Port or some of the Hungarian wines, have appeared to exercise specific effects. Except for the tastiness of these various brands or for other trivial accessories, it is probable that the therapeutic efficacy of the wine depends entirely on the alcohol and the effect of this upon the patient. In his "Memories of My Life," Francis Galton relates that Robert Frere, one of his fellow pupils with Prof. Partridge, who became through marriage in later years a managing partner in a very old and eminent firm of wine merchants, told him that the books of the firm for one hundred and fifty years showed that every class of wine had in its turn been favored by the doctors.

In prescribing wine the doctrine of signatures probably had more to do with the special choice than anything else. Red wines were recommended for anemic people, because somehow the coloring was supposed to affect the patient in such a way as to make up for the lack of coloring in the blood. On the other hand, the light, and especially the straw-colored wines, were recommended for liver troubles, because of their relation in color to the yellow of bile. Light wines were best for people who had more color than normal. Some wines are much stronger than others, and the alcohol, as in so many of our patent medicines, had a stimulating tonic effect, but in olden times this was supposed to constitute only the smallest portion of the efficiency of the wine, while the ingredients that made its color and taste were extremely important. The taking of red wine by anemic patients often proved suggestively valuable, and the alcoholic stimulation led them to eat more freely and look at things more hopefully and, consequently, to improve in health more rapidly than would have been the case had they not had the feeling that somehow they were actually consuming elements that would make their blood red.

Precious Stones.—The doctrine of signatures applied particularly to precious stones, and many of the popular medical superstitions with regard to precious stones were founded on it. The blood stone was said to be efficient as a tonic: it stimulated people: it made the anemic stronger and ruddier if it were worn on the fingers. The torquise turned pale when its owner was in poor health. It was the stone that was an index of what has been called "the blues" or what one modern writer has dignified by the title "splanchnic neurasthenia." Dr. Donne wrote of:

A compassionate turquoise that doth tell
By looking pale, the owner is not well.

It is probable that the pallor of the patient's hands as the background to the stone made the difference in its appearance thus noted. It became deeper in hue, as it were, when people were in ruddy health. The suggestive influence of such beliefs is easy to understand. It is even possible that the wearing of an amethyst did help to keep people from indulging in liquor to excess, for that is the traditional effect of the wearing of this stone, though its virtue seems to be founded on nothing better than the supposed derivation of the name from the Greek *a* privative and *methuo*, "I get drunk," suggesting strongly to the wearer that he should not get drunk.

The jacinth superinduced sleep and doubtless the strong suggestion of this supposed influence helped many sufferers from so-called insomnia to get sleep. The single fixed idea that now they must get to sleep would greatly help them. Pillows in the olden time were occasionally set with bits of jacinth, and there is even the record of bed-linen embroidered with it. This would probably be quite as effective as are hop-pillows in the modern time, for their main influence, as is also true of pine pillows, seems to be through suggestion. Some other traditions with regard to precious stones are harder to understand, yet may be explained. The owner of a diamond was supposed to be invincible. Diamonds represented money and money meant power. It is harder to explain the tradition that the possession of an agate made a man able and eloquent.

The wide acceptance of the doctrine of signatures, and of allied ideas, as to the effect of precious stones and metal and jewelry upon disease, makes it clear that the acceptance of a mental persuasion with the changes in habits that follow, may serve as the basis of a successful system of therapeutics. The materials associated with the idea had absolutely no more physical influence than does the carrying of a horse chestnut or a potato in the pocket serve to keep off rheumatism.

CHAPTER V

PSEUDO-SCIENCE AND MENTAL HEALING

An interesting phase of psychotherapy is found in the history of the applications of new scientific discoveries to medicine. The development of every physical science has been followed by

an attempt to apply its new principles and discoveries to the treatment of disease. Such applications have nearly always been followed by excellent results at the beginning. But almost without exception, the medical significance of these discoveries has, after a time, been found to be *nil*. When these discoveries were made they became the center of public attention. The announcement of their application to medicine then seemed natural and produced a feeling that another great therapeutic principle had been discovered. Sometimes wonderful therapeutic effects were noted. The chronic diseases particularly were helped for some time, at least, and practically all the affections that have mainly subjective symptoms were greatly relieved, or actually cured. After a time, however, when the novelty of the discovery wore off, its suggestive power was lessened and then the remedy lost its therapeutic power.

ASTROLOGY

Astrology is the typical example of pseudo-science in medicine. The stars, and particularly the planets and the moon, were supposed to have great influence on human destiny, human health, and human constitutions. Astrology was an organized body of knowledge over 3,000 years ago. Mr. Campbell Thompson has recently translated a series of 300 inscriptions from the cuneiform tablets in the British Museum, and Professor Südhoff of Leipzig has compiled all the references to medicine in these. The latter's studies show the extent which star influence was supposed to have over human health. A halo round the moon, an obscuration of the constellation of Cancer, the pallor of a planet in opposition to the moon, the conjunction of Mars and Jupiter, and other movements and phenomena of heavenly bodies were supposed to foretell the approach of disease for man and beast.

As a consequence of this application of astrological knowledge to medicine, operations were performed only on certain favorable days or under favorable conjunctions of planets. An ailment that occurred at an unfavorable time, because of an unpropitious state of the heavens, would not be relieved until the motions of the stars brought a more benign conjunction. Observations seemed clearly to indicate that the stars actually had such influences. Even Hippocrates, though he insisted that "the medical art requires no basis of vain presumption, such as the existence of distant and doubtful factors, the discussion of which, if it should be attempted, necessitates a hypothetic science of supra-terrestrial or subterrestrial belief," could not entirely get away from astrology. In his treatise on "Air, Water and Locality" he writes: "Attention must be paid to the rise of the stars, especially to that of Sirius as well as the rise of Arcturus, and after these to the setting of the Pleiades, for most diseases in which crises occur develop during these periods." In the second chapter he writes: "If anyone would be of the opinion that these questions belong solely in the realm of astrology, he will soon change his opinion as he learns that astrology is not of slight, but of very essential importance in medical art." (Personally I doubt the Hippocratean authorship of these passages, but they are surely very old.)

The influence of the suggestions derived from astrology on human patients continued until almost the nineteenth century. There were many protests, especially from the Doctors of the Church, that the applications of astrology to medicine were false, but the practice continued. Both Kepler and Galileo drew horoscopes for patrons, and while Kepler doubted their value, he felt that in making them he was justified by custom. Galileo drew up the horoscope of the Grand Duke of Tuscany during an illness, and declared that the stars foretold a long life, but the Duke died two weeks later. But incidents of this kind did not disturb either popular faith or medical confidence in astrology as helpful, in prognosis, at least, if not also in diagnosis. Even so late as 1766 Mesmer was graduated at the University of Vienna, when it was doing the best medical work in Europe, with a thesis on "The Influence of the Stars on Human Constitutions."

Later Astrology.—Few now realize that the curious figure printed at the beginning of most of our almanacs down to the present day is a relic of the time when physicians believed in the influence of the constellations over the various portions of the body. Even yet this idea has not entirely gone out

of the popular mind, and hence its retention as something more than a symbol in our little weather books. Man was considered as a little world, a microcosm, and the universe, as men knew it—the sun, the moon and the planets together—constituted a macrocosm. It was observed that the bodies constituting the universe were circumscribed in their movements and never went out of a particular zone in the heavens which was called the zodiac. This zodiac was divided into twelve equal parts called signs or constellations. Similarly man's body was divided into twelve parts, of which each one was governed by a sign of the zodiac or by the corresponding constellation. The ram governed the head; the bull the neck; the twins the paired portions, shoulders, arms and hands; the crab the chest; the lion the stomach, and so on. The old surgical rule, as quoted by Nicaise in his edition of Guy de Chauliac's "Grande Chirurgie," was that the surgeon ought not make an incision, or even a cauterization, of a part of the body governed by a particular sign or constellation on the day when the moon was in that particular portion of the heavens, for the moon was supposed to be the bringer of ill-luck and to have untoward influences. The incision should not be made at these unfavorable periods for fear of too great effusion of blood which might then ensue. Neither should an incision be made when the sun was in the constellation governing a particular member, because of the danger and peril that might be occasioned thereby.

Such rules were supposed to be founded on observation. Patients were influenced by them mainly because they were assured that the surgical treatment was undertaken under the most favorable influence of the stars and that all unfavorable influences had been carefully observed and eliminated. It is hard for us to understand how such ideas could have been maintained for so long in the minds of men whose other attainments clearly show how thorough they were in observing and how profoundly intelligent in reaching conclusions. We should, however, have very little censure for them, since from some other standpoint we find every generation, down to and including our own, jumping at conclusions just as absurd and just as inconsequential. And the practice of astrology was not without its value, for the reassurance given patients by the consciousness that the stars were favorable did much to relieve their anxiety as to the consequences of surgery, lessened shocks, hastened convalescence, and favored recovery.

HERBAL MEDICINE

What is thus exemplified in astronomy and astrology can be found in the story of every other science. After the knowledge of the stars, the next organized branch of information that might deserve the name of science related to plants. This, too, was introduced into medicine, and with more justification than astrology. Most of what was accomplished by early herbal medicine was, however, due to the influence produced on the mind rather than to any physical influence tending to correct pathological conditions. The shape and color of plants, their form, the appearance of their leaves, were all supposed to indicate medical applications for human ailments. The reason for their acceptance was entirely the ideas associated with the plants and not any definite therapeutic effect. Whatever good nine-tenths of all the herbal medication accomplished certainly was by means of the influence on the mind. We have abandoned the use of most herbal remedies in recent years, even many that are still retained in the pharmacopeia, because we have realized their physical incapacity for good.

ALCHEMY

When chemistry, under the old name of alchemy, began to develop, its first study was of minerals, and just as soon as a body of knowledge was acquired chemistry was applied to medicine. All the investigators were engaged in searching for the philosopher's stone, the substance by means of which it was hoped to change base metals into precious. It was generally believed that when this substance was found, it would have wonderful applications to human diseases and would transmute diseased tissues into healthy tissues in the same way that it transformed metals. It was felt that the

philosopher's stone would be an elixir of life as well as a master of secrets for wealth. This would seem amusingly childish to us were it not for the fact that in radium we, too, seem to have discovered a philosopher's stone—a substance that transmutes elements. For some years after its discovery we were inclined to think that it must have some wonderful application in medicine and in surgery, and we actually secured many good results until its suggestive value wore off.

The fact that much had been learned about chemicals persuaded men that they must be beneficial to human beings. Thus they were taken with confidence and produced good results. When our modern chemistry developed out of alchemy a great variety of drugs began to be used, and long, complex, many-ingrediented prescriptions were written. Polypharmacy became such an abuse that the time was ripe for Hahnemann, whose principles, if carried to their legitimate conclusions, would require his disciples to give practically nothing to patients and treat them entirely by suggestion.

MATHEMATICAL MEDICINE

When mathematics developed, applications of that science were made to physiology and to medicine. Under the influence of Borelli, the school of Iatro-Mathematical medicine developed and it flourished long after him. Foster, in his "History of Physiology," says:

Borelli was so successful in his mechanical solutions of physiological problems that many coming after him readily rushed to the conclusion that all such problems could be solved by the same methods. Some of his disciples proposed to explain all physiological phenomena by mathematical formulas and hypotheses concerning forces and the shapes and sizes of particles.

MAGNETISM

Magnetism occupied a large place in the minds of the great thinkers of the sixteenth and seventeenth centuries. There is no doubt that Paracelsus accepted, quite literally, what we embody in figurative expressions with regard to magnetism. To him the attraction of sex was magnetic. People had personal magnetism because they possessed physical powers by which they attracted others. He considered that these powers of attraction were expressions in human beings of the power of the magnet in the physical world, and that the two were literally equivalents. Kepler, one of the deepest thinkers of his time, evidently entertained the idea that the magnet represented the soul of the physical world, and that the planets were held in connection with the sun and their satellites with the planets, by magnetic attraction. We now call it the attraction of gravitation. We understand the force no better than before, but have changed the terms. Descartes theorized much along magnetic lines, and felt that by the use of certain expressions he was adding to knowledge, though he was really only multiplying terms.

Human Magnetism.—How seriously the question of human magnetism was taken will perhaps be best appreciated from one old fallacy. For a long period it was supposed that human beings were so highly magnetic that if a man were exposed in an open boat, in perfectly calm weather, in the open sea, where no currents would disturb him, his face would turn to the north, under the same magnetic influences as caused the needle to point to the north! Many studies of magnetism were made at this time, so that the subject attracted widespread attention. Columbus had made some rather startling observations on his voyage to America with regard to the declination of the magnetic needle, and, during the century following, Norman and Gilbert made interesting studies in the same subject. Father Kircher wrote two books on magnetism and there were a number of others written by university professors. Advantage was taken of this thoroughly scientific interest in magnetism to erect a whole body of pseudo-scientific medicine supposed to be founded on magnetic principles. The same theories were also applied to supposed explanations of various psychological phenomena.

During the sixteenth and seventeenth centuries the application of magnets was a favorite treatment for a great many diseases. Especially were they useful in the treatment of muscular pains and aches and the chronic diseases which so disturbed men's minds. Many of the joint troubles of the aged, the muscular pains and aches that develop from the wrong use of muscles, and the vague internal discomforts which often disturb men so seriously, were cured by the application of magnets. Perkins' success with his tractors shows how much can be accomplished in this way.

ELECTROTHERAPY

The great development of pseudo-science in medicine remained for the era following the scientific investigation of electricity. With the discovery of the Leyden jar and its startling spark, a new and marvelous healing agent seemed to be at hand. It is quite amusing to read the accounts of the influence of the spark of the Leyden jar on the well and on the ailing. In my "Catholic Churchmen in Science" (Dolphin Press, Phila., 1909) I summed up the situation.

Winckler of Leipzig said that the first time he tried the jar, he found great convulsions by it in his body; it put his blood into great agitation; he was afraid of an ardent fever, and was obliged to use refrigerating medicines. He felt a heaviness in his head as if a stone lay upon it. Twice it gave him a bleeding at the nose. After the second shock his wife could scarcely walk, and, though a week later, her curiosity stronger than her fears, she tried it once more, it caused her to bleed at the nose after taking it only once. Many men were terrified by it, and even serious professors describe entirely imaginary symptoms. The jar was taken around Europe for exhibition purposes, and did more to awaken popular interest than all the publications of the learned with regard to electricity, in all the preceding centuries.

The extent to which the curative power of electric sparks from the Leyden jar was supposed to go is best appreciated from a list of the affections that one distinguished electro-therapist claimed could be not only benefited, but absolutely cured by its employment. It included pulmonic fever, under which title practically all the more or less acute diseases of the chest were included, and some at least of the sub acute; dropsy, by which was meant every effusion into the abdominal cavity no matter what its cause; dysentery, under which was included at that time not only the specific dysenteries but many of the summer complaints and some typhoid fevers; diarrhea, including all the intestinal diseases not already grouped under dysentery; putrid and bilious fever, under which category were assembled the worst cases of typhoid; typhus fever, and all the other continued fevers, and any febrile condition reasonably severe for which no other term could be used; epidemic diseases, pest, anthrax, small-pox, cancer, gravel, diseases of the bladder and of the brain and spinal cord. The Leyden jar had no real effect on any of these affections, but doubtless the mental effect of this new remedy was quite sufficient to be of distinct therapeutic value in the milder forms of many of them.

With Galvani's discovery of the twitching of the muscles of the frog there came a new impetus to the exploitation of electricity in medicine. Many felt that now it was beyond doubt that electrical energy bore some definite relation to vital energy—that one might be made to replace the other if indeed they were not more or less the same thing. This led to many applications of electricity in medicine. Students of physiology were convinced that they were getting close to the solution of the mystery of life, and their persuasion was readily carried over to the people of the time, so that electricity literally worked wonders on them.

When the various electrical machines were invented and their use popularized, pseudo-science proceeded to exploit them, and succeeded, because the mechanical shock of the electric current proved a suggestive therapeutic stimulant. Gordon in the eighteenth century made the first practical frictional electrical machine, and soon some men were observing wonderful effects with it, though the charge was so small that it could actually accomplish little. Just after the invention of the voltaic

pile in 1800 it came to be used in medicine with wonderful results. We are prone to think that electrotherapy is modern, but when electrical machines were quite crude, current strength small and potential low, old-time electro-therapeutists were recording their wonderful results and were getting just as marvelous effects as are reported now by enthusiasts. Considerable electro-medical literature existed a century ago when next to nothing was known of electricity. When, later, high potency currents came in and the Wimshurst and other powerful machines were invented, there was revealed at each novel invention a new horizon in electro-therapy and wondrous cures were reported. These continue to occur in the practice of a few favored individuals, though the general profession secures only some ordinary mechanico-muscular effects, which demand much time for real good to be accomplished and have nothing at all of the marvelous about them.

The power of the pseudo-scientific aspect of electricity to influence patients, far from being lost in our time, has rather been increased. Our newspapers make their readers eminently suggestible because they constantly furnish suggestions, and nothing so strengthens a function of any kind as exercise of it. All sorts of electrical contrivances and apparatuses are advertised to cure various pains and aches. Many of them actually seem to relieve long-standing discomfort, though it is not through any electrical power that they do so, but entirely through their influence on the patient's mind. A museum of the electrical contrivances of various kinds for which absurdly high prices are paid at the present time and which people recommend to others because of having been benefited by them would be interesting. There are belts of many kinds, and rings, and medallions, and plates to be worn on the back and on the chest, and curiously shaped poles or "polar plates" resembling various organs, and pendants and armlets and anklets and insoles of many, many kinds, usually going in pairs, one made in zinc and the other in copper, and worth exactly as much as the weight of copper and zinc in them, yet curing chronic ailments by suggestion, or at least bringing relief from many pains and aches complained of.

LIGHT AND PSYCHOTHERAPY

Just as electricity has always been therapeutically abused by those who have taken advantage of the suggestive influence of its marvelous energy, so each new discovery in light has been the source of pseudo-scientific applications to medicine. When the explanation of photography was first made, shortly after the middle of the nineteenth century, and it was demonstrated that it was the blue light, or at least that end of the spectrum, and even some of the rays beyond the visible violet, which were the most active in this regard, applications of this fact to popular medicine became the order of the day. We had a wave of "blue light therapy" that wandered over this country and sold tons of blue glass. People simply sat beneath the blue glass as the sun shone through it and were supposed to absorb the actinic rays and acquire new life. According to many who had tried them, the ultra-violet rays were quite equal in their power to heal and restore new vigor to old frames to the fabled elixir of life of the olden time. "Rheumatism (that universal ill of the unthinking) in all its hydra-headed forms disappeared," as one enthusiast declared, "before the blue light, like the mists of the morning before the sun." All this, though it is said that the movement had no more serious foundation than the desire of a manager of a glass factory, who found himself stocked up with blue glass through a mistake, to dispose of his surplus stock. He not only did so, but many other manufacturers turned special attention to the new product because of the demand for it. The newspaper advertising was through the reading columns. The results were heard of on every side.

THE X-RAY

That happened two generations ago, and it might be supposed that in the meantime there had been so much advance in popular education, and particularly in the diffusion of scientific knowledge, that such a self-deception on the part of scientists, and blind following by the people, could not

take place in our time. Just as soon as Roentgen discovered the X-ray, however, we began to have applications of that wonderful agent to curative purposes. About 1900, scarcely five years after Roentgen's discovery, there was hardly an ailment that some one did not claim to have seen treated successfully by the X-rays. Especially was this true for the chronic and hitherto supposedly incurable diseases. All the forms of malignant disease were treated by the new agent, and some supposedly marvelous cures were reported. Everything chronic was favorably affected—lupus, rodent ulcer, eczema, acne rosacea, even tuberculosis of the lungs. At the time I was on the staff of a medical journal, and the favorable reports came in so thick and fast that it really looked for a time as though the surgery of the future was to be much simplified. It took but a year or two to show us how little of lasting therapeutic benefit there was in the X-ray, in spite of the fact that it is a marvelous agent in its action upon living tissues. At the present moment it is used comparatively little, and its use is gradually diminishing, except for very special limited affections.

RADIUM AND RADIO-ACTIVITY

When radium was discovered, though it came so soon after the discovery of the X-ray and our disappointment with it, the old story of another pseudo-scientific medical application was told. For a time it looked as though radium might accomplish all that had been promised for the X-ray, though that promise had been so lamentably broken. Then, besides radium, we had brought home to us the whole class of radio-active substances, and their possibilities. The internal administration of radio-active liquids was one of the hopes of therapeutics. We had found it difficult to explain how many of the mineral waters produced the beneficial action credited to them when taken at the spring. We knew that artificially made waters of exactly the same chemical composition, so far as we could determine, did not have the same effect, nor even the waters themselves when taken at a distance from the spring.

With the discovery of the radio-active principle there came the suggestion that possibly the main virtue of mineral waters at the spring was due to radio-activity. This would not be present in artificial water and would disappear from the natural water during shipment. This new idea was alluring, and it captured many. Radium seemed to be the new panacea. But we are discovering its limitations. It is of little avail in surgery; it is probably of less avail in medicine. As yet, however, we cannot say absolutely and must wait until results are determined. In the mean time many zealous advocates of the marvelous power of radio-activity to cure are exploiting it, apparently getting results and certainly making money. In the case of the mineral waters, also, the most important therapeutic element is probably the mental influence, which is strongest at the spring itself, where the suggestion of efficiency is repeated many times a day, and where the very atmosphere breathes confidence in the results to be obtained.

SUGGESTION AND PSEUDO-SCIENCE

These applications of science, or rather of supposed science, illustrate the influence of suggestion. The succession of events in each case is about as follows: The definite attitude of mental expectancy is created in the popular mind. As a consequence, with the application of the new scientific principle, patients cease inhibiting the recovery that would have come spontaneously before, only that they were self-centered and had their nervous energies short-circuited. Some are benefited by the habits of life that are established as a consequence of the belief that they are about to be cured, while before this they had been largely confining themselves to their houses, and had been refusing to take recreation or get diversion because of the conviction that they were ill. Finally, many of them had no real physical ills, but were suffering from mental ailments brought on by dreads and by a concentration of attention on certain portions of the body which interfered with the normal physiologic action of those parts. Whenever strong mental impressions are produced, from any cause, results will surely follow, some of them marvelous. The supposed causes of these results will seem quite absurd to those

who study them afterwards, but they were living realities to the sufferers. Nothing is more calculated to produce a strong mental impression than a newly discovered scientific fact with some supposedly wonderful application to humanity. The subsequent history of the application of scientific discoveries to medicine has been as invariably the same as the primary enthusiasm over each new therapeutic agent. After a time some people were not benefited. Physicians lost confidence in the power of the new remedial measure, whatever it might be. Patients were no longer impressed by the assurance that they would be benefited, and then the new application has either completely disappeared from our list of remedies, or has remained only to be used by a few, who still report good results from it. In spite of the constancy of this succession of events, we are still quite ready to take up with enthusiasm new discoveries in science and their applications to medicine. We have not yet lost the feeling, common in earlier centuries, that all science was meant for man and that every new scientific development must have some special reference to him.

CHAPTER VI QUACKERY AND MIND CURES

Not less interesting than the therapeutic results obtained by men who in good faith were using inert remedies that they thought effective, are the cures obtained by men who had good reason to know that the therapeutic methods they were using were quite inefficient. Their good results, often loudly proclaimed by healed patients, are obtained entirely through the patients' minds. Usually these men are supposed to possess some wonderful therapeutic secret, which they have obtained by a fortunate discovery, or by long years of study, though usually their discovery is a myth and their long years of study a fable. So long as people can be brought to believe in their powers many cures are sure to follow their ministrations. The real secret is their knowledge of human nature. They induce people to tap new sources of vital energy in themselves, and somehow they succeed in bringing to their aid this law of reserve energy. Besides, in many cases the real reasons why patients continue to have certain symptoms once they have been initiated, is that their worry about themselves inhibits their natural curative power. This inhibition is prevented or obliterated by the change of mind produced by the quack, and then the *vis medicatrix naturae* brings about a cure.

Probably the oldest story that we have of a quack in our modern sense of the word is found in the Arabian Nights, some of the stories of which were old even in the time of Herodotus. One day Galen, famous for his work at Rome in the second century after Christ, found a wandering healer pursuing his avocation in his front yard. He found also that this man succeeded in relieving certain patients for whom he had been unable to do anything. He found that the medicines prescribed were likely to do harm rather than good, yet many of the patients were benefited.

Galen succeeded in winning the man's confidence, who told him his story. He had been a weaver, but his wife thought he was not making money enough to support her properly, so she had advised him to become a leech. After taking lessons from a wandering quack, he set up for himself. When Galen inquired as to his method of making a diagnosis, he found that he did it entirely by his knowledge of human nature. He was even able to tell what was the matter with patients at a distance when friends came to demand medicine for them.

We think that such ready deception was possible only in earlier times, when education was not widely diffused and when belief in superstitions was fostered. Any such idea completely ignores the modern status of the quack and the success that he meets among even the more intelligent members of the community. Indeed, with the diffusion of information in modern times the quack has secured a wider audience. Superficial ideas of science are disseminated by the newspapers and by the magazines, people think that they understand all about it, and then these ideas are turned to their own advantage by the irregular practitioners of medicine. We have quacks by the score in all the centers of population, making a livelihood by exploiting the ailing, and serving to no small extent

to create a feeling of popular discontent towards the physician, because that serves the purpose of quackery. Indeed, it is during the past century or a little more that some of the most striking examples of quackery have occurred.

Cagliostro.—Cagliostro, whose story is told in Dumas' "Memoirs of a Physician," and an excellent account of whose life may be found in Carlyle's "Miscellanies," is one of the great quacks and humbugs of history. He began his supposed medical work at Strasburg by the modest claim that during his travels in the East he had found a series of remedies which made old people young. In proof of his power to do this he exhibited his wife. She was a handsome young woman of very shady reputation whom he had married on his travels. She professed to be sixty years of age, though she was really under thirty and looked it, but she claimed that she had a son who had served for many years in the Dutch army. This imposition was so effective that in Strasburg, and subsequently in Paris, the charming pair collected large sums from wealthy old persons, especially from women on whom the marks of time had begun to show, and who expected, as the result of the treatment, to be shortly as young and as handsome-looking as Madame Cagliostro herself.

We might think that it is quite impossible for any such a deception as this supposed renewal of youth to be practiced in our more enlightened day when popular education is so widely diffused. We must not forget, however, that the newspapers bring us evidence every month of some old person who is quite sure that something that was being done for him was, if not renewing his youth, at least giving him back much of his pristine vigor, healing his aches and pains, and enabling him to take up his work once more. In treating the ravages of old age, which would seem to be altogether beyond any influence of psychotherapy, some of the most striking results are obtained. New therapeutic methods for the old come into vogue every year. As they grow older, people become discouraged and so do not exert even the natural energy that they have for the maintenance of health and the keeping up of strength. Their discouragement keeps them from exercising enough, and this decreases appetite and sleep, and as a consequence there are many disturbances of function. All of this disappears as soon as they feel encouraged. Brown Sequard and his extract of testicular tissues is a typical example of how strong suggestion may influence the old and make them think that they are renewing their vigor and strength, and even their youth.

Perkins, Prince of Quacks.—Shortly after Cagliostro an American succeeded in using a very simple idea to gain world fame and at the same time to make an immense amount of money. He was a Connecticut Yankee with the typical name, Elisha Perkins. Dr. Perkins must have been born under a lucky star; at least he lived in fortunate circumstances for his purposes. Galvani's discovery of the twitchings that occur in the frog's legs when a nerve-muscle preparation or its equivalent was touched by metals in contact, had aroused world-wide discussion as to the place of electricity and magnetism in biology. Volta's brilliant experiments, which led to the invention of the Voltaic Pile, still further increased men's interest in this subject. It was then that Dr. Perkins came to exploit these electrical and magnetic ideas in medicine by means of a very simple invention. It was indeed the simplicity of his apparatus that made its appeal even more wide than would otherwise have been the case, and, be it said, left a larger measure of profit for the inventor.

Oliver Wendell Holmes in his "Medical Essays"⁴ has told the story of what may be called the rise and fall of tractoration. Any physician who wants to appreciate the real significance of cured cases should read Holmes' essay. We quote:

Dr. Elisha Perkins was born at Norwich, Connecticut, in the year 1740. He had practiced his profession with a good local reputation for many years, when he fell upon a course of experiments, as it is related, which led to his great discovery. He conceived the idea that metallic substances might have the effect of removing diseases, if applied in a certain manner; a notion probably suggested by the then

⁴ Houghton, Mifflin Co., Boston.

recent experiments of Galvani, in which muscular contractions were found to be produced by the contact of two metals with the living fiber. It was in 1796 that Perkins' discovery was promulgated in the shape of the Metallic Tractors, two pieces of metal, one apparently iron and the other brass, about three inches long, blunt at one end and pointed at the other. These instruments were applied for the cure of different complaints, such as rheumatism, local pains, inflammations, and even tumors, by drawing them over the affected parts very lightly for about twenty minutes. Dr. Perkins took out a patent for his discovery, and traveled about the country to diffuse the new practice.

Just what the tractors were composed of may be found in the description of them filed with an application for a patent in the Rolls Chapel Office in London. They were not simply two different metals, but a combination of many metals, with even a little of the precious metals in them, partly because of the appeal that this would make to the multitude, as chloride of gold did to our own generation, but doubtless mainly because the claim of precious metals entering into the composition enabled the inventor to sell his tractors at a better price.

Dr. Holmes continues:

Perkins soon found numerous advocates of his discovery, many of them of high standing and influence. In 1798 the tractors had crossed the Atlantic, and were publicly employed in the Royal Hospital at Copenhagen. About the same time the son of the inventor, Mr. Benjamin Douglass Perkins, carried them to London where they soon attracted attention. The Danish physicians published an account of their cases in a respectable octavo volume, containing numerous instances of alleged success. In 1804 an establishment, honored with the name of the Perkinian Institution, was founded in London. The transactions of this institution were published in pamphlets, the Perkinian Society had public dinners at the Crown and Anchor, and a poet celebrated their medical triumphs.⁵

Miss Watterson⁶ tells how he attracted attention. Like all successful quacks, he had an inborn genius for advertising.

He lived in the house once occupied by John Hunter [how characteristic this is—the first quack we mentioned in this chapter, took up his work in Galen's front yard], and in 1804 the Perkinian Institute was opened, but by the end of 1802, 5,000 cases had already been treated. Lord Rivers was president. Sir William Barker, Vice-President [Prominent legislators, lawyers, bankers always lend their names.] Twenty-one physicians, nineteen surgeons, and the leading veterinaries succumbed to the influence of the magic tractors. One "eminent physician" who had had 30 guineas from a country patient and had done him no good was very angry when the sick man took to Perkinism.

"Why, I could have cured you in the same way with my old brick-bat or tobacco pipe, or even my fingers."

"Then why, sir," answered the patient in a stern voice (Perkins quotes this), "did you dishonorably pick my pocket when you had the means of restoring me to health?"

⁵ "See pointed metals, blest with power t' appease
The ruthless rage of merciless disease,
O'er the frail part a subtle fluid pour,
Drenched with the invisible galvanic shower,
Till the arthritic staff and crutch forego
And leap exulting like the bounding roe!"

⁶ "Mesmer and Perkins's Tractors," *International Clinics*, Vol. III, Series 19. 1909.

In some 176 pages young Perkins gives us the pick of 2,000 cases who had, of course, been foolish enough at first to put faith in the ordinary physician and his drugs.

In Bath, particularly, where aristocratic London went, as they do to-day, to repair the damage wrought by a season in town, the Tractor Cure was the talk of the place. But an enemy dwelt there, a Dr. Haygarth, an unbeliever. He, with a certain Dr. Falconer, fabricated a pair of false tractors. Five cases of gout and rheumatism were operated on by the conspirators, who discussed in a light tone the wonders of magnetism as they described circles, squares and triangles with the sham tractors. "We were almost afraid to look each other in the face lest an involuntary smile should remove the mask from our faces," says Haygarth, but the two assistant doctors, unaware of what was being done, were almost converted to Perkinism when they saw the five patients slowly mending under the treatment. One man experienced such burning pain that he begged to wait till the next day.⁷

So rapid, and so many were the hospital cures wrought by these two doctors, that patients crowded to them and they could hardly spare five minutes to eat. They amused themselves inventing other instruments made of common nails and sealing wax, and effected with them cures, while they sent a pair of false tractors to Sir William Watson in London and Dr. Moncriffe in Bristol, who operated with them with wonderful results.

It must not, however, be thought that the uneducated, or the unskilled, or even merely unoccupied, were the only ones taken in by the supposed power of Perkins' Tractors. As we have seen, many physicians did not hesitate to avow themselves publicly as believers in this new and marvelous application of magnetism to human healing. It is true that the only thing we know about the men who became advocates of this new instrumental therapeutics, is their connection with it. The attention of the scientific world was rather cleverly managed. Dr. Perkins presented a pair of his tractors and the book that he had written about their use to the Royal Society. The custom of that learned body was to accept such presentations by a formal letter of thanks and place the objects and books on their shelves. No formal investigation of the claims to scientific consideration of such presentations was made. All possible advantage was taken of the fact that the Royal Society had accepted the new invention and had publicly thanked the discoverer for it.

How characteristically recent this old story is; it is renewed on every possible occasion and wears all the familiar aspect of modern devices for securing recognition and obtaining the apparent approbation or recommendation of some scientific society or institution. We had an example of it a few years ago when a nostrum exploiter signed the register of an International Congress immediately after a great medical investigator and then used a photograph of the names for advertising purposes.

How did the tractors secure the vogue they enjoyed? Those who believed in them did so not because of the scientific theory that animal magnetism or magnetic influence was behind them, nor because of the plausible ways of the Connecticut Yankee, but because of the unquestioned and unquestionable facts of actual healing that they saw in connection with the use of the tractors. Every one of these applications of science to medicine that has proved to be pseudo-scientific after enthusiasm subsides has made its appeal through the cures effected by it. Cures are what Eddyism advances to support its claims, cured patients are presented as their most effective argument by the osteopaths, cured symptoms are the proofs for Hahnemannism, but none of these systems of treatment ever cured as many cases in a corresponding time as did Perkins' tractors. They cured all sorts of physical ills, but their only effect was exerted through the mind.

Holmes wrote:

⁷ Compare the first effects of the Leyden Jar, related in the chapter on Pseudo-Science.

Let us now look at the general tenor of the arguments addressed by believers to sceptics and opponents. Foremost of all, blazoned at the head of every column, loudest shouted by every triumphant disputant, held up as paramount to all other considerations, stretched like an impenetrable shield to protect the weakest advocate of the great cause against the weapons of the adversary, was that omnipotent monosyllable which has been the patrimony of cheats and the currency of dupes from time Immemorial—Facts! Facts! FACTS! First came the published cases of the American clergymen, brigadier-generals, almshouse governors, representatives, attorneys and esquires. Then came the published cases of the surgeons of Copenhagen. Then followed reports of about one hundred and fifty cases, published in England, "demonstrating the efficacy of the metallic practice" in a variety of complaints, both upon the human body and on horses, etc. But the progress of facts in Great Britain did not stop here. Let those who rely upon the numbers of their testimonials, as being alone sufficient to prove the soundness and stability of a medical novelty digest the following from the report of the Perkinistic Committee. "The cases published (in Great Britain) amounted, in March last, the date of Mr. Perkins' last publication, to about five thousand. Supposing that not more than one cure in three hundred, which the tractors have performed, has been published, and the proportion is probably much greater, it will be seen that the number, to March last, will have exceeded one million five hundred thousand!"

It is not surprising that with such "facts" behind them the tractors attracted deep and wide attention. A contemporary tells of it and the fate of the inventor:

A gentleman in Virginia sold a plantation and took the pay for it in tractors. Nothing was more common than to sell horses and carriages to buy them. But the worst (or the best) of it was, yellow fever was raging in New York, and Perkins thought he could cure the fever with the tractors and fell a victim to the fever himself.

Success of Quackery.—Always in the history of quackery and, indeed, in the history of all therapeutics, the appeal is to the cures that have been effected. This is the only evidence, of course, that can be adduced for the development of therapeutics, and yet the history of medicine makes it clear how carefully supposed cures must be analyzed if they are really to mean anything. Mesmer could adduce thousands of cured cases. Perkins could do the same. Every quack in history, from Galen's weaver, who became a leech, down to the last street corner nostrum vendor, does the same thing. When on the strength of supposed cures, then, a new system of therapeutics is introduced, it is much more likely than not that there is no foundation for the claims made. We have had ever so many more experiences of disappointment after the introduction of remedies which cured at the beginning of their history, than we have had of remedies that maintain themselves after prolonged experience. It is the attitude of scepticism and suspended judgment until after a remedy or method of treatment has been tried on many different kinds of cases in varying circumstances that constitutes the only efficient safeguard against repeating the unfortunate errors of old times in the matter of drugs and remedial measures. If the public could be made to realize this, they would be much less easily taken in.

What the quacks cure are not always imaginary ills, but often ills that are very real, at least to the patients, and the symptoms of which are relieved by the confidence aroused in the new remedy and the representations of the supposed discoverer, who, in spite of the exaggerated claims which he makes, somehow succeeds in catching the trust of patients. Very often this process initiated by the quack is really only the beginning of the cure.

In most people a vicious circle of pathological subsidiary causes is formed when anything becomes the matter. Patients are persuaded that a serious illness is ahead of them. This keeps them from exercising as much as before. Becoming overcareful of their diet, they reduce it below the

normal limit for healthy activity. This causes them to have less energy for work and disturbs their sleep. Then a host of minor symptoms, supposed to be due to the disease, whatever it is or they think it is, but really consequent upon the unhealthy habits that have formed, begin to develop. Just as soon as confidence in their power to regain health is restored to these people, a virtuous circle, to use the Latin word virtue in its etymological sense, of strength and courage, is formed. Everything conspires to stimulate the patients; they live more naturally, the subsidiary symptoms consequent upon their bad habits disappear and the disappearance of each one of them means for the patients a new assurance of triumph over disease. They attribute every improvement to the remedy they happen to be taking, though most of them are due to the changes in their habits, their diversion of mind, and the new energy released by their sense of encouragement.

An excellent example of how some of these mental persuasions in quackery act, and of how the cure is often really due to the physician who previously treated the case, though it is credited to the quack, may be found in the story that Hilton tells in his "Rest and Pain":

When this patient was first seen by a surgeon, he was thought to be laboring under some disease of the bladder and kidneys, for he had severe lumbago, pain over the bladder, and offensive urine. There had been no suspicion of anything wrong as regards the spine. He was a master painter and a house decorator, and was monstrously conceited, thinking himself right and everybody else wrong. When I explained to him, after careful examination, that the spine was the cause of the symptoms, he was not satisfied with my opinion and without my knowledge consulted Sir Benjamin Brodie, who also assured him that his spine was diseased and told him that he must rest it by lying down. To this he then assented. As he could not be controlled in his own house, I persuaded him to go to Guy's Hospital, where he had got nearly well; but he was very impatient, and would not remain long enough under my care to be quite cured. He returned home, gradually improved, and was getting quite well when some pseudo friend advised hydropathy and homeopathy—it did not matter which of the two—as "the thing" to cure him. After a few months he was perfectly restored, not by either hydropathy or homeopathy, but, no doubt, by nature. The man, however, feels convinced that hydropathy and homeopathy cured him. It so happens, gentlemen, that sometimes we do not get the degree of credit which perhaps belongs to us.

To Mr. Hilton's reflections one is tempted to add that many of these patients, after having been seriously ill, cannot bring themselves to think that they will gradually get well by the forces of nature. Even after they have improved very much they are still inclined to think that that improvement is illusory or will relapse because they have not been "cured," that is, actively treated, in some way so that a "cure" should result. When they are nearly well, because of properly directed rest and nursing, someone recommends some irregular form of treatment. They take it up and this gives them confidence that they are being cured. This state of mind makes the ultimate steps of their recovery more rapid than it otherwise would be. As a consequence, the irregular gets the credit. Immediately after this case Mr. Hilton tells the story of another case in which a "rubber" got all the credit for the cure. It is evident that the modern osteopath has only somewhat systematized what had been in existence generations ago.

All this tendency of human nature to respond to anything that is done for it, provided the promise of cure goes with it, is taken advantage of by the quack, sometimes unconsciously, for his own purposes. Results, as a rule, are secured, in spite of the remedies that he suggests, which in most cases do harm rather than good. Of the thousands of remedies that have been introduced by quacks, not one now remains, though every one of them produced wonderful cures on a great many patients at some time or other. It is the duty of the physician to secure just as good results honestly.

He must influence the patient's mind favorably so as to bring about a modification of habits and a hopeful outlook on life, in spite of whatever ailment there may be. If he can do so he will have in his hands the best therapeutic measure that has been employed in all the history of medicine. It is the most universally applicable. It will cure, that is help, all forms of disease. It will relieve many of the symptoms of even incurable diseases. It will occasionally arouse the resistive vitality of the patient to such an extent that even apparently incurable diseases will be overcome. This is the lesson that the modern student of medicine must draw from the history of quackery.

CHAPTER VII

NOSTRUMS AND THE HEALING POWER OF SUGGESTION

A striking illustration of the power of the mind to bring about the cure of ailments and symptoms of every sort is found in the history of the many nostrums and remedies that have worked wonders for a time and later proved to be inert or even harmful. The ordinary definition of a nostrum includes the idea of secrecy. At all times in the world's history fortunes have been made out of such remedies. They appeal not only to the uneducated, but also to those who are supposed to be well informed, and this in spite of the fact that generally the remedies are claimed to do good for nearly every form of disease, and it must be evident to anyone, after a moment's serious thought, that the one idea of their inventor is not to benefit patients, but to make money.

With the multiplication of newspapers and magazines, there has been a great increase in these secret remedies and of their users. Apparently all that is needed for many people who are ailing, or think they are ailing, is to be told in a more or less impressive way that some remedy will cure, and then it proceeds to do them good. There is a general impression abroad that some of these remedies represent great discoveries in medicine, and the feeling of most of those who take them is that the inventor has found a new and wonderful remedy. During all the centuries such secret remedies have come and gone, and not one of them has proved to be of lasting value. Just as soon as its composition is no longer a secret it begins to fail. It is, therefore, evident that its effect was entirely due to influence on the mind and not at all to any influence on the body.

The stories of the origin of these remedies bear a striking similarity. There are two variants on the theme: either the inventor is supposed to be an earnest student of science, devoting himself to profound research for many years and finally finding some wonderful secret of nature hitherto hidden from men; or else the remedy has been discovered by happy accident, and some chronic sufferer pronounced by the most eminent physicians to be hopelessly incurable has in despair turned to the now method, caring little really, so discouraged is he, whether it does good or ill, and wakes up to find that he is on the high road to recovery, apparently having been directed by Providence in the use of the remedy in question. Overflowing with gratitude, he wants to share the heaven-sent blessing with all mankind—for a valuable consideration.

The Weapon Ointment.—Among the most famous nostrums, and a striking example of the great rôle played in therapeutics by mental influence and coincidence, is the Unguentum Armariam or Weapon Ointment. This famous remedy would cure any wound made by a weapon, if it could only be employed before the fatal effects were absolutely manifest. There was an abundance of evidence that it stopped the pain, checked the bleeding and initiated the restoration of the patient to health. We know the remedy not from traditions of its use among the uneducated, but from descriptions that we have by men who were among the best educated of their time, and that by no means an era of dullards. The story of this infallible remedy is all the more surprising because it was not applied to the wound itself, nor indeed to the sufferer at all, but *to the weapon which inflicted the wound*. Nay, it was well authenticated that, where the weapon could not be secured for inunction, if the ointment were applied to a wooden model of the weapon, the cure followed with almost, though, it was confessed by some, not quite so much assurance as in the fortunate case of the weapon being available.

The story has been so well told by Oliver Wendell Holmes in his "Medical Essays"⁸ that it seems best to retell it in abstracts from his "Homeopathy and Its Kindred Delusions." He says:

Fabricius Hildanus, whose name is familiar to every surgical scholar, and Lord Bacon, who frequently dipped a little into medicine, are my principal authorities for the few circumstances I shall mention regarding it. The Weapon Ointment was a preparation used for the healing of wounds, but instead of its being applied to them, the injured part was washed and bandaged, and the weapon with which the wound was inflicted was carefully anointed with the unguent. Empirics, ignorant barbers, and men of that sort are said to have especially employed it. *Still there was not wanting some among the more respectable members of the medical profession who supported its claims.* [Italics ours.] The composition of this ointment was complicated, in the different formulas given by different authorities; but some substances addressed to the imagination, rather than the wound or weapon, entered into all. Such were portions of mummy, of human blood and of moss from the skull of a thief hung in chains.

Hildanus was a wise and learned man, one of the best surgeons of his time. He was fully aware that a part of the real secret of the Unguentum Armarium consisted in the washing and bandaging the wound and then letting it alone. But he could not resist the solemn assertions respecting its efficacy; he gave way before the outcry of facts (!), and therefore, instead of denying all their pretensions, he admitted and tried to account for them upon supernatural grounds.

Holmes says further:

Lord Bacon speaks of the weapon ointment, in his Natural History, as having in its favor the testimony of men of credit, though, in his own language, he himself "as yet is not fully inclined to believe it." His remarks upon the asserted facts respecting it show a mixture of wise suspicion and partial belief. He does not like the precise directions given as to the circumstances under which the animals from which some of the materials were obtained were to be killed, for he thought it looked like a provision for an excuse in case of failure, by laying the fault to the omission of some of these circumstances. But he likes well that "they do not observe the confecting of the Ointment under any certain constellation; which is commonly the excuse of magical medicines, when they fail, that they were not made under a fit figure of heaven." It was pretended that if the offending weapon should not be had, it would serve the purpose to anoint a wooden one made like it. "This," says Lord Bacon, "I should doubt to be a device to keep this strange form of cure in request and use, because many times you cannot come by the weapon itself." And in closing his remarks on the statements of the advocates of the ointment, he says, "Lastly, it will cure a beast as well as a man, which I like best of all the rest, because it subjecteth the matter to an easy trial." It is worth remembering that more than 200 years ago, when an absurd and fantastic remedy was asserted to possess wonderful power, and when sensible persons ascribe its pretended influence to imagination, it was boldly answered that the cure took place when the wounded party did not know of the application made to the weapon, and even when the brute animal was the subject of the experiment, and that this assertion, lie as we all know it was, came in such a shape as to shake the incredulity of the keenest thinker of his time.

⁸ Houghton Mifflin Co., Boston.

It is interesting to follow up some of the controversies among scientific men with regard to the weapon ointment, for they serve to show how the remedy came to maintain its prominence for so long. Podmore, in his "Mesmerism and Christian Science" (London, 1909), tells the story of the controversy between Goclenius, a professor of medicine at the University of Marburg, who published as the Inaugural Thesis for his professorship, a treatise on the "Weapon Salve," and Father Roberti, a Jesuit scientist and philosopher, whose final treatise in the controversy was entitled after the lengthy fashion of titles in that day, "Goclenius Corrected Out of His Own Mouth; or, The Downfall of the Magnetic Cure and the Weapon Salve." The decision of the controversy was eventually referred to the great physician of the time. Van Helmont, who decided that both disputants were partly wrong, the Jesuit erring most, but that above all Goclenius should distinguish between the cases when the weapon had blood on it and when it had not. When there is blood on the weapon, he held, then the salve is always effective; when there is not, then much stronger remedies were required. In both cases, of course, the salve or ointment was applied to the weapon.

In the midst of this discussion of the points at issue, it is interesting to note Van Helmont's opinion with regard to many curious things used in medicine at that time. He insists that Goclenius makes a mistake in attributing therapeutic power alone to the moss taken from the skull of a condemned criminal who had been hung in chains. This material, under the name of *usnea*, was apparently quite popular in prescriptions for various chronic ills, and especially those that we now recognize as prolonged neurotic affections. Van Helmont emphasizes the fact that the experience of all physicians shows that material taken from the heads of condemned criminals executed in other ways, as, for instance, those broken on the wheel, may be just as effective. Van Helmont conceived of the magnetic and sympathetic feeling as a natural process. All the force of the stars might be concentrated in objects that had been beneath their beams for a long time, and this might be communicated in some wonderful way to patients so as to supply defects of vitality. Such defects of vitality Van Helmont's prescriptions actually were compensating, but the source was in the patients themselves—that reservoir of surplus energy which remains unused unless some strong suggestion brings it out.

Sympathetic Powder.—After the weapon ointment, the best known of the nostrums of older times is probably Sir Kenelm Digby's famous Sympathetic Powder, which Dr. Holmes talks of as even better known than its great therapeutic predecessor. This, too, was a wonderworker. Unlike the Unguentum Armarium, however, its composition was simple. It was nothing else than copper sulphate which had been allowed to deliquesce to a white powder. This powder would cure any injury as infallibly as the weapon ointment. It, too, was not applied to the wound, but to the *bloodstained* garments (Van Helmont's distinctions between the bloody and the bright weapon should be recalled) of the wounded person. The patient did not need to be present at the time the application was made. He might be far away and yet its efficacy was, according to many very intelligent and highly educated persons, quite assured.

For the sympathetic powder we have one of the stories of far-fetched discovery that have since become so familiar. A missionary, traveling in the East, was said to have brought the recipe to Europe about the middle of the seventeenth century. The Grand Duke of Tuscany, in whose dominions the missionary took up his residence, heard of the cures performed by him and tried by offers of money and favor to obtain the missionary's secret, but without success. Sir Kenelm Digby, however, who was traveling in Italy, happened by good fortune to do a favor for the missionary, and put him under such deep obligations that he felt the only way he could properly repay his benefactor was to confide to him the composition of this wonderful remedy. Sir Kenelm Digby was at this time one of the best known of English scholars. After having reached distinction in the English navy, he had devoted himself to literature, to philosophy, and to politics. He had devoted much time to the old books of alchemy. Therefore, the offer of this precious piece of information especially appealed to him. On his return to England he proceeded to use it for the benefit of his friends, and it created a sensation. The French

dictionary of the Medical Sciences tells the story of the application of the powder for the first time in England and of the subsequent use of it, especially on the nobility of England:

An opportunity soon presented itself to try the powers of the famous powder. A certain Mr. Howell, having been wounded in endeavoring to part two of his friends who were fighting a duel, submitted himself to a trial of the sympathetic powder. Four days after he received his wounds, Sir Kenelm dipped one of Mr. Howell's garters in a solution of the powder, and immediately, it is said, the wounds, which were very painful, grew easy, although the patient, who was conversing in a corner of the chamber, had not the least idea of what was doing with his garter. He then returned home leaving his garter in the hands of Sir Kenelm, who had hung it up to dry, when Mr. Howell sent his servant in a great hurry to tell him that his wounds were paining him horribly; the garter was therefore replaced in the solution of the Powder, and the patient got well after five or six days of its continued immersion.

King James I, his son, afterwards Charles I, the Duke of Buckingham, then Prime Minister, and all the principal personages of the time were cognizant of this fact; and James himself, being curious to know the secret of this remedy, asked it of Sir Kenelm, who revealed it to him, and his majesty had the opportunity of making several trials of its efficacy, *which all succeeded in a surprising manner.*

Tar Water and Therapeutic Faith.—One further story of an old nostrum deserves to be told because of the distinction of its chief promoter, who did not, however, as do most of the nostrum promoters, make a fortune by it. This is the incident of Bishop Berkeley and his tar water. Berkeley was one of the leaders of thought of the eighteenth century. At one time he came to America with the idea of enlightening the ignorance of the colonists and of founding a school of philosophy. Besides being one of the most learned men of his time, he was one of the best. He was known for his gentleness, his unselfishness, and his lack of pretension. Yet all of these virtues were unable to save him from falling a victim to a medical delusion. One of his essays is on the value of tar water in medicine, and is entitled "Siris, a Chain of Philosophical Reflections and Inquiries Concerning the Virtues of Tar Water," etc.

Tar water was prepared by stirring a gallon of water with a quart of tar, letting it stand for several days, and then pouring off the clear water. It, in fact, retained scarcely more of the tar than the odor. According to the great philosopher, this not only cured, but prevented diseases. The list is, indeed, so long that it is hard to understand how the claims for it could have received any credence. They did, however, and Berkeley himself, and many of his friends, were cured of many and various ills, and were protected from many more by its frequent use. The odor was the factor that proved of suggestive value and set free the springs of vital energy.

Sarsaparilla.—It might be thought that such deception of self and others as has been illustrated in the weapon salve and sympathetic powder would be impossible in our enlightened day. Anyone who thinks so forgets certain incidents of recent times. The story of sarsaparilla is a striking illustration. Few drugs have been more popular in the last half century, and it is even yet popularly supposed to be a wonderful tonic, a cure for many diseases. During the first half of the nineteenth century, when the humoral theory of the causation of diseases was generally accepted, certain German physicians thought they observed that a decoction of sarsaparilla was a sovereign remedy for various ailments having their origin in the blood. The blood was at that time supposed to become impure for many reasons, and the possibility of neutralizing such impurity by medical measures was seriously attempted. As Virchow used to insist, the humoral pathology still holds its ground in popular estimation, and so blood purifiers are favorite remedies, and will doubtless continue to be for at least another generation, until cellular pathology secures a hold on the popular mind.

Sarsaparilla came in, then, as a great blood purifier, and was used for ten years by many of the physicians of the world, confident that they were obtaining excellent results from its use. After a time, however, further study of the drug showed that it was inert. Gradually the employment of sarsaparilla as a remedial agent ceased, though it continued to be used as an elegant vehicle in the prescription of nauseating remedies.

Only after it had been thus abandoned by the regular profession, was it taken up extensively by others who advertised its virtues widely and secured a great clientele for it. Probably more money has been spent on sarsaparilla during the last fifty years than on any other single drug. Many millions were every year appropriated by rival concerns to advertise its virtues. It has been possible at any time during the last half century to secure any number of people who were willing and ready to declare—and most of them convinced of the truth of what they said—that various preparations of sarsaparilla had cured them of long-standing ills, and that they considered it a life-saving remedy.

The efficient ingredient in the sarsaparilla, so far as any of its various preparations have seemed to do good, has not been anything that was in the bottle, but the printer's ink that was absorbed from the outside of it. People were persuaded that they would get better, and, as far as most of them were concerned, this was of itself quite sufficient to turn the scale in favor of improvement that led to the obliteration of symptoms. So long as these symptoms were a source of worry and trouble to them, they continued to be quite incurable. Just as soon as the inhibition of nervous energy, due to worry and over-attention to their sensations, stopped, then the natural force of the body was sufficient to remove the sources of complaint.

Psychology, Old and New, of Remedies.—Men have always known how to take advantage of the possibility of influencing patients' minds by wondrous claims for remedies. Anyone is sadly deceived who thinks that it is only in recent times that men have learned to make their advertisements of nostrums suggestive by the promises made or that we have developed the psychology of advertising to such a degree as to appeal to the ailing more forcibly and surely than was done in the past. Here is the announcement that went with a remedy in old Irish medicine more than 1,000 years ago. It was, according to its inventor, "a preservative from death, a restorative for the want of sinews (strength), for the tongue-tied, a cure for swelling in the head, and of wounds from iron and of burning by fire, and of the bite of the hound; it preventeth the lassitude of old age, cures the decline, the rupture of the blood vessels, takes away the virulence of the festering sore, the fever of the blood, the poignancy of grief—he to whom it shall be applied shall be made whole." The announcement ended up with the panegyric "extolled be the elixir of life bequeathed by Diancecht to his people; by which everything to which it is applied is made whole." When it is noted that, besides death and loss of muscle power and aphasia and wounds and burns and bites, it also cures old age and consumption (for that is what is meant by decline) and hemorrhages, and probably aneurysms, and fevers and also grief, there are not many modern panaceas that exceed it in power.

Always, as in this Irish announcement of the olden time, the climax of the advertisement is a note of exultant praise for the inventor who has brought such a magnificent blessing to mankind. The ways of the nostrum vender are ever the same.

Roman Nostrums.—How old are all these methods, and how little human nature has changed through all the centuries! The patent medicine men of Rome in the early Christian eras made use of just the same methods that are employed to-day. Friedländer, in his "Roman Life and Manners Under the Early Roman Empire," tells the story well. Many remedies were known by special arbitrary names, instead of descriptive names recalling the ingredients. Sometimes they were named after famous physicians who had used them, or were said to have done so; again, the preparations were named after persons of distinction who actually, or supposedly, were cured thereby, much as, in our own day, cigars are named after poets, statesmen and pugilists. The titles of some of these preparations, for instance, were "Ointment for Gout, Made for Patroculus, Imperial Freedman—Safe Cure"; "Ointment for Aburnius Valens" (probably the famous jurist) called the "Expensive Ointment"; "Eye

Salve with Which Florus Cured Antonia, the Wife of Drusus (the Emperor's son) After the Other Doctors had Nearly Blinded Her." Many of these remedies were labeled "instantaneous," "safe," "sure cure," "Harmless remedy," and the like. Frequently euphonious names, sometimes from the Greek, were chosen: Ambrosia, Anicetum, Nectarium, for the promoters evidently knew the satisfying effect, on both patient and physician, of a mystifying foreign name.

Proprietary Remedies .—A corresponding abuse very like that of our own time was with reference to proprietary medicines. Physicians, instead of compounding their own, accepted those made by others with the exaggerated claims for them, used them on patients, transferring their own confidence in them to the patients, thus producing cures which, after a time, proved to be due entirely to the influence on the patient's mind. Pliny, the elder, complains that physicians of his time (the first century after Christ) often bought their remedies so as to avoid the trouble of preparation. He evidently refers to compounds supposed to be curative for various affections; for Friedländer says that "often the physicians did not know the exact ingredients of the compounds that they used and should they desire to make up written prescriptions, would be cheated by the salesmen." Both Galen and Pliny complain that physicians used ready-made medicines, instead of original prescriptions carefully prepared by or under the supervision of the physicians themselves. It is evident that the proprietary remedy had come into existence thus early, and that various drug manufacturers made specialties which physicians, following the line of least resistance, found it easy to prescribe, though men like Pliny and Galen realized that this was an abdication of one of the most important functions of their profession, which was bound to work harm in the end both to themselves and to their patients.

How curious it is to find exactly the same state of affairs recurring in our time, with absolutely similar results. Simple remedies that are well known combinations of ordinary drugs receive high-sounding names, usually derivatives from the Greek or the like, and are claimed to work just as many wonders as the old-fashioned nostrums. Even imitations of the old-fashioned poultices, when thus exploited, give a new lease of life to the exploded idea of the drawing-out power of external applications.

Common Ailments and Nostrums.—Certain ailments are particularly the subject of exploitation by the manufacturers of remedies. Rheumatism is one of these, neuralgia is another, catarrh is a third, and headache a fourth. Then there are various forms of indigestion and all the pains and aches associated with it. All of these ailments are rather vague and are in some cases at least, due to the insistent dwelling of the patient's mind on some symptom of very little significance. Others are real pains and aches, relieved by some simple anodyne drugs, doubly efficient when taken with the suggestion that they represent a wonderful discovery, which came only after long years of study and investigation, and are said to represent a new departure in medicine. Another favorite field for the nostrum vender is the series of pains and aches associated with the menstrual condition. Many of these nostrums are used by hundreds of thousands, and yet an analysis shows that probably the only active substance in them is the alcohol in which certain of the drug principles are dissolved. This makes the patient feel better by the exaltation that comes from the dose of alcohol and the rest is merely suggestion, though there is no doubt that symptoms which have failed to be cured by physicians are sometimes relieved by these remedies. It is a cure by faith, not by medicine.

Cured Cases as Evidence.—As all of the nostrums, and indeed all the therapeutic movements supposedly medical or physical or religious, secure their vogue on the strength of reported cures, this would seem to be the best possible evidence for the efficacy of a remedy. But unless the cases supposed to be cured are critically examined and analyzed, and above all, followed for some time afterwards, such evidence is open to all sorts of errors. Is it any wonder, then, that the physician, familiar with the history of medicine in this regard, asks for the careful study and analysis of these cases. We know that it was on the strength of cures effected by it, that the weapon ointment became possible throughout Europe. We know that portions of the body of executed criminals and the touch of the hanged cured as many cases as, let us say, osteopathy or Eddyism. The sympathetic powder

and its advocates appealed to the many cures that followed its use. Every other nostrum from the beginning of time has made this same appeal.

CHAPTER VIII AMULETS, TALISMANS, CHARMS

Amulets, talismans, charms—these words are commonly used with something of the same significance, and for our purpose all three may be treated in common.

Prophylactic Objects.—From the earliest ages men have worn amulets, that is, objects often resembling jewelry, though sometimes the remains of animals or even of men,⁹ with the idea that they would ward off illness, or cure it when present. Rings of many sorts, brooches, various objects suspended around the neck, ear-rings, head-bands, belts for the waist, and rings for the wrists and the ankles, ornamented bracelets and anklets, have at all times had a medicinal power attached to them in some minds. Earrings are still worn by many with the idea that they are helpful in affections of the eyes. I have known children's ears to be pierced and earrings inserted because the little ones were suffering from headache. Precious stones were supposed to have this power when worn. The amethyst protected its wearer from drunkenness; the bloodstone cured anemia; while the opal was supposed to portend evil. Occasionally such gems were ground up and used as internal or external remedies, because of the power supposed to be attached to them. Their influence upon the mind, at least, can be readily understood. The earliest prescription we have in America is at the Metropolitan Museum, New York, among the curiosities from Egypt (about 1500 B.C.). It calls for the use of ground up precious stones in fumigations, probably for an hysterical person.

The precious metals were used also as powerful cures. Chaucer says, "for gold in physick is a cordial." Some think that our own use of chloride of gold a few years ago for many chronic ills had little more reason than the preciousness of gold impressing itself on patients. Inscriptions were made on the metals, and these were supposed to add to their healing or preservative quality. Famous among these was the *abracadabra*. It had to be written in a particular triangular form, and was then very powerful. Here the amulet invades the sphere of the charm. Prayers were written on parchment, or on paper, or on papyrus, in the old time in Egypt, Babylon and Assyria, and when worn about the body were supposed to do great good. It is surprising to us now how many physicians and scientists placed confidence in these things because they thought that they had seen good results. Alexander of Tralles recommends a number of them. Robert Boyle, the father of chemistry, says that he was cured of a severe ague, that the doctors could not benefit, by the application of an amulet to his wrists. Burton, in the "Anatomy of Melancholy," has a series of references that show how much he, himself, and the educated men of his time, believed in the power of amulets to help in illnesses and Boyle, particularly, has a number of references to precious stones and their curative virtue.

Rings in Therapy.—Under Faith Cures I mention the cramp rings blest by the Queen of England and effective against abdominal pains. Other kinds of therapeutic rings were used rather commonly. All through the Middle Ages iron rings were worn, which were good for colic and biliousness and also for rheumatic pains. There are literally thousands of such rings worn now, here in the United States, and by quite intelligent people. Personally, I know of more than a dozen cases where they have been worn for years. The wearers faithfully take them off each day, rub off the rust which collects on the inside, call their own and others' attention to the fact that all this material has been drawn out of the body through the supposed electrical power of the ring, and then they replace them. Here is pseudo science obtruding itself. Usually these rings are of polished steel and look a little like silver. They may, however, be obtained in gold plate, and then are supposed to be quite as

⁹ A king of Italy of the later nineteenth century used to send the parings of his toe-nails to friends to be worn in rings for luck and protection against disease.

efficacious. The iron or steel rings cost two dollars each; gold-plated rings cost five to ten dollars, according to the ability of the patient to pay, for metallotherapy has as one of its effects the lessening of congestion of the purse. Those who wear them would not part with them, because they feel the benefits derived. These rings are supposed to be particularly good for vague, painful conditions in the joints, especially the so-called rheumatic pains.

In old times these rings were sometimes engraved with a legend that was itself a strong suggestive element. The rings of the Middle Ages that were supposed to be a cure for biliousness were engraved with a command to the bile to go and take possession of a bird. Occasionally rings were supposed to be valuable because of their origin. Epileptic fits, for instance, were rendered much less frequent and less severe if a ring made of money that had been given in the church were worn. The condition was that the sufferer should stand at the church door asking a penny from every unmarried man who passed in or out. After sufficient alms had been thus collected the money was exchanged for silver money that had been contributed to the church, and from this the ring was made. It was to have a cross and sometimes a verset from Scripture, or an exorcism, or a prayer, engraved on it. It is easy to understand that all of this represents strong suggestive influence and that the standing at the church door begging alms might well represent an enforced prolonged opportunity to get rest and air, for many unmarried men do not go to church, and so there were also physical factors at work in the cure noted.

Precious Stones as Preservatives.—Pettigrew, in his "Superstitions Connected with Medicine and Surgery," mentions a number of the precious stones and their power to heal. Garnet hung about the neck relieves sorrow and refreshes the heart; chrysolite is the wisdom stone, the enemy of folly; heliotrope staunches blood and acts as an antidote; sapphire is good for ague and gout, and also gives its wearer courage; it also stops bleeding at the nose and was an antidote; the topaz was good for lunatics; the carnelian cured bloody fluxes and also fluxes of anger and passion. Jasper, hematite and similar stones had certain general powers of doing good. The Bezoar stone had a great reputation against melancholy; the smaragdum was infallible against epilepsy; the onyx was good for sleep; the sardonyx prevented bad dreams. The most wonderful stone, however, was the agate; taken in liquid it was good for any disease. It made the skin healthy. It preserved against snakebite, and against all poisons, and it prevented the devil from injuring one who wore it or drank it, and also preserved him from being struck by lightning. Considering how common agates were and how readily they could be obtained, it is rather surprising that we should have so many stories of illness and deaths by lightning and from poison and from venomous serpents in the old days when its curative value was rated so high.

Amulets.—The coin given by the kings of England when they healed the scrofulus or epileptic came to be, in one sense, an amulet. The sight and the touch of this acted as an ever recurrent suggestion tending to make these patients better, and undoubtedly the coin was of great service by its renewal of the mental influence of the touch of the king. There are traditions, also, that these coins healed others who touched them, and sometimes for generations they were kept in families as representing a fountain of healing and of preservation of health. Any object that thus became invested with reverence produced healing effects. Virchow, in the introduction to Schliemann's "Troas," tells of going to a long distance for water, during the time when he was present at the excavations, in order to be sure that the water would be absolutely pure. The natives had heard that he was a great physician from the West. They concluded that the reason why he went to this particular distant spring for water, in spite of the trouble involved, was that it must have some wonderful healing virtues. Accordingly a tradition of healing grew up around it, and people came from long distances, drank from it and were cured.

There are still people who carry horse chestnuts for rheumatism, and occasionally a farmer carries a potato for the same purpose. The feeling is, if they do no good, at least they can do no harm. Doubtless in the Middle Ages the same feeling prevailed as to other favorite objects. At present, among the better informed classes, various pendants supposed to have some connection with

electricity are popular. I have seen a medal made of alternate discs of copper and zinc, and confidently believed to be strongly electrical, worn even by an otherwise sensible merchant in a country town. Electric belts still are extremely common—and expensive. Supposed electric insoles, one made of copper, the other of zinc, are sold in great numbers and at good prices, though, quite needless to say, they are absolutely inert electrically. Various electric contrivances, small batteries, and the like, really are of the nature of amulets. People have a faith in them that is not justified by anything in science, but that faith helps them in their ills. Most of the supposed medicinal plasters are in the same class. As a rule, sufficient curative material cannot be incorporated in a plaster to be of any service, and most of them, though widely advertised, are scarcely more than rubber adhesive plaster. They do good partly by their mechanical effect, because they actually support muscles, but mainly because of faith in their efficacy. Whenever a particular discomfort occurs the feeling that a plaster is covering the spot gives the patient assurance that he or she must soon be better. In all of these effects there is no manifestation of any physical or marvelous supernormal power, but simply and solely of the influence of the mind on the body.

CHAPTER IX DETERRENT THERAPEUTICS

In the history of therapy a peculiar phase was the use of all sorts of materials, intensely repugnant to human nature and deterrent to all the finer feelings, but which, nevertheless, proved curative of many ills. We know now that there was absolutely nothing remedial in these substances or methods of treatment, but only the effect produced upon the patient's mind. If the patient makes sufficient effort to overcome the intense repugnance, that enables him to release hitherto latent vital energies, or to correct hampering inhibitions which have prevented curative reactions. The more the patient had to conquer himself, or herself, the more surely did the remedy produce a good effect. It was effective, however, not only among the poor and the uneducated, but often also among the better informed, provided the patients became persuaded of its efficiency. Persuasion in these matters is usually best secured by the reports of cured cases. It is easy to obtain "cures" from almost anything. They are set up as confident proofs of the remedial virtue of methods of treatment. They have been, in the history of medicine, more often the indexes of action upon mind than upon body. Real remedies help patients to get better. Supposed remedies, that afterwards prove quite inert, *cure*.

Portions of Corpses.—One of the ingredients of the famous Unguentum Armarium (see chapter on Nostrums) was, as has been said, moss scraped from the skull of a man who had been hanged. It was declared to be particularly efficacious against so-called dead members, such as the blanched fingers of Raynaud's disease, or the hysterical palsies, and other functional paralytic conditions of the limbs. The real therapeutic factor was not the gruesome material itself, but the potent suggestions awakened by it. It is probable that the quacks and witch doctors who gave out the formula of their remedies as containing such material often did not take the trouble to collect them, and that their salves and ointments were really quite inoffensive preparations.

Touch of the Hanged.—Some of the traditions which gather round the effect of contact with the body of a hanged person are curiously interesting from the standpoint of psychotherapy. This form of execution seems to have had a much more potent influence in producing therapeutic elements in the bodies of the victims than any other. We do not hear much of the touch of a beheaded person's body nor of any place in medicine for portions of the victims of execution by shooting, though Van Helmont claims curative properties for these in lesser degree. All sorts of ailments were, however, supposed to be cured by the touch of a hanged person. Thomas Hardy in his "Wessex Tales" tells of a young woman in his time suffering from a paralyzed arm, apparently a form of paralysis due to a functional nervous condition, who was recommended by an old "conjure" doctor to touch her bared arm, as soon after the execution as possible, to the purple mark of the rope around the neck of a man

who had been hanged. The doctor assured her this was the only means by which she could be cured. We would not be surprised to hear of her cure under such circumstances.

Hardy has carefully collected his material regarding the traditions of the southern part of England, and he makes the hangman say, when the woman applies to him for permission to touch the body of the victim, that such a request had not been made for some years, but that there used to be many applicants when he was a younger man. He adds, moreover, that it was the custom to apply to the governor of the prison and that usually this application was made by the physician of the patient who accompanied him or her on the visit to the corpse. There is no doubt that physicians did, in many cases, have recourse to such methods, and that the reasons for their belief in the efficacy of the touch of the dead was that they had seen the cure in this way of many puzzling diseased conditions, which their skill in wortcraft and herbal medicines had not enabled them to relieve. The touch of the corpse was supposed to bring about a "turning of the blood," and this produced the good effects. Occasionally the patients fainted from terror, yet afterwards were found to be able to use limbs that had been quite beyond their control before. The story is typical of what happened in country districts all over Europe for centuries.

Mummies.—How little distant we are from the use of such material for therapeutic purposes will be appreciated from the fact that mummy was used in medicine down nearly to the end of the eighteenth century. The first edition of the "Encyclopedia Britannica" (1768) said:

We have two different substances preserved for medicinal use under the name of mummy, though both in some degree of the same origin. The one is the dried and preserved flesh of human bodies, embalmed with myrrh and spices; the other is the liquor running from such mummies, when newly prepared, or when affected by great heat or damps. The latter is sometimes in a liquid, sometimes of a solid form, as it is preserved in vials well stopped, or suffered to dry and harden in the air. The first kind of mummy is brought to us in large pieces, of a lax and friable texture, light and spongy, of a blackish brown color, and often damp and clammy on the surface: it is of a strong but disagreeable smell. The second kind of mummy, in its liquid state, is a thick, opaque, and viscous fluid, of a blackish color, but not disagreeable smell. In its indurated state, it is a dry solid substance, of a fine shining black color, and close texture, easily broken, and of a good smell; very inflammable, and yielding a scent of myrrh and aromatic ingredients while burning. This, if we cannot be content without medicines from our own bodies, ought to be the mummy used in the shops; but it is very scarce and dear; while the other is so cheap, that it will always be most in use.

All these kinds of mummy are brought from Egypt. But we are not to imagine, that anybody breaks up the real Egyptian mummies, to sell them in pieces to the druggists, as they may make a much better market of them in Europe whole, when they can contrive to get them. What our druggists are supplied with, is the flesh of executed criminals, or of any other bodies the Jews can get, who fill them with the common bitumen so plentiful in that part of the world; and adding a little aloes, and two or three other cheap ingredients, send them to be baked in an oven, till the juices are exhaled, and the embalming matter has penetrated so thoroughly that the flesh will keep and bear transportation into Europe. Mummy has been esteemed resolvent and balsamic: but whatever virtues have been attributed to it, seem to be such as depend more upon the ingredients used in preparing the flesh, than in the flesh itself; and it would surely be better to give those ingredients without so shocking an addition.

Serpents in Therapeutics.—Snakes and portions of snakes have been prominent features of deterrent therapeutics at all times. Headaches were cured by wrapping a dead snake around the head, or by the touch of a snake's skin, and sore throat by wearing a snake's skin around the throat at night. This seems one degree better than the custom, still common, of wrapping the stocking, that has been worn during the day, around the neck. In the chapter on Graves Disease, the use of the touch of a snake, or of a snake's skin worn around the neck, is mentioned. Girdles made of snake's skin or snakes themselves, were supposed to be good for colic and for various internal troubles, and were sometimes, among barbarous peoples, a sovereign remedy for the ills of pregnancy and assured the woman a safe delivery and an easy labor. Undoubtedly they lessened dreads by suggestion and the effort necessary to overcome repugnance. Some of the symptoms of the menopause have been cured in the same way. Rattlesnake oil has had a special reputation among mountainous people, where the snakes abounded, for the pains and aches of the old, and the vague joint discomfort, sometimes spoken of as rheumatic, but really due to various individual conditions. It is probable that in most cases the oil thus employed was not extracted from the rattlesnake, but was some ordinary oil palmed off under that name, and having its special effectiveness because of the thought associated with it.

Various portions of serpents are still in use, sometimes in the hands of physicians, though usually in popular medicine. I knew a physician in a small inland city who had a great local reputation for curing external eye troubles, and who owed not a little of it to the fact that the people in his neighborhood thought that he used rattlesnake oil as one of the ingredients for his strongest prescriptions. He was supposed to be able to dissolve even cataract by his remedies, and there is no doubt that in many cases of chronic indolent ulcer of the eye he was able to bring about a cure sooner, and have it last longer, than those of the regular profession who had not the advantage of this popular faith. He was careful to buy rattlesnakes from certain of the mountain people, who killed and brought them to him and who advertised the fact that they had such commissions from him. The stories were made all the more interesting by the fact that the doctor would not purchase dead rattlesnakes. They must be brought to him alive, since the therapeutic virtues can only be extracted immediately after death. A mountaineer with a couple of live rattlesnakes with him is always an interesting object and a fine advertisement. One would like to know what the doctor did with the snakes—that is, how he disposed of them without suspicion. Homeopathic physicians still have lachesis-viper venom in their pharmacopeia. Their remedies, however, if they really follow the dilution principle of their founder, can have an effect only on the mind, so that the use of lachesis is not surprising.

Repugnant Remedial Measures.—Quite in keeping with the use of deterrent remedies of various kinds are the recommendations to do certain things that involve great self-control, and the overcoming of repugnance, or fright, or the like. A favorite mode of preparing remedies in the Middle Ages was to gather the particular herbs for the prescription in a graveyard in the dark of the moon. The patient himself was supposed to gather them and to be alone when doing so, if they were to be effective. How much occupation of mind and diversion of thought would be afforded for timid people by the effort to overcome themselves to this extent! The occupation of mind alone and the concentration of thought necessary for the ordeal would be quite sufficient to divert many people from the centralization of attention on themselves, which is responsible for so many of their symptoms, or for that exaggeration of symptoms that aggravates the ailment.

Ordures as Remedies.—Among all primitive peoples we have the story of the use, as remedies, of ordures of various kinds, of repugnant portions of animals, of ground insects, of animal excrement and urine, and even of human excretions, of the blood of serpents, or eels, or carrion feeding birds, and the like. Ground lice and insects of various kinds are very common as prescriptions in the history of primitive medicine. They turn up here and there through the Middle Ages, and they are said to be still used in China. The more one knows about side-tracks in medicine, the more does one find of far-fetched repugnant materials vaunted as wonderful cures. Some of the substances employed are so disgusting that one does not care to mention, much less discuss, them. I have had a man tell me

that, in a severe epidemic of diphtheria, he saved his children's lives when they were attacked by the disease, and the children of others were dying all around him, by blowing the dried excrement of dog down their throats.

There are certain popular medical practices that are related to these old traditions of deterrent therapeutics. In many manufacturing establishments, in spite of progress with regard to sepsis and antisepsis and the diffusion of information as to first aid to the injured, it is still the custom to put spittle on wounds. I am sure that every doctor has seen quids of tobacco used in this way. Even native-born Americans, who are not illiterate, are sometimes found using some deterrent material. I have known such a man use his own urine as an eye-wash for sore eyes, and the use of children's urine for such purposes is much commoner than might be thought. After all, it is only a generation since physicians used to taste urine in order to determine whether it contained sugar or not, and I have seen a country doctor even take between his finger and his thumb a little of the excrement of a child and apply his tongue to it, pretending of course that he obtained very valuable information this way.

Excretions and Secretions .—All the human excretions have formed the basis of vaunted remedies. Tears, on the principle that like cures like, were used for melancholia; nasal secretion to lessen respiratory difficulty through the nose; sputum for various mouth affections, but also as an application to external abrasions, and to the eyes, the ears, and the like. Undoubtedly patients were helped by many of these, not because of any physical effect, but because they felt easier as a consequence of the satisfaction of having something done for them, and the consequent freedom from solicitude which allowed nature to produce her curative reaction without interference. The greater the effort he has to make, apparently the more efficiently does he control this disturbing state of mind. This is the secret of many cures now as well as in the olden time.

Whatever good effect is produced in such cases comes, of course, from the persuasion that these substances will do good, and there must be a strong suggestion to that effect before the repugnance can be overcome. While we are prone to think the older peoples who used such materials commonly are to be condemned for ignorance and superstition, it is well to recall that human nature has not changed, and is still ready to be influenced in the same way. Brown Sequard's extract of testicular substance came in this category. We had a wave of organotherapy a few years ago, and we know now that whatever benefits patients derived from taking heart substance for heart troubles, and brain substance for brain troubles, and kidney for renal diseases, was entirely due to mental influence. The cannibal who eats the heart of his enemy, thinking that the vigor and courage of the other will pass into him, undoubtedly has for a time a power of accomplishment greater than before. Nothing acts so powerfully as suggestion of this kind to give renewed vigor and to enable us to tap sources of energy that we were not aware of in ourselves, and that enable us to accomplish what before seemed quite impossible, and even to bring about curative reactions.

Diseases Benefited.—Observe the classes of disease that were particularly relieved by deterrent therapeutics. Headache was one of these. All sorts of things were cures for headaches—the touch of the hangman's rope, or of an executed criminal, or some herb gathered in the graveyard in the dark of the moon, or pills made of the excrement of various animals. The forms of headache thus relieved would be those in which over-attention to self, rather than real headache, produced queer feelings in the head, though concentration of attention might exaggerate this into an ache. Foot troubles were cured by deterrent therapeutics. To wear the shoes of a dead person, especially of a murderer who had been hanged, would cure them. Colic was cured by pills of excrementitious materials, and by all sorts of other deterrent remedies. For instance, one well-known remedy was to wash the feet and drink the wash-water. The wash-water of little babies was a favorite remedy for the vague abdominal pains of old maids, and for the symptoms due to the menopause.

Deterrent Pain.—A striking illustration of a strong mental influence helping out a slight amount of therapeutic efficiency is found in the use of the actual cautery for medical affections. At a number of times in history most of the chronic pains and aches, the arthritises, the so-called gouty

tendencies when localized, the rheumatic affections and especially the chronic rheumatisms, have been treated by means of the cautery. All of the neuralgias, many of the neuroses, all of the neuritises and a certain number of so-called palsies and paralyses, were treated successfully by this means. It is a very suggestive remedy producing a deep impression that now relief must be in sight. It became popular over and over again, though after a time it always lost its influence, and ceased to have the beneficial effects that it had at the beginning of its reintroduction.

During the second half of the eighteenth and the beginning of the nineteenth century the cautery became very popular. It was applied particularly in the form of the moxa. A cylinder of cotton was employed for this purpose, being set on fire and allowed to burn on the skin of the patient, producing a deep wound. The mental effect of this can be readily understood. Baron Larrey, one of the most eminent surgeons of the time, thought the moxa one of the best aids that he had in the treatment of many affections where the knife was not indicated. There were large groups of diseases in which it was almost a specific. Larrey employed it in affections of vision, of smell, of taste, of hearing and of speech. In many paralytic affections of the muscular system, in all chronic affections of the head, among which he enumerates non-traumatic affections, hydrocephalus, chronic headaches and many other affections supposed to be seated in the cranium. In asthma he was particularly successful with the moxa. Old catarrhal affections yielded to it. Consumption was frequently benefited by it. Most of the chronic affections of the uterus were benefited, as were also similar affections of the stomach. He considered that the moxa must be admitted, without contradiction, to be the remedy *par excellence* against rachitis. In Pott's disease, which he called dorsal consumption, it worked wonders. In sacrocoxalgia, in cocygodynia and femero-coxalgia he had excellent results with the moxa.

A glance at this list shows exactly the class of cases in which suggestion has always played a large role, and for which there has been, at various times, a series of specific remedies, medicinal, manipulative and surgical. Others extended the value of the moxa beyond these affections. Ponto found it valuable in gout, and in the various chronic affections which are sometimes grouped under the name chronic rheumatism. He insisted that the moxa could be placed on almost any part of the body, though the contra indications he suggests show how far the men of his time went with its use. Only these portions named might not have a moxa applied to them. It must not be used on the skull, on the eyelids, on the ears, on the mamme, on the larynx and on the genitals, though it might be applied to the perineum or the perineal body.

Deterrent Taste and Smell.—The disturbing effects produced by other senses besides those of sight have been used in the same way for the production of definite therapeutic suggestive effects. A number of the ill-tasting, almost nauseating drugs of the olden time prove to have very little real therapeutic efficiency in the light of modern clinical careful observation. This is particularly true of the herbs and simples. Many a disgusting preparation apparently owed all of its' good effects on the patient to the effort that was required to swallow it, producing such a favorable influence upon the mind, by *contrecoup* as it were, that the patient got better. A little girl said that cough medicines were nasty things they gave you in order to keep you from catching cold again. The sense of smell has been used in the same way. Valerian is probably an efficient drug in certain respects, but undoubtedly its efficiency is materially increased by its intensely repulsive odor. For many of the psycho-neuroses and neurotic conditions generally the ammonium valerianate is likely to be much more efficient than the strychnin valerianate, though probably the latter should be considered as more physically efficacious in its tonic properties. Asafetida, musk and some preparations of the genital organs of animals that used to be in the pharmacopeia, owed most, if not all, of their power, whatever it was, to the mental effect of their odor and the feeling of deterrence that had to be overcome before they were taken.

There is a precious therapeutic secret in this use of deterrent, repugnant, frightful materials which patients use to advantage under certain circumstances. It illustrates the influence of the mind over the body, and emphasizes the fact that such influence can be exerted in the full only when a deep impression is produced upon the patient. Whether this can be imitated without deceit, and without

the use of undignified methods, must depend on the physician himself and his personality. There can be no doubt that there is a wonderful power here to be employed. It must be the physician's business to find out in each individual case, according to his own personal equation, just how he may be able to use at least some of it. It is well worth studying and striving for, because nothing is more potent for psychoneurotic conditions, and for neuroses on the borderland of the physical, than which no ailments are more obstinate to treatment.

CHAPTER X

INFLUENCE OF THE PERSONALITY IN THERAPEUTICS

Though it has seldom been fully realized and has probably never been appreciated as in our time, one of the most important factors in therapeutics, in every period of the history of medicine, has been the personal influence of the physician. Therapeutic fashions have come and gone, new drugs have been introduced, have had their day and then been relegated to the limbo of worn-out ideas. At all times, however, physicians have succeeded in doing good, or at least using, with apparent success, the therapeutic means of their own time, however crude and inadequate these afterwards proved to be. They have succeeded in shortening the progress of disease as well as increasing the patient's resistive vitality and thus enabled him not infrequently to survive where otherwise a fatal termination might have occurred. All unsuspected during most of the time, it was the personal influence of the physician that counted for most in all of the historical vicissitudes of therapeutics. It mattered not that the means he employed might seem absurd to the second succeeding generation, as was so often, indeed almost invariably, the case, his personal influence has at all times overshadowed his available therapeutic auxiliaries. In spite of all our advance in scientific medicine, to a considerable degree this remains true even at the present time, and to fail properly to use this important auxiliary is to cripple medical practice.

Place of Personal Influence.—When the antitoxins and directly curative serums seemed about to make for themselves a place in therapeutics, it looked for a time as though this personal element might be entirely superseded. It seemed that all other therapeutic factors must give way to definitely accurate doses of antitoxic principles, directly opposed to the toxins of disease and capable of conquering it. With the success of diphtheria serum, the prospects for scientific therapeutics from the biological standpoint became very promising. Unfortunately, our further experience with antitoxins and therapeutic sera of various kinds has not been satisfactory, and now the medical world is looking elsewhere for progress in therapeutics.

This throws us back once more on the old-time therapeutics, and we have to learn to use all their elements. One of the most important of these, if not, as we have suggested, absolutely the most important, the one that in all the many variations of therapeutics has maintained itself, is the personal influence of the physician by which he is able to soothe the patient's fears, allay his anxieties, make him face the situation calmly so that he may not use up any of his vital force in useless worry, but on the contrary employ all his available psychic energy in helping nature to overcome whatever disturbance there is within the organism. This personal influence was for several centuries spoken of as personal magnetism, not merely in the figurative sense in which we now employ that term, but in a literal sense. The implication was that some men possessed within themselves a reservoir of superfluous energy, vital in character, but thought to be related to the force exhibited by the magnet, when it attracted bodies to itself, and made metals for a time magnetic like itself, and which actually passed over from the physician to his patient. We have gotten away from the idea of any physical force flowing from physician to patient, but we know very well that certain physicians are much more capable than others of arousing the vital energies of the patient, sometimes to the extent of making him feel, after treatment, that he has more force than before. The patient feels that something must

have been added to his natural powers, though he has only been brought into a state of mind where he can better use his own powers.

It is the men whose presence created this impression in patients, an impression that is justified by the fact that somehow he enabled them to vitalize themselves better than before, who have been most successful in the treatment of patients. In all ages the men of reputation for healing have had this. A careful study of their lives shows that this counted for more in many of the experiences of their healing than the drugs and remedies which they employed. The men who have been the most sought by patients have not as a rule left us great therapeutic secrets; on the contrary, they have only employed the conventional remedies of their times with reasonable common-sense and have added to them their own personal influences. On the other hand, the men who have made discoveries in therapeutics, and in medicine, have not always been popular as physicians. They have known too much of their own lack of knowledge to be quite confident in their use of remedies, and this has hurt something of their personal influence over patients.

IMPRESSIVE PERSONALITY

As a matter of fact, it is easy to comprehend, even from the comparatively scanty details that we have of habits and methods of the great physicians, that their effect upon their patients was always largely a matter of impressive personality. Any one who, from a pharmaceutical standpoint, knows how inefficient were many of the remedies that great physicians depended on, yet how effective they seemed to be to their patients, and even to themselves, will appreciate the factor of personal magnetism that entered into their employment. It is not alone in the olden time that great physicians have been almost worshiped. For their patients they have at all times been men of exalted knowledge, masters of secrets and comforters of the afflicted, just as was the first great physician of whom we have any account, I-em-Hetep, in Egypt nearly six thousand years ago. Such men as Hippocrates, as Galen, as Sydenham and Boerhaave, and Van Swieten, accomplished curative results far beyond the therapeutics of their time. The loving admiration of patients and of their disciples shows how strong were their personalities and gives us, almost better than the writings they have left to us, the secret of their successes as practitioners of medicine.

A Great Modern Physician's Influence.—It is interesting to study in the lives of great physicians the details which illustrate their personal influence, their consciousness of it and how deliberately they used it. A typical example very close to us, whose reputation was still fresh while I was at the University of Paris, was Professor Charcot. He had made great discoveries in nervous pathology. To a great extent he had revolutionized our knowledge of nervous diseases and added many new chapters to this rather obscure department of medicine. Far from making the treatment of nervous diseases easier than before, or giving more assurance to the physician who dealt with them, his discoveries, however, had just the opposite effect. His work emphasized that practically all of the so-called nervous diseases were due to degenerations in the central nervous system, which no medicine could be expected to relieve in any way, and which nothing short of the impossible re-creation of damaged parts could ever cure. His studies included organic degenerations of other organs, and in his treatise on "Diseases of the Old" it is made clear that many of the symptoms of old age are due to organic lesions for which no cure can ever be expected. This would seem to discourage treatment, yet somehow Charcot became a great practicing physician as well as a medical scientist and pathologist.

His success was due to his personal influence over his patients. In spite of the unfavorable prognosis that he had to give in so many cases, he was able by suggestion to help many patients with regard to their course of life, and to reassure them, so that many adventitious neurotic symptoms not due to their underlying nervous disease, but to their solicitude about themselves, disappeared. Very few people who came to him went away without feeling that his advice had been very valuable to them and without experiencing, as a rule, after they had followed his advice, that they were much

better than they had been before. It was for the neurotic conditions associated with nervous affections that Charcot's personal influence over patients was of the greatest therapeutic significance.

He himself recognized this and did not hesitate to use it to its fullest extent. Towards the end of his life, the method by which his patients were presented to him was calculated to make their relation to him, above all, a very personal one, and to give his influence the fullest weight. Nervous patients who came to see him, were each in his turn invited from the general waiting-room into a small ante-room just outside of Charcot's office and there, in silence and dim light, asked to await the summons of the physician himself. When the time came for him to call them in, the folding doors between the rooms opened and he stood in a blaze of light inviting them to enter. Many a neurotic patient despairing of relief for symptoms that had lasted long in spite of the treatment of many other physicians, felt at once that here, in this kindly, gentle-voiced man standing so prominently in the light, was surely the long looked-for physician who would heal whatever ills there were. They came fully impressed with his power to heal, and all the valuable influence of auto-suggestion was enlisted on the side of their physician.

What is true in the regular practice of medicine can be seen much more clearly in the history of those who were not physicians, but who, nevertheless, by personal magnetism, succeeded in curing various ills, or at least in lifting up patients so that they used their own natural powers of recovery to much better advantage than would have been possible if left unaided.

Every successful healer has had this same personal influence, personal magnetism, call it what we will, which his patients have thought helpful to them through some direct communication, but which he himself, if he seriously studied it, and which every other thorough student of the question must realize, was due only to his power to call out the latent vitality of his patients. The mystery is not one of teledynamics, a transfer of energy from the operator, but one of awakening dormant faculties in the subject. Just why they should be dormant, since the patient so much wants to use them if he only could, is hard to understand. They do, however, lie dormant until the call of another strong personality wakens them to activity. Many people are so constituted that they cannot do effective work except under the direction of others. They lack initiative, though they may fill secondary places very well, indeed, much better often than the man of initiative who so frequently lacks capacity for details. In the same way many people are not able to bring out to the full all their own energies, even for their own bodily needs, unless under the guidance and influence of others; hence the stories of the healers that we have all down the centuries, and who have a definite place in the history of humanity and of medicine.

A Modern Healer.—A typical instance of the really marvelous power of mental influence over the minds of sufferers from many kinds of ills, is found in the career of the well-known Father Kneipp. For more than twenty-five years he had attracted the attention of Europe, and had made the little town of Woerishofen well known all over the world because of the cures effected there by him. The exactly proper phrase is effected *by him* because it is clear to anyone who has studied the therapeutic methods he employed, that it was not these, or at least not these alone, that enabled him to cure so many ailments which had resisted the efforts of some of the best physicians in Europe. It was his magnetic personality which won patients to the persuasion that they must get better because he said so, and then to the following out of certain very simple natural rules of life, and certain quite as simple remedial measures, which acted as alteratives and enabled patients to tap reservoirs of vitality, of which they themselves were unconscious, but which, supplying energies to overcome tendencies to various symptomatic conditions, brought about cures.

Pfarrer Kneipp had himself suffered from consumption, had been practically given up and then, as is the case of many another, had taken himself in hand, had secured much more outdoor air than before, and more abundant nutrition, until gradually his ailment was overcome. It is true that he used various hydrotherapeutic measures, some of them, as he confessed afterwards, to an excess, both as regards the temperature of water and the length of the application of it, that might have seriously hurt

him if he had been less robust, but it was not so much his hydrotherapy as his own determination to get better and to live a little closer to nature that led to his cure. Then he became the apostle of cold water and of many natural remedial measures, and as a consequence, healer of all forms of ills in the many thousands who flocked to consult him in the little South German town. He made his patients get up early in the morning, get out in the air shortly after rising, the excuse, or, as he declared it, the reason being that they were to walk with bare feet in the dewy grass. After this he had them eat heartily of simple food, of such variety and in such quantity as relieved them of constipation, made them use water, internally and externally, in abundance, and after a time, sent most of them on their way rejoicing that they had been cured from chronic ills.

Some of the highest in Europe came to him; the Empress of Austria was his patient, and he was asked to prescribe for the Pope; reigning princes and all the lesser order of the nobility were included among his patients. Several of the Rothschild family went to him and where they went, of course, others flocked. Very few failed to be benefited. People less educated, and less rich in the world's goods than these, came also, and went away relieved. After a time Kneipp societies were founded all over Europe and even spread through America. These consisted of organizations of men and women who encouraged each other to keep up the Kneipp practices. With his death there has come a decline in interest in Kneipp methods. He, himself, was sure that his remedies and recommendations were the important curative factors. Now it has become clear that it was mainly his forceful personality, his power to lift patients above their ills, and enable them to use mental resources or vital forces that they could not use until encouraged by him with the thought that they would surely get better. In the atmosphere he thus created, they seemed to borrow something of his overmastering personality. It can not be too often repeated that this is the secret of the success of the great world healers. They do not transfer force to others, but they enable others to use their *own* forces more successfully.

An Ancient Healer.—Let us compare some of the details of the career of Father Kneipp with the story we have of one Aristides, who, as the result of dreams that came to him while practicing the cult of AEsculapius and the injunctions contained in these dreams, was cured of many ills, and afterward delivered a series of sacred orations. Aristides is one of the first of the large group of literary men, much interested in their own health and their own ills, whose writings have been preserved for us. He was intensely proud of the number and variety of his ills, and he was perhaps conceited about the curious ways in which some of them had been cured. Traveling in the winter time he caught a chill; then he suffered from earache and in the midst of a storm developed fever, asthma and toothache. Arrived in Rome, he had severe internal sufferings, shivering fits and want of breath. Treatment by the Roman doctor only aggravated his sufferings. A stormy voyage home made him worse. When, at last, he arrived in Smyrna, the doctors gathered round him, and were astonished at the manifold nature of the disease. They could do nothing for him.

Suffering from all these ills (which remind one of a modern literary man who has got his mind on his stomach and his body on his mind), Aristides went to a number of the old temple hospitals and received suggestions in sleep from AEsculapius. These he has described in what are called his sacred orations. In them we have every phase of modern therapy that has the strong element of suggestion in it. Like Pfarrer Kneipp, he tried very cold baths and was benefited by them. Walking in the dewy grass in his bare feet was another recommendation that had come to him in a dream. Occasionally he would run rapidly for a considerable distance, and then when heated plunge into a cold bath. We have many complaints of his fever and stomach troubles. Mud-baths were also recommended to him and, of course, tried with benefit for a time. Sand baths later proved to be beneficial. For rheumatism a cold bath, after running almost naked in the cold north wind, proved successful when other remedies failed. Aristides wrote out his experiences, and his writings had great influence over generations of patients and maintained the influence of the old Greek temples as cure houses long after the general acceptance of Christianity. As the result of his writings, no matter how bizarre a dream might be, some interpretation of a therapeutic nature was found from it.

Constancy of the Law of Personal Influence.—Indeed, there has apparently never been a time when some strong character, full of religious enthusiasm and of high purpose, strong in the confidence of men, has not succeeded in accomplishing wonderful curative results by the reassurance that comes from a renewal of faith in the goodness of Providence. There are, for instance, a number of stories which show John Wesley's power to help men to tap the reservoir of surplus energy that all of us have within us, but that somehow we do not succeed in making use of, unless some strong mental influence is brought to bear on us. Practically every religious man who has had the love and the veneration and the respect of those around him has succeeded in accomplishing the cures that many people in recent years have been prone to regard as rather novel phenomena in the history of psychology. Men like St. Philip Neri, St. Francis Xavier, and St. Francis of Assisi, and St. Bernard, have many stories told of them which show how much they were able to help fellow mortals by enabling them to make use, even in a physical way, of their own highest and best powers. Their lives show how much more they did.

Nor is this power confined to men. In nearly every century we have the story, also, of wonderfully strong women, leaders of their time, who inspired the profound confidence and veneration of those around them, and who were enabled, by their own strength of character, to help people physically as well as morally. The Life of St. Catherine of Siena is full of such instances. She spent her life mainly in caring for the sick and the distressed at the hospital in Siena, and the beautiful hospital there was completed largely as a monument to her. During her lifetime marvelous cures occurred that in many cases were evidently due to her power over the minds of people. The life of St. Teresa has a number of similar examples, and Joan of Arc, in her lifetime, lifted many a dispirited man into vigorous strength because of her own abounding personality and the physical reaction which contact with her enthusiasm brought.

Modern Examples.—Nor did such occurrences come only in older and less sophisticated centuries than ours. John Wesley is close enough to our time to negative any such impression, but there are many other examples. There is Pastor Gassner, whose cures remind Prof. Münsterberg of the Emanuel movement at the present time, but there are also a number of strong, religious characters whose influence was exercised in the alleviation of physical ills during the nineteenth century. The name of Father Matthew, the Irish "Apostle of Temperance," as he was called, is mainly connected with wonderful cures of the worst forms of alcoholic addiction. Physicians know how difficult such cases are to cure, yet there are many thousands of what were apparently hopeless cases to Father Matthew's credit. It may be remarked that this is one of the ills that modern mental treatment claims most success with. Besides these morbid habits there are, however, other cases, told in detail, in which Father Matthew's influence enabled people to shake off headaches, to get rid of illusions, to overcome hysteria, and even to relieve other and much more physical affections. Animal magnetism was the subject of much thought in his lifetime (nineteenth century), so that it is not surprising that Mr. John Francis McGuire, a member of the English Parliament, who wrote Father Matthew's life in 1864, declared that "Father Matthew possessed in a large degree the power of animal magnetism, and great relief was afforded by him to people suffering from various affections; and in some cases I was satisfied that permanent good was effected by his administrations."

Another strong man of this same kind was Prince Alexander of Hohenlohe. Though a prince he had become a clergyman and spent his life in the service of the poor. Shortly after he became a priest he went through a great epidemic, fearlessly caring for his poor people, and as a consequence inspired them with so much confidence that ever after they came to him with all their ills. He was able to help, not only the poor, but also many of the nobility. Some of the things reported as accomplished through his influence show extraordinary power. His usual method was to endeavor to inspire in the people who came to him a faith in their cure, and then after a time the cure was actually accomplished.

During the recent troubles in Russia, attention was called to the fact that the famous Father John of Cronstadt, the hero of Bloody Sunday, was looked up to with so much respect and veneration

that many people found themselves helped physically by contact with him. There are a number of interesting stories of cures of ills of various kinds, some of them exclusively mental, but many of them fundamentally physical, which took place as a consequence of the new spirit of hope infused into people because of their confidence in Father John. His subsequent history seems to indicate that this was evidently due to the forceful personality of the man rather than to any special religious influence. His influence was not limited to the ignorant masses in Russia, for some of the cures reported occurred in families of the better class, thoroughly capable of judging the character of the man apart from his religion.

SUCCESS IN HEALING

We have any number of examples, then, of this power of the healer in history. Over and over again we find that it was the personality of the man and the suggestive value of the means that he employed that enabled patients to cure themselves, that is, to use all the vital force which they had for curative purposes. This force had hitherto been inhibited by their own doubts of themselves and their doubts of the value of all ordinary means of cure which had been previously employed in their cases. This is the secret of the success of the healer, and this secret is much more valuable for therapeutics than any remedy which has come down to us from the olden time. It has, unfortunately, been neglected, and thus an important benefit to humanity has been lost. Now that we are able to review frankly and deliberately the conditions that obtained in the past, it is time to set about making use of this oldest secret in medicine, now no longer a secret, as a strong factor in the treatment not of disease but of patients.

Healers are at all times strong characters who are helpful to others because of their own superabundant strength. The world is made up of two classes of people, lifters and leaners, and the leaners constitute by far the larger class. Most men and women are the subjects of doubts and dreads and difficulties with regard to their health, and the more time they have for introspection, the more are they likely to suffer. Unable to overcome them by themselves, they need the help of others. What they need, above all, is the reassurance that a trained strong mind can give them. The exercise of this mental influence over them, is only what corresponds to leadership in all the affairs of life. Most people need to be led and to be guided. The place of the physician is that of guide and director. The family physician of the olden time had a precious amount of influence that accrued to him from his character, and it was used to magnificent purpose. Most of his drug treatment would be looked upon as quite absurd at the present time, yet he did a great good work by lifting people up to their own highest possibilities of resistive vitality. That means more for the conquest of disease, even now, in most cases, than any remedies we possess.

Often men do not realize how much their personal influence counts for. They think it is their method of treatment, or some new discovery in drugs or remedial measures, or some new phase of psychology they have hit upon, that is producing results. This makes it difficult to determine, in given cases, just what are the actual influences at work. Many men supposing themselves to be discoverers of some novel force, are merely exploiting that old-time influence of one mind over another that can be observed all down the centuries.

It is interesting to study the careers of men who thought they were employing on their patients some new psychological method, when all they were exploiting was the old-fashioned influence of suggestion from a stronger personality to a weaker. A dozen times in history hypnotism has been announced as a wonderful curative agent. At present no one thinks it so, but, on the contrary, if used frequently, we think that it is much more likely to do harm than good. We went through a phase of interest in hypnotism a quarter of a century ago and there are now signs of the possibility of its return in another form. In recent years we have heard much of psycho-analysis, of dominant ideas,

of the auto-suggestion that comes from this, and how much benefit can be conferred on the patient by removing such ideas or revealing their unfavorable influence and so neutralizing them.

The patients that come for treatment and to whom psychotherapy is of special benefit, are not, as a rule, those suffering from acute diseases or injuries, though even in these cases the attitude of mind is always an important therapeutic factor. The patients are mainly those suffering from chronic ailments, and from minor affections which, while they do not confine them to bed, often prove the source of such serious disturbance as makes them very miserable. The suffering in the world is out of all proportion to the actual disease. Many people who have little disease suffer a great deal, partly from over-sensitiveness, partly from concentration of mind on their ailments, and partly from such ignorance of whatever pathological condition is present that they grow discouraged and morbid over it. The rôle of psychotherapy is particularly to help patients of this kind. This does not mean that its main purpose is to treat imaginary disease, or disease which exists only in the mind of patients, for in nearly all of these cases there is a definite physical element in the affection. Even where the disease is quite imaginary, though that term has been so sadly abused that it is perhaps better to speak of affections as purely mental in origin, psychotherapy is important. As has been well said, a patient not having something physical the matter who thinks that there is something the matter, is in a worse state than one who really has something the matter. There are a great many such cases. If the principles of psychotherapy can relieve them and cure many of them, then it has a large place in human life.

In order that the individual patient may be benefited, a thorough understanding must be established between physician and patient. This must take on the character of a personal relationship. The patient must feel that the physician has a personal interest in him—that there are certain individual features in his ailment which make his case mean something much more than ordinary to his physician. Some physicians have the power to make their patients feel this personal relationship to a marked degree. They are the eminently successful practitioners of medicine. Their patients sound their praises, and even though they may not be distinguished scientists, they acquire a large practice. Some of them are thoroughly scientific men. All of us know them and, while we may not be able to understand just how it is done, we recognize their power.

CHAPTER XI

FAITH CURES

The series of phenomena that may be grouped under the term "faith cures" represent the oldest, the most frequent, universal, and constantly recurring examples of the influence of the mind over the body for the healing of ills. Whenever men have believed deeply and with conviction that some other being was able to help them, many of their ills, or at least the conditions from which they suffered severely, have dropped from them and their complaints, real or imaginary have disappeared. This was true whether it was the touch of another human being supposed to have some wonderful power that was the agent, or some persuasion of the interference of the supernatural that appealed to them. Religions of all kinds have always had their cures, and one of the main reasons why men have accepted the various religions has nearly always been because of the weight of these healing phenomena. Apparently it does not matter how debased the form of religion may be, whether it is exercised by the medicine man of a savage tribe with methods that appeal only to barbarous instincts, or by a highly cultured priest of a form of religion appealing to the loftiest feeling and the profoundest intellectuality, cures take place whenever devotees have complete and absolute faith in the possibility of divine or supernatural interference in their behalf. The very earliest history that we have tells us of such cures, and the daily papers bring us reports of them from all quarters among the high and the low, the educated and the uneducated.

The phenomenon is universal and we come logically to the belief that the Supreme Being intended that confidence in Him, and above all recognition of the fact that somehow the world with all

its ills has a meaning for good, should be rewarded. The argument that religion is a natural revelation should then apparently be extended to include also the thought of a healing power in connection with it. Many of the founders of religions that have meant much for uplift to mankind, have made healing a principal portion of their message to man—the proof of their missions. Indeed, there actually seems to be an extension of power, above what is natural, to those who in profound confidence in Divinity, turn to this source of strength for relief from the ills that flesh is heir to. In any of these cases, definite inquiry as to the significance of the particular incident is needed, and not any general principle of either acceptance or rejection. Faith healing is a fact, its meaning is of the greatest importance for psychotherapy and its phenomena deserve that specific study which alone can give any certainty in the matter.

Accessories of Faith Cures.—From the earliest dawn of history we have definite records of faith cures. It is true that they were usually associated with certain physical factors besides the mere act of the mind. In ancient Egypt the physicians were also priests, and while they administered various remedies, these had the added advantage of being supposed to be the result of divine inspiration, or suggestion, or to be in some way connected with religion. Among these men there were many strong personalities, contact with whom brought healing. Dreams and premonitions and hallucinations all had a definite place in their therapeutics because of their supposed connection with religion, or at least with the beings of another world. Spiritualism, itself a form of religion, is very old, and communications from spirits, real or supposed, were easily thought to have therapeutic significance.

Miracles.—In most cases of faith healing, faith acts through the definite conviction that there is to be a direct interference with the ordinary course of nature in the patient's behalf. Some of the evidence for such direct interference on the part of Providence is so strong as to carry conviction even to serious and judicious and judicial minds. When the circumstances are such that an exception to the laws of nature would not involve an absurdity, there is no good reason why its occurrence should be absolutely put out of the question. It may well be urged that we know so little about the laws of nature that we cannot determine absolutely what are and what are not exceptions to those laws. There is in itself, however, no absurdity in what is called a miracle, and unless one is ready to reject Christianity entirely, or to declare it absolutely impossible that the God who made the universe should have any personal care for it, or above all any interest in particular individuals in it, their possibility must be admitted. The attitude of utter negation and incredulity often assumed at the present day is only a reflection of a certain ignorance of philosophy, and too great dependence on a superficial knowledge of physical science, so characteristic of narrowly trained minds. After a visit to Lourdes and careful study of "*La clinique de Lourdes*," I am convinced that miracles happen there. There is more than natural power manifest.

In a great many cases it is easy to see that the agents involved in the faith cures, and the circumstances surrounding them, are quite unworthy of any supposition that the Deity should have interfered. Where there is anything irrational, or sordid, or eminently selfish about the faith-healing, then any appeal to a supposed interference from on high is absurd. Horace said in another matter, but it will bear application here: "Nec deus intersit nisi dignus vindice nodus." Do not let a god intervene unless there is a set of circumstances worthy of him. In many of the faith-healing phenomena claimed to be connected with religion there are a number of absurdities. It may be suggested that any one person must not set himself up as the judge of such absurdity. When it is evident, however, that the ailing are being exploited for the benefit of one or of a few persons, or when there are certain manifestly irrational conditions in the circumstances of healing, then it is fair to conclude that what we have to do with are only examples of healing by means of strong mental influence. But it would be quite wrong on account of these abuses to dismiss the whole subject of miracle healing as all imposture or merely mental influence.

The Royal Touch.—Probably the most interesting chapter in the history of faith cures is that of the touch of the King of England for scrofula, or, as it was known, the King's Evil. His touch was

also supposed to be efficacious in epilepsy. English historians usually trace the origin of the custom to Edward the Confessor. Aubrey remarks that "the curing of the King's Evil by the touch of the King does much puzzle our philosophers, for whether our Kings were of the house of York or Lancaster, it did the cure for the most part."

Even the change of religion in the time of Henry VIII and Elizabeth made no difference. Some people who hesitated about submitting to Elizabeth as queen lost their hesitancy when they heard that the queen's touch was successful in curing. James I wanted to drop it, but was warned not to, as it was a prerogative of the crown with which he had no right to interfere. Charles I was particularly successful. Charles II, whose licentious life apparently would quite unfit him for the exercise of any such power, was perhaps the English king who devoted most time to healing. While he was in exile in the Netherlands, many people crossed over to the Low Countries in order to be touched by him, and they returned cured of many different diseases. This effectively prepared the minds of many for his return. Under scrofula were included most of the wasting diseases, and under epilepsy many neurotic conditions as well as many organic disturbances. It is easy to understand how great was the room for the successful employment here of mental influence.

Queen Anne continued the practice, and many cures were reported in her time as late as the eighteenth century. William of Orange, when he ascended the throne with Mary, refused to believe that there was any special power for good in his touch. On one occasion he touched a person who came to him, saying as he did so: "God give you better health and more sense." In spite of this skeptical attitude his touch is said to have healed that particular person. In the next reign, however. Queen Anne resumed the practice, and Dr. Samuel Johnson, as a boy of five, was touched by her with some hundreds of others in 1712. No cure was effected in his case, but as the gruff old doctor lived to a round age in rather sturdy health, doubtless some would raise the question as to whether, if he had early scrofula, it was not greatly modified for the better.

The circumstances connected with the royal touch were all calculated to be curative of the affections for which this practice had a therapeutic reputation. There were certain times in the year, particularly in the spring after Easter, when the king touched people for their ills. Ordinarily preparations would be made for some time before, and the patients would have all the benefit of expectancy. Then there came the journey to London to the king's presence, and as it was usually known that these ailing folks were on their way to the king, they received particular care from the people of the towns through which they passed. Then came the day of the touch itself, and the presentation of a coin, the so-called coin of the king's touch, which the patient was supposed to preserve. On the way home they were once more subjects of solicitude, and they had the royal coin to assure them every now and then that they had been touched by the king's hand, and that they ought to get well—for had not many others been thus cured? All this favorable suggestion, with the outing and the better food, was eminently calculated to cure the so-called scrofular conditions, under which term was grouped many vague forms of malnutrition and the milder epilepsies and pseudo epilepsies, for the cure of which the touch was famous.

Cramp Rings.—Scarcely less famous than the king's touch for nutritional and neurotic conditions were the "cramp rings," which were blessed by the Queens of England and were supposed to cure all sorts of cramps. The power attached to them for this form of ailment was similar to that which the king's touch had for scrofula or the king's evil. Cramps seemed to be the "queen's evil." Whenever a queen died there was a great demand for these rings, because no more could be obtained until a new queen was crowned. The efficiency of these and the cures which they performed can be readily understood. Many of the hysterical conditions within the abdomen are cramplike in character. Hysteria will imitate nearly every form of cramp, including even those due to gallstone and kidney calculus. Any strong mental influence will do more for hysterical pain than our strongest medicines. On the other hand, many of the cramplike conditions within the abdomen may be relieved

by concentration of mind on some distracting thought, and feelings of discomfort in the intestines may thus be relieved.

Mental Healers.—When the king was absent from England during Cromwell's time, the touching for the king's evil was sadly missed. If Cromwell himself had announced that he would touch for the diseases that used to come to the king, a number of cures would undoubtedly have been reported. As it was, Greatrakes, the Irish soldier adventurer, dreamt that he was commissioned from on high to touch for the same diseases as formerly had gone to the king, and, having begun it, cures followed until probably many more came to him every year than usually went to the sovereign in the olden times. He worked at least as great a proportion of cures. Greatrakes had many imitators, some of them doubtless quite sincere, but they were people of more or less deranged intellect, the kind who easily get the idea that they are commissioned for some purpose that sets them above the common people. Indeed, the story of the mental healers is probably, more than anything else, a chapter in the history of insanity, and the power of those with delusions to lead others to share their delusions. This is not a slur upon human nature, and especially upon some of the inspirations and aspirations that lift it up to do great things, but a literal statement of the view of these phenomena that seems forced upon us by modern advances in the knowledge of the psychology of mental influence and of psychic contagion.

Most of the influence that was acquired by men who in the course of history claimed to have a heavenly mission has been due, as with healers heretofore referred to, to reputed cures made by them. Trace the story of this among the Eastern nations in the old time. The pseudo-Messiahs of the Jews always advanced as one evidence their healing power, but so did the founders of religions among all the other nations of antiquity. It must be borne in mind, however, that many of the queer religions of after times were founded by men who claimed to have a Messiahship, and put forth, as the evidence of a divine commission, their power to cure the afflicted. Sometimes the men who made these claims were good men. In many cases they were apparently self-deceived. Very often, however, they had no claim to goodness in the commonly accepted meaning of that term, for they counseled the violation of moral precepts, made exceptions, for their own benefit, to general laws, and exploited their followers for selfish reasons. Provided their followers had confidence in them, however, they continued to work cures, so that even reasonable people were likely to be led to the thought that there must be something supernatural about their activities. In every century there have been two or three men who have thus secured a following, and apparently healed many diseases.

The phenomena of faith-healing as the result of belief in the heavenly mission of special men, are as common now as at any time. Dr. Cutten in his "Three Thousand Years of Mental Healing" (*Scribners*, 1911) has a chapter on "Healers of the Nineteenth Century," which shows how many phenomena of faith-healing can be studied in recent generations. Some of the men and the women who are mentioned secured wide reputations throughout our own country.

These faith-healing movements have particularly affected the New England portion of our population, and many of our most prominent healers have been born in the New England States. Wherever the new cults flourished, it is usually found that some of the most prominent members are descendants of the old New Englanders. It has been suggested that this is due to the gradual loss of belief in great religious truths by New Englanders, and a definite tendency toward reaction against this loss of the religious sense, which, as is usual with reactions, easily becomes exaggerated. From lack of belief they jump to excess of belief. Men without trust in Providence find the trials of life hard to bear, and they dread the development of physical ill so much that they exaggerate their feelings, or even create symptoms. Men are happier with the feeling that the supernatural powers surrounding them are interested in them directly and personally, and that somehow things, even in an incomprehensible world, are arranged, if not for the best, at least for such good as makes ill's stepping-stones to new benefits. Whenever they are led far away from that thought, there is likely to be an exaggerated reaction back to it. The stronger minded apparently can get on without religion, but to

the great mass of men a strong religious sense is needed to enable them to overcome the lack of self-confidence that is the root of dreads, doubts, difficulties of many kinds, and which is also the source of many symptoms as well as the cause of the exaggeration of many ailments.

As a rule, modern healers have been founders of new religions, or at least they have broken away from old-established sects, and have formed congregations for themselves. They have sprung up in every part of the country. East, North, South, West, and among all the differing nationalities of our population. We cannot console ourselves with the idea that they affect especially the foreigners, for the native-born people have proved to be quite as susceptible to them. These healers have, as a rule, abused the medical profession and the use of drugs, and have taught that disease, if it really existed at all, was from the devil: that what one needed, in order to secure relief from pains and ills, was faith in God—but always through *them*. Many of these men and women have probably been serious and earnest and have deceived themselves first. Most of them have undoubtedly been more or less disequibrated, though they have practically all exhibited the power to accumulate large amounts of money from their followers. The people who have gone to them have not been the ignorant among our population, but particularly those who read the newspapers, and who look upon themselves as well informed. The intelligence of the disciples of these healers, as we ordinarily estimate intelligence, has been a little above the average, rather than below it.

Schlatter and Dowie. —Probably the most disillusioning phenomena with regard to the complacent idea that the diffusion of information prevents manifestations of superstition are stories of the healers Schlatter and Dowie. At the end of the nineteenth century both of them attracted widespread attention. Schlatter was probably not quite sane. He wandered through the deserted portions of the Southwest, hatless, unkempt, with clothing torn and without shoes. In July, 1895, he first attracted attention as a public healer in New Mexico. After a reputed forty-day fast he went to Denver, where people flocked from all parts of the country to him. Files of people formed—sometimes five or six thousand—to be touched, and healed, by him. His reputation was due to the cures that were reported. Dowie was another of these healers. Just at the beginning of the twentieth century he organized a great new church of his own, and announced himself as Elijah, the prophet, returned to life. Nearly 20,000 persons are claimed to have been healed during the first ten years of his healing career. Toward the end of his life he declared that he treated, and cured, over 50,000 a year. An abundance of crutches, canes and every form of surgical appliance for the ailing hung on the walls of his church at Zion City, Chicago, left by people who, having been healed, had no further use for them.

GENERAL PSYCHOTHERAPEUTICS

SECTION II *GENERAL CONSIDERATIONS*

CHAPTER I INFLUENCE OF MIND ON BODY

The power of mind over body for the relief of symptoms has been recognized, not only by physicians, but by the generality of men at all times. Every one has had experiences of aches, or actual pains, or discomfort quite annoying while one is alone, but that disappear while in pleasant company or occupied in some absorbing occupation. Many a headache that was painful enough to disturb us seriously while we tried to apply ourselves to something of little interest, and became almost unbearable if we tried to do something disagreeable, and actually intolerable if the occupation of the moment was a drudgery, disappeared, at least for the time, when we turned to a pleasant game of cards or indulged in some other favorite pastime. Our relief was not, however, from an imaginary ill, for the symptoms usually reasserted themselves when we got through with the pleasant occupation, showing that they have been there all the time and that we have only turned our mind away from them, and hence have ceased to feel them. This is so familiar it seems almost too commonplace to repeat, yet it constitutes the special phenomenon that lies at the base of psychotherapeutics, or the mental healing of physical ills.

It is not alone the slighter, more or less negligible aches or pains, nor the vague discomforts that thus disappear when our attention is occupied, but even quite severe and otherwise unbearable pain may be modified to a great extent. A toothache that is bearable, though it nags at us constantly and never lets us forget its presence while we are occupied with many other things during the evening, may become a positive torture when we get to bed. This is not only because of physical conditions modifying the pain, for there seems no doubt that the warmth induced by the preliminaries for sleep and the bed-covering have a tendency to increase congestion, but it is mainly because as we doze off we are able, less and less, to inhibit our attention, or divert it from the pain that is present, and so this is emphasized until we have to do something for it or lose hours of sleep. This lack of inhibition, which characterizes the dozing hours, represents the state of mind in which people are who have no interest in their occupations, and who have ceased to find recreation in the ordinary pleasures of life, when pain of any kind comes to them.

Cabanis, at the beginning of the nineteenth century, under the title of "The Influence of the Moral on the Physical," discusses what we would now call mental influence on the body. He says:

The great influence of what one may call the moral or mental on what may be called the physical is an incontestible fact. Examples without end confirm it every day. Every man capable of making observations finds proofs of it thousands of times in himself. Many physiologists and psychologists as well as moralists, have collected the evidence that brings out clearly this power of the intellectual operations and emotions on the different organs and the diverse functions of the living body. All of us could add new illustrations to these collections. Men who are rude and credulous talk of the effect of the imagination, and if they are not themselves its playthings and its victims, at least they know how to observe its effects in others.

As a matter of fact, the action of our organs can be in turn excited, suspended, or totally inhibited, according to the state of mind, the change of ideas, the affections and the emotions.

A vigorous, healthy man has just made a good meal. In the midst of the feeling of satisfaction which diffuses itself over all his body, his food is digested with energy and without any bother. The digestive juices perform their work steadily and without causing any annoyance. But let such a man receive some bad news; let some sudden emotion come to excite him, and especially to shock him into profound sadness, and at once his stomach and intestines cease to act upon the food which they inclose, or they at best perform their functions badly. The digestive juices, by which the food materials were gradually being dissolved, are suddenly stricken with inactivity. What might seem to be a stupor comes over the digestive tract, and while the nervous influence which determines digestion ceases entirely, that which tends to bring about the expulsion of material from the digestive tract may become more active and all the material contained in the digestive viscera may, in a short time, be expelled.

Relief in Severe Injuries.—Even extremely severe injuries, which inflict serious organic lesions that ordinarily would produce shock and collapse, quite apart from the pain induced, may at moments of excitement pass unnoticed. A soldier often does not know that he is wounded until the flow of blood calls his attention to it, or perhaps a friend points it out to him, or loss of blood causes him to faint. The prostrating effects of even fatal wounds may thus be overcome for a considerable time in the excitement of battle, or because of a supreme occupation by a surpassing sense of duty. There is the well-known story of the young corporal detailed to make a report to Napoleon at a very important crisis of one of his great battles, who made the report with such minute accuracy that it called forth a compliment from Bonaparte, for it involved a very special exercise of memory for details, yet who was actually on the verge of death when he delivered the message. As his duty was accomplished the Emperor, noticing his extreme pallor, said: "But you are wounded, my lad." The young soldier replied, as if, now that duty was done, the consciousness of his wound had just come to him, "No, Sire, I am killed," dropping dead at the Emperor's feet as he uttered the words.

In all of the great theater fires examples of this kind are recorded. A woman who barely escaped with her life from a theater fire some years ago had an ear torn off, very probably by some one grasping it in the crowd. She knew nothing of this until it was called to her attention after she got out of the theater, and then she promptly fainted from the pain and shock. Under such circumstances men walk with broken legs or limp even with dislocations, utterly unconscious that anything serious has happened to them. Men have been known to be unaware of a broken bone or even more serious conditions, ordinarily quite painful and disabling, while laboring to help others in an accident.

Suppression of Reaction.—This side of the influence of the mind on the body is so interesting that its effects have often been noted and studied. While we do not quite understand the mechanism by which it accomplishes its marvels of anesthesia and even of motility under apparently impossible conditions, there is no doubt that severe pain may utterly fail to reach the consciousness, though the nervous system is uninterruptedly carrying the messages just as it did before. The lack of attention suppresses the ordinary effect upon the personality. Evidently the messages originate and are carried to the nerve centers, but find no attention available for them, and so pass unnoticed. The study of phases of this phenomenon of suppression of reaction forms a good basis for the use of mental influence, and shows its marvelous power to overcome disturbing physical factors.

Amputation Stump Aches.—An interesting example of the influence of mind over body, when circumstances favor its exercise or emphasize it, and at the same time a striking illustration of the potency of suggestion in the cure of discomfort, is found in the stories that are so common of cases of pains in amputation stumps. Any number of weird tales are told of men who complain of feeling cramps in the toes of an amputated limb after this portion of their body had been buried.

The discomfort is common enough. In the special stories, however, the limbs have been dug up, the toes straightened out—according to the story, they were always found cramped in some way—and then the patient is at once restored to ease. In the good old times they probably believed in some direct connection between the straightening out of the toes of the amputated member and subsequent relief of pain. For us it is but an example of the power of suggestion. It is not the sort of suggestion that one likes to think of employing, though it has a certain dramatic quality which adds efficiency to suggestion.

The Mind and Motility.—We have spoken thus far almost exclusively of painful conditions as relieved by suggestion or mental influence, but disturbance of motor function may also be favorably affected. There are any number of cases on record in which patients who had been utterly unable to walk were restored to motility by a shock. Many such patients have, in the midst of the excitement of a fire, or the scare caused by the presence of a burglar, got up and walked quite as well as ever, though sometimes they have been for years previously confined to bed. The San Francisco earthquake is said to have exerted such an effect on a number of patients, and, while such unusual disturbances cannot often be provided for the cure of these ailments, there can be no doubt at all of the power of a shock to the mind to overcome functional incapacity that has resisted every possible form of treatment.

Ailments of this kind, which involve inability of the will to control, or rather to initiate, movements of the body, receive their best explanation on the neuron or neuroglia theory. ([See the chapter on the Mechanism of Suggestion.](#)) The central neurons become either quite separated from certain of the peripheral neurons, or at least the connections are not made with that nice adjustment necessary for the proper passage of nerve impulses. The shock communicated to the nervous system by fright is sufficient, however, to restore these connections, and consequently to enable the patient once more to exercise motor functions that have been in abeyance for some time.

Astasia-abasia. —Any one who has had to deal with the cases for which the French have invented the rather impressive Greek name of *astasia-abasia*—how much better it would be to call the condition simply what we know it to be, nervous inability to stand or walk!—appreciates how almost a miracle is needed to improve them. The incapacity for station or movement to which the disease owes its name is so complete in many cases, and the patients' lack of confidence in self so absolute, that no ordinary remedial measure is capable of doing any good. These cases are usually a severe trial to the patients' friends. Indeed, the patients themselves maintain their nutrition so well and, as a rule, enjoy such good health, or, as has been said, enjoy their bad health so well, that it is for their attendants the physician feels most commiseration. Yet generally he is quite unable to do anything. It is certain, however, that with care and authoritative suggestion there would not need to be an earthquake, or a fire, or even a burglary, as a therapeutic measure in these cases. As a matter of fact, their cure when it occurs is always brought about by some strong mental influence.

Mental Influence on Organs.—**The Heart.**—The influence of mind can be noted on practically every organ of the body in a concrete way. It might be thought that the heart, the first living thing in the animal being, the pulsations of which begin before there is any sign of the nervous system, might be free from this influence. On the contrary, the heart is so readily affected by mental states that, taking effect for cause, the old popular, and even scientific idea with regard to it, was that it was the organ of the emotions. The heart is stimulated more by favoring circumstances, and suffers more from depression, than almost any other organ. In the melancholic states it usually beats less frequently and is sluggish. When individuals are tired out and the heart has become weakened in its action, new courage will first be noted as having its effect upon the heart action. As the whole muscular system is much influenced by the mental state and, as the control of the arterial system depends on the muscles in the arteries, it is easy to understand how much the general bodily condition may by mental influence be modified for good and ill.

Digestive Tract. —The stomach and intestines, though their functions might be presumed to be dependent entirely on physical conditions, are almost completely under the control of the mental

state. At moments of depression, just after bad news has been received, the appetite is absent, or is very slight and digestion itself proceeds slowly and unsatisfactorily. On the other hand, when there is mental good feeling appetite is vigorous and digestion is usually quite capable of disposing of all that is eaten. If after a period of rejoicing in the midst of which food is taken abundantly bad news is brought, the mental influence on digestion can be seen very well. It is not alone that depression interferes with digestive processes, but apparently some favorable factors for digestion consequent upon the previous state of mind are withdrawn, and now what would have been a proper amount of food proves to be an excess and the digestive organs find it difficult to deal with it.

Nervous Inhibition.—The mind can actually inhibit certain of the involuntary processes of the body by thinking about them, and, above all, by dwelling on the thought that they are going wrong. This becomes easier to understand when we recall how, in the same way, we may disturb many habitual and more or less unconscious actions that we have grown accustomed to. There are any number of actions requiring careful attention to details which become so habitual that we do not have to think of them at all. Not infrequently it happens when we try to explain to others how we do them, we disturb the facility of performance and have to repeat the acts several times before we succeed in performing successfully what a moment before we did without any thought. The story of the centipede who was asked how he walked with all his hundred legs, and who tried to describe how easy it was and got so mixed up that he was unable to move at all, is a whimsical symbol of conscious attention disturbing actions which go on quite well of themselves if only we do not allow ourselves to think consciously of each and every phase of them.

How much the mind may influence the body under certain conditions when trance-like states either assert themselves or are brought on, has often been noted. Lombroso in his book "After Death What?"¹⁰ says of Eusapia Paladino the "medium," that "when she is about to enter the trance state the frequency of the respiratory movements is lessened just as is the case with the Indian fakirs. Before the trance she will have been breathing eighteen to twenty times a minute; as the trance begins the number of respirations is gradually reduced to fifteen; when the trance is fully developed she breathes twelve times a minute or less. On the other hand, at the same time the heart beats increase. Normally her pulse is about seventy, but during the early trance stage it rises to ninety, while during the course of a deep trance, it may go as high even as one hundred and twenty. The passing from a more or less rigid state to that of active somnambulism is marked by yawns and sobs and spontaneous perspiration on the forehead." The observation of these phenomena is, of course, entirely apart from any theory one may hold with regard to mediumistic manifestations, and it provides evidence of mental influence that is very striking.

Imaginary Drug Effects.—Drug effects may be produced through the imagination. Physicians know that when patients are persuaded that certain effects are to be expected from a particular medicine, the effects may follow all the same in sensitive, imaginative people, if that medicine is replaced by some inert compound. Many a physician who has used bread pills or other placebos to replace a drug that he did not want the patient to acquire a habit for, has thus been able to allow good effects to go on without interruption, where the stoppage of medicine had previously interfered with the continuance of the good habit that had been formed. Very few physicians have not seen the effect of a hypodermic of pure water when a hypodermic of morphine is demanded, and when the patient would not sleep without having the hypodermic injection. Sleeping powders of various kinds can sometimes with distinct advantage be replaced by inert materials, because the patient's mind is fixed upon the idea of sleep coming after a certain time and they, in consequence, compose themselves to rest.

The Nerves and Tissues.—Cases occur where disturbances of vitality are noted as a consequence of nervous affections, though no gross lesion of the nervous system is demonstrated.

¹⁰ Small, Maynard & Co., Boston, 1909.

Certain nervous people suffer from ulcerative conditions of their hands, and it is evident that in some the nervous impulses that would ordinarily keep the skin surface in good, healthy condition are insufficient. Some people who use a typewriter have no difficulty at all with the ends of their fingers, while others are subject even to loss of skin or ulcerative conditions that make it almost impossible for them to go on with their work. In some this is true in the winter, in others in the summer. There are a number of skin conditions which are due to nervous factors and these evidently point to the influence of the central nervous system in keeping the forces of our body in such health, and resistive vitality, as will enable us to carry on whatever work we may wish to. This is, of course, a very individual matter. Some people chap very easily, some suffer from chilblains, or are frost-bitten even on slight exposure, and these peculiarities are evidently dependent on the intensity of the nervous impulses as well as the tone of the circulation, which itself depends on the nerves to a great extent.

It is evident that some of these disturbances are not enduring, but are only temporary and therefore are due to functional disturbances of the nervous system. Physicians often see hysterical patients suffering from intense pain that requires an injection of morphine, yet after a series of such incidents, the physician is able to give an injection of plain water and produce just as good an anodyne effect. In these cases some influence of the will is enough to correct the painful disturbances. Occasionally a single member loses sensation, or motion, or both, yet the fact that its nutrition does not suffer shows that there is only disturbance in the motor connections between it and the central nervous system and not in the sensory nor trophic tracts, and that this functional defect may be restored by some favorable influence.

Nerve Supply and Health .—We know now that when a part of the body is cut off from its connections with the central nervous system, it begins at once to be lowered in vitality and gradually tends to dissolution. This will be true in spite of the fact that the circulation continues as actively as before. It is not necessary, indeed, that the nerve trunk to a part should be cut, if it is sufficiently compressed its function is stopped and various disturbances begin to appear in the vitality of the part which it supplies. A typical example is to be seen in certain fractures of the clavicle, where a fragment presses on one of the nerves leading to the arm. After a time pains develop in the arm, a burning feeling is noticed in the skin, which becomes shiny and cold and of distinctly lowered vitality. Even a slight injury to the arm will now produce a serious ulcerative condition. There are evidently important influences for life that flow down through the nerves from the central nervous system, quite as important in their way as the nutritional elements which flow through the blood.

How these influences of the mind on the body are accomplished is a portion of that larger mystery of the influence of mind, or soul, or principle of life, on the material elements of which our body is composed. Why a man receives a shock of lightning or a charge of electricity at high voltage, and without a mark on his body or a change in any cell that we can make out, be dead, though he was living an instant before, is another of these mysteries too familiar for discussion. There is no change in the weight of the body, nothing physical has happened, but what was living matter with the power to accomplish the functions of living things is now simply dead material, unable to resist the invasion of saprophytic micro-organisms which will at once, unhampered, proceed to tear it down, though the preceding moment resistive vitality was completely victorious. The mystery remains, but the mechanism of the influence can now at least be studied with much more satisfaction than was the case a few years ago.

Death and the Mind.—The extent to which the mind can be made to influence the body is apparently without limit. While the doctor is frequently disturbed by the fact that death occurs when there is no adequate physical reason for it, just because the patient has looked forward to it with complete preoccupation of mind, there is no doubt that occasionally death may be put off in the same way. We talk about people living on their wills. This is a literal expression of what actually occurs in certain cases. On the other hand, without the will to live, it is sometimes extremely difficult to keep alive patients who are in a run down condition. If one of an old married couple dies when the other

is ill, we conceal the sad news very carefully from the survivor. This is done not alone to put off the shock and sorrow for a time, but because often, under such circumstances, there will be no will to live.

When the vital forces have run down to such a degree that it seems impossible, so far as ordinary medical reason goes, to look for anything but dissolution, patients still cling to life if there is some reason why they want to live until a definite time. It does not happen so much with the acute diseases but is quite common in chronic cases. Patients will live on expectant of seeing a friend who is known to be hurrying to them, or for some other purpose on which they very strongly set their minds. In the life of Professor William Stokes, the Irish physician, to whom we owe the introduction of the stethoscope to the English medical world, and many other important contributions to medicine, there is a striking story that illustrates this power of the will to maintain life until a definite moment.

An old pensioner, a patient of Stokes' in the Meath Hospital whose life was despaired of, and whose death was hourly expected, was one morning distressed and disappointed at observing that Stokes, who believing that the man was unconscious at the time, and that it was useless to attempt anything further as his condition was hopeless, was passing by his bed. The patient cried out: "Don't pass me by, your honor, you must keep me alive for four days." "We will keep you as long as we can, my poor fellow," answered Stokes; "but why for four days particularly?" "Because," said the other, "my pension will be due then, and I want the money for my wife and children; don't give me anything to sleep for if I sleep I'll die." On the third day after this, to the amazement of Stokes and all the class, the patient was still breathing. On the morning of the fourth day he was found still breathing and quite conscious, and on Stokes' coming into the ward, he saw the patient holding the certificate which required the physician's signature in his hand. On Stokes approaching him, the dying man gasped out. "Sign, sign!" This was done, the man sank back exhausted, and in a few minutes after crossed both hands over his breast and said, "The Lord have mercy on my soul," and then passed quietly away.

Dread and Death .—Dr. Laurent in his little book, "La Médecine des Âmes,"¹¹ has a story of similar kind but from a very different motive:

They brought to the prison infirmary one day an old burglar, an incorrigible offender, who was undergoing a long sentence. He was suffering from cancer of the stomach, and was already in a very advanced stage of the affection. The poor devil seemed to realize his condition very well, and felt that it was only a question of a short time until he should die. He had made up his mind to that with the resignation which so often characterizes people of this kind. Only one thing put him out very much, and that was the fear of dying in prison.

"I know well that I have to pass in my checks," he said over and over again; "but I do not want to die here. I do not want to be cut up after I am dead."

He still had two months of his sentence to undergo. Every day the disease made notable progress. His cachexia became more profound. Life was passing from him drop by drop. At the end of five weeks he was scarcely more than a living skeleton. Every morning we expected to find him dead, or at least in his last agony. Nevertheless, every morning, by an effort, he was able to recognize me and a little life shone out of his sharp, small eyes that seemed like those of a bird of prey.

One morning he said to me: "Oh! you need not watch me. You shall not have my carcass. I do not want to die in prison. I shall not die here." He lived on till the

¹¹ Paris, Maloine, 1804.

end of his sentence. The morning of his freedom he said to me, "I told you that I did not want to die here, and that I would not die here."

By an effort of his will he aroused himself enough so that his friends were able to take him out of the prison. It was the last bit of energy he had, however. His will power was at an end. A few hours after his arrival in the house of his son he went off into a profound depression, and would not talk even to his own. Then his death agony came on, and he died that same evening. The strange and surprising struggle of this man against death, the marvelous force of physiological resistance which the fear of autopsy, if he died, gave him, struck me vividly at the time. What intimate and mysterious bond connects mind and matter that the one is able to react in so much energy upon the other. How wonderful to think that the fear, lest his abandoned body should be cut up, should actually keep body and mind together until after the danger of that dreaded event was passed.

Suggestion and Death.—On the other hand, there are many stories that show us how the giving up of hope of life seems to even hasten death. We have many stories of the death on the same day of husband and wife, or of brothers and sisters who thought very much of each other. Some of these are mere coincidences, but there are too many to be all explained on the score of coincidence. It seems clear that the living one, on hearing of the death of the other, feels that now there is nothing more to live for, and gives up the struggle. Hence the important rule in medical practice that a seriously ill patient should not be told of an accident, and, above all, of the death of a near relative.

On the other hand, strong expectation of death at a definite time, especially if accompanied by suggestions with some physical signs, may bring about actual dissolution. We have a number of well authenticated stories to illustrate this.

Renewal of Hope.—How much energy even the slightest hope may furnish, when apparently all power of effort is exhausted, is well illustrated by what happens to men who are lost at sea or in a desert. After the lapse of a certain length of time human nature seems utterly incapable of further effort and they sink down exhausted. The appearance of a light at a distance, a hail, any communication that gives them even the slightest hope will renew their energy and enable them to draw on unsuspected stores of vitality after the end seemed inevitable. It may be said that the exhaustion in these cases is more apparent than real, that discouragement prevents the release of even the energy that is present, and might be used under more favorable circumstances, but that is exactly the argument which favors the deliberate employment of psychotherapeutic motives to enable patients to use the energies which they possess. In the midst of disease, or the struggle for life, when vitality is being sapped, hope is lost or obscured, just as it is when a man is alone in the desert or struggling far from help on the ocean. If we can prevent this discouragement from sapping his powers there will always be a prolongation of life, and often this will be sufficient to enable vital resistance to overcome exhausting disease.

Law of Reserve Energy.—Prof. William James¹² called particular attention to the law of reserve energy which recent studies in psychology have emphasized. This law of reserve energy is a conclusion from certain facts which are very familiar to men and have been observed as long as the memory of man runs, yet the full significance of which has never been read quite aright. Applied to a very limited range of actions, it has been applied only half-heartedly in ordinary life, and to its full extent only under the pressure of absolute necessity. This law holds out the best promise to psychotherapy. It shows that there are reservoirs of surplus energy in man which, if they can be successfully tapped, present possibilities of resistance to fatigue—and fatigue in many more ways than we used to think resembles disease. Besides, this law represents a very wonderful capacity for withstanding pains and aches and conquering disinclination that would otherwise seem impossible. If

¹² *American Magazine*, Sept., 1908.

it can be made to apply to ordinary life as well as it does to extraordinary events, then the conscious deliberate use of psychotherapy or mental suggestion should prove to have wonderful remedial power. Prof. James said:

Everyone knows what it is to start a piece of work, either intellectual or muscular, feeling stale—or "cold," as an Adirondack guide once put it to me. And everybody knows what it is to warm up to his job. The process of warming up gets particularly striking in the phenomena known as second wind. On usual occasions we make a practice of stopping an occupation as soon as we meet the first effective layer (so to call it) of fatigue. We have then walked, played, or worked enough, so we desist. That amount of fatigue is an efficacious obstruction on this side of which our usual life is cast.

But if an unusual necessity forces us to press onward, a surprising thing occurs. The fatigue gets worse up to a certain critical point, when gradually it passes away, and we are fresher than before. We have evidently tapped a level of new energy, masked until then by the fatigue obstacle usually obeyed. There may be layer after layer of this experience. A third and fourth wind may supervene. Mental activity shows the phenomenon as well as physical, and in exceptional cases we may find, beyond the very extremity of fatigue distress, amounts of ease and power that we never dreamed ourselves to own—sources of strength habitually not taxed at all, because habitually we never push through the obstruction, never pass those early critical points.

He then states what has come to be called the law of reserve energy.

It is evident that our organism has stored up reserves of energy that are ordinarily not called upon, but that may be called upon; deeper and deeper strata of combustion or explosible material, discontinuously arranged, but ready for use for any one who probes so deep, and repairing themselves by rest as well as do the superficial strata.

There is, then, a marvelous reserve power in men and women which can be used in emergencies and in times of severe strain, to enable men and women to accomplish what looks impossible and which has often contradicted the prognosis of the physician. History is full of applications of this law which, however, does not come into action, unless especially called. Men and women may die simply because they give up the struggle. Men and women who *will not give up* seem able to overcome severe illness that would take away ordinary people. It has often been said that tuberculosis takes only the quitters and that men of character constitute the typically favorable patients for tuberculosis sanatoria. Psychology is now getting at the explanation of many events that were formerly quite inexplicable. The science has come to recognize the reservoir of reserve energy in human nature which may be tapped under special favoring circumstances. The physicians of the past have often succeeded in tapping it deliberately as well as unconsciously. There is large room, however, for the further development of medicine along this line, to the great advantage of therapeutics and probably the most promising field at the present time in view in therapy lies in this direction. Hence the necessity for more deliberate conscious use of it in every possible suitable form.

CHAPTER II

UNFAVORABLE MENTAL INFLUENCE

Much as may be accomplished by psychotherapeutics through favorable mental influence—the modifying of the mental attitude towards disease, diversions of mind from aches and pains, concentration of attention on subjects apart from ailments—much more may be done by removing

any unfavorable mental influence. This of itself produces symptoms either by interfering with normal processes through surveillance of them, or by so exaggerating, through attention to them, slight symptoms that may be present that patients are made quite miserable, though there is no adequate physical cause for their condition. Perhaps the most striking example that we have of unfavorable mental influence as productive of the persuasion that disease is present, is familiar to every physician who is close to medical students when they are first introduced to the symptoms of disease. It is almost a rule that certain members of the class immediately conclude that they are suffering from one or more of the symptoms which they are studying, and that, therefore, they must have the diseases with which the symptoms are associated. If at this time they walk on the shady side of a street on an autumn day and have a little shivery feeling, or when they get into the sun they feel a glow, these two very normal feelings are exaggerated into chilliness and fever, and the student has to go to his professor to have his mental malaria or typhoid treated. To the student, his symptoms are for the moment very real, and unless someone in whom he has confidence reassures him, his discomfort will probably continue for some time.

Pathological Suggestion.—In a word, suggestions of disease are much easier to take than is usually imagined, and if people read or hear much about diseases they are likely to jump to the conclusion that they are sufferers. Under present conditions there are many more such sinister suggestions put before people than used to be the case. The newspapers are constantly reporting curious cases and rare diseases, and usually those of absolutely unfavorable prognosis and inevitably fatal termination are particularly dilated on. Pathology has become a source of many sensations, until the community generally has come to eke out the thrills of the day's news by reading about fatal diseases and fatal injuries, whenever murder and suicide sensations fail. As a consequence, many become persuaded that they are suffering from forms of disease of which they have not a symptom, and, not infrequently, the wonderful cures that are reported in the newspapers consist of nothing more than recoveries from these imaginary ills into which people have suggested themselves as the result of reading about morbid states.

A typical illustration of the power of the mind to influence the body unfavorably is recognized in many of the comic stories that have had a vogue in recent years. Their underlying thought is that if a man is only told often enough, and by a number of different people, that he does not look well, or if he is even asked a little solicitously as to whether he feels well or not, he will almost invariably begin to persuade himself that there must be something the matter with him. After a time, under the influence of this unfavorable suggestion, he begins to feel tired and is likely to think that he cannot go on with his work. When meal time comes his appetite fails him. A victim has been even known to go home and send for the doctor, persuaded that there is something the matter, simply because a series of friends, for a joke, or sometimes through a mistake, have insisted on asking him questions that called attention to his state of health. Few men are strong enough to stand the influence of unfavorable suggestion of this kind, if it is frequently repeated. More direct forms of suggestion of disease have, of course, even greater effects. Many a man goes to a quack only feeling a little out of sorts and wanting to reassure himself, but easily becomes persuaded that there is something serious the matter with him.

Unfavorable Suggestion in Ancient Times.—This unfavorable influence of the mind on the body, even to the extent of the production of disease by means of suggestion, was recognized by the ancients. They knew and wrote of hypochondriasis and, indeed, they invented the term. In many of these cases the seat of auto-suggestion is supposed to be the digestive organs and the localization of the discomfort is in the hypochondria, that is, in the upper abdominal region. The Grecian writers seemed to recognize clearly that the symptoms were the result of thinking over much about self and concentration of attention upon unfavorable suggestions.

Plato, in the "Republic," says:

In former days the guild of Asclepius did not practice our present system of medicine, which may be said, he declares, to educate diseases. He cites

the example of Herodicus who, "being a trainer (of gymnasts) and himself of a sickly constitution, by a happy combination of training and doctoring, came to the invention of lingering death; for he had a mortal disease, which he perpetually tended, and, as recovery was out of question, he passed his entire life as a valetudinarian." Plato, finishing the description, makes us recognize the hypochondriac when he says: "He could do nothing but attend upon himself, and he was in constant torment whenever he departed in anything from his usual regimen, and so dying hard, by the help of science he struggled on to old age."

The picture of the neurasthenic, or hypochondriac, who has educated himself, as Plato says, into disease, is an interesting parallel to modern conditions in this matter.

Nowhere more than in this matter of knowledge of disease, can weight be attached to Pope's dictum that a little knowledge is a dangerous thing, and that one must drink deep or touch not the Pierian Spring of medical information. The teaching of pathology under the guise of physiology, now so common in our schools, is likely to do more harm than good. Various pathological conditions, such as those produced by alcohol and tobacco, have been emphasized to such an extent as to produce unfavorable suggestions in the pupils' minds with regard to the untoward events that may happen in their insides, and the serious lasting pathological changes that may occur, though all unconsciously, to the sufferer as the result of indiscretions. The study of the morbid changes produced in the mucous membranes of the digestive tract by the use of stimulants, impresses ideas on the mind that are readily transferred to other abuses in eating or drinking. The rather vivid pictures and descriptions of the pathological conditions that may develop, become a portion of the acquired consciousness as to internal conditions, and this consciousness acts as an unfavorable suggestive factor whenever there are any digestive symptoms.

Bacteriophobia.—The development of bacteriology has had a similar effect, especially because periodicals and newspapers like to take up only the sensational side of biological discoveries. Most physicians who have had anything to do with nervous diseases have seen cases of misophobia, the fear of dirt, which in our day has taken on the special character of fear of microbes. Those who are sensitive to the possibility of contamination learn of the almost sacrificial precautions that surgeons take to avoid wound infection, and conclude that practically everything they handle must fairly reek with microbes. They hesitate about touching the door knob or latch, and invent all sorts of excuses to wait for a moment outside the door in order to have someone else open it. Especially are they timorous about touching the door knobs of a physician's residence, or the chairs in his waiting room, or even to shake hands with him. Hospital walls and doors become an abomination to them. These cases emphasize how much of unfavorable suggestion there has been in the present spread of popular knowledge with regard to microbes.

A writer on popular science once said that every time we spread a piece of bread of the size of the hand with butter, we scatter over its surface as many microbes as there are inhabitants in the United States. The expression has gone the rounds, producing its effect on sensitive people, occasionally causing even a disgust for so important an article of diet as butter, more often giving rise to an extreme sensitiveness with regard to any special savor that butter may have, and it may have many according to the prevailing food of the cow. There has been much emphasis laid on the potentialities for harm of the microbes, and very little on the important part which they play in the production of many forms of food materials. Most people know and dread the fact that microbes produce disease. Very few seem to realize that while we know many thousands of different kinds of microbes, scarcely more than a score of them are known to be seriously pathogenic, while all the others are either indifferent or, as we know of very many, are actually benefactors of mankind.

People have heard much of the flora of the digestive tract, until they have come to think with anxiety of the almost infinite number and multitudinous variety of the minute plant life that finds a habitat in the human intestine. Most people think that all of these are, in tendency at least,

harmful, and are only kept from being positively dangerous by the overwhelming vital activity of the mucous membrane and the secretions which keep them from exerting their malign activity. Very few appreciate the fact that the intestinal flora, far from being a disturbing factor, are often an aid to digestion, and that the equilibrium established among them favors many biological and chemical processes which help in the preparation of food and in the breaking up of waste products that might be dangerous if reabsorbed during their stay in the intestinal tract. Microbes we have always with us and always will have, and men have lived to round old age, not only in spite of them, but very probably partially because of them. They are part of that beneficent mystery of nature of which as yet, in spite of scientific progress, we know comparatively little.

Opposing Favorable Suggestion ,—A recent striking change of sentiment with regard to one form of food material furnishes a good example of how little we know about the real effect of bacterial life within the digestive tract. There was a time, not so long since, when sour milk was supposed to be especially harmful, or at least only likely to do good to those of particularly strong digestive vitality. Metchnikoff's work on the influence of sour milk on the digestive tract, however, has brought a complete reversal of opinion in this matter. Now most physicians are convinced that the bacillus of sour milk, acts in the intestinal tract to inhibit the reproduction and growth of other, and possibly more disturbing, bacterial agents. Sour milk is looked upon as one of the things that, by neutralizing certain unfortunate bacterial processes in the digestive tract, lead to longevity. There seems no doubt at all, that those who consume a great deal of it, live longer lives than the average, and many old men have taken to its use with a consequent amelioration of digestive annoyances.

The popularization of bacteriology, then, has been one of those moments of unfavorable suggestion that have affected a large number of people. Such influences do not mean much for people of phlegmatic temperament. For others, however, they have a weighty significance and make every symptom, or more properly every sensation, that is at all unusual in the digestive tract, seem of ominous import. Certain sensations inevitably accompany digestion. The peristaltic movements are usually said to be unfelt, but even a slight exaggeration brings them into the sphere of sensation. Where attention is given to the abdominal region and its contents, feelings that ordinarily are not noticed at all come to be perceived. With the unfavorable suggestion derived from the unfortunate diffusion of a superficial knowledge of pathology and of bacteriology instead of hygiene and the science of beneficent microbiology, these feelings produce a bad effect upon the individual.

Familiar Examples of Unfavorable Suggestion.—There are many familiar examples of the discomfort that may be produced by the mental persuasion that something will disagree with us, or that certain feelings have a significance quite beyond that which ought to be attributed to them. Everyone knows how qualmy may be the feeling produced by being told that something eaten with a relish contained some unusual material, or was cooked under unclean conditions. Food that agrees quite well with people, so long as they do not know too much about it, often fails to be beneficial after they see how it has been prepared. It is often said that people would not relish the food placed before them if they were aware how lacking in cleanliness was the place of its preparation, and how negligent those who had charge of it. Occasionally a peep at the kitchen of a boarding house effectually takes away appetite, or disturbs the equanimity with which food must be taken, if there is to be that undisturbed digestion which makes for healthy nutrition.

It is, indeed, with regard to digestion that the influence of the mind on the body, favorable as well as unfavorable is, perhaps, most effectively exercised. Unfortunately the unfavorable influence is even more pronounced than its opposite. Some people are much more sensitive than others in this respect, and even the thought of certain defects in the preparation of their food seriously disturbs them. Everyone has had the experience of seeing sensitive persons leave the table because some one insisted on telling a nauseating tale. Anyone who has seen the effect of talking of blood sausage or fried brains with black butter sauce at a table on shipboard, when some practical joker was exercising his supposed wit, knows how much the imagination can disturb, not only appetite but digestion.

The attitude of mind means much, and especially are such unfavorable suggestions likely to produce serious effects in inhibiting digestion.

Suggestion and Seasickness .—Seasickness illustrates the place of unfavorable suggestion in digestion. The nausea, consequent upon the movement of a vessel at sea, is due to a disturbance of the circulation within the skull, and particularly of the circulation in the semi-circular canals. The organ of direction of the body is disturbed by the over-function demanded of it, consequent upon the continuous movement of the vessel. This is, however, only a predisposing element. A strong additional factor is the firm persuasion many people have that they will suffer from nausea and seasickness, and the unfavorable expectancy thus aroused. Most people have to give their dole to Neptune. Those who for weeks before have been expecting and dreading it usually pay a heavy tribute. Probably the best remedy for seasickness is the suggestion that there is no necessity for losing more than a meal or two, if even that much, provided there is simplicity of diet and proper predisposition of body by gentle opening of the bowels, and lack of the over-feeding that sometimes comes from dinners given before departure. I have known many people who, after suffering severely not in one but in many voyages, have, by means as simple as this, been saved from days of seasickness even in rough weather.

Most of the cures for seasickness that have been suggested have depended principally on the suggestive element. For instance, there is no doubt that many people are relieved by wearing dark glasses, and this remedy does good for train sickness and other afflictions of a similar kind. There is, however, no good physical reason why wearing dark glasses should help except through their constant physical suggestion. A simple remedy that has helped many through seasickness is the wearing of a sheet of glazed paper, usually some heavy writing-paper, immediately over the skin of the abdominal region. This of itself has no physical effect, but the sensation of its presence constantly obtrudes itself, and by making people feel that they must be better because a great many other people have declared that they were bettered by this remedy, they actually suffer less from nausea and vomiting. Many of the internal remedies employed for seasickness are directed to the stomach and intestines. As the seat of the difficulty is not here but within the skull, the reputation which these remedies have acquired has been due largely to the suggestive effect of taking them rather than to any physical qualities they possessed, though of course they have served to set at rest stomachs disturbed by unfavorable expectancy.

Disease Groups and Suggestion.—Labeling groups of ailments with a single term gives rise to many unfortunate conclusions and dreads with regard to what a particular condition really is. The word "indigestion" is commonly used for any stomach discomfort or disturbance, especially that occurring after eating, from the slight distress because too much has been eaten, or the uncomfortable feeling of fullness because too much liquid has been taken, or the discomfort due to an unsuitable mixture of food materials, to such serious conditions as develop when there is motor insufficiency of the stomach, followed by dilatation, with delay of the food for long periods and with consequent fermentation, distress and bad breath. Whenever the word "indigestion" is mentioned, the patient may think of the worst cases that he has seen or heard of with this label, and concludes that while his ailment may not be very serious just now, it is only a question of time until it becomes so, and that unless he can get rid of his uncomfortable feeling he is destined to have one of the forms of "indigestion" that are productive of such serious discomfort, with probably ever increasing torment, until some fatal complication develops. The initial symptoms of gastric ulcer and cancer have been labeled indigestion, and people, often recalling the serious consequences that followed in such cases, fear for themselves.

Fearing the Worst .—This looseness of terms is noted with regard to many other forms of disease. Rheumatism calls up the picture of advanced arthritis deformans, with the awful deformed joints and bed-riddenness, which should not bear the term rheumatism at all, but which the patient has heard called so. Catarrh is the simplest of inflammatory processes, meaning merely an increase of secretion, functional in character and without any serious disturbance of an organic character

beneath it, but many people have heard the foul-smelling ozena called catarrh, at least popularly, and so the mental picture of such a repulsive progressive process as beginning in them is suggested. It is important, therefore, when using words that have such wide connotation as these, to explain exactly what is meant, and perhaps, better still, not to use the words, but to employ some more specific term that does not carry a cloud of dreads with it. Indigestion can be a very simple passing set of symptoms, but once certain people get the notion that they are troubled with indigestion, their minds dwell on it to such an extent that they are likely to limit their eating more than they should, and to disturb digestive processes by thinking about them and using up in worry nervous energy that should be allowed to flow down to actuate digestion.

So-called Incurability.—Patients are likely to hear entirely too much of the incurability of disease. To the doctor and patient this word, incurability, often has an entirely different meaning. The doctor means only that the diseased tissues cannot be restored to their previous condition by any of our known remedies, and that the effects of the deterioration are likely to be felt to some degree for the rest of the patient's life. To the patient it means, as a rule, not only that the doctor can do nothing for him, which is usually quite untrue, for much can be done for his symptoms even though the underlying disease may be intractable, but also that the symptoms are to grow constantly worse. This is often quite without foundation, for nature's compensatory powers are very wonderful and seldom fail to afford relief. In a great many cases fatal termination comes, not from the original affection, but through intercurrent disease. Above all, incurable means to many patients that finally the victim is to become more and more subject to the pains and ills of his "incurable" ailment until he becomes perhaps a pitiable object. Incurability, when we recall that patients are so likely to mistranslate this term in the way indicated, must be a word little used. Etymologically it is never true, for *cura* means care, and we can always care for and relieve the patient. In every chronic case there is room for hope of much relief through accustomedness, various remedies, nature's compensatory methods, and, above all, the modification of the state of mind.

There is probably no incurable disease that is ever quite as serious as it is pictured by its victim when he first hears this word pronounced. When we recall the chances of life, and that in any given case, almost as a rule, the patient will live to hear of the deaths of men and women who were in perfect good health when his ailment was pronounced incurable, there is much of consolation to be derived from conditions as they are. It seldom happens that a physician sees a sufferer from tuberculosis, whose affection is running a somewhat chronic course, without being able to find out that since the first symptoms of the disease manifested itself, one or more of the patient's near relatives have died because of exposure incident to their abounding health. Pneumonia, appendicitis, typhoid fever, accidents of various kinds, take off the healthy relatives, while the tuberculous patient, constantly obliged to care for his health, lives on, and often is able to accomplish a good deal of work. It is important to impress facts of this kind upon these "incurable" cases, for they represent the light in the desert, or the shout, or the whistle at sea, that give renewed energy when nature seems about to give up the struggle.

Thinking Health.—Hudson in "The Law of Mental Medicine"¹³ suggests that we should think health and talk health on all suitable occasions, remembering that under the law of suggestion health, as well as disease, may be made contagious. This expression probably represents an important element for the prophylaxis of disease under all conditions. Under present conditions people talk entirely too much about disease and have too many suggestions of pathological possibilities constantly thrown around them by our newspapers, our magazines and by popular lecturers as well as by our free public libraries. People have learned to think and talk disease rather than health. This predisposes them to exaggerate the significance of their feelings, if it does not actually, on occasion, lower their resistive vitality because of solicitude. The medical student torments himself with the thought that

¹³ McClurg, Chicago, 1903.

he is suffering from the diseases that he studies, and we cannot expect that the general public will be even as sensible as he is in this matter. On the contrary, people generally are much more liable to exaggerate the significance of their feelings, hence the necessity for healthy suggestions rather than innuendoes of disease.

In recent years, to paraphrase Plato's expression, people are much more inclined to educate themselves in disease than in health. The result has been a storehouse of unfavorable suggestion, from which ideas are constantly being taken to make whatever symptoms that may be present seem unduly important. Consequently people look for the worst, and suggest themselves into conditions where not only are they exaggerating their symptoms, but they are absolutely preventing the flowing down of such nervous impulses as will enable them to overcome affections that are present. Whenever anything turns up that lessens their tendency to unfavorable auto-suggestion, their health improves. Hence the taking, with confidence, of any quack medicine, no matter what its constituents, cures them; hence the success of the numerous and very varied forms of mental treatment. New Thought, Eddyism, osteopathy, and the like, attain most of their successes because of the removal of unfavorable suggestions, and the setting up in their stead of favorable suggestion. In psychotherapy the first duty of the physician is to undo all the unfavorable suggestion at work, and, if successful in that, great therapeutic triumphs are possible.

CHAPTER III THE INFLUENCE OF BODY ON MIND

While trying to take advantage of the influence of the mind on the body for therapeutics, it is important to remember that the body has a great influence on the mind. There are many states of mind that are dependent on states of body, and that can be modified only by first modifying the body. Body changes can at least greatly help. In order to use the mind in the therapeutics of conditions in which it would help in the awakening of such vitality as is necessary for the cure, particularly of many of the chronic affections, it is necessary first to dispose the body so that it will not constantly be adding to, or at least emphasizing, an unfavorable state of mind. For this purpose it is important to study definitely and practically the influence that various attitudes, expressions and external manifestations may have in changing the internal feelings. This factor seems trivial when viewed from the standpoint of health, but it is one of the trifles that are very helpful in the predisposition of the patient to get better. Alteratives in medicine, while we have not been able to say just what their effect was, have done much for us, and the influence of body on mind is just such an alterative.

Even those who have insisted most strenuously on the independence of mind from body have always recognized not only the influence of the mind on the body, but also of the body on the mind. Perhaps the most familiar example of this is the well-known liability to dream after eating things that disturb digestion and seem to interfere, probably by congestive tendencies, with the circulation of the brain during sleep. It has always been recognized that mental operations are sluggish for some time after eating, and that a period of depression is likely to follow any excess. The Romans feared the consequences of indigestion so much that, occasionally after they had surfeited themselves with rich food, they took such direct mechanical means as a feather or a finger in the throat to relieve their overloaded stomach, in order that they might not suffer the after consequences, but especially the depression and irritability of mind.

Disposition and Digestion.—The relation of the body to the mind in many other besides the purely animal digestive functions has always been realized. It has always been felt that the disposition of an individual depended to a great extent on his nutrition. Men were not usually approached for favors before their meals, and especially after a long fast, but, as far as possible, requests were made shortly after meals. It has always been recognized that the best time for men to get together in council is, at least so far as amiability goes, shortly after meals. Tiredness was also felt to be an important

element in affecting the mind. The tired man, even though he may be hungry, can only eat a hearty meal at the risk of serious disturbance of digestion, for, as a consequence of the fatigue of the body being communicated to the mind, the mental influence which predisposes to good digestion is lacking, and it is easy for serious digestive disturbances to be set up. In a word, body and mind are inextricably involved in all that concerns not only health but good feeling, and these two terms are practically convertible.

Feeling and Expression.—In nothing is the influence of the body on the mind more clear than in the influence of expression upon the disposition. Actors know that if they want to well express a certain feeling, they must arouse that feeling deeply, and the easiest, surest and most direct method of doing so is to fix the features in the expressions that would ordinarily indicate the presence within of these feelings. If we insist on putting our features into the shape which ordinarily expresses sadness, that will be reflected internally, and we shall become as sad as our expression. On the other hand, if the features are drawn, even by force of will, into the state that ordinarily expresses joy or lightness of heart, we shall be tempted more and more to feel that way, until at last even internal melancholy may be dissipated. In the oldest book in the world, "The Instruction of Ptah Hotep," written about 3,000 years before Christ, the old father giving advice to his sons says: "Let thy face be bright what time thou livest," and the literature of every time since then emphasizes the same idea.

This influence of the expression on the mind is an extremely important element in psychotherapy. Men and women must be taught to shake off inner sadness, and over-occupation of mind, by training their facial muscles of expression as far as possible to occupy positions expressive of good feeling, but above all not to let them be fixed in positions indicative of ill feeling. It makes a great difference for the mental state whether a man has the corners of his mouth drawn down or up, or whether they are pulled straight across the face to give the severe, austere expression that some people seem to cultivate. If the corners of the mouth are allowed to droop the glumness and depression is likely to grow deeper. If the lips are curled upward and smile, even though it may be a forced smile, the inner feeling will soon yield to it. Actors are able to counterfeit the reality, but much more than this, as we have said, they realize that, by imitating the externals of the feeling, they awaken the feeling itself within them. This is true for anger and loathing, and for many of the more serious dispositions as well as for those that might be thought more superficial, and hence more controlled by the external muscles.

The Mouth .—It is interesting to realize how different are the expressions of the face as a consequence merely of control of the sphincter of the mouth and its associated muscles. Physiological psychologists have often called attention to the fact that only a few lines are necessary to picture the characteristic human expressions of sadness, joy and severity. If a little droop is given to the line that represents the lips, melancholy is at once expressed, while the upward curve expresses joy, and the straight line severity. These types of human expression are easy to control, and the internal effect of each is soon felt where there is deliberate, or indeliberate, perseverance in its maintenance.



FIG. 1.

Fig. 1. Three abstract faces.

The Eyes .—A typical example of the influence of the mind on the body is to be found in the use of the eye muscles, especially the oblique muscles. Of definite and important use for many purposes, they are especially employed to attract attention by means of the eyes. Coquetry has used them to express various phases of sex attraction. We all know the picture of the young woman who

"makes eyes." It is interesting, however, to set solemn people imitating these exercises of the oblique eye muscles. For most people it is practically impossible to use these muscles without a corresponding quasi-demure setting of the features, commonly associated with those who use them most. There is even likely to be a certain attitude of mind aroused corresponding to the setting of the features in a particular way. While this is true for almost any other expressive state of the countenance, it is not so easy to demonstrate as is this.

The use of the superior recti muscles has also a definite effect upon the disposition. One of the pleasures of walking in a well-kept forest where the trees meet high overhead, is that the eyes are inevitably attracted upward to range among them, and there is a corresponding elevation of feeling. Bernard Shaw once said that it was impossible to enter a Gothic church without an elevation of the spirit, because the eyes were surely attracted upward by the height of the nave, and a corresponding uplift of feeling ensued. During a period of glumness it is apparently impossible to keep the eyes raised. People who are depressed and "cast down," as the expression is, invariably keep their eyes downward, and just as soon as a man "looks up and not down" there is a lifting of the depression. Even such apparently trivial muscular actions as this may influence the mind, and thus react upon the physical system generally.

Wrinkles .—Many influences of the body on the mind group themselves in the muscles of expression around the eyes. Wrinkles, for instance, are originally a habit of mind, and then the emphasis of this, in the muscles of the face, is reflected back to deepen still further the dejection or nervous unrest that originally causes them. It is surprising to see what an influence it has on patients who go round much with wrinkled foreheads, to have them give over the practice and discipline themselves to appear with uncorrugated superciliary muscles. St. Ignatius Loyola, the founder of the Jesuits, and one of the wisest managers of men that ever lived, has emphasized in one of his rules that "wrinkles on the forehead and still more on the nose" are a sign of interior disquiet and must not be seen. He realized that the interior feelings could be influenced by suggestion at least, by having those who indulged in wrinkles keep their foreheads and noses smooth. Most of the expression of the face is concerned with the eyebrows and neighboring regions, and people should occasionally be asked to look at themselves in the glass, so as to rid themselves of habits of expression indicative of a disturbed mind, for this will do much to help to relieve the mental disturbance.

Attitudes and the Mind.—With regard to the influence of the body on the mind, and the stimulating mental reaction that follows even a pose of well-being and good feeling, perhaps nothing affords more striking evidence than the effect of assuming the expressions and attitudes usually associated with various states of mind and then noting the results. If a man throws his shoulders back, and takes in long breaths of air, expanding his chest and stimulating his circulation, his whole body as well as his mind feels the effect. A slow walk with bowed shoulders and head, while one moodily turns over all the possibilities for ill in the life around, does very little good, while a brisk walk with head thrown back, shoulders erect, brings a man home with mind and body both ready to throw off temporary obstacles of all kinds, and in addition to the fact that the mental depression has disappeared, to some extent at least, all the physical functions will be accomplished better than before.

Tears and Feeling.—Some of the usual translations of the meaning of external expressions are not justified by what we know of their actual purpose and effects. For instance, tears are supposed to be a sign of deep grief. Except in the very young they are not, as a rule, to be thus understood. As we grow older they are much more frequently a sign of deep feeling that is usually quite pleasurable. It is almost impossible for a human being to be touched deeply without a glistening of the eyes that readily runs over into tears. A mother who is proud of something that her children have done is quite sure to have tears in her eyes. If she is present at a successful musical or dramatic performance given by a son or a daughter, especially where there is something of a triumph for them, she is sure to have tears in her eyes. There are few mothers who fail to be moved in this way when their children take

prizes, or when some one writes to tell them how well their children are doing. Tears, indeed, far from being a sign of sadness, usually in adults indicate profound joy.

Tears, then, instead of being discouraged, should rather be encouraged, unless when indulged in to excess. We realize how trying to health and strength is the stony grief that does not melt into tears. The mother who faints over the sudden death of her child, and who wakes to silent consciousness, is in a dangerous condition until the solace of tears comes to her. Until there are tears, we fear for the effect upon her mind of the grief. The sufferer from melancholia is sad, but a good outburst of tears will, indeed, often mean the end of a prolonged period of melancholia. In the trials of life tears are a consolation rather than an addition to sorrow. In the olden times men wept as well as women, and Homer's heroes thought it not at all beneath their dignity to be seen in tears. Over and over again, the physician learns that while people have been going to "shows" that were supposed to make them laugh and so divert their minds, the best possible effect is derived not from trivial laughter, but from a serious play that touches the heart deeply and makes all who go to it melt a little. Many nervous patients never feel better than after they have had a good quiet cry.

The influence of the serious things of life in producing favorable states of mind is not sufficiently appreciated, or at least has come to be neglected in our day. There is a seeking far and wide for pleasure and diversion that should be obtained near home, through the simple joys of domestic life or intimate contact with others who need us in some way. As has been well said, it is not far-fetched pleasure, but simple joys that are more needed in our time. Nothing so enables the patient to get his, and above all her, mind off self as care for others. This must be expressed, however, in external acts accomplished by ourselves for others to have any deep effect. Doing things for other people deepens the feeling of sympathy, and so makes the mind much more ready to respond to increase of these feelings so profoundly as to displace selfish considerations. Exercise is valuable, but exercise undertaken for a worthy motive, constantly before the mind during the time it is taken, means ever so much more in awakening all the sources of energy that there are in men and women to make life worth living for themselves and others.

Application of Principles.—The best possible source of relief from that combination of mental despondency, and the lack of bodily vitality which so often accompanies it, and which, if not interrupted, may lead to a serious breakdown of mental health, is the discipline of work; above all, work for the benefit, of others, to which one forces one's self gradually but persistently, not with, long intervals, but day after day. The discipline of the asylum and the sanatorium is probably the most efficient curative agent when these cases are at their worst. When the symptoms are beginning, a discipline of a milder character, yet resembling that of the institution, but appealing to higher motives and leading to frequently repeated actions for the benefit of others, will undoubtedly do much to prevent worse developments or make the future condition of the patient less serious than it would otherwise be. Undoubtedly some of the old monastic regulations were efficient in preventing the more serious developments of despondency when the danger to himself and others of the melancholic was not so well recognized as at present.

Laughing Cures .—Every now and then the newspapers announce that some physician has invented a laughing cure, or a smiling cure, or something of the kind. Sometimes these reports are founded on actual occurrences; oftener, perhaps, they are the invention of a reporter suffering from a dearth of news. There is, however, no doubt that a smiling cure will do much to make people, even those who have serious reasons to be depressed, feel better. Every physician knows that if melancholic patients of the milder type can be amused quietly, their depression is modified for the better. Accordingly, we advise them to see farces or lively comedy, and we try to pick out cheerful nurses for them. The depression consequent upon some serious illness can be better relieved in this way than by any tonics or stimulants. For the depression, for instance, that so often follows a stroke of apoplexy, the employment of a nurse with a good human sense of humor and a large sympathy

with the humorous side of things in life will do more to arouse a man from the lethargy into which he settles than almost anything else.

With regard to laughing, there is, of course, another element that must be remembered. A hearty laugh moves the diaphragm up and down vigorously, empties and ventilates the lungs, stimulates the heart mechanically by its action upon the intra-thoracic viscera, and is one of the best tonics that we have for the circulation in the abdominal cavity, and probably also for the important nervous mechanisms centered there. Its action upon the lungs is readily recognized. Its influence upon the heart is usually not so much thought of, but deserves even a more prominent place. It is now well known that when patients have gone into coma or the apneic condition that sometimes follows shock, or the administration of an anesthetic, when the heart ceases to beat, the only effectual means of resuscitation is by directly irritating the organ. It has been suggested that if the abdominal cavity is open the surgeon's hands should be passed up and should squeeze the heart through the diaphragm. It has even been proclaimed that tapping on the chest vigorously over the precordium may arouse a heart that has for the moment stopped beating. It is easy to understand, then, that a hearty laugh, by stirring up all the intra-thoracic viscera, stimulates the heart mechanically and sets it beating more vigorously than before. This is one of the reasons why people feel so well after a hearty laugh.

Even slight swallows of water act as a distinct heart stimulant. When people have fainted, a succession of swallows of water, each of them acting as a heart tonic, is one of the best methods that we have of stimulating the heart's action. It is usually said that this action is a consequence of the reflex from the terminal filaments of the vagus nerve running back and reflected down again to the heart. To me it has always seemed that the swallowing action had a direct mechanical effect upon the heart, because the esophagus passes so close to it in the thoracic cavity.

Man is the only animal that laughs, and, as the old philosophers point out, he might very well be defined as *animal risibile* with just as much truth as by the words *animal rationale*. It requires reason in order to have a sense of humor. The higher the reason, the more the humor. Peasants and the uneducated have, as a rule, a very undeveloped sense of humor. It is the highly educated man of deep intellectual powers who catches all the humor of a situation, and, though his expression of it may not be loud, it is deep and helpful at moments of depression. Humor is, of course, very different from wit, which is biting and which seems almost to be shared by the animals, if we can judge from the fact that they appear, occasionally, to play practical jokes upon one another.

It seems almost absurd that a physician should tell patients that it will do them good to practice smiling, to take every possible opportunity to laugh, and even to take frequent glances into a looking glass, to see that they are not pulling long faces. The difference between a feeling of melancholy and one of gladness consists mainly in the position of the outer angles of the mouth. The putting into practice of the maxim, not to let the sad lines dominate the countenance, but to insist on keeping the others there as far as possible, means much for the correction of internal feelings of depression and discouragement that may be badly interfering with the flow of nerve impulses from the brain to the body.

Mouth Breathing.—Since Meyer's discovery of the overgrowth of the lymphoid tissue in the pharynx, we have learned to appreciate how important is mouth breathing, even for the intellectual life. We all knew before, and indeed from time immemorial it was well understood, that, as a rule, people who went around with their mouths open were of low grade intelligence. All sorts of methods were used to teach these young people to keep their mouths shut. They were reminded of it at home, they were told about it at school, and, if they married, their wives tried to keep them from this apparent manifestation of lack of intelligence. Of course, they were not, as a rule, able to carry out the well-meant intentions of their friends and advisors. The mouths were kept open because they could not breathe normally through their noses, and so respiration had to be accomplished by the only other available avenue. As a consequence of the open mouth, the lips were inclined to roll out

somewhat, and certain indications of the human physiognomy were supposed to be associated with these thick lips.

Now we know the real meaning of the condition. Mouth breathing is possible, but it is inadequate. Insufficient respiration leads to insufficient oxidation of tissues, and to lowered vitality in all structures, and this is particularly notable in the brain, as well as in certain other higher structures. It is not because the individuals are lacking in intelligence that their mouths are open, but because the same reason that compels the open mouth also affects their intellectual activity. The blocking of nasal respiration lowers vital activity of all kinds. Hence the lowered intellectual vitality. The thick lips, which are supposed to be characteristic of a certain passionateness of nature, and which usually are associated with a lack of thorough control over animal inclinations, probably owe their significance to the fact that this special peculiarity of feature usually accompanies mouth breathing, and that the individual who labors under this deficient respiration, is likely to lack control to at least some degree. There is even a question whether the deficient oxidation is not likely to be much more notable in its effect upon the higher faculties than on the lower, and as a consequence the latter develop somewhat to the detriment of the former.

These studies in physiognomy may, indeed, be correlated in many ways with distinct physical conditions instead of as formerly with the general constitution of the individual. For instance, large protruding eyes used to be said to be characteristic of nervous, timid, sensitive individuals, easily scared, and not well able to take up the harder parts of the battle of life. Now we know that this feature is usually associated with an excess of secretion of the thyroid gland, and that the nervousness is not a matter of character so much as it is due to the disturbance of internal metabolism consequent upon this interference with the proper function of an important organ. It might well be called a slight thyroid intoxication. In large amounts it produces all the symptoms of Graves' disease.

Bodily Conditions and Stupidity.—We have many illustrations of the influence of the body on the mind, when purely physical causes work rather serious results on disposition and character and energy. A typical example was the so-called tropical anemia which existed in Porto Rico when the Americans took possession of the island. There were so many cases of it that out of about 25,000 deaths reported in 1903, nearly 6,000 were from so-called anemia. Investigation of the conditions soon revealed the real cause. It had been thought to be due to a combination of the climate, malaria and the lack of nutrition on the part of the country people. The people were absolutely without ambition, they had no energy, they seemed scarcely able to keep body and soul together, and they cared for nothing except to get just enough to supply them with a meager sustenance. Of incentive to lift themselves up, there was none. This was largely attributed by the first Americans who went to the island to the conditions which had existed under Spanish rule, as the Spaniards had not encouraged manufactures or industries in the island, and had left the people without any incentives to the awakening of enterprise or initiative.

Hook-Worm Disease .—Before long it was found that the real reason for the anemia of the Porto Ricans was the presence in their intestines in large numbers of the so-called hook-worm. These worms exhausted the vitality of the sufferers and left them without surplus energy and, indeed, with scarcely enough life to care whether or not life itself continued. It was not a moral condition, but a very definite physical cause that was at work. Shortly afterwards it was found that the same disease existed in our Southern states among the so-called "poor whites." Before this, these people had been supposed to be a characterless, unambitious, lazy people, who cared not to get on, who had sunk to about the lowest depths possible for civilized people, and who were quite satisfied to remain there. The discovery of hook-worm disease among them, however, soon made it clear that their laziness was the result of the drain upon their systems due to the presence of thousands of hook-worms. When these were removed, if nature was not already exhausted, the "poor whites" became normal human beings once more with ambition and initiative.

This story of pathology influencing racial qualities is not new in the history of the world. It is not improbable that even certain periods of decadence in Egyptian history which have ordinarily been attributed to the so-called running out of particular ruling races or families, or to the degeneration of the people consequent upon luxury, were really the result of the spread of the hook-worm disease through certain portions of Egypt. Dr. Sandwith, who has studied the disease very carefully in Egypt, is sure that it has existed there for at least four thousand years, and that the descriptions of certain affections which occurred in Egypt in historic times were really due to the same cause as now is known to produce the so-called Egyptian chlorosis, the name that was used for hook-worm disease in Egypt. Workers in soil, and in mines and in tunnels, are especially likely to be affected by it, and whenever it is neglected it spreads rather widely, as is seen in the mines of Germany and Hungary at the present time. As the cause was unrecognized in the olden time, it is possible that periods of supposed lassitude among the people were really due to infection by this parasite.

Malaria and Degeneration .—In recent years it has come to be generally recognized that the decadence of Greece, for instance, was not due to moral causes so much, perhaps, as to physical reasons. During the classic periods in Greece there are no traces of malaria. After the invasion of Sicily, the expedition against Syracuse and other attempts on the part of the cities of Greece to spread their dominion, malaria seems to have been introduced among her people, and as the *anopheles* mosquito was already there, the malaria spread widely, and in the course of a century affected so many of the people that their energy and ambition and initiative were to a great extent destroyed. It is well known that these effects often occur as a consequence of malaria, and as generation after generation is affected by the disease, are emphasized more and more. The relaxing effect of tropical climates, of which we have heard so much, and which is supposed after a time to bring about the inevitable production of a race eminently lazy and careless of the future, is probably much more due to certain affections, such as malaria and those consequent upon animal parasites, than to any constitutional change that has taken place in the body, or any profound corresponding change in the mind. It is a case of the body influencing the mind and producing an apparently different race from that which existed before, though all this may be changed for the better by some even slight amelioration of bodily conditions.

In any attempt, then, to influence the human mind in order to use its power and its reserve energy for therapeutic purposes, the place of the body and its influence upon the mind must always be remembered. It is quite impossible to lift people up to enable them to use their mental reserve force if they are living in discouraging physical conditions, which use up so much of energy as to make it impossible to have any to spare. Many of the phases of mental discouragement and lack of initiative which are reflected in what we call lowered resistive vitality and lack of immunity to infection, are really consequent upon physical states representing a drain upon the system that can be removed, or at least greatly improved, if they are discovered and properly treated. Victims of chronic malaria and of hook-worm disease cannot be lifted up by psychotherapy. Neither can sufferers from other forms of chronic physical debility. After the removal of the debilitating cause, however, mental influence may be brought to bear to encourage them to rise to their opportunities, to literally take on new life, and gradually accumulate reserve energy that will enable them to accomplish, not only the average work of mankind, but even better, in the reaction that comes with the new feeling of physical energy. And what is thus true in these extreme cases is even more true of minor ailments and conditions.

CHAPTER IV

THE MECHANISM OF THE INFLUENCE OF MIND ON BODY

The question as to how mind influences body, and body mind, has always proved a riddle to all but those with a special theory in the matter. The facts of the mutual influence of mind on body are so obtruded on observation that they could never be missed, but it is quite another thing to reach a

satisfactory explanation of them. How the will initiates motion continues in spite of all our advance in psychology, to be as much a mystery as ever. Just how sensation is transformed into ideas is a parallel mystery. Since the mind is able to influence motion, it is not surprising that it should be capable of modifying secretion or inhibiting other kinds of functions. Any of these various activities is scarcely more mysterious than the other. Since the transformation of sensation into thought takes place, it is comparatively easy to conclude that the mental processes are able to exclude, or to some extent inhibit, sensation. All these activities have actually been observed. How does this mutual influence of mind on body take place? What principles underlie it?

At present, it would be futile to hope to outline the absolute principles on which the mechanism of mental influence or suggestion depends, but we can discuss recent explanations that have been offered, and this will help us to understand, not the mystery itself, but just where the mystery lies and what the physical mechanism connected with it is.

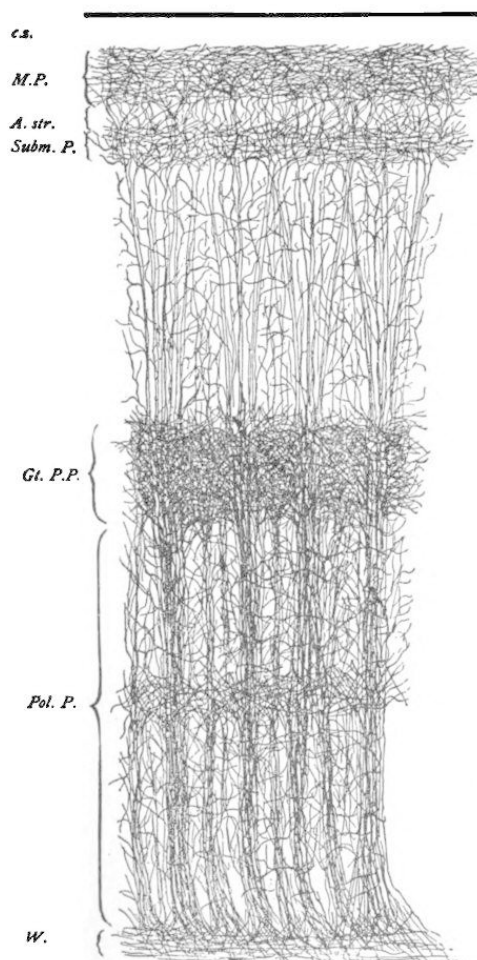


FIG. 2.—CORTEX OF HUMAN BRAIN ILLUSTRATING COMPLEXITY OF THE SYSTEMS AND PLEXUSES OF NERVE FIBERS (Combination of the methods of Weigert and Golgi—after Andriezen). *c. z.*, clear zone free from nerve fibers; *M. P.*, Exner's plexus in the molecular layer; *A. str.*, ambiguous cell stratum; *Subm. P.*, sub-molecular plexus; *Gt. P. P.*, great pyramidal plexus; *Pol. P.*, polymorphic plexus; *W.*, white matter. (Barker.)

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These explanations are as yet only theoretic, but theories have often helped students in science to make their thoughts more concrete and their investigations more practical. It would be a mistake to conclude that because some of the theories advanced are very plausible, we have, therefore, reached definite truth with regard to the mechanics of the brain that underlie suggestion and mental influence.

Brain Complexity.—The most interesting feature of the discoveries in brain anatomy during the past generation, has been that the central nervous system is of even greater complexity than had been thought. Because of this, these new discoveries, instead of solving the biological mystery they subtend, or even helping very much to solve it, have made it still harder to understand just how we succeed in controlling and directing this immensely complex machine, of whose details we are utterly unconscious, yet which we learn to use with such discriminating nicety of adjustment and accomplishment. The discoveries of Golgi and of Ramon y Cajal show us that the brain consists of nerve cells with a number of ramifying fibers connecting each cell and each group of cells with other simple and compound elements of the brain, and sending down connecting fibers to every organ and every part of the body. Dr. Ford Robertson calculates that in an average human brain there are at least three billions of cells. Without knowing anything of their existence, much less anything of the infinite detail of their structure and mode of operation, we have learned to use these for many purposes.

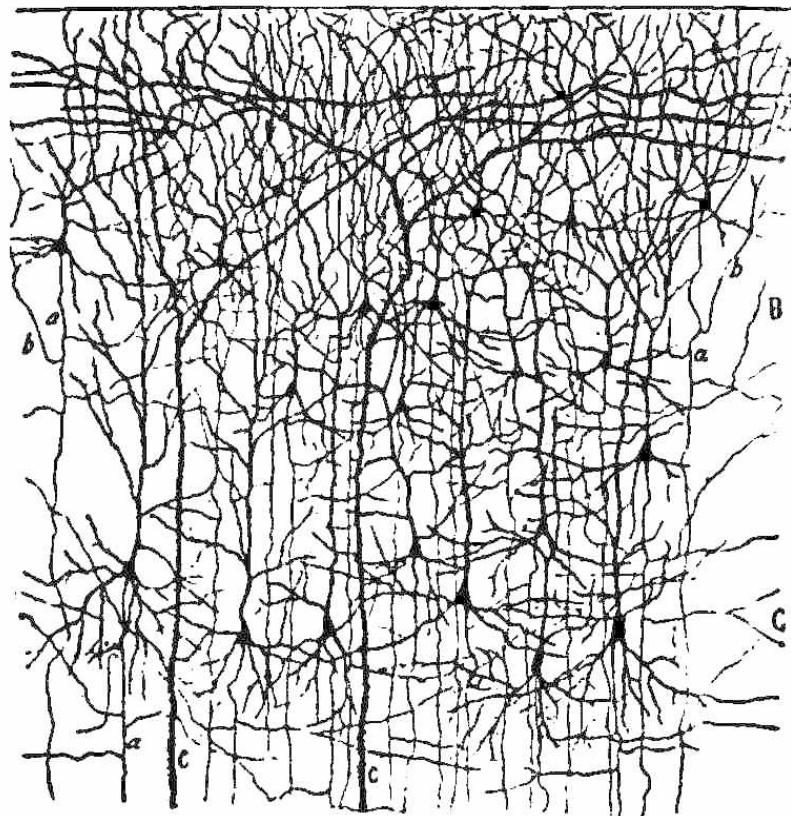


FIG. 3.—SMALL AND MEDIUM-SIZED PYRAMIDAL CELLS OF THE VISUAL CORTEX OF A CHILD TWENTY DAYS OLD. Section taken from the neighborhood of the calcarine fissure. A. plexiform layer; B, layer of the little pyramid; C, layer of the medium-sized pyramid; a, descending axis cylinders; b, ascending or centripetal collaterals; c, stems of the giant pyramidal cells. (Ramon y Cajal.)

(This and the next three illustrations illustrate the complexity of the central nervous system as observed in the very young child where the development does not as yet obscure the interesting details of dendritic branching. They serve to emphasize the much more pronounced condition which develops in the adult.)

Nerve Impulses.—We do not know even how nerve impulses travel. Probably they do so by a mode of vibration, just as heat and light and electricity are transmitted as modes of motion. The similarity that used to be thought to exist between the transmission of nerve impulses and of electrical energy is now known definitely to be only an analogy, and not to represent anything closer. Waves of nervous energy travel at a different rate of speed from electrical waves, and there are other notable differences. Such phases as molecular action, or motion, or vibration are only cloaks for our ignorance. A generation ago Huxley declared that "the forces exerted by living matter are either identical with those existing in the inorganic world or are convertible into them." He instanced nervous energy as the most recondite of all, and yet as being in some way or other associated with the electrical processes of living beings. As Prof. Forel said in his "Hygiene of the Nerves," "the neurokym cannot be a simple physical wave, such as electricity, light or sound; if it were its exceedingly fine weak waves would soon exhaust themselves without causing the tremendous discharges which they actually call forth in the brain."

Law of Avalanche.—How great is the power of the nervous system or the energy of it that may be set loose by some very simple reflex, as suggested by Forel, is illustrated by what Ramon y Cajal calls the Law of Avalanche. A single peripheral nerve ending is represented in many different portions of the brain. An ocular nerve ending, for instance, probably has direct connection with four or more portions of each hemisphere. Each of these portions of the brain has association fibers connecting it with other parts and so the stirring of a single nerve ending may disturb many thousands, perhaps hundreds of thousands, of brain cells; at least it affects them in some way or other. The older psychologists used to insist on the similarity, or analogy, between the cosmos of the universe and the microcosmos that man is. The English poet of the nineteenth century told us that there is no moving of a flower without the stirring of a star, so intimately connected by the laws of gravitation is the universe. In the microcosm something of this same thing is true and a titillation of even the most trivial nerve ending may produce, in Ramon y Cajal's phrase, "an avalanche" of cell disturbances in the central nervous system which may seriously disturb the whole system.

What is thus true for the brain is true, also, for the cord, and the complexity of spinal cells needs to be seen to be properly realized.

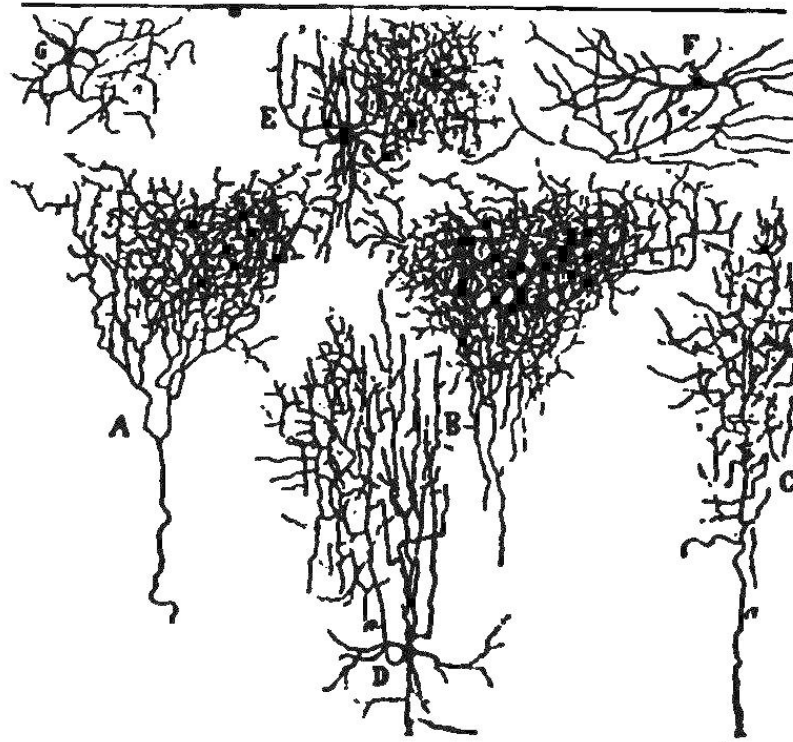


Fig. 4.—SERIES OF SECTIONS SHOWING THE FINE NERVE ENDINGS AND BRANCHINGS OF THE FIRST AND SECOND LAYER OF THE VISUAL CORTEX OF A CHILD FIFTEEN DAYS OLD. A and B, very thick nerve plexus of the layer in which the little pyramids are contained; C, a plexus containing a series of branches that is less thick and intricate; D, small cells whose ascending axis-cylinders have resolved themselves into a set of similar branches; E, arachnoid star cells whose axis cylinders produce a thick plexus in the first layer; F and G, small cells with short axis cylinders that have very few branches. (Ramon y Cajal.)

Psychic States.—There are a number of human states representing extremes of sensory and intellectual conditions in man, that have always attracted attention, and in recent years have been special objects of investigation by physiologists. Natural sleep is one of these; the unconsciousness of narcotism or anesthesia is another. Hypnotism is allied to both of these, and would seem to lie on a plane between them. Then there are various states of exaltation in which sensations fail to produce their usual effect. Those escaping from a fire, or passing through a severe panic of any kind may sustain all manner of injuries without being aware of them. Martyrs, for all manner of causes, are able to withstand suffering with such equanimity, and sometimes even joy, that it is evident that they cannot feel, as would people under ordinary conditions, the pain that is being inflicted on them.



Fig. 5.—FIRST, SECOND AND THIRD LAYER OF THE ANTERIOR CENTRAL CONVOLUTION (THAT IS, OF THE ASCENDING FRONTAL CONVOLUTION) OF THE BRAIN OF A CHILD ONE MONTH OLD. A, B, and C, little pyramids; D and E, medium-sized pyramids; F, cells with two sets of tufts; their axis cylinders resolved into end tufts; G, protoplasmic layer that comes from one of the large pyramids of the fourth layer; H and I, fine dendrites of the cells of the sixth and seventh layer; J, small cells with two end tufts; K, spindle cells with long axis cylinder. (Raymon y Cajal.)

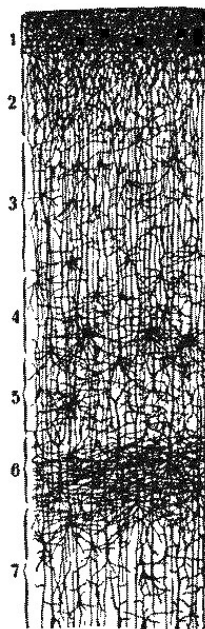


FIG. 6.—LAYERS OF THE POSTERIOR CENTRAL OR ASCENDING PARIETAL CONVOLUTION OF A NEWBORN CHILD. 1. plexiform layer; 2. small pyramids; 3. medium-sized pyramids; 4. external large pyramids; 5. small pyramids and star shaped cells; 6, deep layer of large pyramids; 7, spindle and triangular shaped cells. (Raymon y Cajal.)

In the midst of intense mental preoccupation one may hold so cramped a position as would be quite impossible for the same length of time with the faculties normally engaged. There are pathological conditions, like hysteria, in which the pain and fatigue sense may, for a time at least, be quite in abeyance.

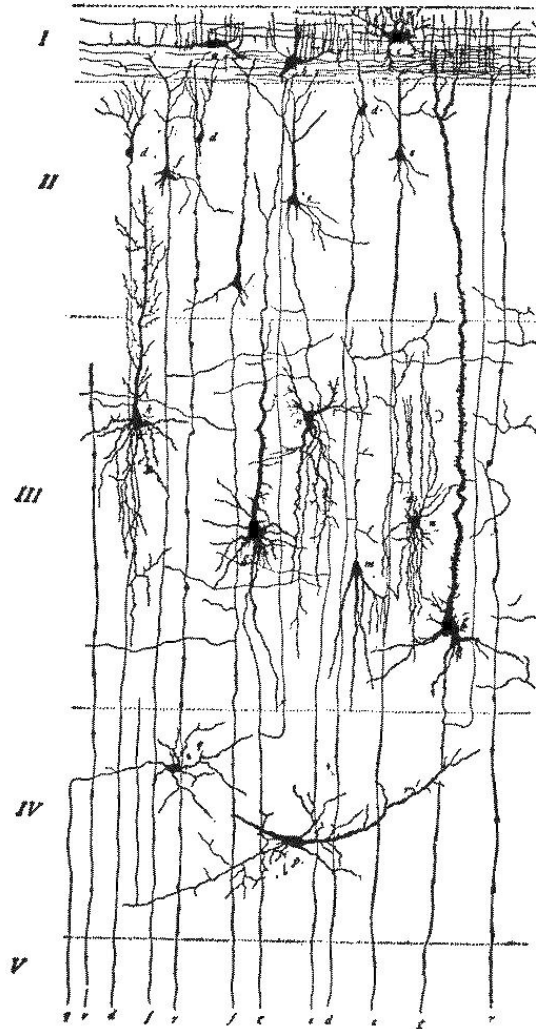


FIG. 7.—DIAGRAM OF CELLS OF CEREBRAL CORTEX (after Starr, Strong and Leaming). I, superficial layer; a, fusiform; b, triangular; c, polygonal cells of Ramon y Cajal; II, layer of small pyramids; d, smallest; e, small; f, medium-sized pyramidal cells with axones descending to the white matter and giving off collaterals in their course; III, layer of large pyramidal cells; g, largest (giant) pyramidal cells; k, large pyramidal cells with very numerous dendrites; all pyramidal cells are seen to send long apical dendrites up to I; m, Martinotti cell with descending dendrites and ascending axone; n, polygonal cells; IV, deep layer; p, fusiform cell; q, polygonal cell; V, the white matter containing the axones from the pyramidal cells, d, e, f, g, and from a cell of the deep layer q; r, neuroglia fibers. (Barker.)

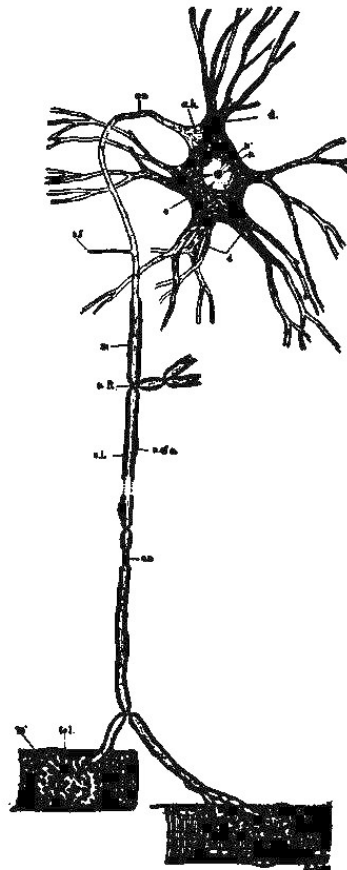


FIG. 8.—SCHEME OF LOWER MOTOR NEURON. The motor-cell body, with protoplasmic processes, axis cylinder, side fibrils or collaterals, and end ramifications, represents parts of a neuron. a. h., axon hillock devoid of Nissl bodies, showing fibrillation; ax., axon. This process near the cell body becomes surrounded by myelin, m., and a cellular sheath, the neurilemma (not an integral part of the neuron); c, cytoplasm showing Nissl bodies and lighter ground substance; d, protoplasmic processes (dendrites) containing Nissl bodies; n., nucleus; n., nucleolus; n. r., node of Ranvier; s. f., side fibril; n. of n., nucleus of neurilemma; tel., motor end plate or telodendrion; m., striped muscle fiber; s. l., segmentation of Lautermann. (Barker.)

Neurons.—With the advance in our knowledge of brain anatomy, various explanations for these curious conditions have been suggested. The discovery that the central nervous system is composed of a large number of separate units, and not of a feltwork of continuous fibers with cells here and there, revolutionized all previous attempts at explanation of these conditions. We know now that it is not fibers but cells that are the most important components of the brain and spinal-cord substance, and that, indeed, the fibers are only prolongations of cells. The central nervous system is made up of nerve cells with various appendages, and each one of these cells and its appendages is called a neuron. These appendages are of two kinds, one the axon, the long conducting fiber which transmits the nerve force of the cell, the other the dendrons or connecting elements by which the cell is linked with the axon of another cell. The contact of the axon of one neuron with the dendrons of another is called a synapse. Each neuron does not extend to and from the brain and the periphery, but series of neurons connect the surface of the body with the brain. There is usually a group of neurons in the path from the surface to the brain cortex. The peripheral neuron for sensation runs from the surface of the body to the spinal cord, while for motion it runs in the opposite direction. There is a secondary neuron in each chain that runs up or down the spinal cord to and from the base of the

brain. A third—sometimes, perhaps, a fourth—neuron connects in the two directions, afferent and efferent, the cortex and the base of the brain.

Neuronic Movement .—Duval, the French anatomist and histologist, suggested the possibility of voluntary and involuntary movement in the neurons or nerve cells themselves, thus making and breaking connections.

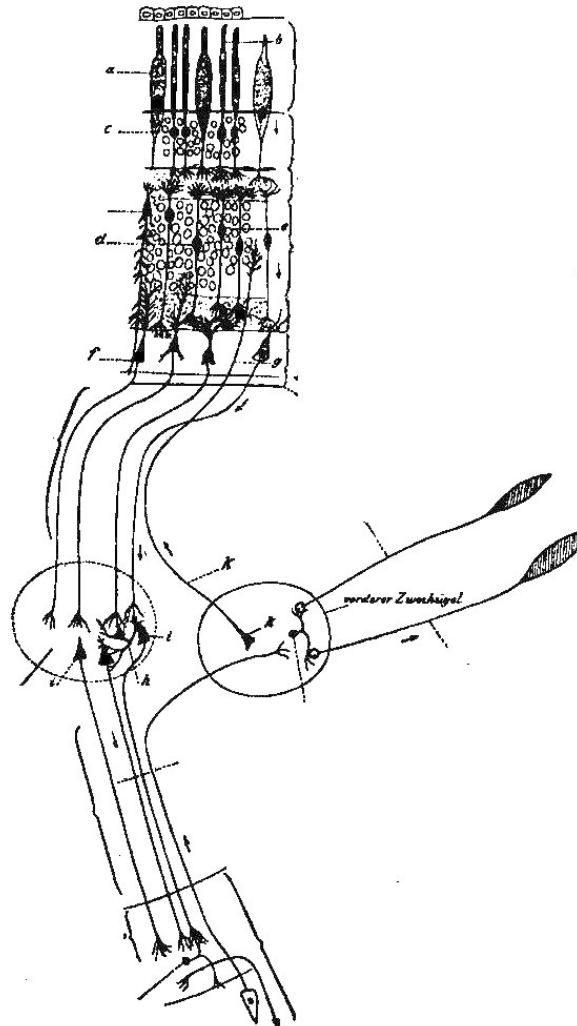


FIG. 9.—SCHEME OF THE VISUAL CONDUCTION PATHS (after C. von Monakow). a, rods and cones; b, rods; c, nuclei of rods; d, bipolar cells for the cones; e, bipolar cells for the rods; f, large multipolar ganglion cells giving rise to the axons of the N. opticus; g, centrifugal axon of a neuron, the cell body of which is situated in the colliculus superior, its telodendron being situated in the retina; h, Golgi cell of Type II, or dendraxon in the corpus geniculatum laterale; i, neuron connecting the corpus geniculatum laterale with the lobus occipitalis, its axon running in the radiato occipito-thalamica (Gratioleti). The visual impulses are indicated by the arrow. (Barker)

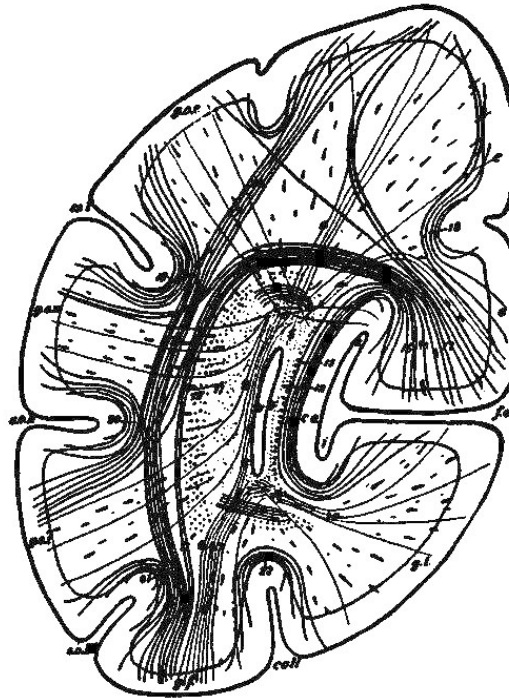


FIG. 10.—SCHEMATIC FRONTAL SECTION THROUGH THE OCCIPITAL LOBE ILLUSTRATING MANIFOLD CONNECTIONS IN A SINGLE LOBE (after H. Sachs), v, cornu posterius ventriculi lateralis; f. c, fissura calcarina; b, upper division: i, lower division; coll, sulcus collateralis; s. o. I, sulcus occipitalis superior (fissura interparietalis); s. o. II, sulcus occipitalis medius; s. o. III, sulcus occipitalis inferior; c. a., calcar avis; g. l., gyrus lingualis; g. f., gyrus fusiformis; g. o. s., gyrus occipitalis superior; g. o. m., gyrus occipitalis medius; g. o. i., gyrus occipitalis inferior; c, cuneus; 1-10, forceps; 11-14, stratum sagittale internum: 15, stratum sagittale externum; 16, stratum calcarinum; 17, stratum cunei transversum; 18, stratum proprium cunei; 19, stratum proprium s. o. I; 20, stratum proprium s. o. II; 21, stratum proprium. s. o. III; 22, stratum proprium, s. coll.; 23, stratum profundum convexitatis. (Barker.)

According to his suggestion, sleep would be due to a separation of the neurons that run from the surface of the body to the brain cortex, because the various neurons had become too tired for further function. As a consequence of fatigue, their terminal filaments would fall away from one another, external sensations would no longer be communicated to the brain, because the peripheral neuron was not connected with the next in the chain. As a further result, the brain, undisturbed by sensations, would be left at rest so far as the body was concerned. Within the brain certain connections through which flow thoughts that would keep us awake, are also supposed on this theory to be broken, and consequently all the nerve cells have a chance to rest, except, of course, those concerned with such very vital functions as heart movement, respiration and peristalsis.

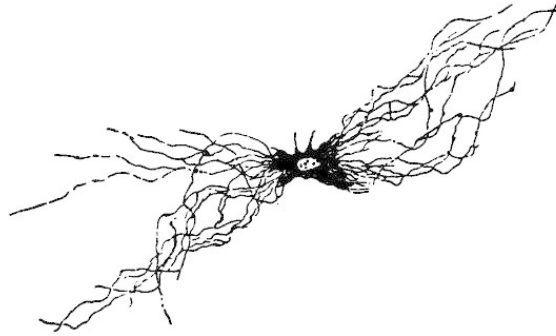


FIG. 11.—ISOLATED CELL FROM HUMAN SPINAL CORD (Obersteiner).

Somehow, these vital neurons obtain their rest in the intervals between the impulses which they send down, just as cardiac cells do between heart beats.

Neurons in Psychic States .—This same explanation would serve for narcosis, that is, for anesthesia, due to chloroform or ether, or any other drug. As a consequence of the effect of the narcotic upon the central neuron, they are brought into a condition resembling fatigue, at least to the extent of breaking their connections with other neurons so long as they are under the influence of the drug. While sensory nerves at the periphery, then, are being stimulated by the cutting of tissues to which they are attached, the message from them does not reach the brain because of a disturbance of the connections in the chain of neurons. Drunkenness illustrates the same phenomenon in a less degree. The effect of the intoxicant upon the central neurons disturbs sensation because it makes the connection much less complete than before, and so it is easy to understand the familiar occurrence of even severe injuries to drunken men without their being aware of them, or at least without their suffering nearly so much as would be the case if they were not intoxicated.

Hypnotism .—The same theory would also hold for the phenomena observed in hypnotism. After all, the best explanation of hypnotism that we have is that there is a turning inward of the patient's attention, so that only those sensations are allowed to reach the brain to which mental attention has already been called by suggestion. Hypnotism usually begins with a certain fatigue of peripheral neurons until these do not act normally, and then the cerebral neurons become, as it were, short-circuited on themselves with a consequent internal concentration of attention. The anesthesia so often noted in hypnotic or hysterical states is explained by the same theory. For the time being, at least, the connection between the peripheral neurons and the central neurons is broken or but imperfectly made, and conduction does not take place, or is hampered. There may be loss of motion as well as of sensation, or of motion without sensation. In all these cases, the discontinuity of the nervous system enables us to understand more readily the mechanism by which these curious phenomena occur. Exaltation or intense interest or profound preoccupation may so concentrate nervous energy within the nerve centers themselves as to inhibit the flow of sensory impulses from without and thus enable people to stand pain and fatigue that would otherwise seem quite unbearable.

Unconsciousness .—The unconsciousness due to apoplexy, or to a blow on the head, would be comparatively easy of explanation on the same theory. The hemorrhage would actually push certain neurons apart within the skull, or the intracranial pressure produced by it would keep them from making proper connections. A blow on the head may readily be supposed to jar neuron terminal filaments so severely that it would be some time before connections could be made, and the injury might be serious enough to prevent certain cells from ever again coming in contact in such a way as to allow the passage of nerve impulses from one to the other. Concussion of the brain would, on this theory, mean that neurons were so shaken apart as to produce some confusion in their terminal filaments and consequent serious disturbances of consciousness, if not its complete loss, and corresponding disturbance of the power to move. In a word, this theory would seem to afford

a reasonably satisfactory explanation for most of the extraordinary phenomena of mental life and, therefore, might also be expected to be applicable to the ordinary phenomena, though these are so elusive that it is difficult to satisfactorily apply theories to them.

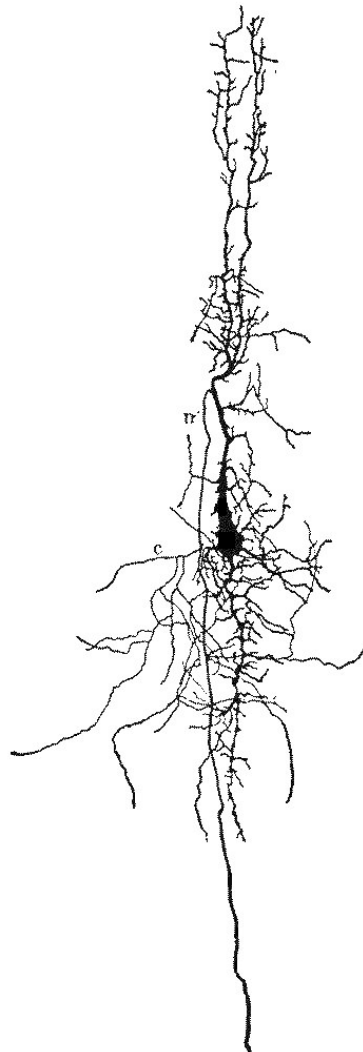


FIG. 12.—NEURON FROM THE OPTIC LOBE OF THE EMBRYO CHICK (after Kölliker). The axon n runs toward the center, giving off in its course several collaterals. One of these, c, is much branched. (Barker.)

Tired States.—When fatigued, it becomes extremely difficult for us to follow a train of thought, especially if it is somewhat intricate. It becomes easy to forget things, even such as under ordinary circumstances would be readily remembered. Names are much more likely to be forgotten. Facts and, above all, dates, refuse to come as they do under normal conditions. Efforts in the direction of recalling details are eminently unsatisfactory. The command goes forth, but there is evidently hesitation about obedience. Other thoughts intrude themselves. Ideas come unbidden. The connection of thought is readily broken, and is hard to get at again. There may have been very little mental work, but somehow the fatigue of the general physical system is reflected through our central nervous system on the mind as well as the body. The early morning hours are the best for mental work, not, it seems, because the mind is fresher after its rest, but rather because the physical factors that are important for mental action are in good condition. Later they become disturbed by the fatigues of

the day. The delicate cells of the brain become fatigued by sympathy with the somatic cells and it is harder to secure those nervous connections necessary for thought.

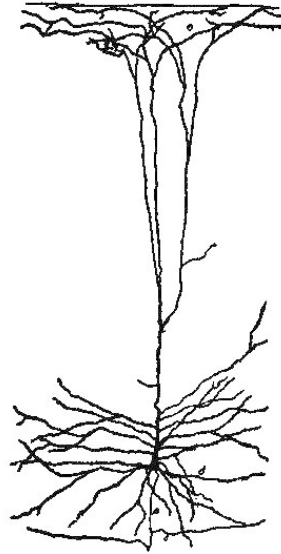
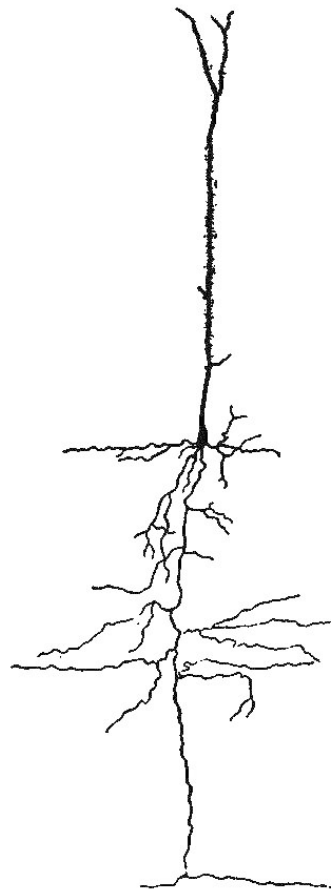


FIG. 13.—DEEP LAYER OF GIANT PYRAMIDAL CELLS OF THE POSTERIOR CENTRAL OR ASCENDING PARIETAL, CONVOLUTION OF A CHILD THIRTY DAYS OLD. a, axis-cylinder; c, collateral branch; d, long basilar dendrites; e, end tuft. (Ramon y Cajal.)



[Illustration: FIG. 14—PYRAMIDAL CELL OF CEREBRAL CORTEX OF MOUSE (after Ramon y Cajal).]

Voluntary Neuron Motion .—This theory of Duval's supposes that to some extent the neurons or nerve cells are possessed of voluntary movement. At least during certain states of the mind, they are moved and seem to have an inherent, if not quite voluntary, power of motion. There are many objections urged against the theory because of this neuron motion. It has been said that the movement of neurons has been observed in certain of the *Medusae*. The observation has been doubted and it lacks confirmation. In higher animals, of course, the observation is impossible because an investigation of the nervous system for this purpose would necessarily bring about the death of the animal and the cessation of spontaneous mobility. Whether it occurs or not, therefore, is a theoretic problem. So many objections tell against Duval's theory that it is now only discussed because of its subjective value.

Neuroglia Theory.—Ramon y Cajal elaborated a second theory of explanation for the mechanism of the nervous system that has seemed to many authorities in brain physiology much more satisfactory than Duval's theory of the actual motion of the neurons themselves. The Spanish nervous histologist had made a special study of the neuroglia or connective tissue cells in the central nervous system. These are very small in size but very numerous. Ramon y Cajal suggested that it was because the terminal filaments of these neuroglia cells inserted themselves between the neuron filaments, thus insulating one from another, somewhat as if an insulating plug were inserted between two portions of an electric circuit, that the interruption of nervous currents took place. This explanation is free from many of the objections urged against Duval's theory.

The small size of the neuroglia cells makes it easy to understand how movement may take place in them sufficient to bring about separation of neurons. It would not be surprising if they should be more or less actively contractile. Whenever they contract, neuron filaments which they have been holding apart, come together so as to permit the passage of nervous impulses, if any are flowing at the time. When the neuroglia cells become fatigued or seriously disturbed, they refuse any longer to obey the will in any way, or at least gradually get beyond control, and in their relaxation becoming prolonged, push neurons apart. When a man is very tired it gradually becomes impossible for him to keep awake. This is partly because poisons, produced in the course of fatigue, exhaust the vitality of the neuroglia cells and also of the neurons, so that less energy is required to push these latter apart.

It is easy to understand that the neuroglia cells might well become affected by the various narcotics and intoxicants in such a way as to produce the phenomena of anesthesia and drunkenness. The rapid recovery from anesthetics seems to indicate that it is not neurons, or essential nerve cells, that are so deeply affected, but some extraneous, and less important, mechanism within the brain. The neuroglia theory explains this very well and does away with the difficulty. Certain curious phenomena of hysteria are easily explained on this theory. When there is anesthesia in a member because of hysteria, this anesthesia does not follow the distribution of certain nerves, but is limited by a line in the shape of a cuff drawn round the limb. This indicates that the trouble is not peripheral but central, and that owing to psychic disturbance, all the neurons that receive sensory impulses from a particular portion of the body are so affected by a psychic condition that they are no longer capable of receiving impulses from the periphery. The neuroglia cells in a particular area have passed from the control of the will and, relaxing themselves, have inserted their processes between the terminal filaments of neurons, thus preventing conduction.

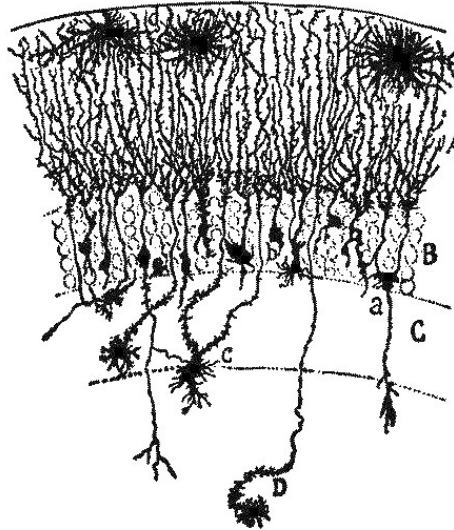


FIG. 15.—NEUROGLIA CELLS OR THE FASCIA DENTATA; IN THE NEW-BORN RABBIT (method of Golgi). A, molecular layer; B, granular layer; C, layer of polymorphous cells; D, horn of Ammon; a, neuroglia cell furnished with a descending appendage; b, another neuroglia cell; piroform; c, a cell more deeply situated; d, spider cell; e, fusiform neuroglia cell. (Ramon y Cajal.)

Varieties of Neuroglia .—The connective tissue cells are of many kinds, each probably exercising a special function. Ramon y Cajal has described and pictured a special kind of neuroglia cells for the gray and another for the white matter. In his description of these cells he has pointed out many interesting diversities of form, and probably also of function. He has also described particularly a special form of neuroglia cells which lie close to the blood vessels. These he calls perivascular cells, and they seem to have an important function in regulating the amount of blood that goes to a particular part of the brain. He has written so clearly and yet so concisely with regard to these that it seems better to cite his own words:¹⁴

Under the term neuroglia are included at least three kinds of cells,—those of the white brain substance, those of the gray substance, and the perivascular cells, which have been described by Golgi. The neuroglia cells of the white brain material are easily recognizable, being large and with rather prominent, smooth, and sharply outlined processes. As my brother seems to have shown, their object appears to be to furnish an insulating, or, at least, a badly conducting, substance to serve as an interrupter of nerve-currents. They certainly do not represent interstices of true nerve substance through which lymphatic fluid can conveniently find its way.

The neuroglia cells of the gray matter present a very special and highly characteristic appearance. They are of manifold form,—at times star-shaped, at times like a comet drawn out in length. These are the tall cells of von Retzius. They have very numerous prolongations, with a large number of short branched collaterals which give the whole cell the appearance of having feathers projecting from its periphery. These cells have been observed in two different conditions. One is that of relaxation, and the picture is that given above. The other is that of contraction, during which the cell body has more protoplasm in it, and the processes become shorter and thicker, and some of the secondary branches disappear entirely. These cells resemble, in certain ways at least, the pigment cells which occur in the skin

¹⁴ This article is a translation made by the author shortly after a visit to Ramon y Cajal in Madrid, in 1900. See *International Clinics*, Phila., Vol. II Series Eleventh.

of some animals. By means of their contractility, these pigment cells can stretch out their processes while in a state of contraction. It must be remembered that this form of neuroglia cells is most abundantly present in those parts of the brain in which it might be expected that a number of nerve currents would frequently come together. They occur, for example, with special frequency in the molecular layer of the cerebral cortex, where the bundle of pyramidal fibers, with their immense number of terminal nerve-endings, come in contact with one another.

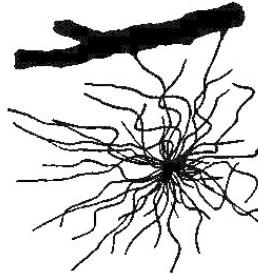


FIG. 16.—NEUROGLIA CELL FROM THE SUBCORTICAL LAYER OF THE CEREBRUM FROM WHICH TWO PROCESSES GO TO A BLOOD VESSEL (Obersteiner).

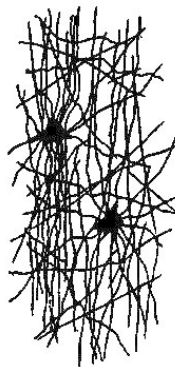


FIG. 17.—NEUROGLIA CELLS FROM THE SPINAL CORD. Longitudinal section (Obersteiner).

The third form of neuroglia cells consists of those known as the perivascular cells. They are found only in the neighborhood of the capillaries of the gray matter and they send one or more firm prolongations to the outer surface of the endothelium of the blood vessels.

These processes are inserted in the walls of the blood vessels. Every capillary has thousands of these little pseudopod prolongations, and from the vessel the cell reaches out in a number of directions. The object of these cells undoubtedly is by contraction of the prolongations to bring about local dilatation of the blood vessels. This dilatation of the blood vessels causes greater or less intensity of the psychical processes in certain parts of the brain, because of the greater or less congestion of the circulation in a part which it produces.

With the exception of these last cells the object of the neuroglia cells is to insulate nerve fibrils and cells from one another. When the cells are relaxed, the passage of a nerve current is either entirely prevented or rendered much less easy than before. It is in this way that the true nature of intellectual rest is explained. Sleep—not only natural sleep, but also artificial narcosis, such as is produced by narcotics, hypnotics or hypnotization—is evidently the result of the same conditions.

During the state of contraction the pseudopod of the neuroglia cells are drawn in; that is to say, the protoplasm of the cells absorbs the processes, and so the true nerve cells and nerve fibrils which were separated from each other by the interposition of neuroglia come into contact. By this mechanism the brain passes from the condition of rest into one of activity. These neuroglia contractions may, particularly in certain parts of the brain, occur automatically. Often, however, they are produced by the action of the will, which, in this manner is able to influence the definite groups of neuroglia cells. As the result of this influence of the will the association of intellectual operations can be guided in various directions. The unusual course that the association of ideas sometimes takes, the flow of words and of thoughts at certain moments, the passing difficulty of speech, the recurrence of tormenting thoughts, the disappearance of expressions or ideas from the memory, even the increase of mental activity and of every kind of motor reaction as well as many other phenomena of intellection, can be satisfactorily explained on this hypothesis. It is only necessary to suppose that in certain parts of the brain the neuroglia cells are at rest, while at other parts they are in a condition of active contraction.

To put it all in a few words, the neuroglia cells of the gray substance of the brain represent an insulating and switching apparatus for nerve currents. They are an insulation apparatus when in a state of contraction, a switching and insulating apparatus when in a state of rest. It is to be remarked, then, that according to this theory the contraction of brain cells does not take place, as in Duval's theory, during intellectual rest, but, on the contrary, during the state of activity of the cerebral cortex. It is much more probable that the action of cells coincides with the active stage of intellection than that brain cellular activity—that is, contraction—should correspond with psychic rest.

The application of some of these theories enables us to understand just how short-circuiting may come about, how many of the curious phenomena of memory happen, and what are the effects, as well as the causes, of attention and distraction of attention and of diversion of mind. It is particularly the latter portion of Ramon y Cajal's theory, with regard to attention and the more or less voluntary though unconscious and usually indeliberate control of blood supply to various portions of the brain, that is of special interest. If the neuroglia cells, whose end plates are attached to blood-vessel walls, become over-contracted or lose their power of relaxation or of contraction, many of the curious phenomena of over-tiredness in neurotic conditions, and the lack of the power of concentration, and sufficient attention to things, can be readily understood. In a word, the theory enables us to translate many expressions that are vague and indefinite, from terms of mind into terms of the physical basis of mind—the anatomy and physiology of the brain.

While I have dwelt on Ramon y Cajal's theory, because for years it has been familiar, of course I must reëcho his own warning that it is, after all, only a theory. It presupposes an active interposition of the glia cells between the axon of one neuron and the dendrons of another. This cannot be demonstrated. A third theory of mental operations, then, has been suggested, and the English school, so ably led by Sherrington ("Integrative Action of the Nervous System," London, 1903) and McDougal ("Synapse Theory of Fatigue," *Brain*, 1910) has deservedly attracted wide attention. They contend that all the phenomena can be more simply explained without postulating the movement required for the Duval Theory or the glial activity of Ramon y Cajal's hypothesis. They consider that each nerve cell has, as it were, a certain potential energy which it sends forth in nerve impulses. These are transferred from neuron to neuron through the synapse. If what we might call, to borrow a figure from electricity, the voltage of the cell impulse be sufficient to overcome the resistance at the synapse, the impulse passes from neuron to neuron. In fatigue the potential energy of the cell is

gradually dissipated. The impulses become feebler till they cease to pass. This occurs in the state we usually experience as tiredness and in analogous states such as sleep, unconsciousness, narcosis and the like. Obviously this theory can be elaborated and applied parallel with the neuroglia theory except that here we are substituting synapse resistance for the hypothetical, undemonstrated action of the glial cells. But, as the latter seems a simpler process upon which to explain the various phenomena, especially to those not familiar with very recent developments in nervous histology and studies in nervous mechanism, and as it merely involves a question of the nature of the resistance and not of its site, I have used it for explanatory purposes without advocating either theory in the present state of our knowledge.

CHAPTER V

BRAIN CELLS AND MENTAL OPERATIONS

While the theories of neuron action we have discussed do not represent absolute knowledge, they are at least suggestive and helpful in psychotherapy. Whenever there are disturbances of mental operations, patients are likely to become very solicitous, lest these represent organic and incurable changes. The application of Ramon y Cajal's neuroglia theory serves to bring out the fact that most of them can be very well explained as merely functional, due to passing disturbances of activity, and not necessarily to tissue changes. When patients become possessed of the fear that certain nervous symptoms portend definite injuries to the nervous system, this unfavorable suggestion keeps them from using, to its proper and full extent for repair and convalescence, the nervous energy which they possess. This disturbing influence can be counteracted by a straightforward exposition of Ramon y Cajal's or the newer English theory of brain mechanism.

Patients become very much disturbed if they observe a failure of certain faculties in themselves, and are prone to think that such a failure means serious exhaustion or enduring change. The power of attention is one of the faculties often disturbed in neurotic cases and causes patients needless solicitude. Disturbances of memory are the next most alarming elements in these cases. There are then many forms of mental distraction, absorption and preoccupation that sometimes frighten neurotic individuals who have become solicitous about themselves. Though only passing incidents, due to overattention to themselves and their ills, real or fancied, and the consequent lack of concentration of mind on a particular subject, the patients fear serious deterioration of their mental condition, or at least of mental control. The neuroglia theory of mental action throws a light on all these phases of mentality that serves to lessen the solicitude of patients and enable them to understand that, in spite of their fears, there is nothing but functional disturbance. The condition can be readily explained and it admits of complete restoration to health.

ATTENTION

Even more important, perhaps, than any other of the functions attributed to the neuroglia cells, is the rôle they may play in enabling the individual to concentrate attention on a particular subject, or at least to use a particular portion of his brain, by bringing about a more active circulation in that portion than in any other, Ramon y Cajal attributes this power to the perivascular neuroglia cells. Every capillary in the brain has thousands of these little pseudopod prolongations. When the cells in a particular region contract, the blood vessels of the part are pulled wide open and a larger supply of blood flows more freely, stimulating the nerve cells by which it passes and supplying them with nutrition for the expenditure of energy that they may have to make. This is the physical process that underlies attention. When too much, that is, too long-continued attention is paid to any subject, without diversion of mind, the capillaries may easily acquire the habit of being open, and cells the

custom of contraction, so that relaxation does not readily take place. Something of this kind is the most important element in the etiology of many functional nervous disorders.

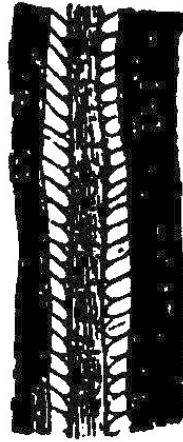


FIG. 18.—AN ARTERY FROM THE CEREBRAL CORTEX.—One can see numerous fine fibers passing over to the brain substance (Obersteiner).

Ease and Pleasure in Mental Operations.—On the other hand this same set of ideas explains many things otherwise difficult of understanding. For instance, we all know that habit enables us to apply ourselves to a particular subject with ever growing ease. What was extremely difficult for us at the beginning, may after a time become comparatively easy, and later even positively pleasant. Study, that is application of mind, is, at the beginning, for most people, not agreeable. If persisted in, it almost inevitably becomes a pleasure. Hard exercise of any kind is, at the beginning, sure to require great energy of purpose, and requires some subsidiary motive of approbation or reward to make us persist in it. But what was a distinct labor at the beginning becomes pleasant after a while. This may be applied to the neuroglia cells apparently as well as to the muscle fibers. On this theory, the reason for the gradual acquirement of an intense pleasure in the intellectual life becomes easy to understand.

Dangers of Over-attention.—The danger of concentration of mind on one's self, quite as much as on any other subject, becomes clearer when this theory is accepted as explaining the physical basis of the mental operations involved in attention. If people allow thoughts of themselves and of their physical processes constantly to occupy their minds, gradually that portion of the brain ruling over these becomes over-fatigued and fails to respond to the calls for relaxation. Insomnia may develop readily as a consequence of continued solicitude and prove to be, as the worst forms of insomnia so often are, quite unamenable to direct drug treatment, because, even during the enforced sleep that comes from drugs, dreams with regard to self and the supposed ills may still occupy the overworked portion of the brain. Nervous people are, most occupied with those parts of the brain which have something to do with the omission and transmission of trophic influence to particular parts of the body. As a consequence of the persistent hyperemia, too many trophic impulses are sent down. These cause an exaggeration of physiological function, in the stomach, the heart, or some other important organ. Hence these organs may become oversensitive.

For all these reasons, this theory of attention, of the great Spanish investigator, deserves to be well known by those who hope to treat neurotic affections, especially functional diseases of the brain, and therefore I prefer once more to give it in his own words.¹⁵

Ramon y Cajal's Theory of Attention.—Under usual conditions, the motor apparatus of the gray matter suffices for the explanation or the varied course of

¹⁵ *International Clinics*, Vol II, Series 11.

association of ideas and of the reaction produced by voluntary motion. But as soon as attention is concentrated upon an idea, or a small number of associated ideas, there enters into the problem, besides the active retraction of the neuroglia of the corresponding part of the brain, a new factor—the active congestion of the capillaries of the over-excited region. As a consequence of this, the energy of emotion reaches a maximum. The heat and metabolism of the hyperemic parts is increased, which, of course, makes these parts capable of more work.

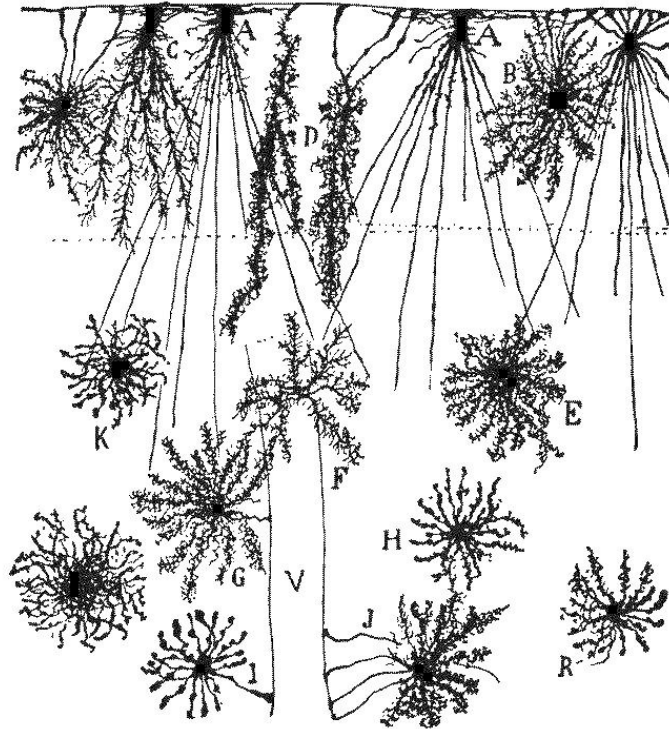


FIG. 19.—NEUROGLIA CELLS OF THE SUPERFICIAL LAYERS OF THE BRAIN FROM AN INFANT AGED TWO MONTHS (method of Golgi). A, B, C, D, neuroglia cells of the plexiform layer; E, F, G, H, K, R, neuroglia cells of the second and third layers; I, J, neuroglia cells with vascular pedicles; V, blood-vessel. (Ramon y Cajal.)

This congestion of various parts of the brain has been experimentally observed by a number of physiologists. It can be best explained by considering that the will has an influence upon the nerves which produce a dilatation of the blood-vessels in different parts of the cerebral cortex. The process of attention, however, by which intellectual activity is concentrated upon a limited number of ideas, seems to be but very little under the control of the sympathetic nerve endings.

As a matter of fact, the capillaries of the brain are wanting in nerves and smooth muscle fibers. Hence they are not under the control of the sympathetic system. Only the relatively large arteries of the pia mater, which possesses a tunica muscularis are under a certain limited control of the sympathetic, which is able to produce in them an incomplete and not very well limited congestion. One of the difficulties of the problem of the activity of the sympathetic is best realized when we recall that vasomotor activity is usually involuntary. The process of attention, however, is entirely conscious and voluntary.

In the hypothesis that we have given, most of the difficulties disappear. Under the influence of the will, the pseudopod branches of the neuroglia cells, which end in the walls of the capillaries, contract. As the result of this, the bloodvessels, all of which are surrounded by lymph spaces, dilate, and this dilatation may proceed to such an extent that the vessels occupy the whole of the lymph

spaces. Thus we can easily understand how the very limited congestions which are necessary for the concentration of thought upon a single idea may be brought about.

The perivascular lymph spaces which exist in the brain seem to be for the purpose of making these limited hyperemias easier. At the same time they serve a very useful purpose in preventing pressure or concussion, such as might be caused upon the neighboring nerve cells by too great dilatation of the blood vessels of a part.

It is needless to add that we do not consider the hypothesis that we have advanced to be absolutely without objection. On the contrary we believe that, owing to the difficulty of the problem and our, as yet, extremely slight knowledge of the anatomy and physiology of the nerve protoplasm, any theory as to the special mechanism of psychic processes is sure to be faulty. Rational hypotheses, however, which are supported by well-known facts, are not only justified, but are often fruitful of suggestive ideas. A scientific hypothesis often gives a new direction, suggests an untried method of observation, or hints at new ways of experiment, and, though it may not lead directly to truth, always brings us closer to methods of investigation and of criticism that are invaluable. Even though our further investigations should not confirm our hypothesis, the result will not be less positive. Negative conclusions lessen the number of possible hypotheses and therefore diminish the possibility of error in future investigations.

MEMORY

It is evident that some of the physical mechanisms that are employed for the lower grade mental processes at least can be explained on the neuroglia theory. Memory we share to a great extent with the animals, and for this the physical processes can be rather interestingly studied. We have all had the experience of being unable to recall a word when we wanted it. Commonly the word is a proper name with which there are not many direct connecting ideas, so that, somehow, we seem unable to trace the word to its depository in the brain. Occasionally we are sure that we know the first letter of the word. Sometimes we are able to name this letter, and, if we do so, the rest of the word will usually turn up a moment later. At times, however, the word fails to come and we grope for it. Then if we stop deliberately seeking it, the word will often after a longer or shorter time, come up spontaneously.

This experience is familiar to everyone. It is especially frequent with public speakers. Certain words have a habit of slipping away just when we want them. At times by beginning a sentence confidently, even though there is a feeling that there is a missing word ahead, the word will turn up in time. Often it will not, and then a weak circumlocution must be indulged in. If it is a proper name, a description may have to be substituted, sometimes a confession may have to be made that the name will not come and the audience, unless it is very young, will sympathize with the speaker.

If we accept the idea that the memory has a definite location in the brain, the process is easily understood. Just how we cannot say, but somehow brain cells serve as the media by which our memory processes revert to knowledge that has been previously stored up. If now we assume that the repetition of things known is accomplished by bringing brain cells into connection with one another, and with the organs of speech, it is easy to understand that somehow the connection with a particular cell or set of cells cannot be secured at a given moment. This delay prevents us from being able to repeat things that we know, and know that we know, though we cannot somehow get at them. The will fails to reach the proper insulating plug of a neuroglia cell, which, if acted upon, would put a cell or group of cells in communication with others. As a result the message from it cannot flow down. We feel that we have it on the tip of our tongue, as we say, that a little effort may bring it to us and sometimes that effort succeeds. If there is any disturbance of consciousness by secondary motives, however, as by the excitement of public speaking or the flustering that comes to some people when they try to introduce even old-time friends and forget their names, then we cannot control the brain processes and memory fails. We do not for a moment think of attributing this failure of memory to the faculty

of memory itself. We have the feeling that there is some mechanical obstacle. Ramon y Cajal's theory enables us to understand this obstacle better, perhaps, than any other.

An interesting phase of this lapse in memory helping us to a revelation of something of the physical process which underlies the faculty, is the fact that it implies a very intricate machine. Recalling has become such an obvious incident that we do not think of the complexity of action involved. Many things are brought together, and relations of all kinds serve to recall various facts and names and dates. Some of these relations are most bizarre. Particular names recall a definite series of facts. A color will bring up a scene or the memory of an individual. An odor will recall scenes long since apparently forgotten and will set trains of thought at work that are quite unexpected. Sometimes we wake in the morning with a name or a fact on our lips that we have been looking for for several days.

UNCONSCIOUS CEREBRATION

Some people actually learn to depend on unconscious cerebration. A man, for instance, who has to make an address on a particular subject or to write an article, will record that fact on a tablet and after gathering a few basic thoughts in connection with the subject proposed, will put it aside for the time being. He is confident that various illustrations and thoughts in connection with the subject will occur to him at intervals during the next few days, and that he will thus without direct labor accumulate an amount of material for use. In the early morning hours he may find that thoughts on it come to him unbidden. Sometimes he will find these thoughts precious germs, that will develop during the course of the following days, and will be of great help to him. If he is worried and preoccupied with other things very much, this may not happen, but under ordinary circumstances he can continue routine occupations which demand practically all of his time, yet continue to develop the subject selected for his paper or address. The more he has occupied his mind with the subject at the beginning, the more will this unconscious cerebration continue.

ABSTRACTION OF MIND

Features of the mechanism of mental operations are brought out in certain phenomena of abstraction of mind, which show how the attention can be so short-circuited that sensations from the periphery utterly fail to penetrate to the consciousness. Most men have had the experience of taking out their watches, looking at them, and then putting them back. Presently somebody asks what time it is. Unable to recollect what it was that they saw, they have to look again. There is no doubt that they meant to observe the time.

The same thing is true for practically all the senses. A pickpocket takes advantage of our being occupied with many other feelings in the midst of the jostling in a crowd on a car, or before a show window, or he has a confederate add to the sensations already streaming up to us, calling attention particularly to the other side of the body, and then inserts his hand into our pocket and extracts what he finds. Sometimes we have a faint memory of something having happened to that pocket, but our attention was occupied elsewhere.

In hearing we have the same experience. When thoroughly occupied with a book, a person may talk to us or ask us a question and we have no idea of what was said, sometimes utterly failing to hear the voice; sometimes we hear the sound of the voice, but do not comprehend the meaning of the words.

When we are unprepared for a question we nearly always have to have it repeated to us. Sitting in a railroad train, if the person behind us, whom we did not expect to talk to us, asks a question, it is very probable that on the first asking we shall not notice it at all, considering that it is addressed to someone else. On its repetition, it may appeal to us as addressed to ourselves, but even then we readily lose its significance because our attention has not been called to the wording of it soon enough

to enable us to comprehend it thoroughly. These experiences, so familiar that we have probably all had them at some time or other, indicate how universal is the power of the mind to concentrate itself upon itself to the extent of neglecting sensations from the outer world, even though they may pass the periphery of the organism and manifestly affect the first neuron of the chain that leads up to our brain and consequently to consciousness. They do not reach the center with sufficient intensity to be understood, and a conscious act of attention must be made before we comprehend their meaning.

PREOCCUPATION OF MIND

This is true, not only for ordinary sensations, but even for such as would ordinarily be presumed to be so insistent in their call that they could not be neglected. The concentration of mind necessary for this is not common to all mankind; it is possessed only by a few individuals whose intellect represents the larger portion of their personality. Certain of the great investigating scientific geniuses have had the faculty of so concentrating their attention upon the questions with which their intellects were engaged, that even the call of appetite did not make itself felt. Newton was one of these. Over and over again, he was known to neglect to take his meals, even though they were brought to him, and, occasionally, he would entirely forget whether he had taken a meal or not. But Newton is not an extreme exception. Most of the great mathematicians have had experiences of this kind and, indeed, mathematics seems to be that special branch of intellectual work which most readily brings about a preoccupation of mind sufficient to completely shut out the outer world for the time being. Archimedes, the great ancient mathematician, lost his life because of preoccupation with mathematical problems that kept him from telling the Roman soldiers, who had strict orders to spare him, who he was.

Complete absorption of mind to the exclusion of all external sensations is not, however, confined to the mathematicians. Mommsen, the historian, was famous for his fits of mental abstraction. Once he patted a school-boy on the head and asked whose boy he was, to be told rather startlingly, "Yours." Lombroso, the criminal psychologist, was subject to abstraction in almost as great a degree. Men have become so preoccupied in study as not to appreciate the significance of warnings, indicating that a serious accident was about to happen, such as a fire or the fall of some object that they should have avoided, or some other danger to themselves. The tendency to such abstraction is responsible for many accidents on busy city streets. When so preoccupied, painters walk off scaffolds, and such preoccupation of mind is extremely dangerous, not only for the man himself, but for those who are working with him.

Everyone knows that a slight headache frequently disappears in pleasant company. There is sometimes the suspicion, though it is quite unjustified, that because a person has a headache which can be cured by engaging in a favorite occupation, the headache is more imaginary than real. The common experience with toothache shows the falsity of this opinion. There is no imagination in regard to toothache, yet it, too, except in very severe cases, will be so modified as to be quite negligible if the victim has some mental occupation that is very absorbing. Pains of other kinds that are just as real, may be modified in the same way. I have known a boy to suffer enough from the presence of an unsuspected kidney stone to give up play and come into the house, yet he could be made entirely to forget his discomfort by a game of checkers. On account of the ease with which the pain was thus dispelled, the suspicion was harbored that his ache was more imaginary than real. The ache continued and at the end of about a year there was an acute exacerbation which justified an operation, and the stone was removed.

In all these instances there is evidently a question of the unmaking, or at least imperfect making, of connections between the peripheral and central neurons, because of the existence of connections between different portions of the brain itself which take up the attention. This attention to mental things may become exaggerated, and must be guarded against, but it represents a valuable

psychotherapeutic remedy. Whenever the peripheral connections are unmade, external sensation is unfelt. Even though the peripheral neuron may be suffering to some extent, this is true. It is this law of attention that must be taken advantage of for psychotherapeutics. People who are liable to be too much concerned with their sensations, must be taught to occupy themselves with interests that will absorb the attention. Central neurons can, except under very serious circumstances, be made to connect with one another so intimately as to bring about the neglect of many bothersome external sensations.

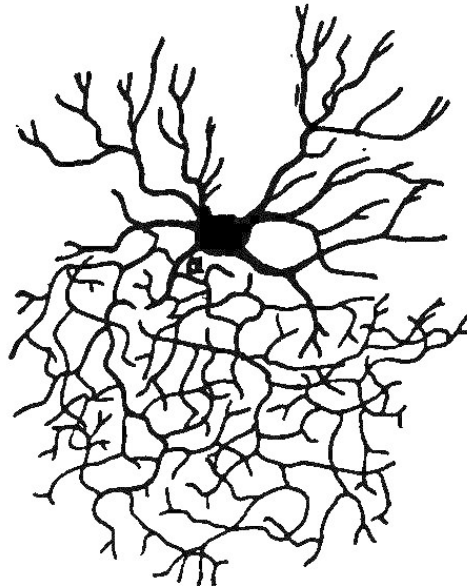


FIG. 20.—COMPLEXITY OF CELL OF THE CENTRAL NERVOUS SYSTEM. A Golgi cell after Andriezen. (Barker.)

On the other hand, when the connections with the periphery are well made, external sensations flow in on us to the exclusion of thought and then even simple sensations may be exaggerated so as to become painful. Anything that attracts our attention so much that we cannot think quietly about it, is likely to be a disturbance rather than a pleasure. Music is distinctly pleasant, yet very loud music becomes painful. The reason is that the peripheral neuron is so much disturbed that these excessive vibrations are communicated to other neurons connected with it and they are unable to occupy themselves with anything except this over-strenuous sensation. A very bright light has something of the same effect, and the same thing is true for all the other senses. A pleasant odor, if over strong, becomes disgusting. A very sweet taste is cloying. This over excitation of neurons may come from without, or may come from within. If the central neuron is so much occupied with itself, and the sensation that is flowing into it, that it is prevented from making such connections as would communicate and distribute the sensations properly, then the sensory phenomenon becomes painful, though it may not be exaggerated in the peripheral neuron.

VITAL ENERGY BEHIND BRAIN CELLS

In all of these phenomena there is something more than brain cells at work. Brain cells are guided, co-ordinated, controlled, and even overseen, in their labors. The same conclusion becomes inevitable with regard to the action of the cells of the body generally. A generation or two ago it was the custom to attempt to explain all the processes in the body by chemical and physical principles. Respiration, for instance, and absorption of gases into the blood in the lungs and the expiration of gases that have been generated within the body during vital processes, were supposed to be entirely

explicable on the principle of the diffusion of gases. The absorption of various substances into the body proper from the intestinal tract, and the excretion of various substances from within the body into the excretory organs, as well as the process of secretion, were supposed to be nothing more than varying phenomena of osmosis and exosmosis. There has since been a general recognition of the fact that these principles do not explain many of the incidents within the body in its relations to its surroundings, and that vital processes are something much more than merely manifestations of physics and chemistry.

The lungs are not mere laboratories in which refinements of the laws of the diffusion of gases may be studied, for under varying pressures from without that would vitiate the ordinary laws of diffusion, inspiration and expiration continues. Fishes live at depths where the pressure is so great that expiration would seem to be impossible, yet they succeed in eliminating harmful gaseous material. Prof. Haldane of Cambridge has called attention to many of these processes. Animal stomachs are not test-tubes. Animal excretion, and above all, secretion, is carried on sometimes in accordance with but, almost more often, in defiance of chemical and physical principles. The individual, even in the lower animals, counts for much more than the chemical constituents of the tissues and the physical principles involved.

Besides, all the parts of the organism are co-ordinated, and there are wonderful checks and counterchecks which show that animals are much more than colonies of cells fortuitously growing together and habituated to such common life by many generations of heredity and environment and training. In a word, the old vitalistic principle has become popular once more and even great physiologists have insisted that there is a principle of life which guides and controls and co-ordinates the different portions of the body. Especially does this seem to be true of the brain. We have here an intensely complex machine, composed literally of billions of parts which work together, and in doing so accomplish wonderful results. Of the existence of this machine, much more of the great intricacy of its parts and mechanism, we are quite unconscious. We learn to use it in very early years with an assurance and a perfection that is amazing, considering how complex it is. The less we think about it and its workings, the better does it work and the less disturbance of function is there in its accomplishment.



Fig. 21.—SECTION THROUGH THE CORTEX OF THE GYRUS OCCIPITALIS SUPERIOR. (Hammarberg. Barker.)

If a vitalistic principle were needed to enable us to understand the workings of the ordinary body cells, how much more is it required for the workings of brain cells. There is something behind that guides and rules the brain, and through which it accomplishes its work. It is this that brings about an unconscious cerebration accomplishing intellectual results for us even when the brain machine itself is at rest as when asleep, or fails, for some reason, to be in readiness to take up the work that we demand of it. It is this vital principle that coordinates the movements of brain cells which represent the physical processes underlying memory and the nervous elements of the sensitive and motor phenomena of the organism. Reflection on the physical mechanism underlying mental operations of various kinds, demands the vitalistic explanation much more than the physiological phenomena which have converted physiologists to the old way of thinking in our time. Our individuality is probably largely due to the physical basis of our mentality, but there is something more than that required for any theory of mental operations that would satisfy all the questions that come to us. There is, then, actual proof of the existence of a force that is part of us, that constitutes a bit of the essence of our personalities, yet is capable of accomplishing results that we cannot understand, and of managing a machine that transcends any physical powers that we can think of.

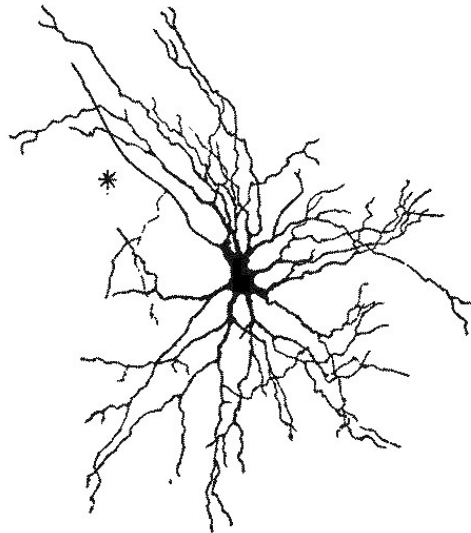


FIG. 22—MOTOR CELL OF VENTRAL HORN OF SPINAL CORD FROM THE HUMAN FETUS, THIRTY CENTIMETERS LONG (method of Golgi; after von Lenhossek. Barker.)

This vital force behind the nervous system contains stores of energy that can be called on for therapeutic purposes. It is the directing, co-ordinating and energizing force which controls the central nervous system, and enables it to accomplish its purposes. It is the disappearance of this force at death which leaves the body without vital activity, though no physical difference between the dead and the living body can be demonstrated. Changes in the body *follow* death; they are not simultaneous. This vital force supplies the energy that we call the will, and underlies the process called "living on the will" which so often serves to maintain existence when there is every reason to think that a fatal termination is due. The amount of energy thus available is limited, but is much more powerful than has been thought. It is of the greatest possible service in preserving health and eliminating disease. Its existence, demonstrated by the complex nervous system which we employ with such confidence, though we know nothing of it, furnishes the best possible basis for confident attempts at rousing the patient to use the vital energy he possesses for the strengthening of weakness, the correction of deficiency and the control of evil tendencies.

CHAPTER VI UNCONSCIOUS CEREBRATION

Many of the exhausting neurotic and psycho-neurotic affections so common in recent years are largely due to the failure of patients to secure such mental relaxation as will permit complete repair of nervous waste. We are proud of being a generation of specialists. Some men never get completely away from the set of thoughts with which they are occupied in their particular specialty. Waking or sleeping these thoughts are with them. It is almost impossible, then, for cells of the central nervous system to secure such rest as they need. Cells must be put at absolute rest so that nutritional processes may go on entirely undisturbed, and every portion of the cell be renewed in vigor. Re-creation, in its original meaning, is exactly what must be provided for nerve cells.

The trouble is not alone that men occupy a very narrow set of brain cells with their special interest, and make all their energy pass through that set, but among men who are lacking in a certain insulation in the nervous system, this particular set of cells continues to be active, even at times when they think they are resting or diverting themselves. Unconscious cerebration (the occupation of the mind with subjects when we are not deliberately giving our attention to them) is a common

phenomenon in human psychology. With the rise of extreme specialization, it has become even more dangerous than before. In the past unconscious cerebration might mean any occupation, with any one of a number of interests. At the present it is likely to mean concentration of thought on a particular subject with which the brain is prone to be occupied more than is good for it, even during the hours of ordinary labor. It seems worth while to discuss at some length, then, the subject of unconscious cerebration, because it constitutes the pathological physiology of many nervous states that we see in modern life.

Frequency of Unconscious Cerebration.—The mind, having been set to work over a given thought, continues at it sub-consciously, even while apparently completely occupied with something else. Most people who devote themselves to the intellectual life have experienced phenomena more striking and going much farther in unconscious cerebration than this. Most writers have a common experience: if they arrange their thoughts on a given subject and then turn aside to something else, they find, when they go over the same subject next day, much more material than came the day before. The thoughts for an article will often gradually accumulate by unconscious cerebration after the process has been consciously started.

At intervals during the next few days succeeding the determination to write a certain article (at moments when no conscious thought is being given to it), ideas crop up that help to fill out the original scheme of thought, and if these are jotted down, a good deal of intellectual work is accomplished without the necessity for that labor over a desk that most of us scheme to avoid. The more familiar literary work becomes, the more frequent are these experiences, and one occasionally wakes up with a thought that opens up a new vista and adds valuable material to what has already been accumulated. If the subject is a large one, as for a book, then most writers will probably confess that some of their best thoughts have come in this "hit and miss" fashion rather than at the times when they were seriously applying themselves to elaborating their theme.

Inspiration.—Some of the great literary writers have felt that their brain work was so independent of themselves that the word inspiration properly suited what they were accomplishing. Thackeray destroyed sheet after sheet of manuscript, utterly dissatisfied with it until, as the result of keeping at it, inspiration would come. Then he would be able to fill up rapidly many pages with work so finished that it needed little correction or polish. George Eliot, at times, became so absorbed in her writing that it almost appeared to her that some other personality than her own was wielding the pen. Her imaginary characters became real to her, and it was while under the stimulus of this impression of living in an imaginative world with them that she succeeded in accomplishing her best work. Many other authors were, of course, very different. Some of them ridiculed the idea of waiting for inspiration. Most of them, however, found it difficult to begin their task at certain times, yet if they forced themselves to it, and once got their minds going, the line of thought ran on easily and, at the close of the task, they looked back with pleasure and wonder that they were able to accomplish so much.

Illustrations.—This is true not only of literary work, whose main purpose is the arrangement of details of information of various kinds with personal opinions concerning it, but also of original thought of any kind. Many stories of poets are told illustrating this. They wander round with pencils and jot down thoughts that come here and there at what are called moments of inspiration. The poets dream over their subjects, catch fleeting thoughts that, vague at first, sing themselves into musical expression. Music seems to be on the same plane with poetry, for there is the well-known story of the distinguished German musician who, walking with his wife in the park, found himself without paper at the moment when he had an inspiration. He used his own cuffs to write upon, and then finally impressed those of his wife into the service of carrying home the precious musical motifs that he was afraid might not come again if he allowed the favorable moment to pass without recording them.

There are stories of Tennyson finding some of his most perfect lines in the fields, after hours of seclusion and effort in his study had failed to round them out to his satisfaction, or dreaming them

into shape, or waking to find one ready made to be written down. The letters of Wordsworth tell how often such incidents happened in his life.

SLEEP COMMUNICATIONS

Any one who has been thinking much for several days about a problem is likely to wake up with the thought that he has dreamed a solution of it, though unfortunately the solution has not remained in his memory. It seems as if a communication has been made to him during sleep. I have discussed dream life with many men engaged in serious work, and practically all of them confess to such experiences. Preoccupation of mind with a subject during the waking hours leads to at least some occupation of mind with the same subject during sleep. This unconscious occupation must often require rather strenuous attention, exhausting nutrition, using up nerve force and hampering the rest that is so important for tired human nature.¹⁶

APRIL FIRST

Come, let us be the willing fools
Of April's earliest day.
And dream we own all pleasant things
The years have reft away.

'Tis but to take the poet's wand,
A touch or here or there,
And I have lost that ancient stoop,
And you are young and fair.

Ah, no! The years that gave and took
Have left with you and me
The wisdom of the widening stream;
Trust we the larger sea.

WHICH?

Birth-day or Earth-day,
Which the true mirth-day?
Earth-day or birth-day,
Which the well-worth day?

For further details on this subject, see the chapter on Dreams.

¹⁶ A number of poetic products of dreams are in our literature, some of them interesting for more than their curious origin. Dr. S. Weir Mitchell, in his latest volume of poems, "The Comfort of the Hills," made an interesting contribution to the psychology of dreams by publishing two poems which were composed by him while asleep. The little poem, "Which?" has all the curious alliterativeness and frequent rhyme that is so likely to be noted in expressions that come during sleep, or just as we awake. The other is more like a somnambulistic effort. What we might suggest here is that the habit of poetizing during sleep would surely be dangerous to any one less eminently sane than their author. We give them as curious examples that will interest patients who complain that their dreams are too vivid.

Art in Dreams.—Many a painter testifies that as he slept interesting details have been added to his scheme for a picture. Mr. Huntington, who was for so long president of the National Academy, once told me that some of the arrangements of his famous picture, "Mercy's Dream" in the Corcoran Art Gallery at Washington, had come to him during sleep. Giovanni Dupré, the French sculptor, confessed that the ideas for his beautiful *pieta* had practically all come to him in a dream. He had been thinking for a long time how he should arrange it, without allowing any of the ideas of sculptors whose treatment of the subject was well known to influence him too much, and had almost felt that it would be impossible to make anything individual. While deeply occupied with it one day he fell asleep, and when he awoke the whole scheme was clear.

Mathematical Dreams.—Such phenomena of unconscious cerebration are not uncommon in the exact sciences. Some of the best examples of these curious phenomena that we have are to be found in the history of them. We all know the stories of mathematicians who, occupied deeply with a problem which they have been unable to solve, have gone to bed still thinking about it, have slept deeply and, as they thought, dreamlessly, and yet they have waked in the morning to find by the bedside the problem all worked out in their own penciling—all accomplished during a somnambulistic state. Missing factors have been found in dreams; mistakes in the working out of problems have been clearly pointed out in dreams, so that, on awaking, the calculator could at once correct his calculations, and even serious errors have been thus corrected.

Agassiz's Experience.—Some examples of these experiences in other sciences are striking. One that is likely to be impressive because it occurred in the experience of Professor Louis Agassiz, seems worth reporting.¹⁷

It is interesting both as psychological fact and as showing how, sleeping and waking, his work was ever present with him. He had been for two weeks striving to decipher the somewhat obscure impression of a fossil fish on the stone slab in which it was preserved. Weary and perplexed he put his work aside at last, and tried to dismiss it from his mind. Shortly after, he waked one night persuaded that while asleep he had seen his fish with all the missing features perfectly restored. But when he tried to hold and make fast the image it escaped him. Nevertheless he went early to the Jardin des Plantes, thinking that on looking anew at the impression he should see something that would put him on the track of his vision. In vain—the blurred record was as blank as ever. The next night he saw the fish again, but with no more satisfactory result. When he woke it disappeared from his memory as before. Hoping that the same experience might be repeated, on the third night he placed a pencil and paper beside his bed before going to sleep. Accordingly toward morning the fish reappeared in his dream, confusedly at first, but at last with such distinctness that he had no longer any doubt as to its zoological characters. Still half dreaming, in perfect darkness, he traced these characters on the sheet of paper at the bedside. In the morning he was surprised to see in his nocturnal sketch features which he thought it impossible the fossil itself should reveal. He hastened to the Jardin des Plantes, and, with his drawing as a guide, succeeded in chiseling away the surface of the stone under which the portions of the fish proved to be hidden. When wholly exposed, it corresponded with his drawing, and his dream, and he succeeded in classifying it with ease. He often spoke of this as a good illustration of the well-known fact that when the body is at rest the tired brain will do the work it refused before.

Hilprecht's Sleep Vision.—Quite as surprising a dream was that of Prof. Hilprecht, of the University of Pennsylvania. He had been trying for some time to decipher certain characters on

¹⁷ "Louis Agassiz, His Life and Correspondence," edited by Elizabeth Cary Agassiz, Houghton, Mifflin and Co., 1885.

ancient cylinders from the Orient. In spite of much hard mental labor he had been utterly unable to reach definite conclusions. In the midst of work on the subject he dreamt one night that a priest of the olden time appeared to him and read off the inscription that he had in vain been trying to decipher. Immediately after waking he told his wife of his dream and wrote down the interpretation that had thus been given. It was quite different from anything that he himself had obtained any hint of in his previous studies. When he got back to the inscription he found that this interpretation would satisfy the conditions better than any other, and there seemed no doubt that it represented the missing solution.

Somnambulism.—These curiously vivid dreams are occasionally associated with somnambulist phenomena. Sometimes very definite purposes, requiring careful adaptation of means to ends, are accomplished in the somnambulist state, and yet the actions are completely forgotten. I have recently been consulted about a case in which a young woman, on a visit to a family, had been shown some pretty though not expensive jewels. Evidently the guest envied their possession, for she got up during sleep and took the jewels and hid them. There seems no reason to doubt her statement that she remembered nothing at all about the incident. The taking was not attributed to her. There had been previous experiences of the same kind with things belonging to this young woman's sister. Somnambulism represents a degree of unconscious cerebration that may have serious results. Combinations of intellectual work with somnambulism are not infrequent, though many of the stories that are told are exaggerated. Some of them are authenticated. Ribot has a typical example of intellectual accomplishment, in a somnambulist condition, that shows how far this may go:

A clear case of somnambulism was that of a clergyman, whom his wife saw rise from bed in his sleep, go to a writing table, and write rapidly for some minutes. This done he returned to bed, and slept on until morning. On awaking, he told her that in a dream he had worked out an argument for a sermon, of which he now retained no recollection whatever. She led him to the writing table, and showed him the written sheet upon which he found his argument worked out in the most satisfactory manner.

PATHOLOGICAL SIGNIFICANCE

Unconscious cerebration is not, then, a trivial matter, and not an unusual experience. It probably occurs in every individual to a much greater extent than he thinks, unless he is engaged in analyzing his mental processes and their ways rather carefully. This constitutes one of the dangers of the intellectual life, which must also be guarded against in business life or in any absorbing occupation. When the mind has become intensely occupied with a subject, it is not easy to relinquish it. Even when we turn to something else, mental activity in the old groove continues to some extent, and so will prevent the rest that is necessary for the repair of tissue. Under these conditions the *re-creation* that is so important does not take place quite as well as it should, and even sleep does not relieve us from the burden of mental work. Mental exhaustion will result as a consequence of constant occupation, and so mental relaxation must be secured. Deliberate means and methods must be employed in order that we may not deceive ourselves into thinking we are securing mental recreation, though all the time certain exhausting mental processes continue to be active.

Dual Mental Occupation.—Many are inclined to think that reading, especially the reading of newspapers and magazines, which has become so popular in our time, furnishes an occupation of mind that enables one, for a time at least, to get away from cares and worries. This is probably true when the news is of special interest, or there is some form of excitement, or at the beginning of such reading before one grows accustomed to the usual formula of the magazine stories; but as years go on and cares increase, such reading does not afford an occupation of mind that enables one to throw them off. It helps to pass the time, but the cares and worries keep insistently presenting themselves,

and the effort to inhibit them, and at the same time pay some attention to what we are reading, makes a double task. Such reading, then, far from being restful, rather adds to the burden of care and to the labor of the mind, for besides the conscious cerebration, there is the undercurrent of subconscious cerebration disturbing the rest of cells that should be free from labor. The constant renewal of effort to keep one train of thought from interfering with another is itself a waste of nervous energy. This whole matter of reading is coming to occupy a new place in the minds of educators, especially of those who are trying to realize the scientific significance of various phases of education. In his address as the President of the British Association for the Advancement of Science, at the Winnipeg meeting in 1909, Prof. J. J. Thompson, the British physicist, sums up the value of reading as an intellectual exercise in a way that would not be gratifying to those who, in recent years, have apparently accepted the doctrine that in much reading there is much information and, therefore, much education. He says:

It is possible to read books to pass examinations without the higher qualities of the mind being called into play. Indeed, I doubt if there is any process in which the mind is more quiescent than in reading without interest. I might appeal to the widespread habit of reading in bed as a prevention of insomnia as a proof of this.

Social Duties.—So-called social duties are, in this respect, very like reading. When we meet new people who are interesting, we get diversion of mind in their company. When the people with whom we are, however, already familiar, and perhaps most of them a little tiresome, then what is presumed to be a social diversion becomes merely a bore, all the problems of the day obtrude themselves, of real rest there is none, and re-creation can scarcely be possible. Nearly the same thing is true of the present-day theater, after we have become used to its offerings. A serious play, well constructed and with life's problems touched deeply, may grip us and take us out of ourselves, constituting a complete and magnificent diversion. For a limited number of people music accomplishes this purpose. Unfortunately, the number is very limited, and for those for whom music is the greatest diversion, it sometimes constitutes in itself a poignant source of mental exhaustion. Music may be a very trying thing, especially for women, and for those who have souls extremely sensitive to its manifold effects.

Upon these considerations, the importance of unconscious cerebration is brought home to the physician. It is impossible for a great many people to keep their minds inactive, and this is particularly true of two classes of people: those who have superabundant mental energy and those who lack self-control. To both of these classes of men and women, the physician must point out the dangers of unconscious cerebration—the occupation of mind with some subject, even at times while they imagine they are occupied with something else, or even during sleep. Such continuous occupation with a single subject is dangerous. Physicians must emphasize that many supposed mental occupations are really so superficial that they allow other more exhausting processes to continue below them in the sphere of consciousness. As a consequence, the mind, instead of being relaxed, is really more tense than before, because occupied with two sets of thoughts. Very often it would be better for such people to continue with the more serious problem until its solution came, or until they realized that they must divert themselves.

MENTAL RELAXATION

What is important for mental relaxation, apparently, is not that a man shall try to set his mind at absolute rest, for that seems to be impossible, if a man really has a mind; nor that he shall occupy it with trivial things (because his interest will not be caught by them and will revert to the last serious thing that he was doing), but that he shall have an outlet for mental activity in entirely another direction from that to which he usually devotes himself. In other words, it is important that a man shall have a hobby, and that he shall ride that hobby whenever his ordinary business, whatever that may be, will permit him, and the more interesting the hobby, the better.

REMEDIAL MEASURES

The most important general remedy for over-prolonged mental occupation with a single subject, is some outdoor sport or form of exercise that requires all the attention. Horseback exercise is particularly valuable; boating, especially where the man has charge of the boat himself and where he has to have his wits about him, and the various sports. It is particularly important that men should not be alone during the taking of their exercise and diversion of mind. Above all, human interests take a man outside of himself and keep him from disturbing his mental equipoise by too much devotion to a single subject.

CHAPTER VII DISTANT MENTAL INFLUENCE

There is a very general impression that it is possible, at least under certain circumstances, for one human mind to influence another at a distance without any of the ordinary known means of communication. Many people have had the experience of thinking about a friend whom they have not seen for a long while, and shortly after meeting him. Sometimes it is found that the friend was making up his mind to bring about the meeting just about the time that the thought of him came. Many have had the experience of writing a letter and having it cross in the mails with another from their correspondent, evidently written within a few hours, though there had perhaps been no communication for weeks or months before. There are people who insist that they can, by concentrating the mind and fixing their eyes on the head of a person some distance in front of them in a theater, or a railway car, cause the person to turn around. There are others who say that by thinking strongly of some person in a distant part of a large room, that person can be made to think of them. In general, there are many persons who are quite sure that there is evidence enough to indicate the possibility of distant mental influence, or, as it has come to be called learnedly, telepathy.

Telepathy, from the two Greek words, *tele*, at a distance, and *pathos*, feeling, has been much discussed in recent years. Many people who use the word glibly are inclined to think they know much about it. A long word, however, is not an explanation, and, just here, George Eliot's expression "we map out our ignorance in long Greek names" is worth recalling. There are a number of phenomena that seem to require some such theory as that of telepathy, but the phenomena are still under discussion and their significance is by no means clear. As we understand it, telepathy may mean either thought transference or mind reading, that is, either the active process by which we communicate our thought to someone at a distance, or the passive process by which we receive communications from others. These thoughts include the idea of mental influence at a distance; that is, we can by willing influence the wills, or at least the motives to action, of people at a distance and they may, in turn, influence ours. The further thought has come, that since the mind largely influences the body in matters of health, so mental influence from a distance by affecting mind, may either improve or injure health.

Some sensitive people are disturbed by the thought that they may be influenced from a distance by others, or at least that suggestions that come to them, may be due to telepathic influence. Investigation would probably show that there are at least as many persons disturbed by real or supposed telepathic influences as there are of those who have hallucinations. Sometimes it is said that such persons are not quite sane, but the more experience a physician has with them, the more he dismisses the thought of insanity and proceeds to use contrary suggestion and frank discussion, in order to counteract the mental influences. Insane persons think they are being influenced from a distance just as they hear voices and see visions, but such hallucinations may occur to the sane, as apparent telepathic experiences may also.

Witchcraft.—It used to be a common belief that people could be influenced, even at a distance, by the mere evil wishes or intentions of others. After all, the old beliefs in witchcraft that were so common in Europe and in America until well into the eighteenth century represent the conviction of mankind that at least certain people might, from a distance, seriously influence them for evil. Always the fear of malign influence was uppermost in people's minds and literally hundreds of thousands of witches were prosecuted, and many thousands of them put to death, because of this belief in the possibility of their working evil to others at a distance, merely by willing it. Occasionally some such material auxiliary to malign purpose as an image in wax of the one to whom the evil was to be done was used. Into this the ill wisher stuck pins according to the part that he or she would want to be affected in the enemy, but as a rule the will, and nothing more, was used.

Absent Treatment.—In our own time a system of healing, that has attracted many followers, has taken up the idea of beneficent mental influence at a distance. "Absent treatment" has now become a familiar expression. That those who believe in such favorable influence at a distance should also believe in unfavorable influence seems inevitable. As a matter of fact, we know that the founder of this special sect always insisted on the power for evil over herself and her followers of those who want to exert the injurious influence of animal magnetism—malicious animal magnetism as it is called. A very definite attempt was made to bring a case of this kind before the courts, the subject matter of which exactly resembled some of the old witchcraft trials in New England! And in spite of the insistence and emphatic assertion that no such thing is intended, from the principles that are accepted the necessary logical conclusion is a return to the belief in witchcraft.

Malignant Magnetism.—As a number of persons are likely to fear such evil influence of others upon them, the question of the possibility of it must come up for discussion in order that its status may be clear in the physician's mind, for by just as much as he can make certain to the patient that modern psychology refuses to accept distant influence, will he be able to reassure his patient. Of course, the patients who come with such complaints have usually some element of mental trouble. The alienist sees any number of people who are sure that enemies at a distance are working spells upon them, some by electrical, some by magnetic means, and some by telepathic absent treatment, or absent ill-wishing. Such notions are the delusions of the disequibrated and these persons often cannot be reasoned with. Yet very often a distinct delusion may be reasoned out of even a subrational person, if it is taken seriously, and some striking expression of its irrationality and of its total disagreement with scientific views can be shown to the patient.

Action Without a Medium.—The medieval scholastic philosophers quoted as an absolutely accepted principle the Latin axiom, "*actio in distans repugnat.*" Literally translated this means action at a distance is repugnant to reason. Expressed less technically, the principle declares that any action of one body on another, where there is no medium connecting them, no link that in some way places them in contact with one another, is absurd. The expression *in distans* means that the two bodies are separated from one another and stand in two places having no connection of any kind. This principle would ordinarily seem to preclude the possibility of one person acting on another, unless there is some mode of communication.

Crookes' Theory.—Sir William Crookes, at a meeting of the British Association for the Advancement of Science about ten years ago, in discussing telepathy, directed attention to the fact that there exists by scientific hypothesis, generally accepted, a definite medium of communication by which minds at a distance might influence one another. The medium is the ether which, according to physical theories, besides carrying light, also carries heat and electrical waves, and in recent years is recognized as transmitting the impulses of wireless telegraphy. It is possible that when the cells of certain human minds are stimulated to a particular phase of vibration, they may, even at long distances, affect the cells of other individuals that resemble them, or are attuned to them, that is, have the same moment of vibration. This is the principle which underlies wireless telegraphy. Whether the vibrations of living nerve cells can be made thus to radiate out over the ether and arouse in any way

other cells, especially to the extent of communicating ideas, is a matter still open for investigation. The possibility of this occurring cannot be denied. We are, however, still in the presence of a condition and not a theory. The question is whether minds are thus influenced at a distance—whether we have data enough to establish the occurrence of telepathy or mental communications of any kind at a distance.

No Practical Thought Transfer.—At the beginning, it is of the greatest importance to recall that, while many people think there must be something in telepathy and presume that the investigations of recent years have shown not only the possibility of the communication of ideas from mind to mind and of the mental influence of one person over another, even at long distances, but also its actual occurrence, yet all our ordinary life is founded on the absolute negation of any such phenomenon. For instance, our courts of law are conducted in direct contradiction of the possibility of anything like telepathy. Juries are summoned of twelve good men and true who, as far as possible, know nothing about the prisoner and as little as may be about the case. They are supposed to get all their information in the court room. We do not believe that any of them by any wonderful process might be able to know what was going on in the prisoner's mind in spite of his plea. Nor do we think for a moment that they can know what is going on, apart from what he communicates in evidence, in the mind of any witness. Neither is there the slightest presumption that the judge or any of our lawyers can know anything about what is in the minds of any of the persons present, except as they reveal it by outward signs.

A lawyer who could employ telepathy with success would be simply invaluable. Before a month had passed, he would have all the business of the criminal courts in his hands.

Mental Retention.—In answer to this it may be said that these represent conditions in which determined effort is made to keep all possible information that may be in the minds of all concerned from passing to others. Everyone concedes the power of such absolute self retention of our thoughts, when we deliberately wish to keep them from being known to others. When people wish to communicate their thoughts to others, then it may be different. In that case the sending and receiving minds are both active and the conditions for interaction, if it were at all possible, would be favorable. Just this condition obtains in the court room every day. An innocent prisoner wants with all his heart and soul to communicate the idea of his innocence to the judge and jury. Of course, he does not succeed by telepathic means in transferring to them any inkling of the truth. On the contrary, his very nervousness and anxiety to set himself right before them will sometimes actually cause prejudice.

The rule that has thus been exemplified in our courts of law holds for all business transactions. The ordinary customs of business presume that the buyer does not know what the seller paid for the particular article that is being exchanged, and it is on the strength of this that profit becomes possible. A few telepathic merchants or customers would work serious havoc in business life.

What thus holds for important affairs in life is just as strikingly exemplified in the trivial round of social existence and in our intercourse with friends. Suppose one woman knew what another woman thought of her!

That charming, old-fashioned institution "courting" would go entirely by the board, if there were any such thing as real telepathy. In general, social life in all its features would become very, very different to what it is.

How Much Slight External Expression Conveys.—Mrs. Coventry Patmore, the English poet's wife, once told a little story of some people who lived in a distant island where the inhabitants possessed tails. These tails were, as they are on the animals, organs of expression, but of involuntary and quite unconscious expression. It was utterly impossible for the people there to say nice things to one another when they had quite other things in mind, because if they did not like the person their tails hung down behind; if they did like them they wagged rather vigorously, no matter what their owner might be saying. This simple revelation of feelings, so much less than even the slightest degree of telepathy would occasion, was quite enough to work a revolution in the social affairs of this romantic island. It made the people truthful and candid in their relations with one another.

Negation of Telepathy.—There is, perhaps, some evidence of the occurring of telepathy in special cases, but all of our present-day life is organized on a firm basis of complete negation of the existence or occurrence of telepathy to even the slightest degree. Every-day experiences teach us that husbands and wives, even those who have the greatest love and confidence toward each other, do not really know their life partners, for it frequently happens that something turns up which reveals an unsuspected side of character even after many years of intimate union.

We human beings are "infinitely repellent particles," to use the phrase, of Matthew Arnold. We never get close enough to one another to have a real glimpse into the depths of other minds. The information that is supposed to pass by telepathy from one person to another is so often just the kind that we would most sedulously conceal. There is extreme unlikelihood then that any such passage of information takes place. The cases cited, as proof of this transference of thought, are much more likely to be coincidences than any evidence of true telepathy.

Supposed Examples of Telepathy.—In the first place, though there are opportunities for the exhibition of the phenomena of telepathy every day and every hour of existence, the cases in which it is supposed to occur are extremely rare and are distant from one another, both in time and place. Even the people who claim to have had the phenomena of telepathy happen to them once or twice, do not pretend that it is at all a common occurrence with them, and as for the supposed exhibitions of telepathy upon the stage, these have been exposed over and over again as the simplest fakes.

As to the cases of telepathy that have been reported, with careful collection of evidence, to the psychic research societies, and which are few in number, though some of them are very difficult to explain, there is no reason why they should not be striking coincidences rather than startling examples of telepathy. An example will illustrate what I mean:

A few years ago what seemed to be a complete case of telepathy was reported in connection with a railroad accident. A Western man about to take an express train for the East was the object of a good deal of solicitude. There had previously been a series of accidents to this very fast train which he was to take. This fact had been discussed in the family, and did not tend to allay the fears of those who remained at home. During the night the train actually left the track, and the car in which the subject of the story was asleep rolled down the bank.

At the moment his train went down the bank the thought of his wife and daughter came very vividly to his mind. For a moment the awful position in which they would be placed if anything serious happened to him occupied his mind to the exclusion of all other thoughts. As soon as he could, he telegraphed home that he was unhurt, with the understanding that the telegram should not be delivered before the following morning.

During the night mother and daughter sleeping in adjoining rooms were wakened at the same moment, and very seriously disturbed, by something, they knew not quite what. They rose at once to go to each other and met at the door. They felt vaguely that father was in some way connected with their awakening and disturbance of mind. After they received his telegram they were sure that what disturbed them during the night was the telepathic communication of father's danger. Each had, however, deliberately kept from speaking of her impression. When they found that he had passed through the danger unhurt, they were sure that it was a call from him that each had heard.

This bears most of the ear-marks of a genuine case of telepathy. Here are minds whose cells by custom and inheritance are finely attuned to those of a distant mind that is suddenly very much disturbed. If the perturbations of that first mind were carried through the ether by a sort of wireless telegraphy, it would apparently not be very surprising. So carried, they woke the receptive cells of similar minds at a long distance, and mother and daughter felt the thrill at the same instant. Vague though it was, there was a telepathic message.

But there were other passengers in this train who had near and dear relatives, yet none of them received communications. There have been literally hundreds of thousands of other accidents in the past fifty years of railroading in which passengers who have been put in very serious danger, have

thought intensely of their loved ones, and yet, there has been at most only a dozen or so examples of vague telepathy of this class. Similar cases to this are extremely rare, though accidents in America are very frequent. At most, then, we are in the presence of a very exceptional case. Such cases would mean nothing as evidence for a scientific law, since they occur so rarely as to aptly exemplify the old adage that the exception proves the rule. The rule evidently is that there is no communication at a distance, hence the surprise when there seems to be some reason for thinking that a communication has actually taken place. Instead of proving that telepathy occurs, such cases make it clear, to the limit of demonstration, that telepathy does not occur unless some extremely special conditions intervene to make it possible.

How much more easy it is to explain such a case on the score of coincidence! Of course, mother and daughter, with father absent, and absent in the midst of what they thought was danger, would go to bed anxiously thinking of him. They would sleep lightly because of the worry. Any slight unusual noise would wake them, and at once the thought of father and his danger would occur to them. If the noise was sudden, and not repeated, and therefore inexplicable to one awakened out of sleep, they would probably be so disturbed that it is easy to understand that they would arise at once and seek each other's company. Their meeting, therefore, in the doorway between their rooms would be readily explicable. Neither would say much about the subject uppermost in her thoughts in order to shield the other. The telegram in the morning would throw a glow of retrospective light on the events and seem to give an entirely new significance to their thoughts. The whole affair, though only a coincidence, would seem to be a demonstration of telepathy.

Even more marvelous instances of coincidence, in which there was no question of anything more than coincidence, have been related. The English Psychical Research Society reported the case of a young man sent to find some trace of his brother who had disappeared mysteriously from a steamer sailing from Plymouth to Lisbon. On board the steamer late at night he stood by the rail thinking of his lost brother and wondering what could possibly have become of him. Suddenly as he looked down into the ocean a body came bobbing up out of the waves almost directly under his gaze. He reported it to the officers of the vessel and it was grappled for and lifted aboard. It proved to be the body of his brother. Is this an example of telepathy, that is, of the mental influence of the perturbed spirit of the live brother upon the dead brother's body floating below the surface? No one would stretch supposed telepathy to that extent. The steamer disturbed the body which had been floating below the surface, as bodies do, gradually developing within themselves the gases of decomposition. After a time any slight disturbance, as, for instance, the booming of a cannon or the passage of even a small boat, will bring a body up. It so happened that the brother was on the spot, and actually thinking of the body, but that was the merest coincidence. There was no connection of cause and effect.

Most of the cases of so-called telepathy can be explained in this way. As we have said, no source of error is so copious as that of concluding that because one thing happens after another therefore the second is caused by the first. People who are so inclined will still continue to accept such a notion of connection of cause and effect, however, and we shall have many cases of supposed telepathy exploited for us on no better grounds than this.

Twins and Telepathy.—There is a definite popular impression that twins are gifted with the power of telepathic communication much more than others. Accepting Sir Wm. Crookes' theory, the possibility of mental reciprocal influence, even at a distance, is greater for them, since their brain cells must be considered as having corresponding moments of vibration. Twins of the same sex, especially those who resemble one another closely, are usually born from a single ovum. The intimate relations of two such beings to each other can be readily understood, so that we have many stories of mental communication at long distances and curious warnings, forebodings and communications of danger, and especially of sickness and death.

Especially does one find stories of wraith-like appearances of one to the other of such persons at the moment of death. A series of these stories, apparently well authenticated, is published by the

Psychic Research Society. There are also a number of tales, seemingly well attested, of cloud-like shapes of other persons at the moment of death. As a consequence, there has been developed an idea that there is some evidence of the distinct possibility of such appearances when the soul leaves the body. It, however, seems very doubtful whether these are anything more than a very striking coincidence. Twins are likely to be almost constantly in one another's minds, so there is abundant room for coincidences. But any number of twins have died at a distance from each other without there being any such warning. Occasionally such startling appearances occur in connection with people who are so slightly related, or whose existence bears such slight importance to each other, that it is hard to understand why the appearance may have come. Whether they are anything more than the figment of an excited imagination remains to be seen, for, while we have a little positive evidence, this only emphasizes the possibility of coincidental day-dreaming in nervous persons.

Negative Tests.—We hear much of the possibility of reading minds at a distance, or of getting definite information from sealed documents and the like, but it must not be forgotten that whenever definite conditions have been set down, so that all the actions of the supposed clairvoyant could be controlled, then telepathy has always failed to be manifested. Sir James Simpson, for instance, publicly offered to give a five-hundred-pound note, which he had placed in a safe deposit vault, to anyone who could read its number which he had carefully impressed on his own mind. Needless to say, no one got it. In the days when Bishop, the exhibiting mind reader, was creating such a furore in New York and London by supposedly reading people's minds, Labouchère, the editor of London *Truth*, offered a similar opportunity to Bishop, but advantage of it was not taken. Bishop's power was entirely due to muscle reading. People make involuntary movements of muscles that are very slight, but sufficient for a trained observer to notice, especially if his hand is on the individual experiencing the emotions, and the consequent muscle reflexes.¹⁸ About the middle of the last century, the French Academy made a labored investigation of telepathy and found that whatever there seemed to be in it, when control was not properly kept, it at once was demonstrated to be impossible when conditions were planned so as to prevent deception.

If patients are worried over disturbing influences from others or the reading of their thoughts or telepathic suggestions, a calm review with them of the practical side of this subject, as we have come to know it in the modern time from actual investigation, will do more than anything else to relieve their apprehensions. Most of these patients are unfortunately insane, but the reasoning will help even some of these. There are some quite rational believers in such manifestations who will be greatly benefitted.

CHAPTER VIII SECONDARY PERSONALITY

So much attention has recently been directed to the subject of secondary personality by the startling phenomena described in numerous books and articles on the subject, that a certain class of "nervous" patients have permitted themselves to be influenced by the auto-suggestion, flattering the vanity, that they, too, have a secondary personality. They even do not hesitate to hint that this condition is responsible for many of the failures on their part to do what they ought to do, or at least what they think they would like to do; but self-control and self-discipline require such constant attention and effort that they fail. Even when these patients have not quite reached the persuasion of a complete secondary personality, they at least think that the subconscious (or their subliminal self) plays a large role in their conduct. As a consequence, they assert, it is more or less beyond their power to control themselves, and their responsibility for certain acts is surely somewhat impaired. This is a

¹⁸ The story of Hans, the calculating horse, shows that even animals usually thought rather dull-witted may catch muscle movements so slight as to be scarcely visible to any but one looking particularly for them.

rather satisfying doctrine for those who do not feel quite equal to the effort of conquering vicious or unfortunate tendencies. Those who like to have some excuse for self-indulgence take refuge in this supposedly scientific explanation to absolve them from blame, and from the necessity of self-control. The drug habitué, the inebriate, the victim of other habits, sometimes hug this flattering invention to their souls, especially when they are of the class who delight in the study of the abnormal. Reform becomes well-nigh impossible as long as such an auto-suggestion of inherent weakness and lack of will-power is at work.

The Other Self.—From the beginning of written history, man has always been inclined to find some scapegoat for his failings. The story of Adam blaming the first fault on the woman and the woman blaming it on the serpent, is a lively symbol of what their descendants have been doing ever since. The less personal the blame is, the better, and the more it can be foisted over on some inevitable condition of human nature, the more generally satisfying it is. A secondary personality can scarcely resent being blamed for its acts by the primary personality to which it is attached, and so the field of auto-suggestion as to the blameless inevitability of certain acts is likely to widen if it is given a quasi-scientific basis. Long ago St. Paul spoke of the law in his members opposed to the higher authority, and declared that the things he would do he did not, while what he would not do he sometimes did. There is no doubt that there are two natures in the curious personality of man. Everyone at times has the uncanny feeling that there is something within almost apart from himself, leading him in ways that he does not quite understand. Usually the leading is away from what is considered best in us. But those who have dwelt much on the better side of man and have tried to climb above mere selfish aims, have realized that there is also a power within them leading to higher paths. Indeed, some of the greatest thoughts that men think, and the resolves that lift them up to heroic heights, are apparently so far beyond ordinary human powers, that the hero and the poet and even the more ordinary literary man, is quite ready to proclaim inspiration as the source of his best ideas—as if they were breathed into him from without and above.

Personal Responsibility.—For ordinary normal individuals, this question of secondary personality has scant interest. Normal persons go about their work realizing that what they want to do, they may do, and what they do not want to do they can keep from doing, unless some contrary *physical* force intervenes. There are many metaphysical arguments for free will, but none of them is so convincing as the observation that every sane man, with regard to his own actions, has the power to choose between two things that attract him. He may be much drawn to one thing, yet choose another. He may allow himself to be ruled by baser motives; he may sternly follow the dictates of reason, or he may do neither and hold himself inactive. In any case, he realizes his power to choose. While this power may be impaired by many external conditions, his consciousness of its actuality makes him appreciate his responsibility. He realizes that punishment for wrong done is not only a part of the law, but it is also a proper vindication of that consciousness of free will which all men have, and which does not deceive them. The question has been obscured by much talk, but the reality is there, and the common-sense of mankind has proclaimed its truth. All our laws are founded on it. Without it punishment as meted out is an awful injustice and crime is a misnomer.

Hysterical Phenomena.—Most of the cases of secondary personality that have been discussed at greatest length have been in persons who were as desirous of attracting attention, and as pleased over being the subject of special study as were the hysterical patients who used to delight in investigation two generations ago. That most of the phenomena of so-called dual personalities are mainly hysterical seems now to be clear. In a few cases, where the patient has found that the existence of a double personality was of special interest, a definite tendency to the formation of further personalities has been noted. Some triple personalities have been discussed and, in a few cases, a group of personalities, even up to five or more, began to assert themselves. This *reductio ad absurdum*, of the hypothesis of supernumerary personality has revealed the real hysteric character of the phenomena.

The whole story of secondary personality in recent years vividly recalls commonplaces in the older medical literature that gathered around the study of hysteria, and that afford a striking confirmation of the conclusion as to the relation of the conditions ascribed to hysteria. Physicians of a generation or two ago who found their hysterical patients interesting, because of certain marvelous symptoms which they presented, were usually astonished to learn that their patients could, under suggestion, develop still further and more surprising symptoms. Each new visit, especially when other physicians were brought to see the patient, showed the existence of still further symptoms and revealed new depths of interesting disease. Indeed, the soil was found to be inexhaustible in its power to produce ever new and interesting crops of symptoms.

When the real significance of hysteria as a mental condition in which patients devoted themselves to the task of furnishing new symptoms for the physician began to be realized, one of the most potent objections against this explanation was that it would have been impossible for the patients to have studied out their symptoms enough to furnish the new material for study which physicians found so interesting. The patients were supposed to be mentally incapable of fooling the physicians. When, however, a person devotes entire attention to the one subject of making phenomena in themselves appear interesting to others, some very startling results are usually produced.

After having attracted the sensational attention so common with any novel observation and having been exaggerated out of all proportion to its due significance, the phenomenon is now settling down to its proper place—a rather obscure neurotic phenomenon of memory in hysteric individuals.

Other Neurotic Symptoms.—Janet's studies at the Salpêtrière seem to show that the alterations of memory which bring about what we call secondary personality (the forgetting of certain phases of existence and the maintenance for a time of a small portion of consciousness and memory quite apart from the rest) correspond with alterations in the physical basis of memory, that is, in the circulation to certain portions of the brain, and probably also in the modes of association of brain cells. They occur, particularly, in connection with certain phenomena of hystero-epilepsy so-called, or with the deeper forms of epilepsy in which there are various paresthesias, hyperesthesias and anesthasias as a consequence of a disturbance of the circulation in the central nervous system; and probably also of the connections made by neurons and the movements of neuroglia cells in making and breaking these connections. These alterations of memory are represented physically by such cases as those in which patients so lose their consciousness of sensation that they are unable to tell even where their feet are. As they themselves say, "they have lost their legs." In these cases, patients are often very deaf or have a limited auditory power, and their fields of vision are extremely narrowed. In most of these cases, recovery of the original personality takes place after hypnosis. This probably represents a relaxation of that short-circuiting, within the nervous system, which brought about the curious phenomenon studied as secondary personality.

Dual Dispositions.—The studies of secondary personality that we have had seem to show us persons under the influence of some strong suggestion, in what is practically a hypnotic condition. There are many similarities between the actions and the mentality of hypnotics and of those in secondary-personality conditions. The individuals are, for the moment, unable to recall what happened in other states. They may be very different in disposition, gentle and tractable in one state, but morose and difficult to get along with in another. Such differences are, however, only exaggerations of the variations of normal personality. There are times when, under the stress of circumstances, even the mildest of men and women become querulous and difficult. It is often noted that people are much more gentle and careful in their relations with some people than with others. Men who are known in their business relations to be quiet, easy to get along with, are at times bears in their homes. This is a matter of the exercise of inhibition for certain mental qualities, and this inhibition is neglected for some places and persons. An American humorist said not long since that a young girl passing a weekend at the house of a friend, should remember that she is expected to be unselfish, thoughtful for others, and ready to help her hostess to make it pleasant for others, so

that the party may be successful. He adds that, of course, as soon as she returns home she should be perfectly natural again.

At least in a limited sense, all of us have buried in us secondary personalities that are due to a lack of control of ourselves, or occasionally to a lack of such initiative as makes possible the best that is in us. The secondary personality of some people, that side of their characters that their friends see only rarely, is the best side of them. Many people, under the demand of some great purpose, rise up to be really heroic in quality, yet in the commonplace relations of life they are quite ordinary. The secondary personality in either of these cases is not something abnormal. It is due to a tapping of deeper levels in personality than most people realize that they possess. When taken in connection with hypnotism and the power of suggestion over susceptible individuals, these adumbrations of the deeper problem of secondary personality as the psychologists have discussed it, furnish the best data for its fuller explanation. Excuses for actions founded on secondary personality must either rest ultimately on insanity, or else on that lack of inhibition which constitutes the source of so many of our actions that we regret.

People who are susceptible to hypnotism may remember absolutely nothing of what occurs to them in the hypnotic condition, though they will recall it without any difficulty if during hypnosis it is suggested to them that they should remember it. This represents the most prominent feature of secondary personality; the individuals who are affected by it do not recall in one state of personality what happens to them in the other. In the two states they are very different in character. These differences have been much emphasized with regard to a few cases that are especially abnormal and have not attracted much attention in cases where the differences are slight. Indeed, in a number of the cases where secondary personality asserted itself, the differences in the character of the individual in the two states were practically nil. The only difference was a lapse of memory for certain important events. Considerations such as these help in the understanding and psychotherapy of what are sometimes puzzling cases of apparent dualism of disposition.

What we have to do with here are the suggestions of secondary personality which neurotic patients have been inclined to make to themselves as a consequence of the interest in the subject in recent years. The investigations of Head and of Gordon Holmes have undoubtedly shown, however, that there are true pathological conditions associated with certain definite and very marked manifestations of dualism of disposition consequent upon lesions in the optic thalamus. These cases so far as can be judged at the present time, at least, are quite rare and at most would account for duality and not for the plurality of personality that has come to be discussed by certain enthusiastic neurologists in recent years. The magnificent work done on this shows how much may yet be accomplished in the elucidation of nervous diseases by faithful study and investigation of selected cases.

CHAPTER IX

HYPNOTISM

Hypnotism is popularly supposed to be a mysterious psychological process by which susceptible subjects are brought under the influence of a person possessing some marvelous power over others' minds and wills. According to this supposition, during the periods in which the subjects are under this influence, they either have some new source of energy transferred to them from the operator's strong personality, or else they share to some extent in the will power possessed by him. In the midst of the sub-consciousness which characterizes the hypnotic condition, then, they are in some way endowed with new strength, which enables them to overcome obstacles to physical or mental health, some of which seemed at least quite insurmountable under their normal condition.

As a matter of fact, hypnotism is much simpler than this, consisting merely of a state of mental absorption in which all distracting thoughts are for the moment warded off, and only such thoughts

as are suggested by the hypnotist reach the consciousness of the patient. The essence of hypnotism is the concentration of mind on one idea or only a few ideas dictated by the hypnotist. This mental concentration produces the effect of greater strength, whether apparent or real, to carry out the purposes connected with those thoughts. It is usually considered that hypnotism involves sleep, and in some cases it does. This is often undesirable. True, therapeutic hypnosis leaves at least certain senses of the subject open to perceive such things as are presented by the hypnotist's suggestion though these senses may be, and usually are, quite closed to all other perceptions. In a great many cases, though there is a real hypnotic condition, a state resembling true sleep does not occur. There is only a more or less complete concentration of attention on the suggestions of the operator, and a complete cessation of all spontaneous thought, or of all suggestions that might come in ordinary ways from the subject's own senses.

Effects of Hypnotism.—Most people have a very erroneous notion with regard to the effects of hypnotism. Some expect that the hypnotic sleep will work miracles. Nothing is more common in the experience of one who is known to employ hypnotism, even occasionally, than to have a patient who is addicted to some habit, alcoholic, drug, or sexual, ask, "Do you hypnotize?" If an affirmative answer is given, the patient proceeds to say that he has heard that one can be hypnotized, and then all the tendency to fall back into the old habit is immediately lost, and he has no further bother from it. This supposed miraculous effect of hypnotism in supplanting the necessity for using the human will has been cultivated very sedulously in the public mind by quacks and charlatans of various kinds and even exploiters of hypnotism who belong to the medical profession. But there is nothing in it. Hypnotism will not change character unless it be for the worse, since the habit of it sometimes leads to dependence on suggestion rather than spontaneous motives. Hypnotism cannot be substituted for weakness of will. The suggestions given in the hypnotic state are practically no stronger than those given in the waking state, if the patient would only equally concentrate his mind to receive them, and would be as ready in response. It is the readiness of response which comes in cumulative fashion, in the midst of the utter abstraction from other thoughts, that characterizes the hypnotic condition.

This is, of course, quite a different valuation of hypnotism from the very strong expressions, with regard to the power of hypnotists to influence the human will, which have at various times been made. These exaggerated claims have been no stronger than those often made for remedies of various kinds that have been long since discredited. I have heard a serious though young professor of psychology declare that he was not sure whether he was justified in using all the power that he possessed by hypnotism to influence men's wills to keep them from indulging in liquor to excess, because after all men had a right to their free will, even in a matter of this kind, and it would be wrong to take it away from them. He added very philosophically that no human being had the right to play the role of Providence in directing others' actions even for good, unless they themselves were perfectly satisfied. If there was any such force in hypnotism as is thus suggested, the reformation of the world, or still more its deformation, at the hands of some of the strong-minded practitioners of hypnotism, would be a comparatively easy process. As a matter of fact, however, the hypnotizer has, except as regards abnormally suggestible people, only as much influence over the person hypnotized as the subject permits, and the subject retains all his personality as an individual with all his weaknesses. After he has been helped away from his weaknesses by hypnotism, he is just as likely as ever to yield to them again, unless, during the interval of conquest, he has succeeded in bracing up his will to resist them.

FORMER METHODS OF HYPNOTIZATION

All the methods of hypnotizing, then, are directed to securing this state of concentration of the patient's mind. The hypnotic state is brought about in different ways by different operators, and even the same operator must employ quite different methods to secure hypnotic influence over

different subjects. In the old times, mysterious passes and strokings and rubbings of various kinds, and instruments that flashed light, or that made special sounds, were employed. Among the pioneers, each worker invented methods of his own. A review of these will bring out the fact that none of them represents essentials, and that they are only auxiliaries to secure concentration of the patient's mind.

The methods of hypnotism practiced by those most noted in the history of the art were very different from one another, but not more different than are the methods in vogue to-day among individual hypnotizers. Indeed, the practices of the past have come down as a heritage to our own time. Stroking and touching, of which we have hints in the oldest times in Egypt and Babylonia and Greece, have always been prominent features. Valentine Greatrakes dreamt that he heard a voice in his dream telling him that his right hand should be dead and that stroking it with his left should cause it to recover its power once more. After this had happened three times in succession he began to apply this method to the ills of others. Greatrakes seems really to have come in to replace the touching by the king for the King's Evil at a time when there was no king in England, Pastor Gassner, the next worker who attracted attention by hypnotic procedures, used words of command after attracting the profound attention of his patients. Father Hell employed the touch of magnets. Mesmer used music to predispose the mind, but had many of the methods of modern hypnotists.

Mesmer.—While Mesmer undoubtedly attracted attention to certain phases of hypnotism that were to prove valuable, he was by no means the first to do so, and what he did had such a tincture of charlatanism it is no wonder that he was discredited. There was a little truth, but there was a deal of mere pretense in his work. While he undoubtedly obtained results, he did so mainly because of certain mentally impressive methods that he employed in connection with whatever of hypnotism he used. Binet and Feré, who have given us some details of his work, describe his methods in such a way as to make it clear that they smacked largely of quackery:

Mesmer, wearing a coat of lilac silk, walked up and down amid his agitated throng, accompanied by Dezlou and his associates, whom he chose for their youth and comeliness. Mesmer carried a long iron wand with which he touched the bodies of the patients and especially the diseased parts. Often laying aside the wand, he magnetized the patients with his eyes, fixing his gaze on theirs, or applying his hand to the hypochondriac region and to the abdomen. This application was often applied for hours, and at other times the master made use of passes. He began by placing himself "en rapport" with his subject. Seated opposite to him, foot against foot, knee against knee, Mesmer laid his fingers upon the hypochondriac region and moved them to and fro, lightly touching the ribs. Magnetism, with strong electric currents, was substituted for these manipulations when more energetic results were to be produced. The master, raising his fingers in a pyramidal form, passed his hands all over the patient's body, beginning with the head, and going downward over the shoulders to the feet. He then returned to the head, both back and front, then the belly and the back, and renewed the process again and again until the magnetized person was saturated with the healing fluid and transported with pain or pleasure, both sensations being equally salutary. Young women were so much gratified by the crisis that they wished to be thrown into it anew. They followed Mesmer through the halls and confessed that it was impossible not to be warmly attached to the person of the magnetizer.

De Puysegur and His Successors.—De Puysegur has some definite instructions for hypnotizers, whom he called magnetizers. It is instructive even now to read these, for they emphasize the most important element in all hypnotism, the confidence of the operator in his own power, for this, communicated to the subject, produces the beneficial results:

You are to consider yourself as a magnet; your arms, and particularly your hands, being its poles; and when you touch a patient by laying one of your hands on his back, and the other in direct opposition upon his stomach, you are to imagine that the magnetic fluid has a tendency to circulate from one hand to the other through the body of the patient. You may vary this position by placing one hand on the head and the other on the stomach, still with the same intention, the same desire of doing good. The circulation from one hand to the other will continue, the head and stomach being the parts of the body where the greatest number of nerves converge; these are, therefore, the two centres to which your action ought to be mostly directed. Friction is quite unnecessary; it is sufficient to touch with great attention.

Some of these methods continued to be employed by the successors of Mesmer and De Puységur, the sense of touch being the principal adjuvant, though Mesmer employed also the sense of hearing. Braid seems to have been the first to realize that the sense of sight could be used effectively, or perhaps that the tiring of the muscle sense might well serve as a point for the concentration of attention. He used the flash of a light from some bright object or tired the eye muscles by having the patient look upward at some object brought near so as to require convergence of vision. His methods were imitated by most of the hypnotizers of the nineteenth century. Liebault and Bernheim, at Nancy, employed them regularly, and they were used in the investigations at the Salpêtrière. It was found, however, that after a patient had been once hypnotized, all that was needed was a word of command or a definite suggestion, and the hypnotic state recurred. Further experience showed also that the original hypnotic phenomena might, in most cases, be secured very simply by word-suggestion to the patient, though some individuals required persistent efforts in the application of several methods to secure the concentration of mind on a single idea or set of ideas that is the essence of hypnotism.

By most serious hypnotists, especially those who use hypnotism for therapeutic purposes, all the rubbings and manipulations are now either completely eliminated, or are used only under special circumstances. The important element of the operator's influence consists in obtaining the complete confidence of the subject in the operator's power to control his intelligence for the time being; getting the subject to resign himself completely, with absolute assurance that his trust will be for his good, and can by no means result in harm. Without this attitude of mind on the part of the subject, anything like real hypnotism is impossible. Even with this, only a slight degree of the hypnotic condition may be secured in certain people, but the majority have a distinct susceptibility to it.

PRESENT DAY METHODS OF HYPNOTIZATION

Though various methods of producing the hypnotic sleep are in use, the rule is now that, in the course of a hypnotizer's experience, less and less external auxiliaries of any kind are needed, and more and more dependence is placed on the bringing about of mental *rapport* between the active and passive agencies in hypnotism by persuasion and command. If the hypnotic sleep has once been obtained, usually all that is necessary is a few gentle words, and then the command to sleep. It is at the initial attempts to hypnotize a particular person somewhat refractory to the condition that auxiliaries are needed. In these cases it is often well to tire the eyes of the patient. This is done by directing them to the fingers of the operator held well above the patient's head. After a minute or two of effort the distinct fatigue which occurs may induce forgetfulness of everything else and cause absorption in the single idea of attending only to the hypnotizer's suggestions. This constitutes the beginning of hypnotism. Occasionally the flash of a bright object, or a revolving mirror, may be used, but these are only adjuncts and may be dispensed with entirely if the operator has the patience and the time to give to the subject.

Accessories.—Some operators use a mirror on which a ray of light is cast for the purpose of concentrating the attention and bringing about tiredness of the eye muscles. In so far as it has a more

universal application, sight is certainly the best sense to act upon. Other senses may be appealed to, as I suggest later. Instead of a mirror, a polished match-box or pencil-case may be used, but as a rule the less artificiality enters into it and the simpler the procedure, the better. One of the inconveniences of using the flash of a bright object is that occasionally patients who are very susceptible may, after they have had a number of hypnotic experiences, be thrown into a hypnotic condition by the flash of a light in the street, or by the reflection of light from a mirror in their own homes. These conditions of facile auto-hypnotism constitute one of the serious dangers of the practice on susceptible subjects. Whatever good may be accomplished by hypnotism will probably be reached during the first half dozen seances. To proceed with the treatment beyond this, if it is employed at regular and short intervals, is almost sure to result in harm rather than good.

Sensations.—Besides sight, sounds have sometimes been used for the purpose of inducing hypnotism. The ticks of a watch, for instance, placed at a little distance and listened to very intently, have been known to assist in securing the hypnotic state. Sometimes the sound of a gong, or an imitation of a cathedral chime, have been used in the same way. Soft music has also been used by operators with decided advantage. It is necessary that the sounds should be of a kind that do not disturb, but only attract attention to one sensation, and then, as concentration on this is secured, the hypnotic condition results. Practically any other sensation may be used in the same way. Touch is often employed. Mesmer stroked his patients gently, and others have used the same process with advantage. Some of the French workers in hypnotism have claimed that there were special portions of the body the stroking of which was likely to produce this favorable effect. They have called these regions zones hypnogenes—areas that give rise to hypnotic conditions. Stroking of the forehead, of the cheeks, of the hands, are favorite locations for these auxiliary touches. In this, as with regard to sound, the main thing is to concentrate attention on some one sensation without producing disturbing thoughts.

Stroking.—Stroking seems to affect many people and to easily induce a sort of hypnoidal condition. It is done very naturally to a child when one wants to console or encourage or admonish slightly but kindly. In older people it is a familiar gesture among those who think much of one another, and represents a very natural tendency. Even in the midst of physical discomfort its effect is quite soothing, and it is evident that something resembling hypnotism is at work. Evidently, what really happens is a concentration of attention on the sensation thus produced, which concentration prevents distracting thoughts from making themselves felt and permits the words of the one who does the stroking to produce a deeper effect on the mind than would ordinarily be possible. This seems to be nature's method of making suggestion more effective. It has been adopted, quite spontaneously, by many of the pioneers in hypnotism as the result of their observations upon its efficacy. Lloyd Tuckey calls attention to an illustration of this practice, which makes clear its effectiveness and at the same time shows how naturally it suggests itself as a mode of using mental influence. He says:

Among the medical men who have come to watch some of my cases was a gentleman who seemed much struck at seeing the method I adopted with a rather refractory subject. I held his hand and stroked his forehead while at the same time suggesting the symptoms of sleep. The gentleman told me afterward the reason why he was so interested. It appears that he had a few months previously been in attendance on a very severe and protracted case of delirium tremens. The patient could get no sleep, and the doctor was afraid of death from exhaustion. On the third evening he resolved to make a strong effort to produce sleep, and, if necessary, to sit up all night with the patient. He told the man that he would not leave him until he slept, and sitting down by the bedside, he took his hand in one of his own, and with the other gently stroked the forehead. At the same time he talked quietly and reassuringly to him. In less than half an hour he was rewarded by seeing the restlessness entirely cease and the man drop off into a quiet sleep. That sleep, the

doctor told me, lasted fourteen hours, and the patient awoke out of it weak, but cured. Manipulation about the head has in many persons a most soporific effect, and several persons have told me that they always become drowsy under their barber's hands.

Drugs.—A number of drugs and related substances have been used as aids to hypnosis, but in nearly all of these cases it is doubtful whether it is true hypnotism that results and whether the suggestions in these states have much therapeutic value. One of the drugs most frequently administered by hypnotists is *cannabis indica*, which has long been used in the East for a similar purpose. After this, chloroform is most popular. Schrenck-Notzing even ventured to employ alcohol as an aid in hypnosis, and claims that he has succeeded at times in making intoxication pass into the true hypnotic condition. Bernheim and many others of the French school have used chloral and morphine. These substances are, however, liable to great abuse. Whenever they have to be employed it means that the patient is but little susceptible to hypnotic influence. These aids are employed only because hypnotists do not want to confess that a very considerable portion of humanity is not directly susceptible to the hypnotic influence.

Serious harm may be done by the employment of these drugs. A physician, who hoped that he would be able to overcome a drug addiction that had been the bane of his existence for a long while, went to a well-known hypnotist physician with the idea that perhaps the miracle of hypnotism would be worked in his case. He was one of these flighty mortals whom it is extremely difficult to have fix their minds upon any one idea for a definite time. As it was impossible to bring him into anything like a hypnotic condition by ordinary means, a large dose of chloral was administered. He already had an idea that his heart had been affected by his previous drug-taking habit, but the chloral was administered to him before he realized what it was. When he came out of the sleep it induced, he was in an agony of solicitude and anxiety lest his heart should have been further hurt by the chloral. He went back for no more doses of that kind of hypnotism.

The use of drugs seems to be a confession of failure to secure true hypnotism, so that it is doubtful whether their employment is justified. Suggestions received while in the more or less comatose state induced by drugs, instead of having a strengthening effect on the patient's will, rather tend to produce the idea of the impossibility of effectively using his own will, or even exercising his will when helped, as he supposes, by the will of the operator. The real value of hypnotism consists in the concentration of mind upon a particular idea without any distractions, which enables the subject to make firm resolutions and then to have his mind help his body as much as possible by directing his energy to the accomplishment of one end. When drugs are employed, they have a diffusive rather than a concentrating influence, so that the real purpose of hypnotism is entirely missed.

PRACTICE OF HYPNOTISM

In the ordinary practice of hypnotism now, the patient is placed sitting on a comfortable chair and the operator on one side facing prepares the mind of the subject by proper assurances. The patient must be brought into a thoroughly assured and comfortable state of mind and must be quite ready to submit to hypnotism. Then in most people, if the finger is held rather close to the patient and well above the line of sight, requiring special effort on the part of the superior recti muscles as well as of the power of convergence, a tired feeling will come over the subject with a tendency of the lids to droop. When this happens the subject is asked to allow the lids to drop and to quietly concentrate the attention on the idea of sleep so as to permit the drowsy feeling gradually to increase. On a first seance this may take ten minutes, subsequently much less time will be needed, and, as a rule, in five minutes the subject is quite predisposed to sleep. In more difficult cases a much longer time may be needed, and repeated efforts may have to be made. Great patience is required. The operator soon learns to adjust himself to certain peculiarities of individuals in predisposing them to the hypnotic condition.

Hypnotism Simple, Natural, Not Mysterious.—The most important thing to know about hypnotism is the fact that any one who wishes can hypnotize. There may be need for favoring circumstances, but there is no need for any special faculty in the operator. If he has confidence in himself so as to take up the question of hypnotizing seriously, if the subjects are reasonably susceptible and if they are persuaded that they may be hypnotized, or even if they are not, so long as they take the operator seriously a hypnotic state will result. Nothing is more surprising to the operator himself, the first time he succeeds, than his success. This at once gives him renewed confidence, and future hypnosis becomes a comparatively simple matter. To have this idea widely diffused would do much good, since it would at once strip the charlatans, who abuse hypnotism, of most of the mystery that surrounds them. The general diffusion of such knowledge would also do good in another way. It would expose the supposed wonderful power that some people are presumed to possess. Hypnotism works no wonders; it is a mere natural manifestation not unlike sleep, and probably not a whit more mysterious.

Stages.—A number of divisions of the hypnotic state have been suggested, but probably the simple division into three stages is the best for ordinary teaching purposes, and helps to the understanding both of the conditions themselves and of many things that are written about hypnotism.

The first stage consists of a subdued, dreamy condition, in which the patient is not asleep and yet not thoroughly awake to all that is going on around him. He has his mind so concentrated on certain thoughts that he is preoccupied, and suggestions are much more efficient than under ordinary circumstances. This is really only a state of intense attention to the suggestions that are being made, with the banishment of all distracting thoughts. It is rather difficult for any one to keep from being distracted, and whenever this is accomplished, the ideas that then enter the mind penetrate more deeply and, above all, seem to affect the will more forcibly than when they are merely superficially considered. This first stage of hypnotism would not be considered hypnotic by most people who associate the idea of sleep with hypnotism.

In recent years it has been found that most of the good that is accomplished, especially for nervous people, by hypnotic suggestion, can be attained almost, if not quite as well, in this first stage, and without the hypnotic trance. The first stage is much less liable to the dangers of hypnotism in many ways, and it represents one of the most interesting phases of psychotherapy.

The second stage of hypnotism is the hypnotic sleep. The patient loses consciousness of his surroundings, though his senses are still open to suggestion from the operator. Practically all that happens in the room apart from what is brought to the subject through the operator's direction remains unnoticed. If the sleep is very deep, even the suggestions of the operator do not penetrate after a time, so it may be quite difficult to awaken the subject. It may be even some hours before the person hypnotized will come out of the lethargy which has been induced in these cases. Under these circumstances, this second stage partakes somewhat of the nature of the deeper trance condition that characterizes the third stage.

The third stage of hypnotism consists of a profound trance-like condition in which there is catalepsy—that is, firm contracture of muscles all over the body—and as the extensors are stronger than the flexors, this contracture takes place in the extended position. The cataleptic condition is really a nervous spasmodic seizure rather than a true stage of hypnotism. It is probably always harmful for the patient to have it induced. Its occurrence as one manifestation of hysteria, apart from hypnotism, shows its real character. It is with this stage of hypnotism that professional hypnotists, who give exhibitions, make their demonstrations—that is, of course, when their demonstrations are really hypnotic and are not merely, as is often the case, performances by actors trained for the purpose. Catalepsy is entirely pathological; experiment with it then is eminently undesirable, and certainly should not be undertaken except under the most careful precautions and by a physician. One of its dangers was very clearly pointed out by the death of a young man, who in a cataleptic condition was subjected to certain strains upon his thorax which brought about the rupture of an aortic aneurism.

Catalepsy never permits of suggestion in such a way as to be helpful to the patient. It always leads to further functional deterioration of the nervous system, and yet it has unfortunately come to mean for many people the most essential characteristic of hypnotism. Its production is supposed to represent the acme of skill in the hypnotist. Nothing could possibly be less true nor be more likely to do harm.

Susceptibility.—As to the number of people who are susceptible to hypnotism, there are great differences of opinion. Liebault declared that practically every one is susceptible in the hands of a patient operator. In a carefully made series of cases his failures were less than three per cent. Van Rentergehem and Van Eeden, in a series of over 1,000 persons, failed only with fifty-eight, or little more than five per cent. Schrenk-Notzing's statistics, collected from many countries, seem to show that only about six per cent. were uninfluenced. Bernheim, at Nancy, was not nearly so successful as Liebault, his master, and his failures amounted to twenty-five per cent. at the beginning and at least twenty per cent. later. I remember that when I was at the Saltpêtrière fifteen years ago, they were inclined to discount the enthusiasm of the Nancy school with regard to the value and significance of hypnotism. They insisted that probably not more than one out of two of the persons presenting themselves at a nervous clinic could be hypnotized to the extent that is ordinarily associated with the word—could be brought beyond the drowsy stage. There are other workers in the subject who have insisted that not more than one out of three ordinary individuals can be so deeply hypnotized as to exhibit the ordinary symptoms. These symptoms consist of complete neglect of surroundings and absolute absorption in the suggestions of the operator.

Some people can be hypnotized to the extent of being thrown into sleep and yet walk and talk under the absolute control of the operator. These are so-called somnambules, the class of persons who are exhibited by professional hypnotizers who want to attract popular attention, and, indeed, the class usually exhibited by physicians before medical societies, and even by professors before their classes. This extreme susceptibility is, however, quite rare. Even the most ardent advocates of hypnotism and of the susceptibility of humanity to it do not claim that more than one in ten of average individuals can be influenced to this degree. There are milder degrees of hypnotism than this, until we reach a state in which all the patients feel is a certain dreamy sense of well-being and a heaviness of the eyes, with a readiness to respond to suggestions. Most people who think of the somnambulistic stage as representing hypnotism would not consider these latter to have been at all subjected to the hypnotic state.

Repeated Efforts .—As to this question of susceptibility, much depends on how often the operator has tried to hypnotize the particular subject, for susceptibility develops with repeated trials, not only where there is a manifest impression at first, but also where there is not. It is not uncommon to find that a patient who cannot be brought at all under the influence of hypnotism in the first or second or third trial, will, at the fifth or sixth trial, yield to the suggestion to go into a hypnotic sleep. A dozen unsuccessful efforts may be followed by the development of a very satisfactory hypnosis. Those who have practiced hypnotism much tell of having tried a score or even two score of times before finally bringing on a hypnotic condition. Dr. J. Milne Bramwell, one of the English authorities on hypnotism, tells the story¹⁹ of having tried sixty or more times to hypnotize patients before finally succeeding. It is this persistence that enables successful hypnotic operators to accomplish results where less confident physicians fail. It is also the frequency of trial that makes all the difference in the statistics as to the susceptibility of patients to hypnotism in the hands of different individuals. There must be the confidence of the patient in the physician's power to hypnotize, but, above all, there must be the physician's own confidence in his power to bring on the hypnotic sleep so that he tries and tries again, even to seventy times.

¹⁹ "Hypnotism. Its History, Practice and Theory," by J. M. Bramwell, 2nd edn. London, The De la More Press, 1906.

ANIMAL HYPNOTISM

The hypnotization of animals shows that only a very low grade intelligence is needed for the production of this state. The famous experiment of Father Kircher with the hen, which any one may repeat at any time, is a good illustration. The fascination exerted upon birds by snakes is another familiar example. The bird is paralyzed with terror at the sight of the snake, and so cannot escape from its enemy, fairly glueing its eyes on the terrifying object, and thus loses power to control its wings. Stories of snake fascination are usually told as if the eye of the snake attracted the bird, who thereupon proceeded to approach the snake. These are, however, doubtful stories. The paralysis of motion seems to be the main effect. The rabbit is affected in nearly the same way. There is a tremor of horror in anticipation, and then the animal stands perfectly quiet, though ordinarily he would be quite able to escape, while its enemy approaches. The underlying mechanism is evidently a concentration of attention, which completely precludes the possibility of the exertion of any spontaneous energy except that involved in the one act of watching the awful object.

DANGERS OF HYPNOTISM

There are many and various opinions of the dangers of hypnotism. Some of those who have given it a fair trial have insisted on its dangers. Some of those who have had very large experience have declared emphatically that there is no danger at all. Occasionally it has seemed that such a declaration must be considered as having been dictated by such intensity of interest as sometimes leads men to overlook the darker side of things with which they are much occupied. Certain moral aspects of hypnotism are at least dubious, and, it must be admitted, present opportunities for abuse. There are certain dangers connected with its effect upon nervous patients, and especially with its influence upon character, that have become more and more clear in recent years. Dr. John K. Mitchell, in his "Self Help for Nervous Women," a series of familiar talks on economy in nervous expenditure,²⁰ has dwelt on certain of these dangers of hypnotism for nervous patients in a passage that deserves to be recalled. As a representative of a school of thought that is worthy of special regard from American physicians his expressions must carry weight:

[Footnote 21.]

The greatest danger of all is the use of hypnotism in any form or degree, a two-edged sword, capable indeed of usefulness, but more capable of harm. After years of study, beginning with too easy an approval of it, hypnotism, whether called by that name or by the unsuitable one of suggestion, has been laid aside by the medical profession as a means too dangerous for ordinary use, involving great risk of deterioration of character in the subject if often repeated, and putting a terribly tempting tool in the hands of the user, fascinating in the ease with which it can produce superficial and temporary good results and equally capable of being used for harmful ones.

A susceptible person, once hypnotized, is more and more easily thrown into the hypnotic state until even the slightest hint suffices to bring about the condition. It is not necessary for the hypnotization to go so far as deep sleep; this more advanced stage is indeed seldom required, and to say that persons are not hypnotized because they are not put into a sleep or a trance shows ignorance of the subject.

I am not asserting that very slight degrees of the hypnotic condition are as dangerous as the deeper, but I do say that all degrees of it are dangerous to the

²⁰ Philadelphia, Lippincott, 1909.

integrity and healthy action of the subject's nervous system. The danger of harm increases with every repetition of the hypnotization.

In suggestible, that is, over-susceptible, individuals, who are almost universally neurotic persons, to fix the eyes on a small point, especially a bright one, sometimes even to fix the mind on the one idea of going into the hypnotic state (mild or deep), is enough without further intervention from any one to put them into that state.

In an article on the "Danger and Uses of Hypnotism" Prof. Forel, of Zurich, twenty years ago, while frankly admitting that hypnotism is by no means a panacea for all nervous affections and unfortunate habits, found it to be an extremely valuable help in the treatment of many forms of functional nervous disease. He suggests that some of its many dangers are due to the fact that hypnotism is practiced by men who are too distrustful of it, and this distrust, unconsciously communicated to the patients, produces an unfortunate effect. On the other hand, fear and distrust on the part of the subjects seriously disturbs the process of hypnotization, interferes with its effect and sometimes leads to unfortunate results.

In some cases it seems that the state of dependence on some one else, at least by suggestion, that had been created during the hypnotic experience, resulted in a diminution of will power and caused a less hopeful state on the patient's part than before. I found personally that suggestion in the waking state might in most cases be used quite as efficiently as hypnosis itself, and that when improvement came under these circumstances, the patient always felt more confidence in himself and less in the operator. Anything that restores self-confidence and gives patients the feeling that they can conquer inclinations, tendencies, even habits, if they only will, merely by firmly resolving to do so, is the best possible mental influence for them. The hypnotic relief is always easier, but nothing that is easy is likely to be of lasting value. The enduring effect of gradual cure by suggestion means much more than the hypnotic miracle that these patients are so prone to crave.

At present there is a very general feeling among those who have had considerable experience with hypnotism, that in spite of the claims of certain votaries for it, there is no justification for its frequent or habitual use. It has a definite place in diagnosis, in certain difficult cases, and at the beginning of the treatment of certain forms of the psycho-neuroses. When repeated frequently it is not therapeutic, but is likely to produce serious results in a certain lack of self-control and tendencies to auto-hypnotization with deterioration of character. There is very seldom need of a repetition of deep hypnosis, and, as a rule, all the diagnostic benefit can be secured in one or two seances. Its continued use only illustrates the tendency noted at all times, in the history of medicine, for the unthinking or unprofessional to persist in the application of supposed remedial measures after they have been shown to be useless or even harmful. The subject well deserves further study, but investigations should be carefully made by men who realize the dangers, and who are not likely to be tempted to exploit patients and curious psychological phenomena for the sake of sensational reputation. The use of hypnotism for exhibition purposes, by men who are not physicians, is an unmixed evil, producing entirely wrong impressions on the public, and doing untold evil to the subjects employed.

SECTION III

THE INDIVIDUAL PATIENT

CHAPTER I

PSYCHOTHERAPY AND THE INDIVIDUAL PATIENT

The most important element in Psychotherapy is the individual patient. Old Dr. Parry of Bath said a century ago, "It is much more important to know what sort of a patient has a disease, than what sort of a disease a patient has." Mental influence is not of the slightest avail against pneumonia or typhoid fever, nor constipation nor rheumatism as such; mental influence may be, and often is, of the greatest possible help to the patient suffering from any of these diseases.

We recognize frankly now that for most diseases we can do nothing to counteract the disease directly or to cure it specifically. The idea of specifics in medicine has to a large extent disappeared. Two or three of them possibly we have, but even with regard to these, there are certain doubts as to the essential modes of their activity. We have learned, however, to help the patient to overcome disease. We know how to conserve his forces, to increase his vital reaction, to maintain his nutrition without disturbing his general condition, and to secure elimination in such a way as to prevent nature from being interfered with in her curative purposes. To this, psychotherapy would enable us to add such encouragement of the patient as would tap new sources of energy in him according to the law of reserve energy, and would prevent discouragement and the inhibition of favorable nerve impulses that so often follow. The outcome of any disease depends on two factors. One is the condition of the patient at the time the infection was acquired, the other is the virulence of the infection. We can do nothing to modify this latter element, once the disease manifests itself. We can, however, do much to enable the patient to throw off the disease and, above all, by securing a favorable attitude of mind, we can enable him to use his forces to the best advantage.

Anyone who has noted the difference between the patient's state just before and just after his physician has called, though absolutely no physical remedy has been employed, is able to realize very well how much psychotherapy is able to accomplish. One who did not know, would be sure to assume that some potent remedy had been administered—and there has been. This potent remedy is psychotherapy. Whether the personal magnetism necessary to produce therapeutic effects of this kind can be learned or not depends on the individuality of the physician. Undoubtedly, however, everyone can add to whatever of personal influence he has by definitely recognizing its place, by making every effort to employ it, and then by regular systematic effort in securing as much personal information as possible with regard to the patient. This personal relationship of physician and patient makes instruction easier and suggestion more effective.

The securing of personal information is of the utmost importance in determining the affections that psychotherapy will relieve, because very often details of life and habits are discovered that can be so modified by instruction as to bring about a disappearance of unfavorable physical influences. It is indeed surprising to find how many unreasonable things people do from habit, from unfortunate persuasion, or from lack of knowledge. In many of the minor chronic ailments that are the source of so much mental discomfort to patients, the physician finds that a change in the patients' habits, not necessarily of marked degree, may make all the difference between cheerful health and rather despondent low-spirited feeling. Now that epidemic disease has become rarer, a physician's practice, especially among the better classes, is much more taken up with these minor ailments than with the typical classical diseases.

The ordinary history of their ailments, as patients commonly present them, especially when there are neurotic elements, is likely to be meager in what is objective, but consists mostly of the subjective. Such patients have much to say of their sensations, their feelings, their dreads, their surmises, their conclusions as to their particular condition, and especially the hereditary elements in it, but comparatively little of the objective realities of their ills and of their environment. What the physician needs to know about them is their habits of life, their daily routine of existence, just as minutely as it is possible to obtain the information. There is just one way to get the latter details, and that is to inquire particularly with regard to actual happenings. In chronic conditions of many kinds, it is so helpful that it will always be worth the physician's while to get at these details, especially in supposedly puzzling cases for which various forms of treatment have been already tried.

In spite of every precaution in this matter, the physician sometimes finds, after a series of consultations, that some point which when brought to light he considers to be of great importance, has been thought so trivial by the patient that it was never mentioned, in spite of the most careful questioning. In all medical practice the rule is that mistakes of diagnosis are much more due to neglect in eliciting necessary information than either to lack of expertness in diagnosis, or lack of knowledge of the significance of symptoms.

In the affections that can be relieved by psychotherapeutics, the most important element for diagnosis, besides a minute knowledge of the patient's habits, is just as detailed information as possible with regard to his ways and modes of thought as to his ills. Practically every motive, as well as every action of the day, must be scrutinized, and often it will be found that little things mean much for the individual. "Trifles make perfection, but perfection is no trifle," as said by Michelangelo, might well be changed for the physician to, "Trifles make all the difference between health and discomfort, though health is no trifle."

CHAPTER II THE MORNING HOURS

In getting the history of patients for diagnostic purposes the safest way is to begin with the getting up in the morning and then to follow out the various actions of the day. The hour and mode of rising should be inquired into. Practically all nervous people, and nearly all those beyond middle life, feel less fit in the morning hours than at any other time in the day. Apparently as a consequence of their will having been allowed to lose its hold during sleep, it does not secure thorough command over the organism for some time. Nervous people, as a rule, wake up with a tired feeling, a dread of the day, wondering whether life is worth living. They dread—for it is a real dread—to get up and tackle the daily round of life once more.

If they have nothing very definite to do, then slight tired feelings or discomfort, even of very minor degree, may lead them to think that they cannot get up. Any yielding in this matter is almost sure to do harm. When there are no objective signs, that is, when there is no fever recognizable by the thermometer and there has been no diarrhea or any physical weakness, nervous patients should get up promptly at a particular hour every morning, because, as a rule, within a half hour after getting up they feel better, and by the time they are washed and have had their breakfast, life has grown not only quite possible but even plausible, and the day's work does not seem such a nightmare as it was at first. It is not advisable to tell people all this as soon as they confess their habit of dawdling in the morning, for they must be gradually brought to discipline themselves. The detail emphasizes the necessity of knowing how they get up as well as when.

Mode of Awakening.—It is often valuable to know how patients awake. Sometimes it will be found that they are anxious and solicitous to be at work at a particular hour, or to catch a train at a particular time, and that as a consequence their sleep is disturbed in the early morning hours. At best it may be fitful and when they awake they fear to go to sleep again lest they oversleep. An alarm

clock will sometimes remedy this state of affairs. Better still is an arrangement by which someone, who can be depended on, will wake them at a particular time. Occasionally patients cannot content themselves in spite of the assurance that they will be waked. They dread that the alarm clock may not go off, or that the awakener may make a mistake, and so they go to bed with a dominant idea, which is more or less constantly present in their mind during all their sleeping hours, disturbing sleep and preventing complete rest. It may be necessary to insist on a change of occupation for such persons, or a change of residence that will do away with the necessity for early rising. When this is done, many a neurotic condition that has before proved intractable will disappear.

Amount of Sleep.—It is of cardinal importance to know how long patients sleep. In our large cities most people have too little sleep. A comparison of the hours when they get to bed with those when they get up will often show that at least three or four nights in the week some patients who are complaining of nervous symptoms, especially nervous indigestion, are sleeping less than seven hours. There are but few men, and still fewer women, who will retain their health under such conditions. Some men have been able to do it, but they are comparatively rare. King Alfred's rule of dividing the day into three eight-hour periods—one for sleep, one for work, and the third for bodily necessities and recreation, still remains the best for human nature. Whenever people try to live the strenuous life and get along on less than eight hours of sleep, they are almost sure, sooner or later, to render themselves uncomfortable, to make themselves liable to all sorts of neurotic symptoms and, above all, to detract from their efficiency for whatever work they are engaged in. Whether they sleep or not, they should be in bed for nearly eight hours.

Bathing.—Morning Bath.—In our larger cities at least, many of the inhabitants begin the day with a bath. In this matter one finds all sorts of harmful fads that need to be corrected. Many men take a cold bath, and unless they are particularly strong and vigorous, this is rather an exhausting experience for the beginning of the day, when the last nutrition the body absorbed is twelve hours before. On the other hand, large, athletic men who manufacture a great deal of heat, their muscles—the heat-making organs—being well developed, will be benefited by having a cold bath because of the abstraction of heat that it involves. It is not, however, infrequent to find that the man for whom it will be good is not taking it, while the thin, neurotic individual, already exhausting more of his vitality by worry and dieting and in various fads with regard to his health than is good for him, is regularly taking his cold plunge or douche. Unless especially asked about it, few men give particulars in this matter, yet they are extremely important.

Women, on the other hand, are likely to take hot baths more frequently than is good for them. Especially when they have maids to assist in dressing and undressing, it is not unusual to find that women take two, and sometimes even three, hot baths in a day. They take them in the early morning when they first get up, and in the evening before dressing for dinner. I have known cases where some took a third hot bath before going to bed and sometimes even put in a fourth before luncheon in case they had had any exercise in the morning hours—tennis, or horseback riding, or the like—that made them perspire. These are details which the physician will learn only if he asks particularly about them. Until he has actually had the experience of finding that they play an important role in some ailment he is almost sure not to think of it. It is probable that even two hot baths a day are too many. I have known women to begin at once to get better of neurotic symptoms that before had proved quite intractable, when their hot baths were limited or when they were changed for a single warm bath with a cold rub after it in the morning, or sometimes just before dinner.

Bathing is more liable to abuse than is usually thought to be possible. While the habits of modern life call for it often, and many people are quite sure that they would not be healthy without it, the people who live longest, and who have had the best health far beyond three score years and ten, have usually not been noted for bathing proclivities. The human body is composed of nearly seven-eighths water, and so our cells are constantly bathed in it, but the making of the whole organism a marine animal once more, as seems to be the definite tendency of some people, is not nearly so

hygienic as it is often thought to be. Enough bathing for thorough cleanliness, but not for luxury, must be the rule for people who have active work and want to retain their health.

Bathing Fads .—While such mistakes are usually made only by the wealthy and leisure classes, the physician will sometimes be surprised to find that women who have no maids for personal service are indulging themselves in these over-frequent bathing practices. They have heard that it softens the skin and renews youth, or they have heard that the Japanese take hot baths and are revived when they are very fatigued, and so they go to great lengths in bathing. Often this is the main reason for the relaxation of muscle tissue and the sense of prostration that has come over them. Neurotic people are constantly going to extremes. Even delicate women will sometimes be found to take very cold baths which are surely doing them harm. Over frequent washings of hands and face are sometimes responsible for skin lesions, especially if the soap used is one of the varieties so scented that the manufacturer is enabled to conceal the impurities in its ingredients. Some women easily run into what is really a misophobia, an exaggerated morbid fear of dirt, and need to be restrained from washing themselves over frequently. Many a chapped hand would be saved by avoiding unnecessary washings, and especially in warm water just before one goes out, for it leaves the skin without its proper oily protection.

Clothing.—Then comes the question of clothing. It is curious how irrationally many people clothe themselves. People complain of cold hands and feet when they are wearing thin cotton undergarments, and who need only to have these changed for wool for their feelings to be at once improved. In the meantime they have been persuaded that they have a defective circulation. The usual excuse for not wearing wool is that it produces hyperemia of the skin with itchy discomfort, but this, as a rule, is only passing and is due to unaccustomedness. The coarser wools should not be worn by the sensitive. A thin cotton garment may, if absolutely necessary, be worn next the skin. There is too little variety in the underclothing that people wear. Some change from light to heavy weight and only that, but there should be a medium weight worn, and occasionally, when there is a spell of mild weather in the winter time, even during the season when heavy weight is usually worn, medium weight should be substituted for comfort's sake.

It is even more common to find that neurotic individuals, who fear to catch cold, wear too much clothing, especially around the chest. Very often they alternate from this during the day to next to nothing in the evening, and by so doing subject themselves to special risks of internal congestions. When the skin is covered with too much clothing it loses the habit of reacting, and the warmth and the irritation of wool keep up an artificial hyperemia which gradually lowers the tone of the peripheral vessels. Many people wear "chest protectors," as is evident from the prominent display of these abominations in the drug-store windows. By leaving certain portions of the chest unprotected while other parts are kept over-warm, these add greatly to the risk of such disturbances of circulatory equilibrium as predispose to the infections grouped under the term "taking cold." It is not heavy clothing that keeps people warm so much as the layers of non-conducting air between the skin and the outer air. It is better, therefore, to wear three thin garments than two heavy ones because of the additional layers of air that are thus confined. A paper vest, if one is driving in the wind, will probably protect better than the heaviest woolen garment worn. The wearing of chamois garments is not, as a rule, advisable because chamois does not permit free access of air and it hampers transpiration.

Before Breakfast.—After dressing comes breakfast, with regard to which it may be advisable to ask many questions. It is well to begin with a query as to whether liquids are taken before breakfast. Many people have taken to the fad of drinking a large quantity of warm water, sometimes as much as a pint, before breakfast. Surely this never does any good and, in most cases, just as surely does harm. Plain water will not dissolve mucus that may have collected in the stomach, and warm water merely dilates that organ, relaxes its fibers, and renders the whole gastric digestive system atonic. If cold water can be borne, it will often be found that a glass of cold water the first thing in the morning stimulates peristalsis, and serves to lessen the necessity for laxatives. Many people complain that cold

water is too much of a shock. Usually, if they are reminded that when we want to warm our hands we rub them vigorously with cold water and that the reaction after this gives a healthy glow, the effect of the supposed shock, which was merely an unfavorable suggestion, will disappear. Sometimes delicate people cannot drink cold water. If there is any reason to suspect an accumulation of mucus in the stomach, a small bouillon cup of *very hot water*, just as hot as it can be borne, in which a pinch of salt and a pinch of bi-carbonate of soda have been dissolved will prove an excellent aperitive for the day. This is physiological and appropriately chemical, as well as naturally stimulating. Mucus does not dissolve in ordinary water but dissolves readily in an alkaline salt solution, and this is just what is thus recommended. This drink is quite grateful to the palate. Indeed, it tastes very much like clear soup, and, if the eyes are closed, cannot, as a rule, be distinguished from some of the bouillon commonly served. I have known this cup of hot water to stimulate an appetite when drug tonics had failed.

It is better to take the glass of cold water from fifteen to twenty minutes before the morning meal—say immediately on rising. If, instead, the small cup of hot water is chosen, it should come immediately before eating, and will usually prove an appetizer.

Breakfast.—The exact details of the amount of breakfast taken and how it is eaten should be known. Nervous people eat little breakfast. When ordered to eat, they find it difficult at first, but the habit is easily formed, and then they want their breakfast like anyone else. It is surprising how often physicians will find that nervous persons, who are under weight, are not taking enough breakfast. They will ordinarily say that they are eating breakfast about as other people do and will, perhaps, mention eggs and rolls, but it will be found that their ordinary breakfast consists of a roll and piece of toast and coffee, and only occasionally do they have any of the other things mentioned.

Breakfast is ordinarily the meal which those who work are likely to eat too hurriedly. Those who are neurotically inclined are especially victims of the habit. They lie abed until there is only a few minutes left to get the train so as to reach their place of occupation in time, and thus their breakfast is skimped. Their oatmeal or other soft cereal is fairly shovelled in, coffee is gulped, toast is unchewed, the coffee softening it; if they have creamed potatoes they are swallowed in such large pieces that, as every physician knows, if for some reason they vomit they are surprised, beyond all measure, at the large portions they have been able to pass down into their stomachs. A breakfast thus eaten makes a bad beginning for a nervous man's day, and the more that is so eaten the worse for the victim. With a habit like this, it will be utterly impossible by means of drugs or directions as to diet to relieve the discomfort of neurotic indigestion, or to keep the patient from suffering that stomach discomfort so often complained of in the morning.

Working Women.—Working women are even more prone than are men to take a hurried breakfast, and having, as a rule, less appetite than men, their meal is likely to be deficient. It is not unusual to find that a young woman who is under weight and who needs three meals a day, is taking so little for the first meal that even she hesitates to regard it as a meal. Very often her last previous meal has been taken before seven o'clock the night before, so that she goes out ill prepared for her day's work. Much more than men, women are annoyed in the morning by our transportation systems, and by worry as to whether they will get to the office on time. Suggestions as to the modification of this unfortunate routine, the taking of an earlier train, the using of a quiet local instead of a crowded express, a short walk at least before taking the train, will often help in producing a marked change in the general health.

Home Keeping Women.—For those who really have homes, the morning duties are usually sufficient to rouse their activities and make them begin the day well. For those who live in apartment-hotels, however, and for those who have the luxury of many servants, the morning hours are often a serious problem. Madame does not get up, or if she does, it is only to lie around in dressing gown for most of the morning. Breakfast is easily neglected or may be eaten hurriedly because the head of the house is rushing to business. The lack of an incentive requiring them to rise, and get outside for a time every morning, is probably at the root of more feminine symptoms among leisure class patients

than anything else. As we grow older all of us are likely to note the lowered physiological cycle of the morning hours, so that unless there is some sharp reason to compel action, we are rather prone to persuade ourselves that it is better to lie abed, or at least to loll around. This leads to a concentration of attention on self and on one's feelings that easily gives rise to neurotic conditions.

Interest in life.—In my special clientèle I have often found that going to church in the early morning hours was an excellent remedy for many of these patients. It gives them a definite reason for rising promptly, the service provides motives to rouse them to activity, they are likely to think during it of how they shall make their life a little bit more livable for others as the result of their trying to be better, and so the apathy that is so fruitful of ill feeling is shaken off. This can only serve for those who have faith in the service. For others, the old-fashioned going out to market, or the making of appointments at morning hours that will tempt them to regular activity early in the day, is of special significance. It is always ominous for health when a woman can look forward to a whole long day without any particular duties in it until the late afternoon or evening hours. This has become so frequently the case for the women of our large cities, particularly those who live in apartment hotels, it is no wonder that neuroses and psychoneuroses of various kinds have grown in frequency. The best prophylaxis for them is occupation of mind. The cure for them is the securing of many interests and such diversion of mind as will prevent concentration of attention on self.

Mail Before Breakfast.—Many people receive their most important mail in the early morning, and personal mail, in cities especially, is likely to be placed beside the breakfast plate. Not infrequently, letters contain serious matters that are likely to disturb people, and occasionally even important business finds its way to the side of the plate at breakfast time. Authors often find their rejected manuscripts sent back in the morning's mail. Occasionally bad news of other kinds comes in this way, and, as a rule, it is the very worst time for its reception. The human system—it cannot be too often repeated—is at its lowest physiological term in the morning, the temperature is lower than during the rest of the day, all the nervous vitality is below the normal. Half an hour after breakfast the reception of bad news, or the coming of important matters requiring decision, would not make so much difference. Hence, the necessity for knowing whether the mail is ordinarily read in the early morning, in order to know something about people, and about the consumption and digestion of their breakfast.

Company at Breakfast.—Pleasant company during meals is an important factor that makes for good digestion. At the other meals there is much more likelihood of having such pleasant company, while the morning meal is often a solitary, and quite as often as not, a rather glum quarter of an hour, preoccupied with the business cares of the day. As may be readily understood from our discussion of this problem of mental preoccupation during digestion, this may seriously hamper digestive processes. Often men take refuge in their paper. The thoughts aroused by reading the modern newspaper are not the pleasantest in the world and consist, very often, of the following out of details of hideous crimes and scandals. When, as is sometimes the case, these scandals concern relatives, friends or acquaintances in whom we are interested, and with regard to whom we feel poignantly because of the publicity involved, nearly the same effect is produced as when bad news is received in letters, or when business worries are thus brought to the breakfast table.

The best conditions for the eating of breakfast are those in which it becomes like the other meals, a family matter. When father, mother and children eat their breakfast together, nearly always family interests and especially the enlivening effect of the joyousness with which children face a new day is the best possible tonic for a business man in whom a solitary breakfast starts a day of digestive disturbance. Sociability and sufficient time must be insisted on, whether at home or in a boarding house, at breakfast as well as the other meals, and it will often be surprising to find how much difference this makes both as regards the quantity eaten and the digestion of the food.

Morbid Habits.—In matters of diet, it is important to ask for details, for it is surprising what unexpected things may be discovered after weeks of treatment. That was illustrated for me once by a

case of persistent acne in a young girl, which all the ordinary remedies failed to cure. I felt sure that I had given her such explicit directions with regard to diet that I knew exactly what she was taking and that nothing could be hoped for from any change. As a last resort, I asked once more with regard to all that she ate and only then discovered that before breakfast every day she ate a baked banana. It had been recommended to her by a friend as a sure cure for constipation, she had formed the habit of taking it as a medicine, and so had not spoken of it. Baked bananas agree with many people well, but just as soon as this was eliminated from her diet her acne began to improve and before long had disappeared almost entirely. The taking of large amounts of warm water, already spoken of, is another of these morbid habits. Then many people take a glass of salt water, or laxative water, and some have curious habits with regard to the eating to excess of salt on cereal or on fruit, or sometimes they eat too great a variety of fruit. All this should be known, but often will not be ascertained unless particularly inquired about.

CHAPTER III THE DAY'S WORK

Probably even more important than details with regard to the early hours of the day, is detailed information as to the day's work, the kind and character of the occupation and the length of time spent at it, the interruptions that may occur, the habits with regard to luncheon, and, above all, the state of mind in which the occupation is pursued. The physician will only learn these details when he sets before himself a definite schedule of what he wants to know, and then proceeds to secure information with regard to it. With this sufficient can be learned in a short time to ascertain the source of the affection or the symptoms complained of. In some cases it is, however, only when the whole day's occupation is reviewed that proper suggestions can be made.

Getting to Work.—Many a man, especially if he has been accustomed to much exercise in younger years, craves muscular exercise, feels much better whenever he has the opportunity to take it, yet rides down to business every morning and back every evening. On his vacation in the summer time, he gets up early for the sake of a morning walk, but he scarcely has time to take his breakfast and ride to business at other times, though the main reason for his better feeling during his vacation is his exercise. There is usually the story of crowded cars in the busy hours, often with annoying thoughts pestering him that he may not be in time and with a constant call on nervous energy while he stands up in the train, jolted, pushed, crowded, or unable to read his paper with satisfaction, even if he has a seat. The discomfort experienced during a ride in crowded cars to business is about as bad a way to begin a day for a nervous person as could be imagined.

As a rule, it will take more than half an hour to get to business in this way. If an extra twenty minutes were taken, it would be possible to walk the distance. On at least two out of every three days in the year this would give a magnificent opportunity for exercise of the best kind, for fresh air, for diversion of mind, for the route could be frequently changed, and, during the spring and fall, if there are parks on the way, these would provide occasion for pleasant thoughts to replace the annoyances which too intimate contact with over-strenuous humanity in overcrowded cars is likely to occasion.

This seems almost too trivial for a doctor to talk about, but it is on the care of trivialities that good health often depends. It is easy to assume that this amounts to little for health but tempt a dissatisfied patient, whose digestion and sleep are disturbed, to do it, especially in the spring and in the fall, and see what a difference it makes in all his physical functions. If he is not used to walking, he will have to begin by walking only a mile or two, but after a time he will do his four-mile walk in about an hour, with no waste of business time, and with a renewal of energy that will seem little short of marvelous.

Details of the Day's Work.—If patients are to be benefited through mental influence it is extremely important that details as to occupation be completely secured. This must include, especially

in cases where there are objective but obscure symptoms, minute information that may seem trivial, and yet which often proves to be of great importance. In recent years there has been profound study of the dangers of trades and occupations. Anyone who wants to treat nervous patients, must know much about these occupations, for otherwise symptoms may be ascribed to old infections, to obscure rheumatic conditions, to intestinal auto-intoxication, or to nervous weakness or exhaustion, when they are really the result of occupation-conditions. The various poisons must be carefully looked for, or affections will be wrongly treated. I have had a series of cases of lead poisoning²¹ under most unexpected conditions which have taught me much as to the possibilities of obscure plumbism. Lead poisoning from new lead pipes—with no one else in the household suffering from it, lead poisoning from frequent drinking of carbonated waters, the bottles of which had the old-fashioned lead stoppers, lead poisoning from the painting of a flat by a settlement worker who could not get a painter to do it, show how carefully such things must be looked for.

Dust and Respiratory Affections .—Mechanical conditions connected with trades are especially important. Workers in dusty trades are almost sure to suffer severely from bronchitis at times, and to have the affection oftener than others, to have it "hang on longer," as they say, and eventually to have tuberculosis develop. There are some of the polishing trades in the metal industries in which it is impossible to maintain the ordinary death benefit fund that workmen have in other trades, because the men die so frequently and at such an early age from consumption that the drain on the treasury makes it impossible to maintain the fund. Practically all of the dusty occupations have this same tendency. This is true often in occupations where dust is sometimes not supposed to be much of a factor. Railroad trainmen suffer more frequently from colds than do those in other trades because of the dust to which they are exposed, and a trainman with incipient consumption will be greatly benefited by getting out of the dust during the summer months. Sweepers in large buildings, janitors and janitresses have colds that are often untractable because of the dust in their occupations. It is to be hoped that the new vacuum cleaning system now becoming so popular will obviate these dangers, though like all improvements, it will probably bring its own dangers with it.

Lack of Light .—People who work at occupations that keep them from the light are likely to suffer from lung symptoms and to have quite intractable colds which will not clear up until they get more sunlight. Workers in theaters and like places who do their sweeping where sunlight does not penetrate, are in more danger than others from respiratory disease. Those who work in gloomy lower stories, especially in narrow but busy and dusty streets, suffer the same way. Attendants at moving picture shows who work much in the dark where the frequently changing crowd brings in dust which cannot be well removed, and in quarters where the sun does not penetrate, are almost sure to have persistent repeated respiratory troubles.

Habitual Movements .—After the question of dust comes the mode of the occupation. Many occupations demand certain habitual and repeated movements. When people come complaining of pains in muscles in and around joints, or of achy conditions in the limbs, it is important to know every detail of their occupation movements, if the physician is to appreciate just what pathological causes are at work. It is not enough, for instance, to know that a man is a clerk, or a bookkeeper, but it should be asked whether he stands much at his occupation, or walks considerably, or whether he sits practically all the day. If he stands much, we can expect that he will have various painful conditions in his feet and legs, unless he takes care to change his position frequently, to wear the most comfortable shoes obtainable and, above all, to provide against any yielding of the arch of the foot. Often it will be found that people who complain of discomfort in the feet stand much on a cold, and sometimes damp and draughty floor, and this needs to be corrected or their symptoms, often carelessly called rheumatic, will not disappear. If he sits down always during his occupation, he will need exercise

²¹ "Curiosities of Lead Poisoning," *International Clinics*, Eighth Series, Vol. II.

and air or he will suffer from many vague discomforts, over sensitiveness and irritability of nerves, as well as from physical conditions.

Most patients prefer to think that they are suffering from some constitutional condition, rather than from a merely local manifestation due to their occupations. Those who have to stand much can often make such arrangements as will permit their sitting down from time to time. They may, if they are standing at a desk, have a high stool; they may during their hour of lunch sit down restfully, or even to recline for a time, so as to restore the circulation in the legs. For many people who suffer from the achy discomfort connected with varicose veins in the leg, a rest of half an hour in the middle of the day with the feet a little higher than the head, will do more than anything else to make them comfortable. This same thing is true for people with flat-foot, and there are many occupations with regard to which advice of this kind will be appreciated. The well known tendency of many men to sit with their feet higher than their head is not a mere caprice, but is due to the fact that this is an extremely restful posture and thoroughly hygienic for those who have been standing much.

Unfortunately, it is not so easy to secure such relief for working women, but occasionally the advice to lie down during the middle of the day on the couches of the retiring rooms may be the best medical prescription that can be given. This will carry young women over trying periods of the month when everything seems to be going wrong. In women particularly, if there are complaints of the pains in the lower limbs, footwear must be investigated. When the heels are too high those who have to stand much are thrown forward and there is a strain of the muscles of the thighs and on the muscles of the back. Many young women suffer from backache supposed to be due to internal conditions usually of gynecological character, when it is only due to high heels or a combination of high heels and constipation. On the other hand, heels that are too low are not comfortable and women's shoes, in spite of the outcry against them, have been better adapted than men's to prevent them from developing flat foot. Fewer women than men suffer from this affection. Shoes that are too loose are almost as bad, sometimes it would seem worse, than those that are too tight.

Habitual Motions and So-Called Rheumatism .—The habitual movements of various trades are extremely important for the diagnosis of conditions that develop in the muscular system. Much of the so-called rheumatism of the working people is really due to the muscular over-activity demanded by their trades. This affects all kinds of working people. Men who have to work foot-lathes, or women who have to work sewing machines, or men or women who have to use their arms much in repeated vigorous movements, are likely to suffer from achy discomfort. The strong and healthy ones do not suffer, but the delicate do. The suffering is much more prevalent in rainy, damp weather; it is worse during the spring and fall than at other times. It is particularly noticeable whenever the patient is run down physically, is worrying about many things, or, above all, is getting insufficient nutrition. The discomfort is particularly likely to recur in those who do not know how to use their muscles properly, who are naturally awkward, and who perhaps have from nature an insufficient control over opposing and coördinating muscles, so that they do not accomplish movements quite as readily as would be the case if they were normal. The personal element enters largely into these affections. Many patients, however, can be trained to do their habitual movements under the best possible mechanical conditions, whereas very often they are found accomplishing them under the worst possible mechanical conditions.

Men who have to do much writing may have to be taught the application of Gowers' rule, that the forearm should so move as a whole during writing that if a pen were fastened to the elbow it would execute exactly all the movements of a pen held in the hand. The writing must all be done from the shoulder. People who do typewriting may have to be instructed not to allow the machine to be too much above them, nor on the other hand, too much below them when they sit down. Young people particularly who, from long hours of practice on the piano, suffer from neurotic conditions, may have to be instructed to do this under good mechanical conditions.

Men who do much filing of metal will often suffer from painful conditions in the arms. These will be much worse in case the filing is done at a table or workbench so high that pressure has to be brought to bear upon the file by the arms instead of through the weight of the body. This same thing is true for women who iron much. If the ironing board is so high that the additional pressure applied is made by the arms, then painful conditions will almost inevitably develop if the work is long continued. These details are discussed in the chapters on joint and muscular affections.

Night Work.—In a large city there are many workmen who are on night duty. They will be disturbed in many ways in health, unless they make special arrangements to live under conditions that enable them to have full eight hours of sleep every day and, above all, to have their meals regularly. When they come home in the morning they usually have a rather hearty meal. Most of them can sleep very well with this, but very few of them sleep the full eight hours, and all need this amount. Usually they have another full meal about five in the evening. Very often it will be found that the third meal of the day consists of a sandwich, with a glass of milk or a glass of beer, and some cake or some crackers and cheese, or the inevitable pie. Every workman should have three full meals, and a man who is suffering from almost any symptoms will be improved at once if the third good meal is insisted upon. At one time I had occasion to see a number of men whose work began not later than seven in the evening and did not finish until six or seven in the morning. They were sufferers from all sorts of complaints. Most of them were under weight. Not a few were constipated. Some were suffering from severe headaches that came rather frequently, and a few from a headache that was severe but came only every two or four weeks. These patients alternated night and day work, and it was the week after they had been on day work, and first went on to night work, that they suffered from headache.

In every one of these cases instructions with regard to eating and sleeping proved to be the best remedy. Nearly all of them were not eating enough, and were skimping the third meal. Three of them were taking only between four and five hours of sleep. They stayed up after breakfast to read the paper, went to bed about nine and got up about two o'clock. Just as soon as two or three hours was added to their sleep, they began to feel better, and various symptoms, digestive, rheumatic and nervous, of which they complained, began to disappear.

Nearly always night workers are more prone than the ordinary run of workmen to some indulgence in spirituous liquors. Cold and shivery on the way home from work in the early morning, they take a nip of whiskey to brace them up. Alcoholic cirrhosis of the liver is a little more common among sea captains, policemen, printers and night workmen on the railroads than among the average of the population. The reason for it seems to be that undilute whiskey is thrown into the circulation by being taken into the stomach at a time when that viscus is empty and all the cells are craving food and drink. It is carried directly to the liver, and there either produces or predisposes to the bad effects upon liver cells which we know as cirrhosis.

It is usually useless to treat such men for the indigestion and other symptoms that are likely to develop as a consequence of their habits, without getting at their story completely. It is easy, as a rule, to relieve them of certain of their symptoms by ordinary drug therapeutics. Unless their habits are changed, this relief, however, is only temporary. It must not be forgotten that in recent years women have come to do a good deal of work at night that was not usual to them before. In the telephone service of certain cities, as cashiers in restaurants, as ticket sellers in various places of entertainment, as office help at busy seasons of the year, women may be kept occupied either all night or at least until quite late. Not infrequently during times when rehearsals are on, chorus girls are kept until the wee small hours. They are particularly likely to suffer from such variations in normal habits, and no treatment is so effective with them as pointing out how they must live, if they want to preserve their appearance and continue in such exacting occupations. A healthy young woman can burn the candle of life at both ends with less protest from nature at the beginning than man, but she suffers more for it and the suffering begins sooner.

Positions During Occupations.—The question of position during occupation, especially as regards its influence upon digestive processes, has always seemed to me much more important than most people think. Our idea of digestion has been so largely one of digestive secretions, to the neglect of the motor side of the gastric and intestinal functions, that we have missed some important points. If a person leans over a desk shortly after a meal, there is no doubt that the crowding of the abdominal viscera hinders peristalsis, at least to some degree, not of course in the robust and healthy, but in those who already have some irregularity or sluggishness in this region. The old high desks at which many clerks used to stand, at which even proprietors did not hesitate to take their position, had a reason in common sense that has been forgotten in the modern times, and the variation of position thus permitted seems to have been good for the workers.

A good deal of comfort may be obtained by having a suitable desk and chair for business hours. Not infrequently it happens that a desk is too high for comfortable writing. Any discomfort that is continuous and makes itself felt intrusively during occupation with other things, will have an unfortunate effect. Such things seem trivial by contrast with serious disease and may seem safely negligible. Trivial they are, but little things count both in themselves and as to the attitude of mind which they occasion. It is the attitude of mind that we try to modify by psychotherapy, and even the removal of little sources of annoyance help a patient materially to get through life more happily and through work more efficiently and without any more discomfort than is absolutely unavoidable.

Positions After Meals.—While we have talked thus of business people, what is said refers, also, to the positions assumed out of business hours, as, for instance, at home after dinner. A Morris chair that permits of a somewhat reclining position, or a rocking chair that tempts one to sit back, pretty well distending the abdomen and giving all due play to the internal viscera, will be found not only much more comfortable than a straight-back chair which tempts a man to lean forward, but also there will be less interference with gastric motility, the most important digestive function of the stomach. Arm-chairs which really support the arms, and therefore tend to keep the shoulders up, have something of the same effect. We naturally assume these positions, though occasionally social usage forbids them. The tendency, for instance, for elbows to be put on the table, especially toward the end of a meal, represents a natural instinct to lift up the shoulders and keep the weight of the upper part of the trunk off the abdominal organs. Children's instincts often curiously guide their postures—as is illustrated by the story of the little boy who, when asked by his grandmother if he could manage another tart, said that he thought he could if he stood up. ([See chapter on Position.](#))

Mental Conditions of Occupations.—While the details of manual occupations have to be learned with great care if we are to modify the conditions so as to prevent certain unfortunate effects, just as much care has to be exercised, with those not employed manually, in finding out details as to mental worries, and the various disturbances consequent upon business conditions. Many a man has not brain enough to run his business and his liver. This is the old English expression, and the liver, as the largest of the abdominal organs, is taken for the physical life generally. Many people have not vital energy enough to waste any of it on worries and then be able to complete their digestion and other physiological functions with success. The preceding mental condition is a predisposing cause of many a purely physical ailment. It used to be said that during a cabinet crisis in England, or rather just after it was over, attacks of gout were most frequent among prominent politicians. Mental influence usually kept the attacks off until the very end of the crisis. Merchants come down with pneumonia or digestive disturbances more frequently during periods of acute business depression. Physicians are attacked by pneumonia, or influenza in bad form, after they have been wearing themselves out in an epidemic and worrying about patients. Just after a mother has nursed a child through a severe ailment she herself is prone to suffer from some acute infection. Such common-place infections as boils, styes, abscesses and even the more serious osteomyelitis are likely to come at these times.

It is important, then, to know as much as possible about a business man's affairs. Any one who has had a series of tuberculous patients (who were getting along quite well in spite of latent or even

active lesions) disturbed by anxieties of one kind or another, knows how much worries may mean. Men will lose weight and appetite and weaken in their general condition as a consequence of some serious business incident, while all the time physical conditions are the same as they were when they were improving. And it must not be forgotten that even in those who do no physical labor, there may be physical conditions of their occupation that are important. Many a business man does his work cooped up in a small office, with insufficient ventilation, and sometimes, especially where his business is on the ground floor of a large building, with so little sunlight that his environment is quite unhygienic. The great air purifier is sunlight. Unless sunlight is admitted for hours every day to the rooms in which people live, the dust that is inevitably breathed will contain living germs, active and noxious, though had they been exposed to sunlight these germs would be harmless.

Especially then for people with respiratory defects of any kind, whether these be tuberculous or of chronic bronchitic character, the conditions surrounding the occupation should be carefully inquired into. Once the family physician knew such things as a matter of course. Now he is likely to know very little. The lack of such information may not be important for the more serious conditions that he has to treat at patients' homes, but they usually mean much for the submorbid conditions, so to say, the discomforts and chronic conditions, which come for office treatment. They mean much for comfort in life, and for the conservation of health and strength. They represent that newer medicine which people are asking of us now so much more than before, which shall keep them in good health and prevent them, as much as possible, from suffering even from minor ills.

Business Habits.—The modern idea of having a flat-top business desk, instead of a roll-top desk, and having it thoroughly cleared off every evening, so that each day's work does not accumulate, is an important psychic factor in the strenuous life, which in recent years many corporations have been taking advantage of. It is well for those who are their own masters to realize the value of this principle. Nothing so disturbs the efficiency of work, nor adds so much to the incubus that work may become, as having a number of unfinished things which keep intruding themselves. It is not always possible to dispose of problems, but discipline is necessary to keep us from pushing business matters aside. Then they have to be done in a rush, very often at a moment when other things are also pressing. The result is poor work, but, above all, a waste of nerve force and energy that leads up to nervous symptoms and eventually nervous exhaustion. The orderly man, who has learned to settle things as they come up, or at definite times, can accomplish an immense amount of work. Some men are born orderly, but any one who wants to do much work must have order grafted on his makeup—a habit which can be made a second nature. It may seem that a physician is unwarranted in intruding on a man's business affairs thus to inquire about the ways he does things, but this is the difference between psychotherapy and the regulation of life as compared with cures by more material but less effective means.

Personal Hygiene.—Expert Advice.—For many men who are much occupied with business, the best possible safeguard for health, as well as the best guarantee against nervous or physical breakdown, would be a detailed consultation once a year with a physician regarding their habits of life and their business in relation to their health, present and future. In recent years many a business firm has found it not only expedient but profitable to turn to an expert accountant or auditing company and ask advice with regard to the management of its business. It is often found that certain business customs are causing serious drains, and that there are newer ways of doing things that save time and money. Sometimes a reorganization of the accounting system, or of the method of dealing with credits and debits, or the receiving or shipping department, proves advantageous to the business. Sometimes it is found that the capital invested will not justify the extension of business that is proposed, and not infrequently it is shown that a proposed extension adds to business movement but does not add to profits. Sometimes there are departments that can be dropped to advantage, though they seem to be adding to both business and profit.

All of this may well be transferred to the question of health in its relation to business. Not infrequently it is found that the capital of strength of the business man is not sufficient to justify

the extension that he is planning or has already attempted. Sometimes suggestions can be made with regard to the mode of doing business, the hours employed and the hours of relaxation, that will make business less of a drain on the system. Occasionally arrangements for sleep and exercise, as well as for afternoons or special times of diversion, may save a man from that concentration of attention on one thing which frequently leads to nervous breakdown. Not infrequently business men who are of neurotic habit have customs of doing business which add to their nervous irritability, and these might be modified so as to lessen the call on nervous energy. There is need that the physician be looked to as an expert in personal health and its relation to business, just as the expert accountant or auditing firm is looked to for advice with regard to business methods.

CHAPTER IV THE MIDDLE OF THE DAY

Information regarding the mid-day meal will be of value to the physician in many cases. In cities, luncheon, likely to be rather an apology for a meal, is taken rapidly, and immediately there is a return to work. As a medical student in Vienna, I was much interested in the mid-day meal of the bankers and merchants of the old Austrian capital. At that time—I hope they have not changed the good custom since—the banks closed at 12 o'clock and did not open again until 3 o'clock. This gave time for taking the mid-day meal in comfort, and for a proper interval for digestion. In all the southern countries of Europe, for seven or eight months in the year at least, little is done during the two or three hours in the middle of the day. The people get up earlier and rest at mid-day as a break between the afternoon and morning. It is quite beyond expectation that anything like this will ever again be possible in the great commercial cities. The fact that this was the custom of our European forefathers, however, shows how business has obtruded itself on the habits that man would naturally form for himself. Business men hurry to luncheon, or if they take any time over it, it is because they have invited some one to lunch with them with whom they wish to talk over important matters. This means of saving time recalls the well-known expression of James Jeffrey Roche: "Time is money. Every second saved from your dinner now is a sequin in your doctor's pocket later on in life!"

Hurried Lunch.—The seeds of our frequent American dyspepsia are sown partly at the hurried breakfast and then at the hurried mid-day lunch. When a physician finds this to be the case, then the patient's habits must be reformed. Otherwise there is little prospect of relief from neurotic digestive symptoms, or from those uncomfortable feelings so often supposed to refer to the heart, or other important organ, when digestion is interfered with. There should be pleasant company at luncheon if possible; it should be preceded by fifteen or twenty minutes in the open air, with, as far as possible, complete seclusion from business thoughts so as to allow the stomach to secure its share of blood, and it should be followed by at least half an hour of pleasant occupation that does not call for serious mental work. This may not be possible for every one, and many will complain that this is asking too much in our busy time. We physicians are not here to make the nice customs of medicine courtesy to great kings of finance or to the busy tyrants of the professions, but to tell them what we think should be done in order that nature may not be abused. Men should be advised to take their luncheon in some building different from that in which their offices are located, or, if they eat in the same building, to go out on the street for a while before the meal. In the old days men used to call on one another in order to transact business, and these little trips were often made just before or after luncheons.

Now the telephone and the messenger boy have done away with this, with a great saving of time, but with an increase of intensity of labor that makes for nervous exhaustion. Luncheon clubs are excellent things when men do not talk shop, but they have one fatal defect. Almost invariably they lack simplicity of menu, and, because of the variety supplied and the example of others, there is a tendency to eat to excess. A game of billiards after eating is often excellent, because, when standing, digestion

is accomplished with more comfort than when seated. A walk after the lighter midday meal is a good thing, though the old saw said "after dinner sit a while," but that was in reference to the largest meal of the day, and may still hold good for the evening meal, which is likely to be the heaviest one.

Women's Lunch.—Women are very likely to take their mid-day meal, when it is their luncheon, very irregularly. If they have to get it for themselves they are likely to be satisfied with almost anything. If they get it outside the house they are likely to take it rather late, so that if they have breakfast before eight o'clock, this putting off of the next meal causes some disturbance of the economy. When the stomach gets to be empty, either there is a tendency to swallow air, or there is a rumbling sense of fullness that disturbs the appetite, or the appetite itself is capricious, and a headache develops. How many headaches are due to missed meals it would be hard to say, but this is one of the most fruitful causes of the ordinary passing headache. Delicate women, and especially those who work, are likely not to eat enough luncheon. All the details with regard to this meal must be known or the physician will find it hard to get rid of many neurotic symptoms, particularly in working women. The same thing is true for the so-called society woman, since she is likely to have a late breakfast and then skip her mid-day meal. This is permissible if she is so stout as to be able to spare it, but it is all wrong if she is thin and needs every ounce of weight.

Nature of the Noon Meal.—During the last two generations fashion, custom and the increasing demands of business have pushed the hour of taking the principal meal farther and farther away from mid-day. There are, however, cases in which it seems better that the principal meal should be taken in accordance with the old custom, about noon time. For tuberculous patients this is especially important. They often have fever in the afternoon that seriously disturbs appetite. They may eat with comfort and relish a couple of hours before the fever is due. For delicate persons, especially those who have not much appetite for breakfast and who can not be persuaded to eat a sufficient amount early in the morning, a hearty meal at noon is almost a necessity. They should be shown how low their nutrition is during working hours. Their principal meal of the day before was taken between six and seven o'clock. They have had a light breakfast, a meager lunch, and naturally have little reserve force during the afternoon hours. As a consequence they become overtired, this lessens the appetite, they do not eat properly, and, above all, they do not digest as well as they would if their last good meal were not so far away. They are suffering from inanition, and, as is well known, starving people cannot be allowed to eat heartily, because their stomachs have not enough vitality to digest well.

It is often difficult to change the hour of taking the principal meal, but in special cases this can be done with decided advantage. I have seen such a change make all the difference between slow recuperation from bad colds, and have seen it of the greatest possible importance in tuberculosis. The very changing of the hour will sometimes suggestively react to make the patient eat more heartily than usual, the day is broken up better, the reaction against the morning discouragement comes earlier, and the patient's general condition improves. Many people rest better at night if their principal meal is taken at the middle of the day.

CHAPTER V THE LEISURE HOURS

Then comes the return from business. Here once more the ordinary method of getting on a crowded train, standing up to be pushed and jammed, to have all sorts of unpleasant things happen, to have the pessimism of one's nature stirred to its depths by the utter disregard for women, the heedless rush of men, the roughness of railroad employees, and the general lack of humanity that characterizes the evening rush from business in a large city, is eminently unsuitable as a preparation for dinner; while a calm walk of three to five miles is ideal. To walk home will probably take twenty minutes or half an hour longer, but not more than this—and it avoids the undesirable features of the usual method.

Gymnastics.—Occasionally one finds that men rush through the last hour of business in order to spend an hour in a gymnasium. Often this is quite undesirable. Exercise within doors, taken in a routine manner and merely for the sake of exercise, with no diversion of mind, is eminently unsuitable for the busy man. What he needs is air much more than exercise. Walking out of doors is the very best thing for him. If he walks at a rapid pace, swinging his arms a little freely and carrying a cane in one hand and perhaps a book in the other, because this exercises his fingers and keeps him from having any unpleasant congestion of the hands when they hang down, then the exercise is almost ideal. Owing to the novelty of it, and the interest that a new occupation arouses, great benefit will at first be derived from the gymnasium. Very often, too, the cold plunge after the exercise does more good than the exercise itself. The plunge is real fun, especially when taken with many others, but the exercise itself is likely to degenerate into the sorriest kind of a task. If the man who walks home will take a bath before dinner, the temperature of the water being made suitable to him and the reaction that comes to his particular nature, there is no need of anything else, and there is nothing better that he could do. The walk must be varied. The course must not always be through the same streets. Occasionally it should even lead one to see some monument or new building, or to go out of the way with a friend, so that variety is introduced.

Work at Home.—There are men who in busy times take some of their work home with them. This is a mistake. And though it is the custom to tell the doctor that they cannot do otherwise, it is practically always a bit of self-deception. When the case is properly put before them, they realize, if they already have any neurotic symptoms, that to continue home work will be a serious risk. Most men who carry business home with them, easily get into the habit of pushing certain details away from them during the day with the idea that they will have more time for that in the evening. They do a certain amount of dawdling over their work. If they really resolved to finish work during business hours they could do it, and do it better than during the evening at home. Six hours of work is about all that a man ought to do with his intellect at high pressure. This should be pretty well divided into two periods of three hours each, with an interval of an hour to an hour and a half between. The nearer a man can come to this arrangement the better for him, and the better, also, for his affairs. If he has assumed obligations that require more of his time and attention than this, he is trying to do too much.

After-Dinner Hours.—The evening hours and their proper occupation are important for the business man, or for anyone who is much occupied during the day. The temptation to let the work of the day run over into the evening must be overcome at all costs, or it will prove serious for the health of most men. It is important as far as possible to get something completely different for men to do at night. Many men settle down to the reading of a newspaper or of a magazine or novel. While this does very well under some circumstances, reading does not provide diversion whenever there is serious worry or solicitude over business matters. A man may think that he is occupying himself with the newspaper, but we all know very well that business cares intrude, that business troubles are often doubled by reading about others. The reading of novels does well for a while, but the serious-minded man tires of them and then, while they may occupy a couple of hours, they have exactly the same objection as the newspaper. A genuine diversion should give the physical basis of mind an opportunity literally to remake itself by storing up new energies.

Amusements.—The fact of the matter is that a man must have, if possible, some other serious interest in life besides his business. He must have a hobby. We have discussed this in the chapter on [Diversion of Mind](#) and refer to it here only to indicate the importance of knowing something about a man's recreation as well as his work. It is not a casual occupation but a real interest that he should have. This need not necessarily be a useful employment and, indeed, it may be absolutely useless provided it is absorbing. Card playing is an excellent diversion for many people. When joined with gambling, new worries and feverish excitement usually make it harmful for neurotic persons. Chess is hard work, but of a different kind from that of the day and, therefore, often makes an excellent recreation. Any games are good. Bowling, for instance, is excellent, and billiards, if a man has an

interest in it, is a fine sport for evening hours. It has the added advantage of physical exercise. A man does not sit down during billiards, crowding his already well-distended abdominal viscera, but walks around and gives his viscera a better chance for their work and aids rather than retards peristalsis.

Encroachment on Sleep .—There is just one defect about some of the more absorbing recreations—they keep a man up too late. Whenever a so-called recreation takes up such time that a man has less than eight full hours in bed, then a mistake, almost sure to be serious sooner or later, is being made. When the physician tries to limit a man's recreation by suggesting an earlier hour for retirement, he may be told that his patient must have some time for diversion and recreation. But the physician must insist that no form of recreation is as good as sleep, and any other form must be limited in order that sleep may be obtained. A man may easily regulate his affairs so that he shall have eight hours of sleep, and it is only negligence of such regulation that gives him the idea that recreation cannot be obtained except after eleven o'clock at night. Little suppers after the theater are often fine diversions, but whenever they interfere with sleep they must not be allowed except at long intervals. Other diversions that keep a man out of bed after midnight are sure not to do good in the long run, though an occasional lapse in this matter may prove a stimulant rather than a depressant. It is custom that must be regulated; an occasional variant from it is rather good than otherwise.

Leisure of the Working Woman.—A woman's occupation, unlike a man's, holds out little future for her. Her occupation does not arouse her ambition. Daily work is a monotonous grind that must be endured for the sake of the wages that it brings. For a time this serves to occupy attention. After some years, when the prospects of matrimony grow less, and further advance is out of the question, women often need to have some special interest that will grip them. The working woman may then need to be tempted to some occupation of mind, especially with the companionship of others, that will give her renewed interests in life. Clubs, charities in which they are active, friends, serious intellectual interests, must all be appealed to, in different cases, in order to secure diversion. Women must have something to look forward to each week. They must know on Monday that before the following Sunday there is going to be a theater party, a lecture, a visit to friends, something to break the deadliness of weekly routine, which is anticipated with pleasure and then pleasantly remembered. This may seem to be only a slight matter, but it is of importance in many cases.

Feminine Occupations.—The occupations of women who stay at home are even more important than those of women who go out to work. In our time the root of much nervousness, as it is called, neurotic symptoms of various kinds and of many symptoms apparently quite distant from real nervousness, is really a lack of occupation. Many women who live in apartment hotels have almost nothing with which to occupy their minds. They are not obliged to get up in the morning if they do not want to, or, at least, any excuse, however slight, serves to keep them in bed. Very often there are either no children or the mother has nothing to do with her children early in the morning. After the age of three, they go off to kindergarten; later on they go to school. Breakfast is sent up, there may be a nap of an hour or two after the meal, and often a magazine is glanced over lying in bed, and perhaps it will be twelve o'clock before madame gets up. Anyone in a position to do this, and who allows the habit to grow, is sure to be profoundly miserable. Without any real occupation of mind, the mind occupies itself with the body and emphasizes every sensation, evokes new pains and aches, and the consequence is likely to be a highly neurotic state.

Such women have nothing serious to think about in the afternoon. At best it is a luncheon engagement with a friend, or attendance at the matinee, or a lecture, or a meeting of a club. For a while, and for a certain few, these things are satisfying, but after they have been indulged in for a time, they pall so completely on most people as to leave them almost helplessly at the mercy of their feelings. These persons may have some favorite charities that occupy part of their time. They may have other interests, but most of these interests are quite amateurish. They create no obligations; they arouse no sense of duty; they are abandoned at a moment for anything else that turns up, and consequently they lack that absorbing power that a real interest gives. It is quite impossible that these

people should be either happy or healthy. These ladies of leisure sometimes have fads for physical exercise that keep them from becoming absolutely sluggish, but except in a few cases, these fads pall after a time, and in a few years women of the leisure classes are generally without any interest that will save them from themselves. The root of many a case of nervousness that wanders from physician to physician and then from quack to quack, and from charlatan of one kind to charlatan of another kind, that takes up now this remedy and now that, and advertises each new method of healing—mental, hypnotic, mechanical—is due to nothing more serious than lack of proper occupation of mind.

The Ambition to Have Nothing to Do.—It seems to be the ambition of everyone to reach a place in life so that he can give up work and do nothing. Men and women often envy those whose material situation is such that they are not compelled to work. It is from the leisure classes, however, that our neurotic invalids are mainly recruited. The symptoms these people give will sometimes make one wonder whether they may not be suffering from some serious ailment, but just as soon as the details of their daily occupation are gone into, the real cause for their complaints can be readily seen. Nothing will do them any lasting good until they get interested enough in life to be distracted from themselves. Such men and women are invalids by profession. They are profoundly to be pitied, for they are much more the victims of present-day social conditions than of any special fault of their own. They go from one health resort to another seeking relief and now and again finding it, not because of any special effect of the remedies that they take, but just in proportion to the amount of diversion and occupation of mind they are able to secure in their wanderings. After a time they relapse, then, the old cures having lost novelty, the physician who succeeds in occupying their minds does them good; his brother physician, who does not, fails; but anyone else, however absurd his quackery, who can in any way catch their attention, will benefit them at least for the time being.

Business Anxieties.—The physician should know all that concerns such sources of excitement, worry and anxiety, as are suggested by the words speculation, investment, going on bonds and securities, especially when the person bonded gets into trouble. Fortunately most of these latter sources of worry have been eliminated by the bonding companies of recent years. Details of this kind were given to the old family physician as a matter of course. With the going out of the family physician there has often been no one to replace him in hearing such stories, and it has been harder for some to bear the consequences in solitude. The very telling of many cares lessens the burden of them. The warnings of a medical friend may be more effective in keeping a man from serious loss than those of financial friends. Everyone realizes that the physician's advice is quite unselfish and that what he objects to, even more than the danger and loss of money, is worry and anxiety which may lead to loss of health.

For ordinary therapeutic purposes, the physician may be content to know only the physical signs and symptoms of his patient's affection. For psychotherapeutics, he must, if he would be successful, know every possible source of worry and annoyance and, as nearly as may be ascertained, every slight phase of physical fatigue that may be a disturbing factor in his patient's life. It is surprising how many things the physician will find correct when he carefully goes over all the actions of the day and ascertains all the possible sources of worry and anxiety his patient may have. It may happen that in many cases he will be unable immediately to remove these sources of worry. But there is relief in telling them, and then, even when they cannot be completely eradicated, they can often be modified. Every improvement of this kind, however slight, is a fountain of favorable suggestion which makes the patient look on the brighter side of life. From every amelioration, however trivial, there is a reaction on the feelings that gives more and more confidence.

SECTION IV *GENERAL PSYCHOTHERAPEUTICS*

CHAPTER I GENERAL PRINCIPLES OF PSYCHOTHERAPY

In formal, deliberate psychotherapeutics the first and most important principle is the treatment of the individual patient, and not of his disease. It is much more important to know the kind of an individual who has pneumonia, as a rule, than to be able to tell the amount of pulmonary involvement. If heart, kidneys or lungs are affected when the disease declares itself, the outlook is extremely unfavorable. Similar conditions are true of the patient's mind. If he is of the worrying kind, the outlook is serious. If, on the contrary, he faces it bravely, and without after-thought except that of responding to medical treatment, he will probably get well.

Pneumonia is only one example of the part the individual plays in therapeutics. In the popular mind it is supposed that for each disease there is a definite remedy, and that when the physician gives that remedy the patient gets well. This idea of specific remedies has come to the people from the physician, but only the quack now pretends to cure disease, the physician helps the patient to overcome the affection from which he is suffering.

No Incurable Patients.—There are many incurable diseases, but there are no patients to whom a doctor should say with truth, "I can do nothing for you." We may be unable to do anything for the underlying disease. That may be absolutely incurable. In spite of this, there are practically always symptoms for which the patient can be afforded so much relief that he feels better than before. This is the most important attitude of mind for the physician who would use psychotherapy. He can always do something. Prof. Richet said not long since, "Physicians can seldom cure, but they can nearly always relieve and they can always console," and it is the physician's duty to lift up and console the mind as well as to heal the body.

Unfavorable Suggestions.—Patients often have many opinions and conclusions with regard to their ailments which are not confided to their medical attendants, and which constitute the basis of many annoying symptoms. They have mental convictions with regard to the incurableness of their ailments, the supposed progressive character of the disease, and the development of symptoms which will still further annoy them, that are often more serious and harder to bear than the symptoms from which they are actually suffering. Unless the physician has their complete confidence, these patients may suffer much in silence, though the revelation of their state of mind would often be sufficient to afford a good measure of relief, and the correction of false notions would do nearly all the rest. Psychotherapy confers its benefits mainly by securing the most complete *rapport* between the mind of patient and physician. Good advice is often more important than any medicine. The correction of wrong notions will do more to relieve the patient, and make whatever symptoms he has bearable, than most of the anodyne drugs. The stimulation of hope means more than almost anything else in arousing the latent forces of nature and predisposing to recovery. The removal of unfavorable suggestions is but little less efficient.

Study of the Individual.—The great differences in the relations between physicians and their patients is well recognized. To some physicians a patient will present only conventional symptoms, while a follow practitioner will discover the elements of an interesting case. Above all, the painstaking physician, interested in psychology, will find mental and other personal manifestations in his patient that distinctly modify the course of the disease. We must know all that is possible about the patient's attitude of mind toward his malady, and all the ideas that he has acquired with regard to it, either

from previous relations with physicians or from what he may have read or heard from others. The removal of many false notions that are thus working harm will reward the medical practitioner who gets at his patient's ideas. The old rule in therapeutics is *non nocere*—to be sure to do no harm. The special rule in psychotherapy is to be sure to remove all the ideas that are doing harm to the patient and making his symptoms mean more to him than they really signify.

Neutralizing Contrary Suggestion .—In the application of psychotherapy, then, the first principle is the neutralization of unfavorable mental influence. In our day men have such a smattering of knowledge about disease, especially about the worst forms of it, that they are likely to be in a frame of mind with regard to many affections that is quite unfavorable. Many patients think disease and not health. Disease means discomfort, and consequent loss of vital energy and disturbance of the resistive vitality that would enable the patient to throw off the affection. Sometimes the physician does not realize what a large part unfavorable suggestions are playing in the affection. Sometimes patients conceal their state of mind lest the doctor should confirm their worst fears. The preliminary to all successful treatment is to remove unfavorable suggestion.

Favorable Suggestion.—The next thing is to set certain favorable suggestions at work. It is possible always to do this. Even in certain of the acute diseases favorable suggestion has its place, and for all chronic cases this form of therapeutics is extremely important. The very presence of the physician, especially if he is thoroughly in control of himself, placid, imperturbed, evidently ready to use all his powers without any excitement, is of itself the strongest kind of favorable suggestion. From the very beginning of medical history the presence of the physician has in most cases meant even more than his medicines.

Münsterberg, in his recent book on Psychotherapy, has emphasized this in a way that deserves to be recalled:

There is one more feature of general treatment which seems almost a matter of course, and yet which is perhaps the most difficult to apply because it cannot simply be prescribed: the sympathy of the psychotherapist. The feelings with which an operation is performed or drugs given do not determine success, but when we build up a mental life, the feelings are a decisive factor. To be sure, we must not forget that we have to deal here with a causal and not with a purposive point of view. Our sympathy is therefore not in question in its moral value, but only as a cause of a desired effect. It is therefore not really our sympathy which counts but the appearance of sympathy, the impression which secures the belief of the patient that sympathy for him exists. The physician who, although full of real sympathy, does not understand how to express it and make it felt will thus be less successful than his colleague who may at heart remain entirely indifferent but has a skillful routine of going through the symptoms of sympathy. The sympathetic vibration of the voice and skillful words and suggestive movements may be all that is needed, but without some power of awakening this feeling of personal relation, almost of intimacy, the wisest psychotherapeutic treatment may remain ineffective. That reaches its extreme in those frequent cases in which social conditions have brought about an emotional isolation of the patient and have filled him with an instinctive longing to break his mental loneliness, or in the still more frequent cases where the patient's psychical sufferings are misunderstood or ridiculed as mere fancies, or misjudged as merely imaginary evils. Again everything depends upon the experience and tact of the physician. His sympathy may easily overdo the intention and further reinforce the patient's feeling of misery, or make him an hypochondriac. It ought to be sympathy with authority and sympathy which always at the same time shows the way to discipline. Under special conditions, it is even advisable to group patients with similar diseases together, and to give them strength through the natural mutual

sympathy; yet this too can be in question only where this community becomes a starting point for common action and common effort, not for mere common depression. In this way a certain psychical value may be acknowledged for the social classes of tuberculosis as they have recently been instituted.

Favorable Environment.—After the removal of unfavorable suggestion and the implanting of favorable suggestion, the next point must be the persistent occupation of the patient's mind with thoughts favorable to his condition. A nurse who is inclined to be pessimistic must be taken out of the sick room, and there must be only cheerful faces and cheery people around him. Hence the modern trained nurse, and especially the picked nurse, who does not allow herself to be disturbed, who is not fussy, who is not forcibly cheerful but quietly placid and confident and cheery, means much for the patient's recovery. Relatives are almost sure to exert strong unfavorable suggestions, though time was when the devoted wife or mother might be depended upon to cover up all her personal feelings and give the best possible service for the mental uplift of the patient. When she can thus conceal her own solicitude, a near relative may be the best possible auxiliary in psychotherapeutics.

Natural Relief.—The fourth step in the application of psychotherapeutics is that all the natural modes for the relief of symptoms, the making of patients comfortable in body as well as in mind, must be employed. In acute rheumatism, for instance, a number of small pillows must be at the disposition of the patient so that his limbs can be fixed in those positions in which there is the least discomfort. Every physician should frequently read Hilton's classical volume on "Rest and Pain" because of its unpretentious significance for psychotherapy, as well as its enduring value in the treatment of painful conditions. Just as soon as a patient finds that simple procedures relieve his pain and add to his comfort, his fear of the seriousness of his ailment is lessened, and he begins to get better. Cold water in fevers, cold fresh air in pneumonia, all the natural modes of treating disease, thus become active factors in the application of psychotherapy. When fevers were treated by the administration of hot drinks the effect upon the patient's mind must have been quite serious. Freedom to use cold water, just as one wants it and whenever it is craved for, is of itself an excellent suggestion.

Neuroses in Organic Disease.—Fifth, psychotherapy, by suggestion, may alleviate or even completely eradicate neurotic symptoms that develop in connection with organic diseases. Such neurotic symptoms may prove even more bothersome to the patient than the symptoms due to his underlying affection, and may, by interfering with nutrition, hamper recovery. The appetite of a patient who is worrying about a chronic disease will be disturbed, and, as a consequence of insufficient food, constipation and a whole train of attendant evils may ensue. Headache, sleeplessness, worry at slight irritation and exaggerated complaints from slight pain may all be due to this worry and not to the underlying disease. All these, the result of over-solicitude, are attributed by the patient to his chronic ailment. They can be relieved by simple measures after he is saved from his own worry. Until the patient is made to rouse himself and look hopefully at the situation, eating more, getting out more, and relaxing his mind from its constant attention to himself, he cannot get better.

Application of Principles.—It should be pointed out to the patient that there is a constant tendency to exaggerate the significance of disease. This is true in acute as well as in chronic disease, but in acute diseases the necessity for removing unfavorable influences directly is not so urgent, since usually the presence of the physician, with his simple declaration of the meaning of symptoms, is sufficient to neutralize the effect of previous exaggerations.

Secondly, the action of unfavorable suggestions due to imperfect knowledge (everything unknown is magnified, as Cicero said), or to previous medical opinions which the case does not justify, must be stopped. The natural dread which comes to all men in the presence of symptoms of disease must be as far as possible removed.

Thirdly, the favorable elements in the case should be emphasized. This needs to be thoroughly done in order to secure the patient's co-operation, even though the serious possibilities of his ailment may be pointed out to his friends. These friends, however, must be persons who can be absolutely

depended on not to reveal by word, or, what is much more important, by their looks or actions, the possible worse prognosis of the case.

Unfortunately, people expect a doctor to tell them the worst, rather than the best. Many physicians seem to have formed the habit of representing the condition of patients as grave as possible, in order, apparently, that they may have more credit when the patient recovers. Not a little of the tendency of ills to hang on in neurotic persons is due to this habit. Over-cautiousness leads some physicians to reveal a case in its worst aspect, lest, by any chance, something unexpected should happen, and the friends of the patient might think that the physician was incompetent because he had not anticipated it. Some of the serious accidents of disease are quite beyond anticipation; but they occur only rarely. For the sake of safeguarding the possible reflection on the physician because of them, it is quite unjustifiable to make bad prognosis habitually, for this acts deterrently on the vital resistance and delays recovery.

Symptoms of Organic Disease .—It is usually considered that psychotherapy is beneficial only in nervous cases; yet we know that all sorts of affections with tissue changes in the skin, in the circulation, and very probably also in the internal organs, may be produced in hysterical affections—ailments dependent on loss of control over the vaso-motor nervous system. Just as ills can be produced, so they may also be cured. As a matter of fact, analysis of the statistics of disease cured by mental influence, shows that it has been more strikingly manifest in organic than in so-called nervous or functional diseases. Neurotic patients often make extremely unsuitable subjects for the exercise of mental influence, because their very nervousness is a manifestation of lack of power properly to control the mind. Cures by mental influence have oftenest been reported in non-neurotic patients. As Dr. Hack Tuke pointed out in "The Influence of the Mind on the Body" as long ago as 1884, it is in such cases as rheumatism, gout and dropsy that benefit was most frequently reported by mental means.

Tuberculosis, certain digestive and intestinal ailments that evidently are associated with tissue changes, have in recent years come particularly into this category of ailments affected by psychotherapy. Dr. Hack Tuke's declaration, made nearly thirty years ago, seems conservative even at the present day: "The only inference which we are justified in drawing from the statistics of the affections cured by mental means is that the beneficial influence of psychotherapeutics is by no means confined to nervous disorders." Many physicians are likely to hold that when cures take place the so-called organic diseases were not actual, but were only *supposed* to exist because of certain obscure symptoms that apparently could not otherwise be explained. But many of the cases have had external symptoms, striking and unmistakable. To assume that physicians of experience and authority were in error in diagnosing them is simply to beg the question. It is more probable that mental influence acted curatively even over tissue changes as it so often does, directly under our observation, in the production of such changes in the skin.

Tissue Changes From Nerves .—Until one recalls how many physical changes may be brought about by mental influences or emotional disturbances, it is not always clear just how mental influence can affect disease favorably or unfavorably. Prof. Forel, of Zurich, in his "Hygiene der Nerven und des Geistes im Gesunden und Kranken Zusande," Zurich, 1905, English translation 1907, brings together into a single paragraph most of these physical and physiological influences of the mind upon the central nervous system:

Through the brain and spinal cord, thoughts can lead to a paralysing or stimulation of the sympathetic ganglion nodes, and consequently to blushing or blanching of certain peripheral parts. Through disturbance of this mechanism, many nervous disorders arise, such as chilblains, sweats, bleeding of the nose, chills and congestions, various disturbances of the reproductive organs, and, if it lasts long enough, nutritional disturbances in the part of the body supplied by the blood vessels affected. In the same way there are peripheral ganglionic mechanisms which

superintend glandular secretion, the action of the intestinal muscles, etc. These likewise can be influenced through the brain by ideas and emotions. Thus we can explain how constipation and a vast number of other disturbances of digestion and of menstruation can be produced through the brain, without having their cause in the place in which they appear. It is for the same reason that such disturbances can be cured by hypnotic suggestion.

Health and the Central Nervous System .—Nature has so constituted and ordered the human economy that its health depends to a great extent on conditions in the central nervous system. We discuss elsewhere the return of vitalism in physiology—that is, the reassertion of a principle of life behind the chemical and physical forces of the human organism regulating it, supplying energy, occasionally enabling it to transcend the ordinary laws of osmosis, or the diffusion of gases. The main seat of this principle of life is in the central nervous system and especially in the cerebral cortex. The importance of this portion of the human anatomy can scarcely be exaggerated. In his inaugural address to the Royal Medical Society,²² delivered at Edinburgh in 1896, Prof. T. S. Clouston, the distinguished English psychiatrist, has a passage on this subject that deserves to be recalled:

[Footnote 23: *British Medical Journal*, January 18, 1896.]

I would desire this evening to lay down and to enforce a principle that is, I think, not sufficiently, and often not at all, considered in practical medicine and surgery. It is founded on a physiological basis, and it is of the highest practical importance. The principle is that the brain cortex, and especially the mental cortex, has such a position in the economy that it has to be reckoned with more or less as a factor for good or evil in all diseases of every organ, in all operations and in all injuries. Physiologically, the cortex is the great regulator of all functions, the ever active controller of every organ and the ultimate court of appeal in every organic disturbance.

Psychotherapy in Its Relation to Patient and Physician .—In spite of the present-day fad for psychotherapy, I have no illusions with regard to its popularity among patients, unless practiced with due regard to individuals and with proper tact. Psychotherapy has been most effective in the past when it was cloaked beneath the personality of the physician; when it was felt that there was in him a power to do good that must help the patient. This personal influence has to be maintained if the patient's mind is to be influenced favorably. Very few people are willing to think, and still less to welcome the thought, that they themselves are either bringing about a continuance of their symptoms or are hindering their own recovery. They are quick to conclude that this would be a confession that their ills are imaginary. "Imaginary" has no place in medicine. There are physical ills and mental ills. Mental ills are just as real as physical ills. There are no fancied ills. A person may be ailing because he persuades himself that he is ailing, but in that case his mind is so affecting his body that he is actually ailing physically, though the etiology of the trouble is mental.

It is the duty of the physician to get at these mental causes of physical ills and remove them by persuasion, by reassurance, by changing the mental attitude, by making people understand just how mind influences body, but this must be done tactfully. From the beginning of time we have written our prescriptions in such a way that ninety-nine out of one hundred patients have not been able to understand them. It has often been said that we should change this method of prescription writing, and write directions for the compounding of our medicines in plain vernacular. Besides the many scientific reasons against this, it is better for patients not to know exactly the details of their treatment. Physicians, because of their real or supposed knowledge, are usually the worst patients. If, when a physician is ill, a drug is administered in which he has lost confidence, he will really oppose its action

²² *British Medical Journal*, January 18, 1896.

by contrary suggestion, and perhaps neutralize it. Confidence added to the action of the drug itself, makes it much more potent and much more direct. Hence the suggestive value of a prescription the ingredients of which are unknown. Every physician knows of patients who have declared that a drug has been tried on them without avail, when it has only been used in such small quantities as to be quite nugatory in its effect. Such use was enough to prejudice them against it so that when given in physiological doses it failed to work properly.

Opium given to a trusting patient, in gradually reduced doses until practically there is nothing but the flavor of the drug in the compound that he takes, will continue to have its effect. But to a patient prejudiced against the drug, even large doses of opium will prove unavailing, because the lack of confidence disturbs the mind, directs attention to whatever discomfort may be present, emphasizes the ill and prevents sleep by preoccupying the mind with the thought that neither the drug nor the dose can accomplish its purpose. In a word, medicine plus mental influence is extremely valuable. Medicine minus mental influence is valuable but sometimes ineffective. Medicine, with mental influence opposed to it, is often without effect because of the strong power the mind has over bodily functions.

Most people would rather be cured by some supposedly wonderful discovery, which presumedly made it clear that they had been suffering from a severe and quite unusual ailment, than by ordinary simple methods. The recent growth of interest in psychotherapy and psychology has, however, somewhat prepared people to accept mental influence as an important factor in therapeutics. The direct and frank use of psychotherapy will be of benefit to these people. But in most cases mental influence will have to be exerted in such a way as to conceal from patients that it is their own energy we want to tap to help them cure themselves. This would be for them quite an unsatisfactory method of being cured. In practically all cases such a combination of methods is needed that the place of mental influence is not over-emphasized. As a rule, mental influence must not be used alone. Its place is that of an adjunct, a precious auxiliary, to other methods of treatment.

Psychotherapy represents one of the important elements in therapeutics, and we must learn to use it in a way suitable to our patients. We have to learn to use our drugs in accordance with the nature and physical make-up of the patient. We have to find out by experience just how to use hydrotherapy for each individual. Varying currents of electricity and varying forms of electrical action are needed for different individuals. Just in the same way, our psychotherapy must be dosed out according to the special need of each individual, the form of the affection and the particular kind of mind that is to be dealt with. To learn the place of mental influence in healing, so that we shall not be attributing to other therapeutic factors what is really due to the mind, will be a great advance in therapeutics. This is the mistake that we have been making in the past.

In brief, the applications of the general principles of psychotherapy include all means, apart from the physical, of influencing patients. Drugs will always have a large place in rational therapy. Many physical remedial measures, hydrotherapy, electrotherapy, climatotherapy and others, must be important adjuncts. To these is now added psychotherapy. It has been used before, as have most of the other forms of therapy, but in our day we are trying to systematize therapeutic modes so as to secure the greatest possible information with regard to their exact application. This is what must be done with regard to psychotherapy also. Just now its importance is being exaggerated by ardent advocates. In every department of therapy this has always been done by enthusiasts. The business of the practicing physician must be to select what is best, and above all what is sure and harmless, from the many suggestions offered, so as to build up a practical body of applied truth.

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